FOURTH CIRCULAR

JANUARY 2020

36TH INTERNATIONAL GEOLOGICAL CONGRESS

THE INDIAN SUBCONTINENT INVITES YOU TO THE 36TH IGC

GEOSCIENCES: THE BASIC SCIENCE FOR A SUSTAINABLE FUTURE

2 - 8 MARCH 2020

INDIA EXPO CENTRE

DELHI, INDIA

GEOSCIENCES

THE BASIC SCIENCE

FOR A SUSTAINABLE FUTURE

36th International Geological Congress

Partnered by

Ministry of Mines

Ministry of Earth Sciences

Indian National Science Academy

Supported by

Ministry of External Affairs

Bangladesh Academy of Sciences

Nepal Academy of Science and Technology

Pakistan Academy of Sciences

National Academy of Sciences of Sri Lanka

Patronized by

United Nations Educational, Scientific and Cultural Organization

Indian National Commission for Cooperation with UNESCO(INCCU)

Organized by

Geological Survey of India

Message from the President and Secretary General, IUGS

At the outset, our heartiest greetings and best wishes to all for the New Year!

With less than two months for the 36th edition of the International Congress to unveil in the grand city of Delhi, the excitement is at its peak. The geoscientific fraternity is focused on the developments which show a distinct spurt in the last few months.

The preparations look well rounded and complete, to ring in the Olympics of Geosciences on the Indian soil. It is a rare distinction that India is host to the IGC twice in the Asian continent.

The science program with as many as 45 themes and 287 symposia., has evoked a good response from international scientific community. It has taken under its umbrella almost all themes and sub-themes that pertain to Geoscience. The E-posters are a feather in the hat.

In the coming days, we expect significant momentum in the registrations for the wide range of field trips lined up for the delegates. India and its neighbouring countries present a great diversity and geological wealth. Such opportunities of seeing them from close quarters do not come very often. We urge all the earth scientists to quickly register for the excursions, if not already done. We also look forward to the cultural tours for a quick glimpse of the rich heritage that India is known for.

It is matter of great delight that all registrants will have the opportunity to visit the Taj Mahal, the famed wonder of the world.

We are happy that the Geohost Program of 36th IGC has been able to make it possible for the deserving young and financially disadvantaged geoscientists to participate in the Congress and leave their footprints. It is a commendable way of acknowledging merit.

We also appreciate the measures taken to organize a minimal carbon footprint Congress.

It would be a pleasure to hear about your scientific findings and share your enthusiasm for geoscience at the Congress. We look forward to meeting you all in March 2020!

Qiuming CHENG
President, IUGS

Stanley C. FINNEY
Secretary General, IUGS

Message from the President and Secretary General, 36th IGC

Season's Greetings and best wishes for a very happy and prosperous New Year 2020!

With less than two months left in the inauguration of the mega event, we are excited to share more information about the 36th International Geological Congress to make your participation in this event a memorable experience.

The glittering Christmas lights and the festivities all around are bidding this eventful year a goodbye, a year we were hard at work drawing final blueprints for the activities and events to make the participation of the delegates truly fruitful.

The fourth circular comes with more information on the Science Program, GeoExpo, Field Trips, Business Meetings, YES Congress as well as accommodation facilities.

The Field Trips to the geological superlatives of the Indian Subcontinent (including Bangladesh, Nepal and Sri Lanka) come with an even detailed itinerary and a reduced fee structure. Due to the overwhelming response, we have extended our booking deadline by a month to 31st January 2020. We have made sure that the tour sites cover the broad interests of all the delegates opting for it.

Registration has now moved on to the next phase. It involves standard registration valid only for a month. Our sponsorship packages allow enhanced brand visibility by means of print, website, congress meet, etc. The 6th Young Earth Scientists (YES) Network Congress comes with more details about the technical sessions, workshops, round table meetings, field trips, and networking cafes.

The state-of-the-art GeoExpo has been planned to offer great opportunity to all at the 36th IGC - to showcase their products, services, capabilities, achievements, and innovations. With an expected footfall of over 6000 delegates, this will be a unique platform for all the exhibitors.

We have researched and shortlisted accommodations suiting different budgets and have posted our expanded list on the website (www.36igc.org). Business Meetings, with its last day of requests closing on 31 January 2020, allow all business concerns, organizations, associations, universities and others a platform to interact with the international delegates and broaden their reach. Bookings for Workshops/ Shortcourses are also open till 31 January 2020.

We are thankful to all the registrants from the global scientific community and look forward to welcoming you in Delhi for the 36th IGC!

S. N. Meshram
Co-President, 36th IGC

V. P. Dimri
President, 36th IGC

Rasik Ravindra
Secretary General, 36th IGC

36TH INTERNATIONAL GEOLOGICAL CONGRESS

FOURTH CIRCULAR

Contents

General distribution of this and the subsequent circulars for the 36th IGC will be via email. Please feel free to forward it to others who may be interested. If necessary, limited number of hard copies will be provided on request by email to the Secretary General, 36th IGC: **igc.delhi2020@nic.in**

Postal Address of the Secretariat:
36th IGC Secretariat
C-II, Pushpa Bhawan, Madangir Road
New Delhi-110062
Phone: +91 11 2996-5750; 26057035
www.36igc.org

Important Dates

31 January 2020	:	Field Trip Bookings Close
31 January 2020	:	Requests for Business Meetings Close
31 January 2020	:	Professional Development Workshops & Short Courses Close
31 January 2020	:	Standard Congress Registrations Close
01 March 2020	:	Late Registrations Close
02 March 2020	:	Onsite Registrations Commence

Local Organizing Committee/ Core Organizing Committee

V.P.Dimri	President
S N Meshram DG, Geological Survey of India (Ex-Officio)	Co-President
Rasik Ravindra	Secretary General
Talat Ahmad P.P.Chakraborty	Chair, Science Program Committee Co-Chair, Science Program Committee
Somnath Dasgupta and N.R.Ramesh	Co-Chairs, Field Trip Program Committee
Fareeduddin	Chair, Legacy Program Committee
R.Shankar	Chair, Geohost Support Program Committee
AL.Ramanathan	Chair, Volunteer Program Committee
Dipayan Guha Dy.DG,Geological Survey of India (Ex-Officio)	Chair, Finance Committee
Representative of Ministry of External Affairs	Member
Representative of Ministry of Home Affairs	Member
District Magistrate, Gautam Budhh Nagar, Uttar Pradesh or his Representative	Member
Commissioner of Police, Gautam Budhh Nagar, Uttar Pradesh or his Representative	Member
D.M. Banerjee	Representative of Indian National Science Academy
S.N.Bhagat	Treasurer
S.P. Shukla	Administration & Co-Convener, Geohost Support Program
Saibal Ghosh	Convener, Science Program
Snigdha Ghatak	Convener, Field Trip and Geohost Support Programs, Inter-Ministerial Liaising
Debasish Rout	Convener, Legacy and Sponsorship Programs
Chander Singh Tomar	Convener, Volunteer Program
Tanvi Arora	YES Representative

Congress Registration Fees

To register for the 36th IGC, please visit www.36igc.org and select the CONGRESS REGISTRATION option under Registration Tab.

Prices for International Delegates (in USD)

Type of Registration	Delegate Registration	Student Delegate	Young Earth Scientist (YES) Delegate	Day Registration	Opening & Closing Ceremony Day Registration	Senior Citizens (above 65 yrs)	Accompanying Person's Registration	Additional Exhibitor Badge	Notional Registration Fee	Welcome Reception (Guest Ticket)
Super Early Bird (1 May-31 August 2019)	650	325	N/A	N/A	N/A	450	N/A	400		40
Early Bird (1 September-31 December 2019)	750	340	575	N/A	N/A	500	120	400	175	40
Standard (1 Jan 2020 - 31 Jan 2020)	850	350	600	450	175	550	135	400	175	40
Late (1 Feb - 1 Mar 2020)	950	400	625	475	200	600	150	400	175	40
Onsite	1000	425	650	500	225	650	150	400		40

Prices for National Delegates (in INR)

Type of Registration	Delegate Registration	Student Delegate	Young Earth Scientist (YES) Delegate	Day Registration	Opening & Closing Ceremony Day Registration	Senior Citizens (above 65 yrs)	Accompanying Person's Registration	Additional Exhibitor Badge	Notional Registration Fee	Welcome Reception (Guest Ticket)
Super Early Bird (1 May-31 August 2019)	45,202	22,601	N/A	N/A	N/A	31,249	N/A	26,000		2,782
Early Bird (1 September-31 December 2019)	52,156	23,644	37,375	N/A	N/A	34,771	7,800	26,000	12,250	2,782
Standard (1 Jan - 31 Jan 2020)	59,111	24,340	39,000	32,040	12,460	38,248	8,775	26,000	12,250	2,782
Late (1 Feb - 1 Mar 2020)	66,065	27,817	40,625	33,820	14,240	41,725	9,750	26,000	12,250	2,782
Onsite	69,542	29,555	42,250	34,771	15,647	45,202	9,750	26,000		2,782

N/A: Not Applicable

About Registration Fees:

- The fees are shown in US Dollars (USD) and Indian Rupee (INR) and include Goods and Services Tax (18%);
- Full payment of registration fees must accompany your registration. Registrations will not be acknowledged or processed without full payment;
- The Accompanying Persons registration fee is available only to partners and/or family members of a paid delegate registered to attend the Congress as a Full, YES or Student delegate. The Accompanying Persons program is subject to minimum numbers.

Registration Inclusions:

- Congress materials including delegate kit and access to Congress sessions;
- Ticket to the Congress Welcome Reception is available during congress registration process and extra tickets can be purchased at $40 / INR 2,782 per accompanying person;
- Lunch & High-Tea will be provided from 3-8 March to registered delegates as per Congress program;
- The Accompanying Persons registration includes access to spouse lounge with tea, coffee and access to opening & closing ceremony, access to social events, welcome reception, and a city tour.

Definitions:

- 'Member' is defined as any member of any national geological organization worldwide;
- 'Student' is a person enrolled in a recognized tertiary course as a full time student and who is not engaged in full time employment. A copy of a current student photo-ID card and a supporting letter from your Head of School or course supervisor confirming course and full time student status must be provided prior to the Congress.
- 'Young Earth Scientist' is a person who is under the age of 35 and is a registered member of the Young Earth Scientists network. YES membership number must be provided with registration.

Accompanying Persons' Program

The Accompanying Persons' Program is a special facility available only to partners and/or family members of a registered delegate. The registration includes the following:

1. Access to spouse lounge with tea and coffee during 2 - 8 March 2020.
2. Access to Opening Ceremony on 2 March 2020 and Closing Ceremony on 8 March 2020
3. Access to social events
4. One half-day city tour / shopping tour

   Highlights of the tour

   - The tour will run only once a day, starting from 11:00 am
   - It will cover the heritage sites of New Delhi along with finest shopping places showcasing our art and craft.
   - It is operational on each day except the inaugural and closing day of the conference i.e. 2 and 8 March 2020 respectively.
   - The availability is limited ; on each day there will be limited slots for the tours.
   - The guests will have to assemble at designated places 30 minutes prior to the departure time.
   - Exclusions: Monument entry charges (if applicable) and meals
5. Trip to Taj Mahal is open to Accompanying Persons on payment basis.

Opening and Closing Ceremonies

The Opening Ceremony is slated to be held on 2 March 2020 at 1400 hrs. The ceremony will be addressed by the dignitaries from the Government of India and important functionaries of the 36th IGC. The event will also feature shows depicting the rich culture and traditions of India.

The Closing Ceremony scheduled for 8 March 2020 at 1500 hrs will be marked by the official handing over of the Presidential Cup to South Korea, the host of the 37th IGC which will be held in Busan. The following officials of the 37th IGC will be receiving the Cup:

Changsik CHEONG, President of the Geological Society of Korea
Bokchul KIM, President of Korea Institute of Geoscience and Mineral Resources
Keodon OH, Mayor of Busan Metropolitan City

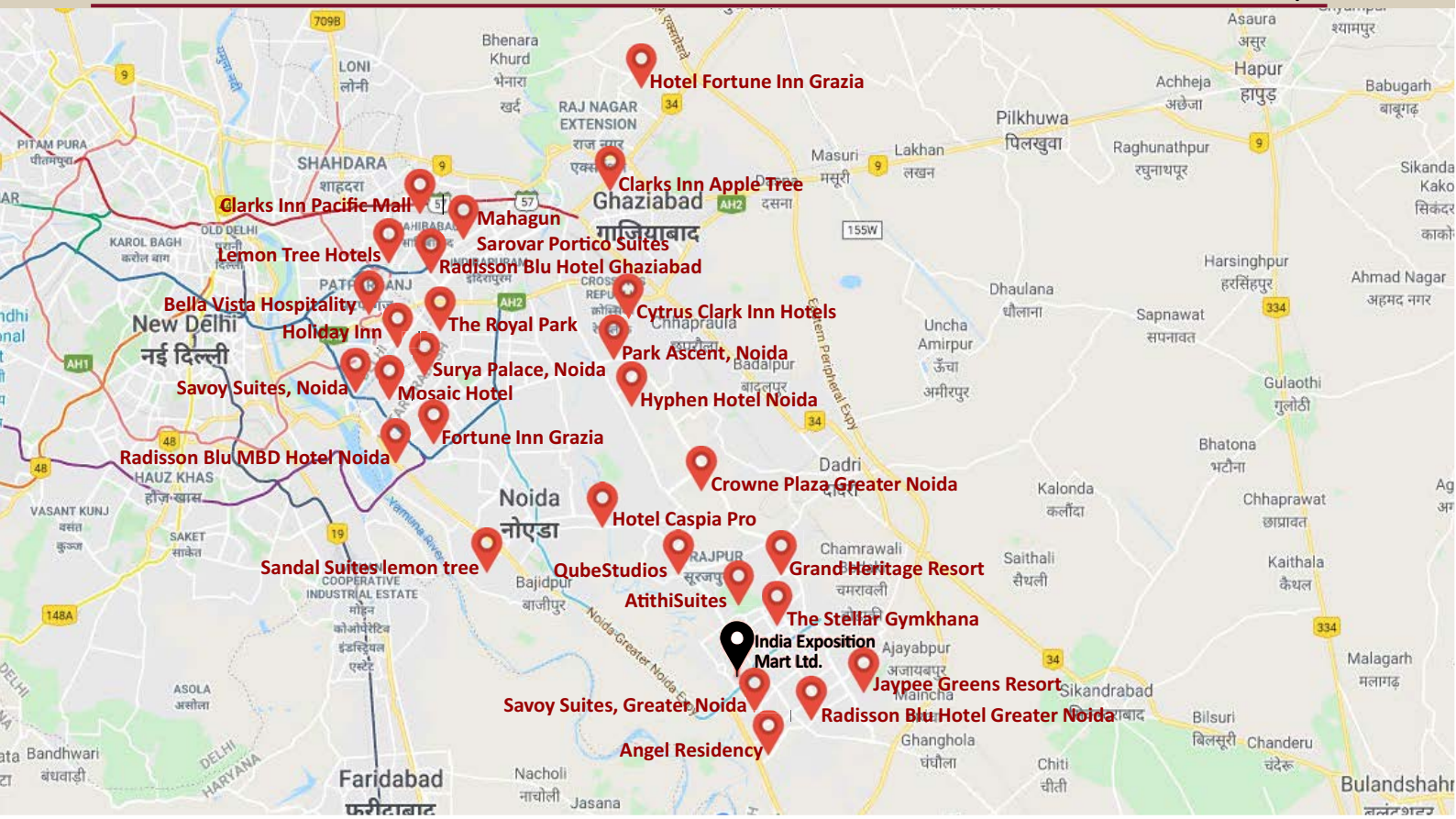
List of hotels around Delhi

S.No.	Hotel	Star Category	City	Distance from Congress Venue	Distance from Delhi Airport
1	The Stellar Gymkhana	4	Greater Noida	1.8 Kms	52.2 Kms
2	Savoy Suites	3	Greater Noida	1.9 Kms	51.2 Kms
3	Atithi Suites	3	Greater Noida	3 Kms	55 Kms
4	Jaypee Greens Resort	5	Greater Noida	3.7 Kms	50 Kms
5	Qube Studios	3	Greater Noida	4 Kms	57 Kms
6	Angel Residency	2	Greater Noida	4 Kms	54 Kms
7	Radission Blu	4	Greater Noida	5 Kms	58 Kms
8	Grand Heritage Resort, Greater Noida	3	Greater Noida	5 Kms	50 Kms
9	Hotel Caspia Pro	2	Greater Noida	8 Kms	64 Kms
10	Crown Plaza	5	Greater Noida	9 Kms	44 Kms
11	Sandal suites lemon tree	4	Noida	17 Kms	37 Kms
12	Radisson Blu – Sector 18	5	Noida	27 Kms	36 Kms
13	Mosaic Hotel	4	Noida	27 Kms	34 Kms
14	Holiday Inn	4	Noida	28 Kms	30 Kms
15	Fortune Inn Grazia, Noida	4	Noida	28 Kms	36 Kms
16	Savoy Suites	4	Noida	28 Kms	32 Kms
17	Surya Palace	3	Noida	28 Kms	36 Kms
18	The Royale Park	3	Noida	30 Kms	33 Kms
19	Fraser Suites	3	Mayur Vihar	30 Kms	30 Kms
20	The Surya	5	New Delhi	31 Kms	24 Kms
21	Red Fox	3	Delhi	32 Kms	36 Kms
22	Crowne Plaza	5	New Delhi	32 Kms	27 Kms
23	Radisson Blu Hotel Ghaziabad	5	Ghaziabad	33 Kms	37 Kms
24	The Eros Hotel	5	New Delhi	33 Kms	21 Kms

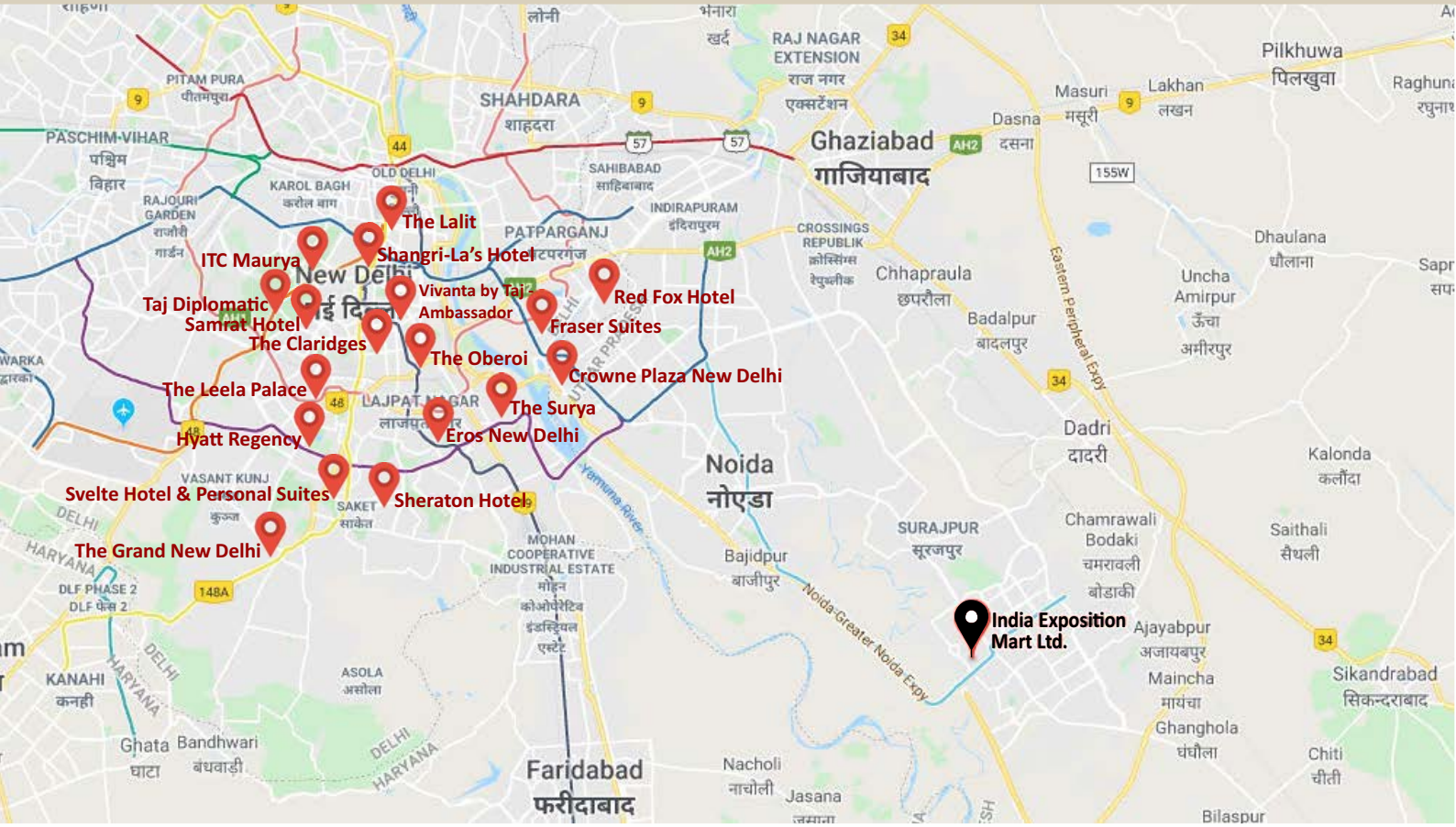
S.No.	Hotel	Star Category	City	Distance from Congress Venue	Distance from Delhi Airport
25	Bella Vista Hospitality	3	Noida	33 Kms	36 Kms
26	Clarks Inn Apple Tree	3	Ghaziabad	33 Kms	49 Kms
27	Cytrus Clark Inn Hotels, Noida	3	Noida	34 Kms	39 Kms
28	Park Ascent	4	Noida	35 Kms	35 Kms
29	Hyphen Hotel Noida	3	Noida	35 Kms	38 Kms
30	Lemon Tree Hotels	4	Ghaziabad	37 Kms	32 Kms
31	Clarks Inn Pacific Mall	3	Ghaziabad	37 Kms	33 Kms
32	Vivanta by Taj–Ambassador	5	New Delhi	38 Kms	19 Kms
33	Mahagun Sarovar Portico Suites	3	Ghaziabad	38 Kms	33 Kms
34	The Oberoi	5	New Delhi	39 Kms	21 Kms
35	The Claridges, New Delhi	5	New Delhi	39 Kms	17 Kms
36	Country Inn & Suites by Carlson,	5	Sahibabad	40 Kms	35 Kms
37	Shangri-La's – Eros Hotel	5	New Delhi	40 Kms	19 Kms
38	The Lalit	5	New Delhi	40 Kms	21 Kms
39	Sheraton Hotel	5	New Delhi	41 Kms	21 Kms
40	The Leela Palace New Delhi	5	New Delhi	41 Kms	16 Kms
41	Hyatt Regency Delhi	5	New Delhi	41 Kms	13 Kms
42	Svelte Hotel & Personal Suites	4	New Delhi	41 Kms	21 Kms
43	Samrat Hotel	5	New Delhi	43 Kms	16 Kms
44	The Grand New Delhi	5	New Delhi	48 Kms	9 Kms

Maps showing locations of Hotels

Map-1



Map-2



Message from the Chairs, Science Program Committee

With the goal of sustainable growth in every sphere of life, the Science Program was designed to include all possible themes of geosciences. We recognised that inclusive participation is paramount to achieve the global goal of sustainability. Keeping this in mind, a considered decision was taken to make the online abstract submission free of charge. Abstracts were received online till 15.11.2019.

The Science Program Committee is delighted to announce the submission of about 7000 abstracts covering 45 themes and 287 symposia. Abstracts were submitted by authors from 122 countries spread over six continents, representing earth scientists from academia, research institutes, universities, government organisations, and industries. This is truly global participation and a reflection of the growing importance of geoscience as a discipline in the pursuit of sustainable growth of mankind. Abstracts were reviewed in time and decisions communicated to the authors. The Science Program Committee extends sincere thanks to all reviewers, theme coordinators and symposium convenors for their continuous support in the successful completion of this mammoth work.

The presentations and deliberations will showcase the ever-growing role of Geoscience in fundamental research and sustainable growth of society including judicious use of natural resources and climate safeguard. We are sure that the 36th IGC will be scientifically stimulating and hugely topical. We look forward to welcoming you all in Delhi in March 2020.

Talat Ahmad
Chair

Partha Pratim Chakraborty
Co-Chair

Science Program Committee

Prof. Talat Ahmad, Vice-Chancellor, University of Kashmir, Chair

Prof. Partha Pratim Chakraborty, Delhi University, Co-Chair

Dr. Dinesh Gupta, Director General, Geological Survey of India (Retd.), Member

Dr. Rahul Mohan, National Centre for Atlantic and Oceanic Research, Member

Dr. D. S. Ramesh, Indian Institute of Geomagnetism, Member

Dr. Vandana Prasad, Birbal Sahni Institute of Palaeobotany, Member

Dr. N. Chalapathi Rao, Banaras Hindu University, Member

Prof. T. Elango, Anna University, Member

Dr. K. S. Krishna, National Institute of Oceanography, Member

Dr. Pradeep Srivastava, Wadia Institute of Himalayan Geology, Member

Dr. Ajay Manglik, National Geophysical Research Institute, Member

Dr. Parampreet Kaur, Punjab University, Member

Dr. Prakash Chauhan, Indian Institute of Remote Sensing, Dehradun, Member

Prof. B. C. Sarkar, Indian Institute of Technology (ISM), Member

Prof. H. S. Pandalai, Indian Institute of Technology, Mumbai, Member

Prof. Somnath Dasgupta, Indian Institute of Science Education and Research, Co-Chair, Field Trip Committee, Member (Ex-officio)

Dr. N. R. Ramesh, Geological Survey of India (Retired), Co-Chair, Field Trip Committee, Member (Ex-officio)

Dr. Saibal Ghosh, Geological Survey of India, Member, Convener

Draft Program Timetable

Time (Hrs)	2nd March	3rd March	4th March	5th March	6th March	7th March	8th March
09:00 – 10:30	Registration	IUGS Award Argand Lecture (09:00- 10:00) PLENARY 2 (10:00-11:00)	Technical Session	Technical Session	Technical Session	Technical Session	POSTER PLENARY 13 (10:00-11:00)
10:30 – 11:00	Break	Break	Break	Break	Break	Break	Break
11:00 – 12:00	Registration	Technical Session	POSTER Technical Session	POSTER Technical Session	POSTER Technical Session	POSTER Technical Session	PLENARY 14
12:00 - 13:00							Free Period
13:00-14:00	Break	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
14:00-15:00	Inaugural Ceremony & IUGS Award	PLENARY 3	PLENARY 5	PLENARY 7	PLENARY 9	PLENARY 11	PUBLIC TALK
15:00-16:30		Technical Session	POSTER Technical Session	POSTER Technical Session	POSTER Technical Session	POSTER Technical Session	Closing Ceremony
16:30-18:00	PLENARY 1 (IGC- Leibniz Lecture & Indo German Info Session)						
18:00-19:00	Icebreaker	PLENARY 4	PLENARY 6	PLENARY 8	PLENARY 10	PLENARY 12	
19:00 onward	Icebreaker	Business Meetings/Workshop			Congress Dinner	Business Meetings/ Workshop	

Please Note

- Onsite Registration will open at 14.30 hrs. on 01.03.2020 at the venue, and will close at 14.00 hrs on 07.03.2020.
- Some Business Meetings and Workshops/ Short Courses may be scheduled during evening hours after 1900 hrs.

Each oral presentation (including discussion) in Technical Sessions will be for 15 minutes. Each keynote address (including discussion) will be for 30 minutes. Plenary Talks and Public Lectures (including discussion) will be of one-hour duration each and are kept in the free time slot to ensure maximum attendance. During Plenary and Public Talks, other sessions are not scheduled. E-posters will be displayed in a hall adjacent to the Technical Session using 150 plus 55-inch HD LED TVs. They will have pre-scheduled timings and batches; the batches will be shuffled every 2 hours.

There are 14 Plenary Talks and one Public Lecture by eminent geoscientists of the world. Brief bio notes of the speakers and the titles of their talks are given below:

Prof. Manfred R. Strecker

PL-01 (IGC-Leibniz Lecture): Tectonics, topography, and climate of the southern Central Andes

Date: 02.03.2020 (Monday)

Manfred R. Strecker is a Professor of Geology at the University of Potsdam, Germany. His main research interests are the relationship between climate and tectonics and their influence on erosion and sedimentation patterns in Cenozoic mountain belts (Andes, Pamir, Himalaya, Anatolian Plateau). He is also interested in the structural segmentation of the East African Rift System, its erosion and sedimentation processes, and geothermal resources.

M. Strecker is a member of the German Council of Science and Humanities, the President of the German GeoUnion, and a member of the German Academy of Sciences. He received the Leibniz Award of the German Science Foundation (DFG), the Thompson Award of the Geological Society of America, and the A. Cox Visiting Professorship at Stanford University. He is an Honorary Fellow of the Geological Society of America and received the Steinmann Medal of the German Geological Association.

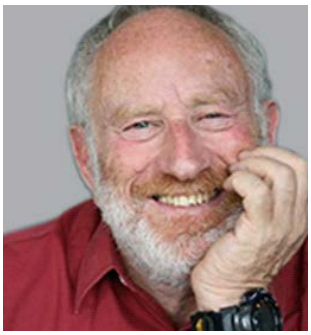
Prof. Michael James Bickle, FRS

PL-02: Impact of the Himalayan-Tibetan orogen on global geochemical cycles and climate

Date: 03.03.2020 (Tuesday)

Michael James Bickle is Professor of Tectonics at the University of Cambridge. Undergraduate degree from Cambridge, D.Phil. from Oxford, held Postdoc. in Zimbabwe (University research fellowship) and Leeds (NERC), 1978-83 Lecturer, Geology, University of Western Australia. He is a fellow of AGU and the Royal Society.

He is currently a member of the NERC-UK GEOS Science Advisory Group and has recently been a member of the Royal Society & RAE Shale Gas Review panel, the Independent Review Committee on Radioactive Waste Disposal and the Royal Society Working Group on future marine resources. Previously he served on several ODP (Ocean Drilling Program) and IODP (Integrated Ocean Drilling Program) committees including chairing the UK-IODP committee and chairing the IODP Science Plan Writing Committee. His research has involved understanding of the thermal evolution of mountain belts, the tectonic processes which operated in the early Earth, the physical processes which control melting within the Earth, quantification of fluid-flow in metamorphic rocks, use of river chemistry to evaluate the long-term controls on global climate, and the fate of CO2 in natural and anthropogenic carbon dioxide reservoirs.



Prof. Herbert E. Huppert, FRS

PL-03: Defending against lava flows: theory, experiment and field confirmation

Date: 03.03.2020 (Tuesday)

Herbert E. Huppert is the Emeritus Professor of Theoretical Geophysics at the University of Cambridge, where he has been since 1968. He has used fundamental fluid mechanics to contribute to areas in meteorology, oceanography and the "solid" Earth Sciences. He is a Fellow of the Royal Society, the American Geophysical Union, and the American Physical Society. His most cited paper, with co-author Steve Sparks, published in 1988, on the melting of the granitic crust by the input of hot basaltic magma has been cited more than 1,110 times, though neither author can understand its popularity.

Prof Bruce Edward Hobbs

PL-04: The Dynamics of Tectonic, Metamorphic and Hydrothermal Systems

Date: 03.03.2020 (Tuesday)

Professor Hobbs has been actively involved in Structural Geology research and teaching for more than 55 years. He has authored textbooks and has hundreds of research papers. He was the Founder Professor of Geology and Chairman, Department of Earth Sciences, Monash University, Clayton, Victoria, Australia from 1972-1984. Presently, at the age of 83 he continues to be actively involved with the CSIRO (Australia) as well as the University of Western Australia. Prof. Hobbs has received many honours. In 2016, at the 35th IGC held in Cape Town, Prof. Hobbs was conferred with the IUGS SCIENCE EXCELLENCE AWARD FOR STRUCTURAL GEOLOGY (http://iugs.org/uploads/IUGS-E-bulletin-August-133.pdf). His experimental work on the role of water in the deformation and recrystallization of quartz is classic and he has had a very important influence in the deformation field in emphasizing the role of defect chemistry. Finally, he has complemented his experimental and field studies, with perceptive numerical modeling of geological problems, especially those involving the development of crystallographic preferred orientations in deformed rocks and the genesis of shear zones and their behaviour.

Prof. Archana Bhattacharyya

PL-5: Role of geomagnetic field in navigation in the age of Global Navigation Satellite System

Date: 04.03.2020 (Wednesday)

Archana Bhattacharyya is currently an Indian National Science Academy (INSA) Senior Scientist at the Center of Studies in Resources Engineering in the Indian Institute of Technology Bombay. She has been Director of the Indian Institute of Geomagnetism, Navi Mumbai, and a Senior Research Associate of the National Research Council, USA, at the Air Force Research Laboratory, Massachusetts. Her research deals with space weather, ionospheric scintillations, and geomagnetic variations. She is a Fellow of INSA, the Indian Academy of Sciences, and the National Academy of Sciences, India. She was a two-term Executive Committee member of the International Association of Geomagnetism and Aeronomy (IAGA) and is now an honorary member of IAGA. She is a recipient of the J. C. Bose National Fellowship from the Science and Engineering Research Board, India, and K. R. Ramanathan Medal of the Indian Geophysical Union.

Prof. Qiuming Cheng

PL-06: Mathematical Geosciences on Digital Earth and Deep Learning for Understanding the Nonlinear Earth Systems

Date: 04.03.2020 (Wednesday)

Dr. Cheng is currently a Professor and the founding director of the State Key Lab of Geological Processes and Mineral Resources, China University of Geosciences (Beijing). He received his PhD in the Earth Science in University of Ottawa in 1994, spent a year as PDF at the Geological Survey of Canada, and soon became a professor with cross appointments in the Dept. of Earth and Space Science and Dept. of Geography at York University. His research involves in the development and application of modern mathematical geocomplexity theory for modeling nonlinear geo-processes and for the quantitative prediction of mineral resources. His pioneering research on the new fractal density theory and local singularity analysis made major impacts on several geoscientific disciplines, including those concerned with mineralization, magmatism, mid-ocean ridge heat flow, earth quakes, and floods. He has published more than 300 refereed journal papers and book chapters, and delivered over 100 invited and keynote presentations. His work published in J. Exploration Geochemistry in 1994 on geochemical anomalies recognition by multifractal method has opened a new and emerging sub-field of exploration geochemistry and the paper has become one of the most cited papers in the field. Applications of his methods have led to several discoveries of new mineral deposits in China and elsewhere. He received several prestigious awards including the Krumbein Medal, the highest award given by the International Association for Mathematical Geosciences. Dr. Cheng has served as associate editors for Computers & Geosciences, and Journal of Exploration Geochemistry. He has served as President of International Association for Mathematical Geosciences (IAMG) (2012-2016), and presently is the President of International Union of Geological Sciences (IUGS) (2016-2020).

Dr. Sergei Pisarevsky

PL-07: Siberia, India, and Baltica in Precambrian supercontinents

Date: 05.03.2020 (Thursday)

Sergei Pisarevsky obtained his MSc in geophysics from Leningrad State University in 1976, and Ph.D. in geophysics titled 'Study of the fine structure of paleomagnetic field for the elaboration of detailed magnetostratigraphy scale" from the same University in 1983. He moved to the Tectonics Special Research Centre at the School of Earth and Geographical Sciences of the University of Western Australia in 1998 as a Senior Gledden Visiting Fellow. In 2000 he became a Research Fellow with the Tectonics Special Research Centre. In 2007-2010 he worked in the University of Edinburgh as a Marie Curie Fellow. In 2010 he returned to UWA as a Research Associate. In March 2011 he became Senior Research Fellow in Curtin University.

Prof. Harsh K Gupta

PL-08: Developing Earthquake and Tsunami Resilient Society

Date: 05.03.2020 (Thursday)

Harsh Gupta is currently a Member of the Atomic Energy Regulatory Board and President, Geological Society of India. He has been a Member of National Disaster Management Authority, India; Secretary to Govt. of India, Department of Ocean Development; Director of the National Geophysical Research Institute, Hyderabad; Professor, the University of Texas at Dallas. He is globally known for his work on artificial water reservoir triggered earthquakes. He chaired the Steering Committee of the Global Seismic Hazard Program. After the disastrous 2004 Sumatra earthquake, he spearheaded the setting up of the Indian Tsunami Early Warning System. He has published over 200 papers in reviewed journals, authored 5 books published by Elsevier and Springer. His first book 'Dams and Earthquakes has been translated into Russian and Chinese. In 2011 he compiled and edited the 'Encyclopedia of Solid Earth Geophysics', 1500+ pages, a two-volume treatise published by Springer. He is a recipient of the Shanti Swarup Bhatnagar Prize, Waldo E. Smith Medal of American Geophysical Union; USSR Academy of Sciences '100 years of International Geophysics Memorial Medal'; Axford Gold Medal of Asia Oceania Geosciences Society (AOGS); National Mineral Award of Excellence; Padma Shri among many honors. He is a Fellow of Indian National Science Academy, The World Academy of Sciences and American Geophysical Union. He has been a President of IUGG, AOGS and Founder President of Asian Seismological Commission.

Prof. Michael Brown

PL-09: Secular variation of metamorphism and the evolution of plate tectonics

Date: 06.03.2020 (Friday)

Michael Brown is a Professor of Geology at the University of Maryland, USA. He obtained his BA and PhD degrees from the University of Keele in the UK. Brown held academic appointments at the rank of Lecturer to Professor in the UK between 1972 and 1990, including eight years as a Head of Department. In 1990, he moved to the USA as Professor of Geology and Chair of Department at the University of Maryland. Brown was reappointed Chair four times, finishing in 2011; in 1998–2000 he was concurrently the Interim Director of the Earth System Science Interdisciplinary Center. Brown has held visiting appointments at Kingston University, Kyoto University, the Universidade do Estado do Rio de Janeiro, the Johannes Gutenberg-Universität Mainz, Curtin University (twice) and ETH Zurich.

Brown's research has contributed to understanding the petrogenesis of migmatites and associated granites, high/ultrahigh temperature and high/ultrahigh pressure metamorphism, the tectonics of metamorphic belts and secular change in metamorphism. This work has furthered our knowledge of processes associated with reworking and differentiation of the continental crust, particularly how heat and mass are transferred, the role of crustal melting in the development of orogens, and the secular evolution of geodynamic regimes on Earth. Over the past 48 years, Brown's research has been made available through several books, more than 160 peer-reviewed chapters and articles in books and journals, more than 70 other articles, conference proceedings, editorials, reviews and field excursion guides, and by more than 445 presentations at scientific meetings. He founded the Journal of Metamorphic Geology in 1982 and has contributed extensive service to several major scientific societies, most recently as President of the Mineralogical Society of America in 2018. In recognition of his accomplishments, Brown received the Major John Sacheverell A'Deane Coke Medal from The Geological Society of London for 2005 and the Collins Medal from The Mineralogical Society of Great Britain and Ireland for 2014; in 2018 he was the 51st Hallimond Lecturer of The Mineralogical Society.

Prof. Kip Hodges

PL-10: The Evolving Geodynamics of the Himalayan Orogenic Wedge

Date: 06.03.2020 (Friday)

Prof. Kip Hodges is a Foundation Professor in the School of Earth and Space Exploration at Arizona State University. His research extends across disciplinary boundaries, including continental tectonics (with an emphasis on the origin and evolution of the Himalayan-Tibetan orogenic system), isotope geochemistry (with an emphasis on noble gas geochronology and thermochronology), geochemical kinetics, metamorphic petrology, planetary science (with an emphasis on studies of meteorite and comet impact processes and timescales), and planetary exploration (with an emphasis on how the scientific exploration of other worlds can be most effectively accomplished when missions involve both humans and robots with varying degrees of artificial intelligence). A Fellow of both the Geological Society of America and the American Geophysical Union, Hodges was the Founding Director of the School of Earth and Space Exploration. He has served as Chair of the Advisory Council for the Geoscience Directorate of the U.S. National Science Foundation, and presently is a Deputy Editor of the open-access journal Science Advances, published by the American Association for the Advancement of Science.

Dr. Mihir Shah

PL-11: Challenges of Sustainable Groundwater Management in India

Date: 07.03.2020 (Saturday)

Dr. Mihir Shah is Distinguished Visiting Professor, Shiv Nadar University, where he has designed a globally first-of-its-kind Master's Program on Water Science and Policy. From 2009 to 2014, he was Member, Water Resources, Planning Commission, Government of India and was chiefly responsible for drafting the paradigm shift in the management of water resources enunciated in the 12th Five Year Plan. In 2015, the Government of India invited him to chair a Committee on Restructuring the Central Water Commission and Central Ground Water Board and also to chair a Committee to draft the National Water Framework Law and the Model Groundwater (Sustainable Management) Bill. In December 2018, he submitted a new Water Policy to the Government of Karnataka, which asked him to Chair a Task Group set up to draft the policy.

Prof. Mike Searle

PL-12: Geological Evolution of the Western Himalaya

Date: 07.03.2020 (Saturday)

Prof. Mike Searle's main geological interests are the tectonic evolution of mountain belts, in particular, processes associated with subduction, ophiolite formation, and obduction, folding and thrusting, low-angle normal faults (e.g., SOUTH TIBETIAN DETACHMENT SYSTEM, STDS), regional metamorphism and crustal melting. He works mainly along the Alpine-Himalayan belt, the Karakoram ranges and Tibetan Plateau region and Southeast Asia (Burma, Thailand, Vietnam, Yunnan). He is also interested in large-scale strike-slip faults, particularly the Karakoram fault, Red River fault, Mae Ping fault, Sagaing fault, and Dead Sea fault, etc. Currently, he is the Professor of Earth Sciences at the University of Oxford, UK.

Dr. S. K. Acharyya

PL-13: Geology and Tectonic Setting of Gondwana Basin Architecture in the Indian Shield

Date: 08.03.2020 (Sunday)

Dr. S. K. Acharyya is currently the Emeritus Scientist, Department of Geological Sciences, Jadavpur University, Kolkata and formerly the Director-General of the Geological Survey of India. He did B.Sc. (Hons.) in Geology and Geophysics and M. Tech. in Applied Geology from IIT, Kharagpur. He obtained his Doctor of Science (D.Sc.) from the University of Calcutta in 1976. Dr. Acharyya has made sustained and outstanding contributions to the fields of Himalayan, Gondwana geology, Geodynamics and in the field of groundwater arsenic pollution. He has recently authored and edited a book on Tectonic setting and Gondwana Basin Architecture in the Indian Shield. Published by Elsevier, 2019.

For his outstanding contribution to Geology, he was awarded Shanti Swarup Bhatnagar Award in 1984 for his seminal work on the evolution of the Himalaya and Indo-Burma Ranges. He is a lifetime Fellow of the National Academy of Sciences, India since 1997. Dr. Acharyya was awarded Honorary Life Membership of the Indian Society of Applied Geochemists for his outstanding lifetime contributions to the field of earth sciences, also felicitated by Association of Exploration Geophysicists and was elected as a Fellow and Ex Council Member of West Bengal Academy of Science and Technology.

Dr. Kristine Asch

PL-14

Date: 08.03.2020 (Sunday)

Dr. Kristine Asch currently works at the Department Geoscientific Information, International Cooperation, Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), Germany. She leads the unit Geological Information systems and Maps and does research in Geoinformatics and Geology. Her current project is compiling the GIS of the Quaternary Map of Europe in the scale 1:2500000 (IQUAME 2500) in international cooperation with colleagues from more than 30 countries. She is currently the Vice President, International Union of Geological Sciences (IUGS) for the term 2016-2020.

Prof. K. S. Valdiya

Public Talk: Tectonically active parts of the restless Indian subcontinent

Date: 08.03.2020 (Sunday)

Prof. K. S. Valdiya is an internationally recognised Geoscientist for his path-breaking work in the fields of Geology and Environmental Science and currently is the Honorary Professor of Geodynamics, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore. He did his Bachelor (B.Sc.), Masters (M.Sc.) and Doctoral (Ph.D.) degrees at Lucknow University and joined at same the university as a faculty in 1957. He was a 1965–66 Fulbright scholar at Johns Hopkins University and also taught Geology at Rajasthan University, Wadia Institute of Himalayan Geology, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) and Kumaon University. He became the Vice Chancellor of Kumaon University in 1981.

Prof. Valdiya has also been instrumental in the establishment of many eminent geological institutions of India like Wadia Institute of Himalayan Geology, Central Himalayan Environmental Association, Nainital, G. B. Pant Institute of Himalayan Environment and Development, Almora, and the Geology Department of the Kumaon University.

He is an elected fellow of the Indian National Science Academy, National Academy of Sciences, India (FNASc), Indian Academy of Sciences (FASc), the Third World Academy of Sciences (FTWAS) and, is a fellow of the Geological Society of India, Geological Society of America and Geological Society of Nepal. He has served as a member of the Scientific Advisory Council to the Prime Minister of India (1983-1988). He has written over 110 research papers in reputed peer-reviewed journals, authored 20 books, edited 9 books and penned 40 articles in Hindi towards popularization of science among all sections of common Indian Citizen. His recent book – The Making of India – Geodynamic Evolution, published by Springer in 2016 is a masterpiece providing simplified overview of the geodynamic evolution of India.

Prof. K. S. Valdiya was awarded the Life Time Excellence Award by Ministry of Earth Sciences in 2018, Padma Bhushan in 2015, the G.M Modi Award for Science and Environment in 2012, Padmashri and the Hindi Sevi Sammaan (Atmaram Puraskaar) in 2007, the National Mineral Award of Excellence in 1997, the D.N. Wadia Medal in 1995, the National Mineral Award in 1993, the S.K. Mitra Award in 1991, the Shanti Swarup Bhatnagar Prize in 1976 and the Chancellor's Medal in 1954. He was the Pitambar Pant Environment Fellow of Department of Environment & Forests (1982–1984) and the National Lecturer of University Grants Commission (1977–1978).

Scientific Symposia

The Science Program is presented over the following pages. It is also available on the 36th IGC website (https://www.36igc.org/science-program), where a summary of each symposium can be accessed with additional details. The following Table shows a tentative day-wise schedule of the technical sessions for both oral and e-poster presentations of 45 science themes during the Congress.

Schedule of the Scientitific Symposia of 36th IGC

E-Poster
Oral

Theme	Symp No	3-Mar Tuesday		4-Mar Wednesday			5-Mar Thursday			6-Mar Friday			7-Mar Saturday			08-Mar Sunday
		1100-1300	1500-1800	0900-1030	1100-1300	1500-1800	0900-1030	1100-1300	1500-1800	0900-1030	1100-1300	1500-1800	0900-1030	1100-1300	1500-1800	0900-1300
Theme 1: Geoscience for Society	1.1															
	1.2															
	1.3															
	1.4															
	1.5															
	1.6															
	1.7															
	1.8															
	1.9															
	1.10															
	1.11															
	1.12															
Theme 2: Hadean to Archean Earth	2.1															
	2.2															
	2.3															
Theme 3: Proterozoic Earth	3.1															
	3.2															
	3.3															
	3.4															
	3.5															
	3.6															
Theme 4: Supercontinent Cycles and Geodynamics	4.1															
	4.2															
Theme 5: Ancient and Modern Coasts and Continental Margin	5.1															
	5.2															
	5.3															
	5.4															
	5.5															
	5.6															
	5.7															
Theme 6: Critical events, mass extinctions and evolution of biosphere	6.1															
	6.2															
	6.3															
	6.4															
Theme 7: Geological Timescale and Dynamic Record	7.1															
	7.2															
	7.3															
	7.4															
	7.5															
	7.6															
	7.7															
	7.8															
Theme 8: The Polar World – Past, Present and Future	8.1 + 8.2															
	8.3+8.4+8.5															
	8.6+8.7+8.8+8.9															
Theme 9: Glacial Mass Balance: Approaches and Problems	9.1 + 9.3															
	9.2 + 9.5															
	9.4															
Theme 10: Orogens through time	10.1 + 10.2															
	10.3															
	10.4 + 10.5 +10.6 +10.8															
	10.7															
Theme 11: The Himalaya – Anatomy of an Evolving Mountain Chain	11.1 +11.4															
	11.2 + 11.3															
	11.5 + 11.6 + 11.7															
Theme 12: Quaternary Environments: Sedimentation and Landform Evolution	12.1															
	12.2															
	12.3															
	12.4															
	12.5															
Theme 13: Imaging Earth's Interior	13.1															
	13.2															
	13.3															
	13.4															
Theme 14: Emerging Trends in Exploration for Deep and Concealed Resources	14.1+14.2+14.3															
	14.4															
	14.5															
	14.6+14.7+14.8															
Theme 15: Volcanology: Geological, Archeological and Contemporary	15.1															
	15.2+15.3															
Theme 16: Magmatism and Petrogenetic Processes	16.1															
	16.2															
	16.3															
	16.4															
	16.5 + 16.6															
	16.7															
Theme 17: Advances in Geochemistry	17.1 + 17.3															
	17.2															
	17.4															
	17.5															
	17.6															
	17.7+17.8															

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Oral

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Theme 18: Advances in Mineralogy, including Ore mineralogy, Gemology and Geometallurgy	18.1															
	18.2 + 18.3 + 18.4															
	18.5 + 18.6															
Theme 19: Metallogeny in relation to Geodynamics and Crustal Evolution – Archean to Recent	19.1+19.2															
	19.3 + 19.4															
	19.5 + 19.6 + 19.7															
Theme 20: Sustainable Development and Mining – An	20.1+20.2+20.3+20.4+20.5															
Theme 21: Earth Observation System – Climate Variables, Proxies and Modelling	21.1+21.2+21.3															
	21.4															
	21.5+21.6+21.7+21.8															
Theme 22: Evolution of Monsoon: Past, Present and Future	22.1+22.2+22.3+22.4+22.5															
Theme 23: Hi-Tech and Critical Mineral Commodities	23.1															
	23.2+23.3															
	23.4+23.5+23.6															
	23.7 + 23.8															
Theme 24: Oceans in a Changing World	24.1+24.2															
	24.3+24.4+24.5															
Theme 25: Human evolution, Geoarcheology, Sustenance Strategies	25.1+25.2															
	25.3+25.4															
Theme 26: Metamorphic Processes and Petrogenesis	26.1+26.2+26.3															
	26.4+26.5+26.6															
Theme 27: Field Structures – Macro to Meso Scale Deformation Processes	27.1															
	27.2+27.3															
	27.4+27.5+27.6															
Theme 28: Ore forming processes and systems	28.1															
	28.2															
	28.3+28.4															
	28.5+28.6															
Theme 29: Energy Resources	29.1+29.2															
	29.3+29.4+29.5+29.6															
	29.7															
Theme 30: Hydrocarbon Systems	30.1															
	30.2															
	30.3+30.4+30.5															
	30.6+30.7															
Theme 31: Geohazards	31.1															
	31.2															
	31.3															
	31.4+31.5															
	31.6+31.7															
	31.8+31.9+31.10															
Theme 32: Environmental Geosciences	32.1+32.2															
	32.3+32.4+32.5															
Theme 33: Engineering Geology and Geotechnical Engineering	33.1															
	33.2															
	33.3															
	33.4															
Theme 34: Geomagnetism: Origin of Geomagnetism,	34.1+34.2+34.3															
Theme 35: Advances in Mathematical Geosciences, Mineral Resource Evaluation and Mine-Planning	35.1															
	45.4															
	35.2+35.3															
Theme 36: Exploration and Mining of Marine Mineral Resources	36.1+36.2															
	36.3+36.4+36.5															
	36.6+36.7+36.8															
Theme 37: Critical Zone and Sustainable Development	37.1+37.2+37.3															
Theme 38: Hydrogeology and Sustainable Development	38.1															
	38.2															
	38.3															
	38.4															
	38.5+38.6															
Theme 39: Geoscience Information - Integration	39.1															
	39.2															
	39.3															
	39.4															
Theme 40: Planetary Sciences	40.1+40.2															
	40.3															
	40.4															
	40.5+40.6+40.7															
Theme 41: Quantification of Non-linear Geological Processes	41.1 +41.10															
	41.2+41.3+41.4+41.5															
	41.6+41.7+41.8+41.9															
Theme 42: Geological Sequestration of CO2 and Enhanced Oil Recovery	42.1+42.2															
	42.3+42.4+42.5															
Theme 43: Kimberlites, Xenoliths and Diamonds: Snapshots of the Earth's Mantle	43.1+43.2+43.3+43.4+43.5+43.6															
Theme 44: Non-invasive 3D Groundwater Mapping for Resource Management	44.1+44.2+44.3															
	44.4+44.5+44.6															

Schedule of the Scientitific Symposia of 36th IGC

E-Poster
Oral

Theme	Symp No	3-Mar Tuesday		4-Mar Wednesday			5-Mar Thursday			6-Mar Friday			7-Mar Saturday			08-Mar Sunday
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Theme 45: Thematic and Specialised Symposia/ Sessions	45.1 +45.2															
	45.3+45.5															
	45.6 (YES CONGRESS)															
	45.7															
	45.8															
	45.9															
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	45.21															
	45.22															
	45.23															
	45.24															
	45.25															

Coordinators: *R. Shankar rshankargeo@gmail.com (India),*
Anish K. Warrier akwarrier@gmail.com (India),
Chris King chrisjhking36@gmail.com (UK)

Symposia

1.1 Geoscience Education
Roberto Greco greco@ige.unicamp.br (Brazil), Chris King (UK)
Keynote: Roberto Greco (Brazil)

1.2 Geoscience Communication and Outreach
Iain Stewart istewart@plymouth.ac.uk (UK), Kirsten v. Elverfeldt
(Austria), Eduardo de Mulder (The Netherlands), Courtney Jermyn (The Netherlands)
Keynote: L. S. Sashidhara (India)

1.3 Geodiversity, Geoheritage, and Geoconservation
José Brilha jbrilha@dct.uminho.pt (Portugal), Benjamin van Wyk de Vries (France), Denise Gorfinkiel (Uruguay), Károly Németh (New Zealand), Kyung-Sik Woo (S. Korea), Nickolas Zouros (Greece), Pushpendra Singh Ranawat (India)
Keynote: Satish C. Tripathi (India)

1.4 Natural Stones and Architectural Heritage
Fareeduddin fareedromani@gmail.com (India), Gurmeet Kaur (India), Dolores Periera (Spain)
Keynote: Dolores Pereira (Spain)

1.5 Geosciences, Art and Heritage
José Sellés-Martínez pepe@gl.fcen.uba.ar (Argentina), Tom Heldal (Norway), Mónica Álvarez del Buergo Ballester (Spain)
Keynote: Miguel Gómez-Heras (Spain)

1.6 The History of Geology and the Dissemination of Geological Knowledge
Barry Cooper barry.cooper@unisa.edu.au (Australia), Marianne Klemun (Austria)
Keynote: Pratik Chakrabarti (UK)

1.7 Geoethics: Ethical, Social and Cultural Aspects in Geosciences
Silvia Peppoloni silvia.peppoloni@ingv.it (Italy), Nic Bilham (UK), Peter T. Bobrowsky (Canada), Martin Bohle (Belgium), Vincent S. Cronin (USA), Giuseppe Di Capua (Italy)
Keynote: Iain Stewart (UK)

1.8 Forensic Geology
Laurance Donnelly geologist@hotmail.co.uk (UK), Biplob Chatterjee (India)
Keynote: Laurance Donnelly (UK)

1.9 Role of Medical Geology to Protect Human Health from Toxic and other Harmful Elements in the Environment (Proposed by AGID and SEGMITE)
Viqar Husain prof.viqarhusain@yahoo.com (Pakistan), Zafar Fatimi (Pakistan), S.D. Limaye (India)
Keynote: Kim Dowling (Australia)

1.10 Geoparks, Geoheritage & Geo-Tourism in Low-Income Countries (Proposed by AGID)
Afia Akhtar afia@agni.com (Bangladesh), Shahina Tariq (Pakistan)
Keynote: M. Nehal Uddin (Bangladesh)

1.11 Earth Science and Society
Eduardo de Mulder e.demulder@planet.nl (The Netherlands), Gbenga Okunlola (Nigeria), Marko Komac (Slovenia)
Keynote: Eduardo de Mulder (The Netherlands)

1.12 The roles of UNESCO, IGCP and IUGS in realizing the UN Sustainable Development Goals (Symposium proposed by UNESCO-IGCP-IUGS)
Ozlem Adiyaman Lopes o.adiyaman@unesco.org (France), Edmund Nickless (UK)
Keynote: Brigitte Vlaswinkel (The Netherlands)

Coordinators: *M. E. A. Mondal erfan.mondal@gmail.com (India),*
C. Manikyamba cmaningri@gmail.com (India),
Jaana Halla jaana.halla@helsinki.fi (Finland)

Symposia

2.1 Hadean to Archean Earth: Geological, Geochemical, Geochronological, Geophysical, and Numerical Perspectives

Martin Whitehouse martin.whitehouse@nrm.se (Sweden), Kristoffer Szilas (Denmark)

Keynote: Jana Halla (Finland), Dilip Saha (India)

2.2 Archaean Biosphere and Ecosystem

Mukund Sharma mukund_sharma@bsip.res.in (India), Robert Riding (USA)

Keynote: Allen Nutman (Australia)

2.3 Origin and Evolution of the Crust-Mantle Reservoirs During The Hadean To Archean

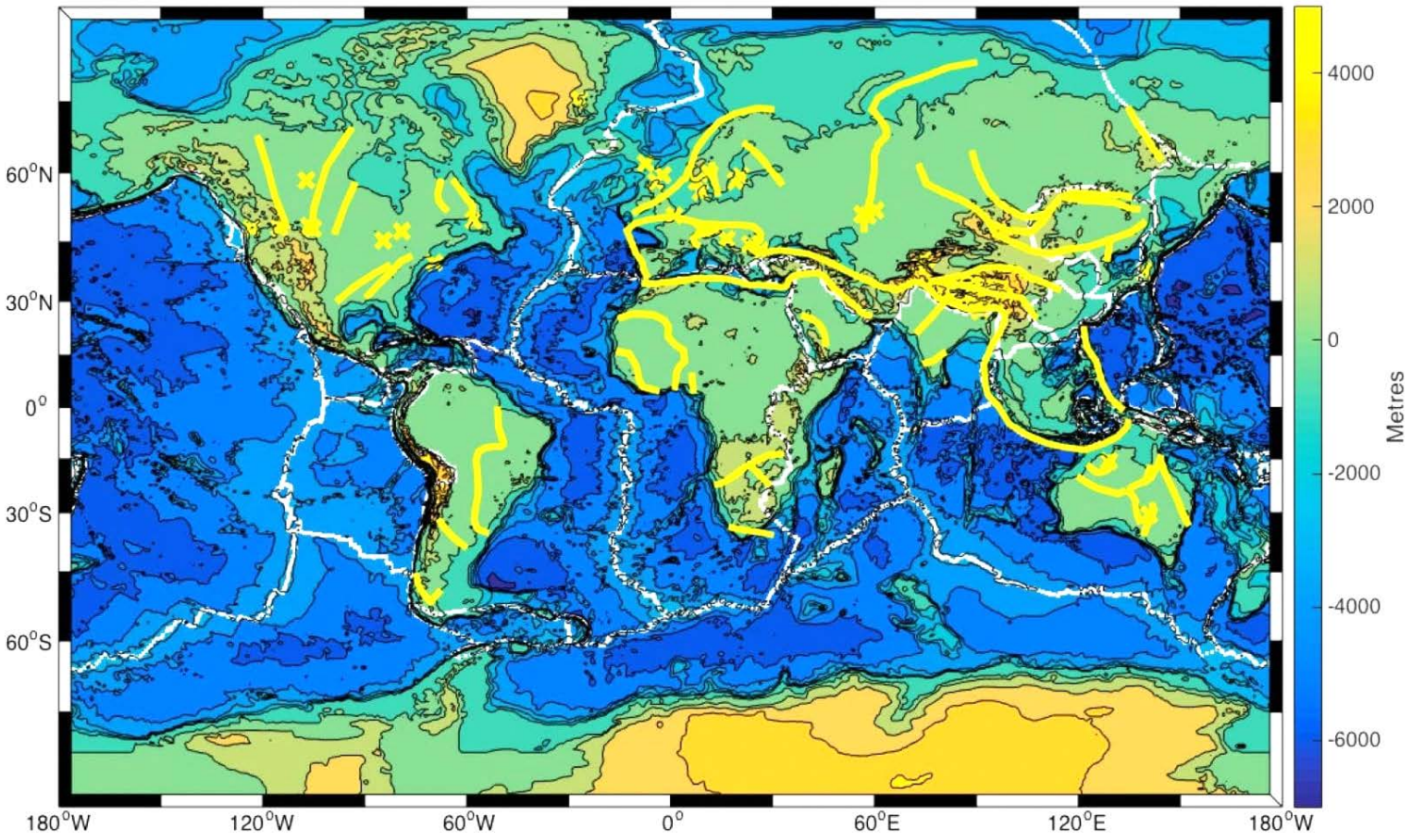
Rajneesh Bhutani rbhutani@gmail.com (India)

Keynote: Marc-Alban Millet (UK)

Coordinators: *Partha Pratim Chakraborty parthageology@gmail.com (India),*
V. Ravikant ravikant.vadlamani@gmail.com (India),
Abhijit Basu basu@indiana.edu (USA)

Symposia

3.1 Proterozoic Orogenesis and Supercontinent Formation and Breakup
Elton Luiz Dantas Elton@unb.br (Brazil)
Keynote: Joseph G. Meert (USA)
3.2 Proterozoic Orogeny and Sedimentary Basins
Nick MW Roberts nickmwroberts@gmail.com, nirob@bgs.ac.uk (UK)
3.3 Nuances of Sedimentation in Proterozoic Cratonic Basins
Pradip K. Bose jugeopkb@gmail.com (India)
Keynote: Nicholas Christie-Blick)
3.4 Proterozoic Ocean; Chemistry and Oxygenation
Partha Pratim Chakraborty parthageology@gmail.com (India)
Keynote: Linda Kah (USA)
3.5 Proterozoic Atmosphere and Expressions of Life
Joydip Mukhopadhyay Joydip17@gmail.com (India)
3.6 Proterozoic Geodynamics and Subcontinental Lithosphere (SCLM) Evolution from Geochemical Evolution of Magmatism Over Time
Peng Peng pengpengwj@mail.iggcas.ac.cn (China)
Keynote: Yongjiang Liu (China)



Perennial Plate Tectonic Map

Theme 4 | *Supercontinent Cycles and Geodynamics*

Coordinators: *M. K. Pandit manoj.pandit@gmail.com (India),*
Tapan Pal paltapan62@gmail.com (India),
Joseph G. Meert jmeert@ufl.edu (USA)

Symposia

4.1 Supercontinent Amalgamation, Breakup, and the Driving Forces (IGCP 648)

Zheng-Xiang Li z.li@curtin.edu.au (Australia), David Evans (USA), Shijie Zhong (USA), Bruce Eglington (Canada)

Keynote: John Geissman (USA)

4.2 Sedimentary Records and Correlation of Supercontinent Crustal Blocks

Wei Wang wwz@cug.cn (China), Christopher Spencer (Autralia)

Keynote: Xiumian Hu (China)

Theme 5 | *Ancient and Modern Coasts and Continental Margins*

Coordinators: *Subir Sarkar ssarkar@geology.jdvu.ac.in (India),*
B. Nagender Nath nagendernath@yahoo.com (India),
Peter D. Clift pclift@lsu.edu (USA)

Symposia

5.1 Advances in the Extensional Tectonics of Continental Margins
Sascha Brune brune@gfz-potsdam.de (Germany), Marta Péres Gussinyé (Germany), Zhen Sun (China), Gianreto Manatsachal (France), Anne Briais (France)
Keynote: Weiwei Ding (China)
5.2 Carbonate Sedimentation at Continental Margins
Christian Betzler christian.betzler@uni-hamburg.de (Germany), Gregor P. Eberli (USA), Jody Webster (Australia)
5.3 Environmental Record of Margins – Ancient Records of Continental Conditions
Selvaraj Kandasamy selvaraj@xmu.edu.cn (China), Shouye Yang (China)
Keynote: Peter D. Clift (USA)
5.4 Gas Hydrate Systems on Continental Margins and Associated Geo-Hazards
Pawan Dewangan pdewangan@nio.org (India), Shyam Chand (Norway), Priyank Jaiswal (USA)
Keynote: Ingo Pecher (New Zealand)
5.5 Metals in Coastal Marine Environment: Distribution, Speciation and Bioavailability in Soil, Water, and Sediment
Parthasarathi Chakraborty pchak@nio.org, parthachemistry@gmail.com (India)
Keynote: Som Niyogi (Canada)
5.6 Marine Oxygen Minimum Zones: From Sedimentary Rocks to Modern Oceanographic Record
Aninda Mazumdar maninda@nio.org (India), Wriddhiman Ghosh (India)
Keynote: S.W.A. Naqvi (India)
5.7 From Continental Shelf to Deep Ocean Basin – Mapping the Oceanic Realm
Kristine Asch Kristine.asch@bgr.de (Germany), Hiroshi Kitazato kitazatohiroshi2@gmail.com (Japan), Alik Ismail-Zadeh (Russia), Kiyoshi Suyehjiro (Japan), A.K. Chaubey (India), V. Yatheesh (India)

Theme 6 | *Critical events, mass extinctions and evolution of biosphere*

Coordinators: *Vandana Prasad prasad.van@gmail.com (India),*
Rajeev Patnaik rajeevpatnaik@gmail.com (India),
Robert A Spicer r.a.spicer@open.ac.uk (UK)

Symposia

6.1 At the Open and the Close: Boundary Events of the Palaeozoic Era
Nigel Hughes nigel.hughes@ucr.edu (USA), Asish R. Basu (USA)
Keynote: Nigel Hughes (USA)
6.2 Deccan Volcanism and its role in Mass Extinction and Paleobiodiversity
Gerta Keller gkeller@princeton.edu (USA), N. Malarkodi (India)
Keynote: Jahnavi Punekar (India)
6.3 Cenozoic Paleoclimate and Ecosystem
Robert A Spicer r.a.spicer@open.ac.uk (UK), Torsten Utescher (Germany)
Keynote: Thure Cerling (USA)
6.4 Evolutionary History, Phylogenetic Studies and Biogeography
Robert Morley bobmorley100@gmail.com (UK), Uma Ramakrishnan (Canada)
Keynote: Robert Morley (UK)

Theme 7 | *Geological Timescale and Dynamic Record*

Coordinators: *G. V. R. Prasad guntupalli.vrprasad@gmail.com (India),*
Kishor Kumar kishorsri@gmail.com(India),
Stanley C. Finny Stan.Finney@csulb.edu(USA),
Bilal Haq haq@purdue.edu (Finland)

Symposia

7.1 Recent Headways in Geological Time Scale

S. C. Finney Stan.Finney@csulb.edu (USA)

7.2 Evolution of Palaeozoic Sedimentary Basins in the Tethys Himalaya - Biodiversity, Biozonation & Bioprovinces

Nigel Hughes nigel.hughes@ucr.edu (USA), SK Parcha (India)

7.3 Chronostratigraphy, Geochronology, Depositional Environments and Biotic Turnovers Across Major Mass Extinction Boundary Intervals in Marine and Continental Sections

V. C. Tewari vctewari@cus.ac.in (India)

Keynote: A. N. Sial (Brazil)

7.4 Gondwana Sedimentation, Climate and Life

PK Singh prakashbhu@rediffmail.com (India), AK Singh (India)

7.5 Break-up of Gondwana, Evolution of Indian Ocean and Development of Marginal Marine Basin

DK Pandey dhirendrap@hotmail.com (India)

7.6 Mesozoic Marine Revolutions - Sea Level Changes, Extreme Climates, Mesozoic Bioevents, Biotic Recoveries & Correlation

B Haq haq@purdue.edu (USA)

7.7 India's Northward Flight, Closing of Tethys, Rise of Himalaya, Biological Evolution

V C Thakur thakurvc12@gmail.com (India)

Keynote: V. C. Thakur (India)

7.8 Paleogene Hyperthermal events—Sedimentologic, Geochemical & Biotic Responses

Vandana Prasad prasad.van@gmail.com (India)

Coordinators: *N. C. Pant pantnc@gmail.com (India),*
Thamban Meloth tmeloth@gmail.com (India),
Martin J. Siegert m.siegert@imperial.ac.uk (UK)

Symposia

8.1 Polar Ice Sheets and Their Interactions with Geosphere, Atmosphere, and Ocean
Kenichi Matsuoka matusoka@npolar.no (Japan), Frank Pattyn (Belgium), Rene Forsberg (Denmark), Fausto Ferraccioli (UK), Thamban Meloth (India)
Keynote: Mathieu Morlighem (USA)

8.2 Past Polar to Mid-Latitude Climate Variability and Their Teleconnections with the Tropics
Manish Tiwari manish@ncaor.gov.in (India), Alan Haywood (UK), Jochen Knies (Norway), Simon Belt (UK), Yusuke Yokoyama (Japan), Raja Ganeshram (UK)
Keynote: R. Krishnan (India)

8.3 Climate Variability from Ice Cores – Evidence from the Three Poles
Liz Thomas lith@bas.ac.uk (UK), Thamban Meloth (India), Paul Vallelonga (Denmark), Mariusz Potocki (USA)

8.4 Southern Ocean – Past Global Linkages
Crosta Xavier xavier.crosta@u-bordeaux.fr (France), Luke Skinner (UK), Rahul Mohan (India)

8.5 Changing Arctic and Its Impact on Ecosystems
K.P. Krishnan kpkrishnan@gmail.com (India), Maarten J.J.E. Loonen (The Netherlands), A. A. Mohamed Hatha (India), Masaki Uchida (Japan)

8.6 Fluctuations of the East Antarctic Ice Sheet During Cenozoic
Carlota Escutia cescutia@ugr.es (Spain), N C Pant (India)

8.7 Exploring Subglacial Antarctica
Martin J Siegert m.siegert@imperial.ac.uk (UK), Dustin Schroeder (USA)

8.8 Rodinia to Gondwana - the PEL and the India Connection
Somnath Dasgupta somnathdasg@gmail.com (India), N C Pant (India)
Keynote: Ian W Dalziel (USA)

8.9 Coupled Structural and Thermal Evolution of the Antarctic Lithosphere
Ian W Dalziel ian@ig.utexas.edu (USA), Donald Blankenship (USA), Jamin Greenbaum (USA)

Theme 9 | *Glacial Mass Balance: Approaches and Problems*

Coordinators: *Shakil A Romshoo shakilrom@kashmiruniversity.ac.in (India),*
Dr. D. P. Dobhal dpdobhal@wihg.res.in (India),
Tobias Bolch tobias.bolch@st-andrews.ac.uk (UK)

Symposia

9.1 Glacier Mass Balance and Dynamics

S.P. Shukla satyashukla63@gmail.com (India), D. P. Dobhal (India)

9.2 Glacial Hydrology and Sediment Transfer

A. L. Ramanathan alr0400@mail.jnu.ac.in (India), Sanjay Jain (India)

9.3 Impact of Climate Change on Glacier Health

Kireet Kumar kireet@gbpihed.nic.in (India), Shakil Ahmad Romshoo (India)

9.4 Remote Sensing of Cryosphere

Anil Kulkarni anilkulkarni@iisc.ac.in (India), Tobias Bolch (UK)

9.5 Glacier Mass Balance Modelling

Ramachandran Shankar shankar@imsc.res.in (India), H.C Nainwal (India)

Theme 10 | *Orogens through time*

Coordinators: *Deepanker Asthana deepanker.asthana@gmail.com(India),*
Peter Cawood Peter.Cawood@monash.edu (Australia),
Anil M. Pophare apophare@gmail.com (India)

Symposia

10.1 Timescales and Tracers: Unpicking Orogenies Through Time

Oliver Nebel Oliver.Nebel@monash.edu (Australia), Nickolas Gardiner (Australia), Tim Johnson (Australia)

10.2 Proterozoic Orogens, Tectonic Geography and the Earth System

Alan Collins alan.collins@adelaide.edu.au (Australia), Grant Cox (Australia), Morgan Blades (Australia)

10.3 Phanerozoic Orogenesis in Asia – The Record of the Tethys Opening and Closing

Guochun Zhao gzhao@hku.hk (Hong Kong), Yunpeng Dong (China); Di-Cheng Zhu (China)

10.4 Secular Change in Magmatism and Metamorphism: The Fingerprints of Orogenesis

Tim Johnson Tim.Johnson@curtin.edu.au (Australia)

10.5 Precambrian Orogenic Processes and the Formation of Continents: Insights from Models and Observations

Paul Tackley paul.tackley@erdw.ethz.ch (Switzerland), Tara Garya (Switzerland)

10.6 The Pre-Mesozoic Record of the India-Asia Collision Zone

Paul Myrow pmyrow@coloradocollege.edu (USA), Nigel Hughes (UK), Mike Searle (UK)

10.7 Intraplate Tectonics and Continental Development: Orogens and Basins

Alan Aitken alan.aitken@uwa.edu.au (Australia), Weronika Gorczyk (Australia), Sandra Occhipinti (Australia), Klaus Gessner (Australia)

Keynote: Qun-Ke Xia (Ch**ina)**

10.8 Convergent Margins and Mineralization

Jeremy Richards JRichards2@laurentian.ca (Canada)

Coordinators: *A. K. Jain himalfes@gmail.com(India),*
Talat Ahmad tahmad001@gmail.com (India),
Saibal Gupta saibl@gg.iitkgp.ernet.in (India),
N. B. W. Harris n.b.w.harris@open.ac.uk (UK),
Qasim Jan mqjan@yahoo.com (Pakistan),
Ranjan Kumar Dahal rkdahal@gmail.com (Nepal)

Symposia

11.1 Thermal Evolution of the Himalaya

Somnath Dasgupta somnathdasg@gmail.com (India), Christopher Spencer (Australia)

11.2 The Himalaya - Surface Processes

George Mathew gmathew@iitb.ac.in (India)

11.3 Crustal Deformation of the Himalayas

Vineet Gahalaut vkgahalaut@yahoo.com (India)

11.4 Tectonic Evolution of the Himalaya

Talat Ahmad tahmad001@gmail.com (India), Mike Searle (UK), Rodolfo Carosi (Italy), Peter Cawood (Australia)

Keynote: N. B. W. Harris (UK)

11.5 Brittle vs Viscous Deformation in the Himalaya – Field to Experiments

Santanu Bose bose.santanu@gmail.com (India), Rodolpho Carosi (Italy)

Keynote: Chiara Montomoli (Italy)

11.6 Role of Fluids in Himalayan Tectonics

Sandeep Singh san662005@gmail.com (India), Rebecca A Jamiesson (Canada), Anne-Marie Boullier (France)

11.7 Phanerozoic and Precambrian Ophiolites as Oceanic Tracers of the Assembly & Disassembly of Gondwana

Yildirim Dilek dileky@miamioh.edu (USA), Brian F Windley (UK), D V Subba Rao (India), Reyaz Ahmad Dar (India)

Keynote: Yildirim Dilek (USA)

Theme 12 | *Quaternary Environments: Sedimentation and Landform Evolution*

Coordinators: *Pradeep Srivastava pradeep@wihg.res.in (India),*
Pankaj Srivastava pankajps@gmail.com (India),
Rasmus C. Theide rasmus.thiede@ifg.uni-kiel.de (Germany)

Symposia

12.1 Deserts: Past and Present

Deepak M. Maurya dmmaurya@yahoo.com(India), Amal Kar (India)

Keynote: Binita Phartiyal (India); Liviu Giosan (USA)

12.2 Soil-Geomorphology and Landscape Evolution

Pankaj Srivastava pankajps@gmail.com (India), Peter Kühn (Germany)

Keynote: D.K. Pal (India)

12.3 Mountain Landscape: Tectonics and Climate Feedbacks

Rasmus C Theide rasmus.thiede@ifg.uni-kiel.de (Germany), Pradeep Srivastava (India), Manfred Strecker (Germany), Bodo Bookhaagen (Germany)

12.4 Glaciers: Past and Present

Aparna Shukla aparna.shukla22@gmail.com (India), Manish Mehta (India), Dirk Scherler (Germany)

Keynote: Lewis Owen (USA); Jeffrey Kargel (USA)

12.5 Extreme Hydrological Event -Present and Past

Alpa Sridhar alpasridhar@gmail.com (India), Bruno Wilhem (France), Tao Liu (USA)

Keynote: V. S. Kale (India)

Theme 13 | *Imaging Earth's Interior*

Coordinators: *V. M. Tiwari virendram.tiwari@gmail.com (India),*
Ajay Manglik amngri@gmail.com (India),
Hitoshi Kawakatsu hitosi@eri.u-tokyo.ac.jp (Japan)

Symposia

13.1 Recent Advances in Near-Surface Geophysics

Gerald Gabriel gerald.gabriel@leibniz-liag.de (Germany)

13.2 Images of the Deep Earth and Geodynamics

Hitoshi Kawakatsu hitosi@eri.u-tokyo.ac.jp (Japan), Claudio Faccenna (Italy), Thorsten W. Becker (USA)

Keynote: Jean-Paul Montagner (France); Robert D van der Hilst (USA); Stephen P Grand (USA); Attreyee Ghosh (India)

13.3 Imaging The Crust and Lithosphere Beneath the Continents

M. Ravi Kumar mravi@isr.res.in (India)

Keynote: Walter Mooney (USA)

13.4 Crustal Structure and Deformation in Active Tectonic Regions with Special Reference to the Himalaya

A. Manglik amngri@gmail.com (India)

Keynote: Satish Singh (France)

Theme 14 | *Emerging Trends in Exploration for Deep and Concealed Resources*

Coordinators: *D. S. Jeere dsjeere@gmail.com (India),*
Dinesh Gupta dineshguptagsi@yahoo.co.in (India),
Richard Blewett Richard.Blewett@ga.gov.au (Australia)

Symposia

14.1 Regolith Geology and Concealed Mineral Deposits

Ignacio González-Álvarez Ignacio.Gonzalez-Alvarez@csiro.au (Australia)

Keynote: Lisa Worrall (Australia)

14.2 Application of Aerogeophysical Data Sets for Target Delineation through Basement Mapping/ Predictive Geological Mapping of Potentially Covered Terrains

B. K. Sahu sahubk2010@gmail.com (India)

14.3 Mineral System Approach for Enhancing Mineral Deposit Discovery Rate in the Potentially Covered Terrain

M. N Praveen praveenmn74@gmail.com (India)

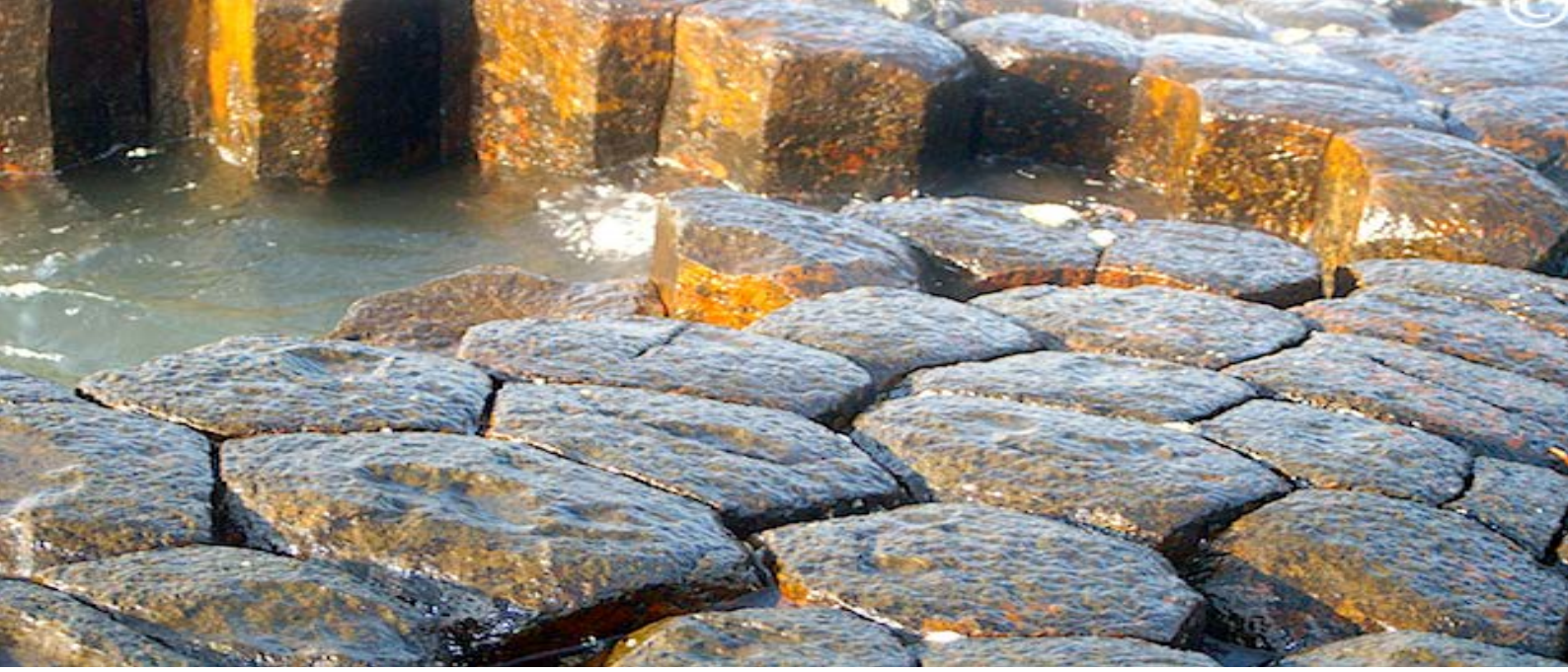
Keynote: Michael Doublier (Australia)

14.4 Advances in Geophysical Approaches for Tracing Concealed and Deep Structures and Materials

M. K. Mukherjee mrinal_km67@yahoo.co.in (India)

14.5 Ground Geophysical Methods of Gravity, Magnetic, Electrical, Electromagnetic to Bring Out Concealed Fertile Bodies

G. Karunakar karunakar65@yahoo.com (India)



14.6 Geochemical Techniques of Tracing Distal Footprints of Concealed Mineral Deposits
David Cohen d.cohen@unsw.edu.au (Australia)
Keynote: David Cohen (Australia)
14.7 Recent Advances in Detection of Concealed Mineral Deposits by Integration Geoscience
M. N. Mishra mnmishra4@yahoo.co.in (India), R. Balaji (India)
14.8 Developments in Targeting Concealed and Deep Seated Uranium –REE Mineralization
A. K. Chaturvedi anandlko57@gmail.com (India)

Theme 15: *Volcanology: Geological, Archeological and Contemporary*

Coordinators: *R. A. Duraiswami raymond.duraiswami@gmail.com (India),*
M. S. Bodas makarandbodas@gmail.com (India)

Symposia

15.1 Continental Flood Basalts and Related Volcanics: Current Status of Knowledge and Future Work Possibilities
Raymond A. Duraiswami raymond.duraiswami@gmail.com (India), Stephen Self (USA), Hetu Sheth (India)
Keynote: Stephen Self (USA); Hetu Sheth (India)
15.2 Island Arc Volcanics
Martin Jutzeler martin.jutzeler@utas.edu.au (Australia), Hiro Yamagishi (Japan), Tapan Pal (India)
Keynote: Yamagishi Hiromitsu (Japan)
15.3 Volcanism and Its Influence on Human Civilization
Karol Nemeth K.Nemeth@massey.ac.nz (New Zealand), Makarand Bodas (India), Loyc Vanderkluysen (USA), Himanshu Kulkarni (India)
Keynote: Jere H. Lipps (USA)

Theme 16 | *Magmatism and Petrogenetic Processes*

Coordinators: *N. V. Chalapathi Rao nvcrao@bhu.ac.in (India),*
Parampreet Kaur param.geol@gmail.com (India),
Richard E Ernst richard.ernst@ernstgeosciences.com (Canada)

Symposia

16.1 Large Igneous Provinces and their Plumbing Systems
Rajesh K. Srivastava rajeshgeolbhu@bhu.ac.in (India), Richard E Ernst (Canada)
Keynote: Richard E. Ernst (Canada)

16.2 Granites - Petrogenesis to Metallogenesis
N M W Roberts nirob@bgs.ac.uk (UK), Naveen Choudhuri (India), Parampreet Kaur (India)
Keynote: Naveen Chaudhri (India)

16.3 Subduction Zone Magmatism
Georg Zellmer G.F.Zellmer@massey.ac.nz (New Zealand), Jun-Ichi Kimura (Japan), Rajdeep Dasgupta (USA)
Keynote: Sandro Conticelli (Italy)

16.4 Magmatism in an Extensional Environment
Sarajit Sen Sarma sensarma2009@gmail.com (India), N.V. Chalapathi Rao (India)
Keynote: J.G.Shellnutt (Taiwan)

16.5 Intraplate Alkaline Magmatism
N V Chalapathi Rao nvcrao@bhu.ac.in (India), Lukáš Krmíček (Czech Republic)
Keynote: Sebastian Tappe (South Africa)

16.6 Melts and Fluids in the Earth's Mantle
Sujoy K Ghosh sujoy.ghosh@gg.iitkgp.ac.in (India), Nachiketa Rai (India)
Keynote: Sujoy Ghosh (India)

16.7 Dynamics of Magmatic Processes
Santosh Kumar skyadavan@yahoo.com (India), Gregory Shellnutt (Taiwan), Steve Denyszyn (Australia), K R Hari (India)
Keynote: Xisheng Xu (China)

Coordinators: *Y. J. Bhaskar Rao yjbhaskarrao@gmail.com (India),*
B. Sreenivas bulusu.sreenivas@gmail.com (India),
Andrey Bekker andrey.bekker@ucr.edu (USA)

Symposia

17.1 Geochemical and Chronological Perspective of Stars to Planets
G. Srinivasan gopalan.srinivasan@gmail.com (India)
Keynote: N.G. Rudraswami (India)
17.2 Geochemistry of Earth's Crust and Crustal Evolution
Allen Nutman anutman@uow.edu.au (Australia)
Keynote: M. Jayananda (India)
17.3 Evolution of Earth's Atmosphere and Ocean: Geological and Geochemical Perspective
Andrey Bekker andrey.bekker@ucr.edu (USA)
Keynote: Itay Halevy (Israel)
17.4 Surface Geochemistry Past and Present
Albert Galy agaly@crpg.cnrs-nancy.fr (France)
17.5 Biogeochemistry
R. Baskar rbaskargjuhisar@yahoo.com (India)
Keynote: Suryendu Dutta (India)
17.6 Environmental Forensics of the Transport and Fate of Contaminant in Soil and Freshwater Systems
Prosun Bhattacharya prosun@kth.se (Sweden), Manish Kumar (India)
Keynote: Kazi Matin U Ahmed (Bangladesh)
17.7 Advances in Analytical Geochemistry
Martin Whitehouse martin.whitehouse@nrm.se (Sweden)
Keynote: Daniel J. Dunkley (Poland)
17.8 Challenges and Opportunities of Global-Scale Geochemical Mapping (4th Arthur Darnley Symposium)
David B. Smith dsmith@usgs.gov (USA), Katherine Knights (Ireland), Patrice de Caritat (Australia), Xueqiu Wang (China), Alecos Demetriades (Greece)
Keynote: Alecos Demetriades (Greece)

Theme 18 | *Advances in Mineralogy, including Ore mineralogy, Gemmology and Geometallurgy*

Coordinators: *K. L. Pruseth klpruseth@gmail.com (India), Jayshree Panjikar jayshreepanjikar@gmail.com (India)*

Symposia

18.1 Minerals and Geochronology

K L Pruseth pruseth@gg.iitkgp.ac.in (India), Dewashish Upadhyay (India)

18.2 Geology and Gemstones

Jayshree Panjikar jayshreepanjikar@gmail.com (India)

Keynote: Dietmar Schwarz (Thailand)

18.3 Advances in Synthetic Gemstones

Pornsawat Wathanakul pwathanakul2@gmail.com (Thailand)

Keynote: Yuri Shelementiev (Russia)

18.4 Diamonds Today

Andy Hsi-Tien Shen ahshen1@ymail.com (China)

Keynote: Emmanuel Fritsch (France)

18.5 Gem Species and Their Varieties

Lee A. Groat groat@mail.ubc.ca (Canada)

Keynote: E. Gamini Zoysa (Sri Lanka)

18.6 Quantitative Mineralogy – Applications and Value in Geoscience Systems

Shaun Graham shaun.graham@zeiss.com (UK), Vishwanath Uppugunduri (India)

Theme 19 | *Metallogeny in relation to Geodynamics and Crustal Evolution – Archean to Recent*

Coordinators: *Mihir Deb mihirdeb@gmail.com, M. L. Dora dorageol@gmail.com (India)*

Symposia

19.1 Metallogeny of South East Asia with Focus on Tectonics and Geochronology

Khin Zaw Khin.Zaw@utas.edu.au (Australia), Akira Imai (Japan), Hai Thanh Tran (Vietnam)

Keynote: Punya Charusiri (Thailand)

19.2 Iron Oxide Copper-Gold (IOCG) Deposits: New Developments in Characterisation, Understanding of Ore-Forming Processes, and Geodynamic Setting

Roger Skirrow roger.skirrow@gmail.com (Australia), Huayong Chen huayongchen@gig.ac.cn (China)

Keynote: Lena Monteiro (Brazil)

19.3 Granite Magmatism and Metallogeny

Yamuna Singh yamunasingh2002@yahoo.co.uk (India), Mohd. Shareef (India), M. L. Dora (India)

Keynote: Jinsheng Han (China)

19.4 Metallogeny in Relation to Subduction
Kirtikumar R. Randive randive101@yahoo.co.in (India), Boris Belyatsky (Russia), Craig Storey (UK)
Keynote: Richard Goldfarb (USA)
19.5 Plume Related Mineralization
K. R. Hari krharigeology@gmail.com (India), E. Sajhi (India)
Keynote: Ross Large (Australia)
19.6 Manganese Metallogenesis in Terrestrial Rock Record
Dillip Ranjan Kanungo dilliprkanungo@gmail.com (India)
Keynote: Sam Spinks (Australia)
19.7 Rift Related Mineralization: Geological and Geophysical Perspectives
Prabodha Ranjan Sahoo prabodha@iitism.ac.in (India), G Sreenivas Rao (India), Sahendra Singh (India)
Keynote: Robert Johannes Giebel (Germany)

Theme 20 | *Sustainable Development and Mining – An Integrated Approach*

Coordinators: *Y. G. Kale ygkale@ibm.gov.in (India),*
Pankaj Satija pk.satija@gmail.com (India),
Pramod Ranjan pramod.ranjan@gmail.com (Australia)

Symposia

20.1 Biodiversity
Vipul Sharma vipul.sharma@iucn.org (India)
20.2 Reporting Sustainability
Biswajit Paul biswajit@iitism.ac.in (India)
20.3 Policy Initiative and Framework
Ashish Dash ashis001@gmail.com (India)
20.4 Mineral Security and Self Dependence
Partho Banerjee banerjee@fomento.com (India)
20.5 Innovative Approaches in Sustainability
G K Pradhan gkpradhan58@gmail.com (India)

Theme 21 | *Earth Observation System – Climate Variables, Proxies and Modelling*

Coordinators: *K. J. Ramesh kj.ramesh@imd.gov.in (India),*
A. P. Dimri apdimri@mail.jnu.ac.in (India)

Symposia

21.1 Altering Biogeochemical Cycles in Changing Climate
Rajesh Agnihotri rajagni9@gmail.com (India), Mark A. Altabet (USA)
Keynote: M. M. Sarin (India)

21.2 Climate Proxy Records: A Tool for Future Climate Modelling
Anupam Sharma anupam110367@gmail.com (India), Liviu Giosan (USA)
Keynote: S J Sangode (India)

21.3 Asian Monsoons and their Drivers from Mid-Holocene through Current Period
Karumuri Ashok ashokkarumuri@uohyd.ac.in (India), Mat Collins (UK)
Keynote: U. C. Mohanty (India); Divakar Pothuri (India); Andrew Turner (UK)

21.4 Air Quality, Environment and Public Health Impacts in Asia
Prabir K. Patra prabir@jamstec.go.jp (Japan), A P Dimri (India)
Keynote: Arun Sharma (India), Tong Zhu (China), R. P. Singh (USA)

21.5 Aerosol-Cloud-Radiation-Land Surface Interactions and Feedbacks: Consequences to Water Cycle during India Summer Monsoon
Sachchida (Sachi) N Tripathi snt@iitk.ac.in (India), Ilan Koren (Israel)
Keynote: Chein Wang (USA)

21.6 Monsoon Dynamics
Roxy Mathew Koll roxy@tropmet.res.in (USA), Deepti Singh (USA)
Keynote: Vimal Mishra (India)

21.7 Climate Change and Earth Surface Processes in the Himalaya: Past and Present
Bodo Bookhagen bodo.bookhagen@uni-potsdam.de (Germany), Rajiv Sinha (India)
Keynote: Vikrant Jain (India)

21.8 Dynamical Downscaling of Climate Projections for Use in Impact Studies at Very High Resolutions
Sushil Kumar Dash skdash@cas.iitd.ernet.in (India), R. Bhatla (India), Erika Coppola (Italy)
Keynote: Ashish Sharma (USA)

Theme 22 | *Evolution of Monsoon: Past, Present and Future*

Coordinators: *Rahul Mohan rahulmohan@ncaor.gov.in (India),*
Arun Deo Singh arundeosingh@yahoo.com (India),
Pallavi Anand pallavi.anand@ open.ac.uk (UK)

Symposia

22.1 Advances in our Understanding of Global Hydro-Climate Dynamics Before Cenozoic

Robert A Spicer r.a.spicer@open.ac.uk (UK), Vandana Prasad (India)

Keynote: Paul J. Valdes (UK)

22.2 Evolution of Monsoon Variability on Tectonic Scale During the Cenozoic

Ann Holbourn ann.holbourn@ifg.uni-kiel.de (Germany), Raj K. Singh (India)

Keynote: Ann Holbourn (Germany)

22.3 Monsoon Evolution Pattern on Orbital to Suborbital and Centennial to Interdecadal Scales

Stephan Steinke ssteinke@xmu.edu.cn (China), Sushant Naik (India)

Keynote: Mahyar Mohtadi (Germany)

22.4 Holocene Monsoon History with Focus on Changes during Last Two Millennia

Ashish Sinha asinha@csudh.edu (USA), Gayatri Kathayat (China), Prosenjit Ghosh (India)

Keynote: Gayatri Kathayat (China)

22.5 Megadroughts: Past, Present, and Future

Gayatri Kathayat kathayat@xjtu.edu.cn (China), Ashish Sinha (USA)

Keynote: Vinita Damodaran (UK); Michael Frogley (UK)

Theme 23 | *Hi-Tech and Critical Mineral Commodities*

Coordinators: *D. K. Sinha dksinha.amd@gov.in (India),*
P. R. Golani prggsi@gmail.com (India),
Taofa Zhou tfzhou@hfut.edu.cn (China)

Symposia

23.1 Carbonatites and Alkaline Rocks: Origin and Evolution with Special Reference to Rare Metal and REE Mineralisation

Anton R. Chakhmouradian chakhmou@cc.umanitoba.ca (Canada), P. Krishnamurthy (India), S. G. Viladkar (India)

Keynote: Anton R. Chakhmouradian (Canada); Hongrui Fan (China)

23.2 Non-Carbonatites Related REE Mineralisation and their Production

Yasushi Watanabe y-watanabe@gipc.akita-u.ac.jp (Japan), Kenzo Sanematsu (Japan)

Keynote: Karen Hanghoj (UK); Yasushi Watanabe (Japan)

23.3 Rare Earths – A Global Perspective

P L Hellman phillip_hellman@bigpond.com (Australia)

Keynote: P L Hellman Phillip (Australia); Yuling Xie (China)

23.4 Critical Raw Materials for Sustainable Development: Geology, Resources, Production and Socio-Economics

Harikrishnan Tulsidas harikrishnan.tulsidas@un.org (Switzerland)

Keynote: Slavko Solar (Belgium); Tapan Kumar Haldar (India)

23.5 Critical Metal Deposits and New Technology

Shao-Yong Jiang shyjiang@cug.edu.cn (China)

Keynote: Shao-Yong Jiang (China)

23.6 Raw Materials for the Electric Vehicle Revolution: Geology, Mineralogy and Geometallurgy

Kathryn Goodenough kmgo@bgs.ac.uk (UK)

Keynote: Jack Bedder (UK)

23.7 Mineral Processing Technology for Cleaner Production of High-Tech and Critical Metals

T Sreenivas tsreenivas@ymail.com (India), Abhilash (India)

Keynote: Pradip (India); Ziyin Li (China)

23.8 Pegmatite: Mechanism of Emplacement, Genesis, Deposits and Economic Significance

M.B. Verma director.amd@gov.in (India)

Keynote: Kathryn Goodenough (UK)

Theme 24 | *Oceans in a Changing World*

Coordinators: *Rajeev Saraswat rs.niog@gmail.com (India), Sunil Kumar Singh sunil@nio.org (India)*

Symposia

24.1 Spatio-Temporal Variability of Carbon Burial in the Oceans

Rajeev Saraswat rs.niog@gmail.com (India)

24.2 Assessing Coastal Vulnerability in A Warming World

R. Mani Murali mmurali@nio.org (India)

24.3 Response of Marine Organisms to Ocean Acidification

Haimanti Biswas haimanti.biswas@nio.org (India), Suhas Shetye (India), Dineshram R (India)

24.4 Reconstructing Past Pollution Levels from Marginal Marine Regions

G.N. Nayak gnnayak@unigoa.ac.in (India), Rajiv Nigam (India)

24.5 Sea Level Changes during Late Pleistocene and Holocene Periods and its Implications of Coastal Landforms.

V.J. Loveson vjloveson@nio.org (India)

Theme 25 | *Human evolution, Geoarcheology, Sustenance Strategies*

Coordinators: *Rajiv Nigam rajivnigam1954@gmail.com (India),*
Rakesh Tiwari rakesh.tewari53@gmail.com (India)

Symposia

25.1 Geoarcheology and Paleoenvironment

P. D. Sabale pandurang.sabale@dcpune.ac.in (India), Atreyee Bhattacharya (USA)

Keynote: Praveen Kumar Mishra (India)

25.2 Late Quaternary Climate Shifts and Human Adaptation to Landscape: A Geoarchaeological Approach

Hema Achyuthan hachyuthan@yahoo.com (India)

Keynote: S.K. Wadhavan (India)

25.3 Terrain, Time and Tools: Pleistocene to Early Holocene Prehistoric Adaptations

Rakesh Tewari rakesh.tewari53@gmail.com (India), Shanti Pappu (India), Kumar Akhilesh (India), Yanni Gunnell (France), Partha Chauhan (India)

Keynote: Rakesh Tewari (India)

25.4 Recent Scientific Methods in Coastal and Inter-Tidal Archaeology

Supriyo Kumar Das sdas.geol@presiuniv.ac.in (India), Kaushik Gangopadhyay (India)

Keynote: Kerstin Lidén (Sweden); Sharad N. Rajaguru (India)

Theme 26 | *Metamorphic Processes and Petrogenesis*

Coordinators: *Somnath Dasgupta somnathdasg@gmail.com (India),*
Santanu K. Bhowmik santanu@gg.iitkgp.ernet.in (India),
G. Clarke geoffrey.clarke@sydney.edu.au (Australia)

Symposia

26.1 Accessory Minerals to Metamorphic Processes: Trace Elemental and Isotopic Insights

Craig Storey craig.storey@port.ac.uk (UK), James Darling (UK)

Keynote: Thomas Zack (Sweden)

26.2 Early Earth Orogenesis

Santanu K. Bhowmik santanu@gg.iitkgp.ernet.in (India), Sankar Bose (India)

Keynote: Sankar Bose (India)

26.3 Metamorphism at Convergent Plate Margins: Tales from the Upper Plate

Richard Mark Palin rmpalin@mines.edu (USA), Nick Roberts (UK)

Keynote: Patrick O'Brien (Germany)

26.4 Characterization, Duration, Tectonics and Implications of Ultrahigh Temperature Metamorphism

Somnath Dasgupta somnathdasg@gmail.com (India), Pulak Sengupta (India)

Keynote: Pulak Sengupta (India)

26.5 HP- To UHP Metamorphism: From Small Scale Observations to Mountain Forming Processes

Hans-Peter Schertl hans-peter.schertl@rub.de (Germany), Jingsui Yang (China)

Keynote: Lifei Zhang (China)

26.6 Metamorphic Products of Lithospheric Convergence: Subduction Zones

Philippe Agard philippe.agard@sorbonne-universite.fr (France), Sarah Penniston-Dorland (USA)

Keynote: Samuel Angiboust (France)

Theme 27 | *Rock Deformation and Rheology*

Coordinators: *M.A. Mamtani mamtani@gg.iitkgp.ac.in (India),*
Anupam Chattopadhyay anupamchatto@gmail.com (India),
Rodolfo Carosi rodolfo.carosi@unito.it (Italy)

Symposia

27.1 Field Structures – Macro to Meso Scale Deformation Processes

Bernhard Grasemann bernhard.grasemann@univie.ac.at (Austria), T. K. Biswal (India)

Keynote: Richard Law (USA); Dhruba Mukhopadhyay (India)

27.2 Rheology and Deformation Mechanisms in the Earth

Nibir Mandal nibirmandal@yahoo.co.in (India), Susan Ellis (New Zealand), Joel Sarout (Australia), Santanu Misra (India)

Keynote: Claudio Faccenna (USA)

27.3 Fabric Analysis – Past, Present and Future

Richard Law rdlaw@vt.edu (USA), Toru Takeshita (Japan), Koushik Sen (India)

Keynote: Patrick Trimby (UK)

27.4 Structural Control on Fluid Flow and Mineralization

Paul D. Bons paul.bons@uni-tuebingen.de (Germany), Tridib Kumar Mondal (India), Sivaji Lahiri (India)

Keynote: Enrique Gomez-Rivas (Spain)

27.5 Extrapolating Experimental Rock Deformation Results to Field Structures

Alison Ord alison.ord@uwa.edu.au (Australia), Santanu Bose (India), H.B. Srivastava (India), J.H. Kruhl (Germany), Virginia G. Toy (New Zealand)

27.6 Structural Geology and Society - Restoration, Geothermal Energy and Hydrocarbons

Rosalda Punturo punturo@unict.it (Italy), Dominico Liotta (Italy), Chris Hilgers (Germany), Susanta Kumar Samanta (India), Sandeep Bhatt (India)

Keynote: Eugenio Fazio (Italy)

Theme 28 | *Ore forming processes and systems (Sponsored by SEG and SGA)*

Coordinators: *Sisir K. Mondal sisir.mondal@gmail.com (India),*
Biswajit Mishra bmgg@iitkgp.ac.in (India),
Jan Pasava jan.pasava@geology.cz (Czech Republic),
Richard Goldfarb rjgoldfarb@mac.com (USA),
David Lentz dlentz@unb.ca (Canada),
A. Pitawala apitawala@yahoo.com (Sri Lanka)

Symposia

28.1 Magmatic Processes and Ore Deposits

Mei-Fu Zhou mfzhou@hku.hk (Hong Kong), Ibrahim Uysal (Turkey), J. Gregory Shellnutt (Taiwan), Shoji Arai (Japan)

Keynote: Steve Barnes (Australia)

28.2 Hydrothermal Processes and Ore Deposits

Franco Pirajno franco.pirajno@uwa.edu.au (Australia), Nigel Cook (Australia), Guoxiang Chi (Canada), Reimar Seltmann (UK), Jingwen Mao (China)

Keynote: Guoxiang Chi (Canada)

28.3 Sedimentary Processes and Ore Deposits

Andrey Bekker andreyb@ucr.edu (USA), Nicolas J Beukes (South Africa), Harilaos Tsikos (South Africa), Carlos Alberto Rosière (Brazil), Joydip Mukhopadhyay (India), Bertus Smith (South Africa)

Keynote: Sam Spinks (Australia)

28.4 Fluid/Melt Inclusions, Trace Element and Isotope Geochemistry in Study of Ore Deposits

Robert Bodnar rjb@vt.edu (USA), Svetlana Tessalina (Australia), Maria Luce Frezzotti (Italy), John Mavrogenes (Australia)

Keynote: Martin S. Appold (USA)

28.5 Solubility of Metals in Melt/Fluid Systems

Anna Vymazalová anna.vymazalova@geology.cz (Czech Republic), Hassan Helmy (Egypt)

Keynote: John Mavrogenes (Australia)

28.6 Metamorphism and Ore Remobilization

Xiaochun Li lixc1986@hku.hk (Hong Kong), Richen Zhong (China)

Keynote: Richen Zhong (China)

Coordinators: *Manas Roychowdhury manasmayukh@gmail.com (India),*
P. S. Parihar pariharps1954@gmail.com (India),
Patrice Bruneton p.bruneton@orange.fr (France)

Symposia

29.1 Uranium Mineral Systems: Genetic Models and New Understandings of Uranium Deposits
Susan M Hall susanhall@usgs.gov (USA)
Keynote: Susan M Hall (USA)

29.2 Advances in Uranium Exploration and Exploitation
Michel Cuney michel.cuney@univ-lorraine.fr (France),
Keynote: Michel Cuney (France)

29.3 Unconventional Uranium Resources: A Global Perspective
Patrice Bruneton p.bruneton@orange.fr (France)
Keynote: Patrice Bruneton (France)

29.4 Thorium: Future Energy Source Exploration, Resources and Technology
Harikrishnan Tulsidas harikrishnan.tulsidas@un.org (Switzerland)
Keynote: Harikrishnan Tulsidas (Switzerland)

29.5 Uranium Resources and the Fuel Cycle for the 21st Century
Christophe Xerri c.xerri@iaea.org (Austria), Harikrishnan Tulsidas (Switzerland)
Keynote: Christophe Xerri (Austria)

29.6 Geological Aspects, Exploration and Economics of Coal Deposits
A.B. Dutt amit22dutt@gmail.com, Chandan Chakraborty (India), Anjan Rai Choudhuri (India), Goutam Mukherji (India)

29.7 Coal: Characterization, Beneficiation and Utilization
Uttam Kumar Bhui Uttam.bhui@spt.pdpu.ac.in (India), V. A. Mendhe (India), Naeem Ahmed (India), Sudip Bhattacharya (India)

Theme 30 | *Hydrocarbon Systems*

Coordinators: *Kalachand Sain kalachandsain@yahoo.com (India),*
P. Chandrasekharan pcran@oilindia.in (India),
Richard Coffin Richard.Coffin@tamucc.edu (USA)

Symposia

30.1 Petroleum System

Keyu Liu Liukeyu@upc.edu.cn (China), Indrajit Barua (India), K. Vasudevan (India)

30.2 Shale Gas & Coal Bed Methane

A. M. Dayal anurodhisotope@gmail.com (India), Brian Horsfield (Germany), Rajiw Lochan (India)

30.3 Gas-Hydrates: Future Major Energy Resources

Ingo Pecher i.pecher@auckland.ac.nz (New Zealand), Bjørn Kvamme (Norway), Kalachand Sain (India), Giuliana Panieri (Norway)

30.4 Sub-volcanic Mesozoic Sediments

Kalachand Sain kalachandsain@yahoo.com (India), N. Chandrasekhar (India)

30.5 Enhanced Oil Recovery

Masoud Riazi mriazi@shirazu.ac.ir (Iran), Manouchehr Haghighi (Australia)

30.6Carbon Capture, Utilization and Storage Experiment

P S R Prasad psrprasad@ngri.res.in (India), Baleshwar Kumar (India), Dag Nummedal (USA)

30.7 Tectonics, Sedimentary Basins and Petroleum Systems

Zhiqiang Feng fengzq.syky@sinopec.com(China), Dengliang Gao (USA)

Theme 31 | *Geohazards*

Coordinators: *O P Mishra opmishra2010.saarc@gmail.com (India),*
Saibal Ghosh saibal.ghosh.gsi@gov.in (India),
Fausto Guzzetti fausto.guzzetti@irpi.cnr.it (Italy)

Symposia

31.1 Geosciences for Disaster Risk Reduction

Fausto Guzzetti fausto.guzzetti@irpi.cnr.it (Italy), Warner Marzocchi (Italy), Hongey Chen (Taiwan)

Keynote: Gabriele Scarascia Mugzza (Italy)

31.2 Geohazards in Inter and Intra Plate Tectonic Regimes

Sandip K Som sksom999@gmail.com (India), A. P. Singh (India), Shuichi Hasegawa (Japan)

Keynote: J. R. Kayal (India)

31.3 Landslides, Other Related Mass-Wasting Hazards and Associated Risks

Jonathan Godt jgodt@usgs.gov (USA), Oded Katz (Israel), Fausto Guzzetti (Italy), Niroj K. Sarkar (India)

Keynote: Fausto Guzzetti (Italy)

31.4 Analysis of Multi-Hazards and their Risk over Large Areas

Cees J. van Westen c.j.vanwesten@utwente.nl (The Netherlands), Peter T. Bobrowsky (Canada)

Keynote: Cees J van Westen (Netherlands)

31.5 Monitoring, Predictability and Early Warning of Geohazards

Chandan Ghosh cghosh24@gmail.com (India), Hemanta Hazarika (Japan), Anand J Puppala (USA)

Keynote: Hongey Chen (Taiwan)

31.6 Urbanization and Geohazards

R K Srivastava srivastava.rks@gmail.com (India), Mriganka Ghatak (India)

Keynote: Chandan Ghosh (India)

31.7 Mining and Industrial Hazards and Subsidence

D. Jean Hutchinson hutchinj@queensu.ca (Canada), Gurdeep Singh (India)

Keynote: J. K. Pandey (India)

31.8 Geohazards Risk Reduction Measures and Mitigation

Helen J. Reeves hjre@bgs.ac.uk (UK), D. Jean Hutchinson (Canada)

Keynote: Ranjan Kumar Dahal (Nepal)

31.9 Geohazards Risk: Communications, Education & Knowledge Exchange

Bruce D. Malamud bruce.malamud@kcl.ac.uk (UK), Maneesha V. Ramesh (India), Mirianna Budimir (UK)

Keynote: Helen Reeves (UK)

31.10 Global Disaster Risk Reduction Policies: Status, Scope and Future Perspectives

Mriganka Ghatak mghatak.sdmc@gmail.com (India), Shahnaz Huq Hussain (Bangladesh)

Keynote: O P Mishra (India)

Theme 32 | *Environmental Geosciences*

Coordinators: *J. K. Tripathi jktrip@yahoo.com (India),*
C. V. Dharma Rao venchasa@gmail.com (India),
Vijay P. Singh vsingh@tamu.edu (USA),
Rohana Chandrajith rohanac@pdn.ac.lk (Sri Lanka)

Symposia

32.1 Human Activities and the Geoenvironment

Imasiku A Nyambe inyambe@unza.zm (Zambia), Benjamin Mapani (Namibia), Brian Marker (UK)

32.2 Environmental Geochemistry

J K Tripathi jktrip@yahoo.com (India), Abhay Kumar Singh (India), Sudesh Yadav (India), Archana Gattupalli (India), David Smith (USA), C V Dharma Rao (India)

Keynote: David Polya (UK)

32.3 Palaeosols and Palaeoweathering Profiles: Indicators of Palaeoclimates and Palaeoenvironments

Jayant K. Tripathi jktrip@yahoo.com (India)

32.4 Water Resources

C V Dharma Rao venchasa@gmail.com (India), Vijay P. Singh (India), Abhay Kumar Singh (India)

32.5 Urban Geosciences

Daniel Schertzer Daniel.Schertzer@enpc.fr (France), Klaus Fraedrich (Germany), Stefano Tinti (Italy)

Theme 33 | *Engineering Geology and Geotechnical Engineering*

Coordinators: *K. S. Rao raoks@civil.iitd.ernet.in (India),*
Scott F. Burns burnss@pdx.edu(USA)

Symposia

33.1 Recent Advances in Engineering Geology

Gopal Dhawan gdhawangeologist@gmail.com (India), Imran Sayeed (India), Ranjith Rath (India)

Keynote: Gopal Dhawan (India); Rafig Azzam (Germany)

33.2 Soil Mechanics and Geoenvironmental Engineering

N. K. Samadhiya samadhiyank@gmail.com (India)

33.3 Rock Engineering and Underground Structures

Mahendra Singh singhfce@iitr.ac.in (India), Amit Shrivastava (India)

Keynote: Giovanni Grasselli (Canada)

33.4 Soil Dynamics and Earthquake Geotechnical Engineering

Neelima Satyam neelimasatyam.d@gmail.com (India), Ganesh W Rathod (India)

Keynote: Andrzej Kijko (South Africa)

Theme 34 | *Geomagnetism: Origin of Geomagnetism, Seismology from Space*

Coordinators: *Mita Rajaram mitarajaram@yahoo.com (India),*
S. Gurubaran gurubara@iigs.iigm.res.in (India),
C. D. Reddy cdreddy@hotmail.com (India),
Pierdavide Coisson coisson@ipgp.fr (France)

Symposia

34.1 The Main Geomagnetic Field: Understanding the Structure, Dynamics and History of the Earth

B. Sreenivasan bsreeni@ceas.iisc.ernet.in (India), G. Vichare (India), Yujhi Yamamoto (Japan)

Keynote: Masahiko Sato (Japan)

34.2 Decoding Seismic Imprints in the Earth and its Near Space Environment

Lucie Rolland (France), Mala S. Bagiya mala@iigs.iigm.res.in; bagiyamala@gmail.com (India), P. S. Sunil (India)

Keynote: Philippe Lognonné (France)

34.3 Remote Sensing of Lithosphere Using Natural Source Magnetic and Electromagnetic Method for Structure, Tectonics and Resource Evaluation.

Jérôme Dyment jdy@ipgp.fr (France), D. Ravat (USA), Gautam Gupta (India), Anand. S.P. (India)

Keynote: Jerome Dyment (France)

Theme 35 | *Advances in Mathematical Geosciences, Mineral Resource Evaluation and Mine-Planning*

Coordinators: *H S Pandalai pandalai@iitb.ac.in (India),*
P V Rao drpvrao@gmail.com (India),
Jennifer McKinley j.mckinley@qub.ac.uk (UK)

Symposia

35.1 Mathematical Geosciences and Mineral Resource Evaluation

B. S. Daya Sagar bsdsagar@isibang.ac.in (India)

Keynote: Frits Agterberg (Canada); Raimon Tolosana-Delgado (Germany); Karel Hron (Czech Republic)

35.2 Mine Planning and Scheduling

T.N. Gunaseelan guna@dmt-group.com (India), Ernst Bernhard Teigler (Germany)

35.3 Risk Analyses in Mineral Resource Evaluation, Mine Planning and Operations

Abani R Samal arsamal@gmail.com (USA), Edson Ribeiro (Brazil), Mark Burnett (UK)

Theme 36 | *Exploration and Mining of Marine Mineral Resources*

Coordinators: *S. Rajan rajan.ncaor@gmail.com (India),*
Rasik Ravindra rasikravindra@gmail.com (India),
John Kurian john@ncaor.gov.in (India),
Tetsuro Urabe urabe@oa.u-tokyo.ac.jp (Japan)

Symposia

36.1 Polymetallic Nodules: Geological Characteristics and Resource Potential

Abhishek Saha asaha@nio.org (India), Kali Sanjay (India), Thomas Kuhn (Germany)

Keynote: Prodip Kumar Sen (India)

36.2 Modern Seafloor Hydrothermal Systems and Massive Seafloor Sulphides

Kamesh Raju kameshraju@gmail.com (India), John Kurian (India), Jérôme Dyment (France)

Keynote: Jerome Dyment (France)

36.3 Cobalt-Rich Ferromanganese Crusts: Formation and Occurrence

Sridhar D. Iyer iyer@nio.org (India), V. K. Banakar (India), James R. Hein (USA)

Keynote: James R. Hein (USA)

36.4 Exploration for Deep-Sea Mineral Resources: The Scientific and Technological Challenges

G. A. Ramadass ramadass@niot.res.in (India), John Kurian (India), Georgy Cherkashev (Russia)

Keynote: Tetsuro Urabe (Japan)

36.5 Mining of Deep-sea Minerals: Potential Impacts on the Marine Environment, Remedial Measures and Mitigation Strategies

Rahul Sharma rsharmagoa@gmail.com (India), Baban Ingole (India), Yoshihisa Shirayama (Japan), Teresa Radziejewska (Poland)

Keynote: Yoshihisa Shirayama (Japan)

36.6 Deep Sea Mining Within and Beyond National Jurisdictions: Technological Developments and Regulatory Frameworks

M. A. Atmanand atma@niot.res.in (India), Tetsuro Urabe (Japan), S. Rajan (India)

Keynote: Harald Brekke (Norway)

36.7 Extended Continental Shelves under UNCLOS: Sovereign Rights for Exploiting Non-living Resources Beyond 200 Nautical Miles

Bimal N. Patel vc@gnlu.ac.in (India), Rasik Ravindra (India), S. Rajan (India)

36.8 Mineral Resources of the Continental Margins, Excluding Hydrocarbons

V. Purnachandra Rao vprao55@gmail.com (India), A. Anil Kumar (India)

Keynote: V. Purnachandra Rao (India)

Theme 37 | *Critical Zone and Sustainable Development*

Coordinators: *Vimal Singh vimalgeo@gmail.com (India),*
Sekhar Muddu sekhar.muddu@gmail.com (India)

Symposia

37.1 Ecohydrology

Karl Schneider karl.schneider@uni-koeln.de (Germany)

37.2 Critical Zone Science in Tropical System

Laurent Ruiz Laurent.Ruiz@inra.fr (France)

Keynote: Laurent Ruiz (France)

37.3 Biogeosciences

Jean Riotte jean.riotte@get.obs-mip.fr (France)

Keynote: Jean Riotte (France)

Theme 38 | *Hydrogeology and Sustainable Development*

Coordinators: *L. Elango elango34@hotmail.com (India),*
Dipankar Saha dsaha002@yahoo.com (India),
Makoto Taniguchi makoto@chikyu.ac.jp (Japan)

Symposia

38.1 Mapping, Investigation, Characterisation and Management of Aquifers

Dipankar Saha dsaha002@yahoo.com (India)

Keynote: Paul Pavelic (Laos)

38.2 Ground Water Chemistry and Contamination

L. Elango elango34@hotmail.com (India)

Keynote: Prosun Bhattacharya (Sweden)

38.3 Managed Aquifer Recharge and Groundwater Resource Sustainability

R C Jainratan.jain@gmail.com (India)

Keynote: Stefen Catalin (Germany)

38.4 Fragile Hydrogeology of Coastal, Island and Other Sensitive Areas

Abhijit Mukherjee amukh2@gmail.com(India)

38.5 Deeper and Trans-Boundary Aquifers

Shashank Sekhar shashankshekhar01@gmail.com (India)

Keynote: Alan E. Fryar (USA)

38.6 Impact of Climate Change on Ground Water

Makoto Taniguchi makoto@chikyu.ac.jp (Japan)

Keynote: Makoto Taniguchi (Japan)

Theme 39 | *Geoscience Information - Integration*

Coordinators: *Alok Porwal alok.porwal@gmail.com (India),*
Vinod Kumar vinodkumar_k@nrsc.gov.in (India),
M N Mishra mnmishra4@yahoo.co.in (India),
Ignacio González-Álvarez Ignacio.Gonzalez-Alvarez@csiro.au (Australia)

Symposia

39.1 Mineral Systems Approach to Exploration Targeting

Alok Porwal alok.porwal@gmail.com (India), Ignacio González-Álvarez (Australia)

Keynote: Kevin Cassidy (Australia)

39.2 Mineral Prospectivity Modelling: State of the Art

E John M Carranza ejmcarranza@gmail.com (South Africa), Alok Porwal (India)

Keynote: Renguang Zuo (China)

39.3 Remote Sensing & Geosciences

Carlos Roberto de Souza Filho beto@ige.unicamp.br (Brazil)

Keynote: Michael Abrams (USA)

39.4 Geocomputation and Data Analytics for Geological Data Mining and Knowledge Discovery

E J Holden eun-jung.holden@uwa.edu.au (Australia), Jens Klump (Australia)

Keynote: EJ Holden (Australia)

Theme 40 | *Planetary Sciences*

Coordinators: *Mahesh Anand mahesh.anand@open.ac.uk (India),*
Jayanta K. Pati jkpati@gmail.com (India),
Wolf Uwe Reimold wolf.uwer@gmail.com (Germany)

Symposia

40.1 Planetary Surface Processes on Moon, Mars and Venus

P. Senthil Kumar senthil@ngri.res.in (India), S. Vijayan (India), R. Phani Rajasekhar (India)

Keynote: Joseph Michalski (Hong Kong)

40.2 Cosmochemistry of Planetary Materials and Planetary Processes.

Luigi Folco luigi.folco@unipi.it (Italy)

40.3 Impact Cratering – The Works

Wolf Uwe Reimold wolf.uwer@gmail.com (Germany)

Keynote: Philippe Lambert (France)

40.4 Remote Sensing-Based Compositional Studies of Planetary Bodies and Planetary Geomorphology

Deepak Dhingra deepdpes@gmail.com (India) Neeraj Srivastava (India) Megha U. Bhatt (India)

Keynote: Makiko Ohtake (Japan)

40.5 Comparative Planetary Mineralogy and Petrology using Terrestrial Analogues

V. J. Rajesh rajeshvj@iist.ac.in (India), Satadru Bhattacharya (India)

Keynote: Janice L. Bishop (USA)

40.6 Space Instrumentations and Innovations- Downsizing and Energy Efficient Technology

Varun Sheel varun@prl.res.in (India), M. Shanmugam (India), Debabrata Banerjee (India)

40.7 Planetary Habitability and Astrobiology

Anil Dutt Shukla anilds@prl.res.in (India)

Theme 41 | *Quantification of Non-linear Geological Processes*

Coordinators: *R. K. Tiwari rktiwari54@gmail.com (India),*
Abhey Ram Bansal abhey.bansal@gmail.com (India),
Maurizio Fedi fedi@unina.it (Italy)

Symposia

41.1 Chaos and Fractal theory

Vipin Srivastava vipinsri02@gmail.com (India), G. Rangrajan (India)

Keynote: Daniel Schertzer (France)

41.2 Earthquake Triggering/ Interaction

Zhigang Peng zpeng@gatech.edu (USA), Ian Main (UK), A. R. Bansal (India)

Keynote: Shinji Toda (Japan)

41.3 Statistical Seismology

J. Zhuang zhuangjc@ism.ac.jp (Japan), S. S. Teotia (India), D. Shanker (India)

Keynote: Jiancang Zhuang (Japan)

41.4 Mathematical Modelling of Seismology and Earthquake Engineering

Sohichi Hirose hirose.s.aa@m.titech.ac.jp (Japan), S K Tomar (India)

Keynote: Sohichi HIROSE (Japan)

41.5 Scaling, Stochastic Processes, and Complex Networks

Daniel Schertzer Daniel.Schertzer@enpc.fr (France), Juergen Kurths (Germany), Ankit Aggarwal (India)

Keynote: Vipin Srivastava (India)

41.6 Nonlinear Processes in Potential Field

Maurizio Fedi fedi@unina.it (Italy), V P Dimri (India)

Keynote: V. P. Dimri (India)

41.7 Quantification and Modelling of Nonlinear Processes in Climate Change and Extreme Events

A. S. Sharma ssh@astro.umd.edu (USA), R. K. Tiwari (India), Saumen Maiti (India)

Keynote: V. Krishnamurthy (USA)

41.8 Hydrology and Reservoir Dynamics

Giorgio Cassiani giorgio.cassiani@unipd.it (Italy), Shib S. Ganguli (India)

41.9 Application of Nonlinear Methods in Geological Processes

Qiuming Cheng qiuming.cheng@iugs.org (China), Bishwajit Chakraborty (India)

Keynote: Surjalal Sharma (USA)

41.10 Geophysical Inversion Methods and Optimization

Michael S. Zhdanov michael.zhdanov@utah.edu (USA), Upendra K. Singh (India)

Keynote: Maurizio Fedi (Italy)

Theme 42 | *Geological Sequestration of CO2 and Enhanced Oil Recovery*

Coordinators: *Nimisha Vedanti nimisha@ngri.res.in (India),*
Vikram Vishal v.vishal@iitb.ac.in (India),
Sally Benson smbenson@stanford.edu (USA)

Symposia

42.1 Deccan Trap basement: Evolution and Processes

Om Prakash Pandey om_pandey@rediffmail.com (India), J P Shrivastava (India), Nimisha Vedanti (India)

Keynote: Mrinal K. Sen (USA)

42.2 Carbon Capture and Utilization as a Pathway to Reliable Storage

Jennifer Wilcox jlwilcox@wpi.edu (USA)

Keynote: Desikan Sundararajan (India)

42.3 CO2 Storage/ Trapping Mechanism

Qi Li qli@whrsm.ac.cn (China)

42.4 CO2 Storage Associated with Enhanced Oil Recovery

Richard A. Esposito raesposi@uab.edu (USA)

Keynote: Steven M Carpenter (USA)

42.5 Geologic Storage of CO2 in Deep Saline Aquifers / Geologic Site Characterization and Monitoring

S P Pradhan saradaiitb@gmail.com (India), Jonathan Pearce (UK), John Williams (UK)

Theme 43 | *Kimberlites, Xenoliths and Diamonds: Snapshots of the Earth's Mantle*

Coordinators: *S. Ravi sraviiyers@gmail.com (India),*
E.V.S.S.K. Babu evsskbabu@gmail.com (India),
Fareeduddin fareedromani@gmail.com (India),
Abhijit Mukherjee abhijeetmukherjee64@gmail.com (India),
Sebastian Tappe sebastiant@uj.ac.za (South Africa)

Symposia

43.1 Exploration and Mining for Kimberlites

Biplob Chatterjee biplob.chatterjee@geovale.com (India)

Keynote: S. C. Patel (India)

43.2 Emplacement for kimberlites, their petrology and mafic/ultramafic xenoliths.: Physical and Chemical Architecture of the subcontinent

S. C. Patel scpatel@iitb.ac.in (India)

Keynote: Vladimir Malkovets (Russia)

43.3 Diamonds and deep mantle process, petrological Geochemical Isotopic studies from mantle

Sebastian Tappe sebastiant@uj.ac.za (South Africa); J.N. Das jndas7@gmail.com (India)

Keynote: Sebastian Tappe (South Africa)

Theme 44 | *Non-invasive 3D Groundwater Mapping for Resource Management*

Coordinators: *Shakeel Ahmed shakeelifcgr@gmail.com (India),*
Subash Chandra schandra75@gmail.com (India),
John W. Lane Jr. jwlane@usgs.gov (USA)

Symposia

44.1 Assessing Sub-Surface from Space and Remote Sensing
Saumitra Mukherjee saumitramukherjee3@gmail.com (India), Atiqur Rahman (India)
Keynote: V M Tiwari (India)
44.2 High Resolution 3D Geophysical Mapping of Geological Formations With Diverse Application
Esben Auken esben.auken@geo.au.dk (Denmark), Subash Chandra (India), S.K. Verma skvngri@gmail.com (India), Jainendra K. Rai (India)
Keynote: Esben Auken (Denmark)
44.3 Characterization of Litho-Units for Aquifer Delineation by Integrating Ground Survey Data
Prabhat C. Chandra chandrapc67.gwgp@gmail.com (India), Kishore C. Naik (India)
Keynote: P.C. Chandra (India)
44.4 Geological and Geotechnical Characterisation for Fracture Pathway in Hard Rocks
Subash Chandra schandra75@gmail.com (India), Rana Chatterjee (India)
Keynote: S K Verma (India)
44.5 Geophysically Constrained Hydrogeological Parameters Estimation
Mohammed Israil mohdfes@iitr.ac.in (India), Sarah (India)
Keynote: Flemming Efferso (Denmark)

Theme 45 | *Thematic and Specialised Symposia/ Sessions Organisedby International and National Scientific Organisations*

45.1 Hillslope Process and Climate Change [International Association of Geomorphologists (IAG)]
Mauro Soldati (Italy), Sunil Kumar De desunil@yahoo.com (India), Mihai Micu (Romania)
45.2 Geomorphological Hazards and Risks mitigation through new techniques [International Association of Geomorphologists (IAG) Working Group on GEOMORPHOLOGICAL HAZARDS (IAGGeomhaz)]
Bianca Vieira (Brazil), Sunando Bandyopadhyay odnanus@gmail.com (India), Helene Petschko (Austria)
45.3 Status of mineral resources of SAARC nations for cooperative mineral-based industries [Indian Geological Congress (IGS)]
O. P. Verma igcroorkee@gmail.com (India)
45.4 Special IAMG Award Keynote session [International Association for Mathematical Geosciences (IAMG)]
Jennifer McKinley j.mckinley@qub.ac.uk (UK), Christien Thiart (South Africa)
45.5 Special IAMG Session on IAMG Delegate Meeting [International Association for Mathematical Geosciences (IAMG)]
Jennifer McKinley j.mckinley@qub.ac.uk (UK)
(Shifted to Business Meeting)

45.6 Symposia/Sessions proposed for 6th YES Congress: Breaking Boundaries - Unifying Geosciences [YES Network]

(Shifted to 6th YES congress)

45.7 The IUGS Big Science Program: Deep-time Digital Earth (DDE) [International Union of Geological Geosciences (IUGS)]

Shuzhong Shen szshen@nju.edu.cn (China), Kerstin Lehnert lehnert@ldeo.columbia.edu (USA)

45.7.1. Evolution of Life and Biodiversity Changes through Deep Time

Shuzhong Shen szshen@nju.edu.cn (China), David A. T. Harper david.harper@durham.ac.uk (UK), Sylvie Crasquin sylvie.crasquin@mnhn.fr (France)

45.7.2. Evolution of Sedimentary and Paleoclimate System

Isabel Montañez ipmontanez@ucdavis.edu (USA), Stephen Hesselbo S.P.Hesselbo@exeter.ac.uk (UK), Xiumian Hu huxm@nju.edu.cn (China)

45.7.3. Quantifying Plate Tectonics and Deformation in Four Dimensions

Shaofeng Liu 1 998011190@cugb.edu.cn (China), Simon Williams simon.williams@nwu.edu.cn (China), Michael Gurnis gurnis@gps.caltech.edu (USA)

45.7.4. Exploring the Evolution of Materials and Environments through Deep Time

Shaunna M. Morrison smorrison@carnegiescience.edu (USA), Robert M. Hazen rhazen@ciw.edu (USA), Zengqian Hou houzengqian@126.com (China)

45.7.5. Open and Big Data, Artificial Intelligence, and Geoinformatics: New Paradigms that Advance Discovery and Knowledge of Earth in Deep-time

Kerstin A. Lehnert lehnert@ldeo.columbia.edu (USA), Junxuan Fan jxfan@nju.edu.cn (China), Shanan Peters peters@geology.wisc.edu (USA), Matt Harrison mharr@bgs.ac.uk (UK)

45.7.6. DDE in Geological Survey Organizations and Industry

Shaunna M. Morrison smorrison@carnegiescience.edu (USA), Mike Stephenson mhste@bgs.ac.uk (UK), Zhiqiang Feng fengzq.syky@sinopec.com (China)

45.7.7. Dinosaur Macroevolution and Building an Integrated Database for both Academia and the Public

Xing Xu xu.xing@ivpp.ac.cn (China), Mark A Norell norell@amnh.org (USA), Michael Benton mike.benton@bristol.ac.uk (UK)

45.7.8 Orogenic architecture and crustal growth from accretion to collision (IGCP-662)

Tao Wang Taowang@cags.ac.cn (China), Dmitry Gladkochub dima@crust.irk.ru (Russia), Reimar Seltmann R.Seltmann@nhm.ac.uk (UK), Suzanne Y. O'Reilly sue.oreilly@mq.edu.au (Australia), Oleg Petrov vsegei@vsegei.ru (Russia), Wenjiao Xiao wj-xiao@mail.iggcas.ac.cn (China)

45.7.9. Workshop: Tools and Techniques of Data-Driven Discovery

Junxuan Fan jxfan@nju.edu.cn (China), Shaunna M. Morrison smorrison@carnegiescience.edu (USA) (Argentina), Ignacio Díaz-Martínez (Argentina), Paolo Citton (Argentina)

45.8 Geohazards Surveys, Data Integration and their Comprehensive Guidelines [IUGS Task Force on Geohazards]

Yasukuni Okubo Okubo-Yasukuni@jspacesystems.or.jp (Japan), Antonio Correia (Portugal), Adichat Surinkum (Thailand), Zhang Minghua (China), Carlo Doglioni (Italy), José Pacheco (Portugal), Benjamin van Wyk de Vries (France), Yoshihiko Ito (Japan)

45.9 Role and Contributions of Geosciences Community and Institutions Role and Contributions for Sustainable Development Goals [Federation of Indian Geosciences Associations (FIGA)]

Virendra M Tiwari igacongressdirector@gmail.com, director@ngri.res.in (India), Kalachand Sain (India)

45.10 Advances in Geoscience Data Sharing and Processing [CGI-IUGS – IAMG – OneGeology - CCOP]

Zhang Minghua zminghua@mail.cgs.gov.cn (China), Francois Robida (France), Jennifer McKinley (UK), Matt Harrison (UK), Young Joo Lee (Korea)

45.11 40 years with International Lithosphere Program (ILP) [International Lithosphere Program (ILP)]

Hans Thybo (Turkey), Magdalena Scheck-Wenderoth magdalena.scheck@gfz-potsdam.de (Germany), Alexander Rudloff (Germany)

45.12 Advanced Quantitative Studies and 3D or 4D Forward & Inverse Modelling inGeosciences [American Association of Petroleum Geologists (AAPG)]

J.A.Vargas-Guzmán vargasja@aramco.com (Australia), Radhey S. Bansal (India)

45.13 Ground, Unmanned vehicles and Satellite Observations for Monitoring, Mapping and Early Warning of Geo-Hazards [AGU-IUGG]

Ramesh P Singh, rsingh@iitmandi.ac.in (India), Alik Ismail-Zade (Germany), Anil D. Shukla (India), Dericks P. Shukla (India)

45.14 Critical Mineral Resources related to Granitic and Pegmatitic Systems: From Minerals to Metallogeny [Working Group on Critical Metals (WGCM) of International Association on the Genesis of Ore Deposits (IAGOD)]

Jingwen Mao jingwenmao@263.net (China), Reimar Seltmann r.seltmann@nhm.ac.uk (UK), Yanbo Cheng yanbo.cheng1@jcu.edu.au (Australia), Guiqing Xie xieguiqing@cags.ac.cn (China), Yamuna Singh yamunasingh2002@yahoo.co.uk (India)

45.15 Geoscience in Sustainable Development [Association of Geoscientists for International Development (AGID)]

Afia Akhtar afia@agni.com (Bangladesh), Viqar Hussain Prof.viqarhusain@yahoo.com (Pakistan), M Nurul Hasan mnhasan@agni.com (Bangladesh), Shahina Tariq shahinatariq@comsats.edu.pk (Pakistan), Madhumita Das madhumitadas_geo@rediffmail.com (India)

45.16 Ground Water Development for Achieving Food Security and Improving Rural Health in Low-Income Countries [Association of Geoscientists for International Development (AGID)]

S. D. Limaye sdlimaye@gmail.com (India), Bhavana Umrikar bnumrikar@gmail.com (India), Bhagyashri Maggirwar bhagyashri.maggirwar@gov.in (India)

45.17 Socio-Geology & Socio-Hydrogeology: Taking Geosciences to the Society [Association of Geoscientists for International Development (AGID)]

S. D. Limaye sdlimaye@gmail.com; sdlimaye@yahoo.com (India), Afia Akhtar afia@agni.com (Bangladesh), Shahina Tariq shahinatariq@comsats.edu.pk (Pakistan), Bhagyashri Maggirwar bhagyashri.maggirwar@gmail.com (India)

45.18 Decoding the Earth's Surface in High-Mountain Terrains: Processes and Timescales of Tectonic and Climatic Forcing on Topography (DESTINY) [German Research Foundation (DFG)]

45.19 Geology/geodynamics of the Indian Ocean and its margins [Commission for the Geological Map of the World (CGMW)]

Manuel Pubellier manupub.pubellier@gmail.com (France), Nadine Ellouz-Zimmermann (France), Peter Miles (UK)

45.20 Evolution of the Korean Peninsula and East Asian tectonics [Geological Society of Korea & Korean Society of Petroleum and Sedimentary Geology]

Chang-sik Cheong, ccs@kbsi.re.kr (Korea), Young Kwan Sohn yksohn@gnu.ac.kr (Korea)

45.21 3D geological mapping: international status, barriers, and perspectives of geomodelling

Philippe Calcagno p.calcagno@brgm.fr (France), Sunseare Gabalda (France), Simon Lopez (France) Research Engineers, BRGM, France

45.22 Groundwater Management: Opportunities in Building Resilience and Climate Change Adaptation

Paul Pavelic p.pavelic@cgiar.org (Laos), Alok Sikka (India), Mohammad Faiz Alam (India) Shilp Verma (India)

45.23 Groundwater over extraction and its sustainable management- focusing India [Indian National Committee of International Association of Hydrogeologists (INC IAH)]

D C Singhal dcsinghal7@gmail.com (India), A K Sinha (India), Dipankar Saha (India), Abhijit Mukherjee (India) L Elango (India)

45.24 Scientific Committee on Antarctic Research – the road ahead

[Scientific Committee on Antarctic Research (SCAR)]

M Ravichandran mravi@ncpor.res.in (India)

45.25 Geosciences in the Future:2050

A. K. Singhvi 2aksprl11@gmail.com (India)

Oral & E-Poster Presentations

Authors were invited to submit abstracts for the Congress in 287 Science Symposia from 45 Scientific Themes via the 36th IGC website. The online abstract submission closed on 15 November 2019. A few symposia were merged because of insufficient submission, resulting in 284 symposia. Based on accepted abstracts, arrangements have been made for Oral and E-Poster presentations. However, presentations to be scheduled in the final program will depend on the number of registered Presenting Authors. Abstracts submitters who are not registered delegates of the Congress, will not have their abstracts included in the program or in the abstract proceedings.

Change in Presenting Authors is normally not allowed. However, in unavoidable cases, changes may be allowed on receiving specific requests from the original Presenting Author. It may be noted that, Congress registration is in no case transferable. Therefore, Co-authors replacing the original Presenting Author will also have to complete their Congress registrations to participate and present their work.

Many Presenting Authors have submitted multiple abstracts, which have been accepted for presentation. However, a Presenting Author can deliver only one oral presentation. As far as e-posters are concerned a Presenting Author can present more than one. The Keynote Speaker of a symposium and a Speaker in any of the symposia in Theme 45, can have a second oral presentation.

Oral Presentations

The time allotted for a normal oral presentation is 15 minutes, including the discussion time. For Keynote Talk, the time allotted is 30 minutes, including the discussion time. Since a large number of oral presentations have been lined up for each symposium, maintaining strict time for presentation by the author is mandatory, and, therefore, the number of slides should preferably be restricted to 8 for a normal presentation and 16 for a Keynote.

Each registered Presenting Author has to upload the presentation slides well in advance in the Conference Management System of 36th IGC using a link, to be provided on the website soon. The size of the presentation file to be uploaded, must not exceed 10 Mb. However, a Preview room will also be available at venue for uploading of presentation slides, till one day prior to the day of presentation. Prior uploading of presentation file on the website or in the preview room at the venue is mandatory.

E-Poster Presentations

For poster presentations, 36th IGC has made an arrangement for e-posters. This is a unique and innovative addition attempted for the first time in IGC. About thirty per cent of the accepted submissions of 36th IGC are scheduled for such e-poster presentations. The total time allotted for each e-poster presentation is 2 hours. The detailed schedule of which will be notified in the event schedule later.

Each Presenting Author of an e-poster is allowed to prepare a PowerPoint presentation of 10 slides containing information in the form of tables, illustrations, equations, figures, photographs, including a front-end key slide depicting the core or summary of the poster presentation. Each e-poster will be displayed on a 55-inch HD LED screen (1920 x 1080 Pixels) in landscape mode, where a keyboard will be kept before the LED screen for use by the Presenter to operate the slides. The figures, photographs, and illustrations are to made compatible with the resolution of a 55-inch HD LED panel.

Each e-poster presenter has to upload the presentation slides well in advance in the Conference Management System using a link that will be provided on our website soon. The size of the presentation file to be uploaded should preferably not exceed 20 Mb. However, a Preview room will also be made available at the venue for uploading of the presentation slides till one day prior to the day of his/ her respective presentation. Prior uploading of presentation of file either on the website or in the Preview system is mandatory.

Professional Development Workshops and Short Courses

The 36th IGC is offering opportunities to the **registered delegates** to participate in the Professional Development Workshops/ Short Courses. All the workshops/ short courses proposed by experts and organisations will be held during 4-7 March 2020 at the Congress venue, the exact timings and duration of which will be notified later. The last date for booking workshops/ short courses is 31 January 2020. However, seats in each workshop/ short course will be filled up strictly on “First-Come-First-Serve” basis. Individuals are not allowed to register in more than one course that is “free of charge”. However, for a subscriber of any paid course, participation in one free course, if opted, may be allowed. All participants joining the workshops/ short courses are requested to bring their own laptops for use during the courses.

For any query related to the workshop/ short courses, please reach us at bm.wsc@36igc.org.

Workshop/ Short Course: WSC01	
Title	The four pillars of mineral exploration through cover: regolith mapping, landscape evolution, geochemical dispersion processes and geophysical data
Details	As near surface mineral resources, diminishing a major challenge that bedrock mineral exploration faces in many parts of the world is exploring efficiently and effectively through extensive and thick cover. This short course aims to provide an exploration toolkit through areas of deep and various types of cover by providing an overview of a variety of methods for state of the art cover exploration, including regolith mapping, landscape evolution, geochemical dispersion processes and efficient geophysical tools to map cover depth and type. A systematic application of those methods at a range of scales can be used to reveal patterns and correlations linked to mineralisation processes in the subsurface. Understanding of these processes can help identify regional correlations and assessments, and, in turn, will assist in focusing mineral exploration even through thick cover. At the end of the short course participants can hands-on apply the newly learned skills for exploring through cover using examples from different regolith contexts from Australia.
Resource Persons/ Presenters	1.Dr. Carmen Krapf (Carmen.Krapf@sa.gov.au) 2.Dr. Ignacio González-Álvarez (Ignacio.Gonzalez-Alvarez@csiro.au
Affiliation	1.Geological Survey of South Australia, GPO Box 320, Adelaide SA 5001 2.Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia
Domain of the Presenters	Dr. Krapf and Dr González-Álvarez are both experts in landscape evolution, weathering processes, trace element mobility and multi-scale mineral exploration under cover.
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	All geoscientists with an interest in mineral exploration and cover characterisation
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC02	
Title	Statistical and Geostatistical Analyses for Mineral Exploration
Details	The geologists collect various spatially distributed point data sets from mineral exploration and environmental characterization sites. The classical statistical data analysis provides valuable basic information, which is used in various decision making processes. In this short course, discussions will start with basic statistical analyses of a given set of data used as an example for spatial data modeling and surfacing. The spatial data analyses topic will include simple non-geostatistical techniques such as inverse distance power and linear geostatistical interpolation technique, ordinary kriging. Using example data set and a freely available software tool, participants of this course will be able to gain practical knowledge on spatial data analyses using couple of hands on exercises.
Resource Persons/ Presenters	Dr. Abani R Samal (arsamal@gmail.com)
Affiliation	GeoGlobal LLC
Domain of the Presenters	Dr Abani R Samal holds M. Tech degree from IIT(ISM), Dhanbad, MS and DIC from Imperial College, London and PhD from SIU-C, USA. He has nearly 22 years of experience in the mining industry and recognized for his expertise in mineral deposit evaluation. He is a Registered Membership of SME and a Certified Professional Geologist (CPG) with AIPG. He also maintains as a life member of MEAI, MGMI, fellow of GSI (India), a Fellow of SEG.
Date & Place	**Wednesday & Thursday 04 & 05 March 2020; At venue**
Target Group	Mineral Exploration Geologists, Post-Graduates Studying Mineral Systems
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 225** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC03	
Title	An Introduction to R, SSLib and ETAS Modelling
Details	The Statistical Seismology Library (SSLib) is a collection of earthquake hypocentral catalogues with space-time-magnitude variables set out in the same format, software that can be used to subset and manipulate the catalogues, software that can be used to perform Exploratory Data Analyses (EDA), and software that can be used to fit stochastic models, in particular, point process models and hidden Markov models. The ETAS package is Fits the space-time Epidemic Type Aftershock Sequence (ETAS) model to earthquake catalogs using a stochastic declustering approach. The SSLib software is written in the R Language, and consists of a number of R packages. Each package has its own reference manual that contains documentation for all functions within that package. The ETAS package is based on a Fortran program by J Zhuang and modified and translated into C++ and C such that it can be called from R. Both sets of software have been developed in the UNIX and Linux operating systems though versions compatible with the Microsoft Windows operating system are also available. This short course will be for two days. Firstly, there will be an introduction to the R software, and then an introduction to the SSLib and ETAS software. Some examples will be given on how this can be used for probabilistic earthquake forecasting. While there are now GUI interfaces for some routines in R, this workshop will place the emphasis on simple R scripts.
Resource Persons/ Presenters	1.Dr. David Harte (D.Harte@gns.cri.nz) 2. Dr. J. Zhuang (zhuangjc@ism.ac.jp) 3. Dr. Ting Wang (ting.wang@otago.ac.nz)
Affiliation	1. GNS Science, New Zealand 2. Institute of Statistical Mathematics, Japan 3. Otago University, New Zealand
Domain of the Presenters	1. Dr. David Harte is a statistical seismologist at GNS Science in NZ, and an associate at Statistics Research Associates in Wellington NZ. His current research is in the application of point process models to earthquake occurrence. 2. Dr. J. Zhuang is associate professor at Institute of Statistical Mathematics, Tachikawa, Tokyo, Japan; Current research: Point process, statistical seismicity, especially on seismicity modelling, forecasting, and forecasting evaluation 3. Dr. Ting Wang is Senior Lecturer at the University of Otago in NZ. Current research includes statistical modelling (point process, hidden Markov models, signal processing) and applications in earthquake and volcanic hazards.
Date & Place	**Wednesday & Thursday 04 & 05 March 2020; At venue**
Target Group	Researchers that analyse seismic data, describe its empirical characteristics, and produce probabilistic earthquake forecasts. No prior knowledge of the R software will be required. The training will be useful to the researchers working in different fields of earth sciences.
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC04	
Title	Geoheritage and Geoconservation: Principles, Methods, and Challenges of an Applied Geosciencea
Details	This short course aims to present and discuss the main concepts and methods related with geodiversity, geoheritage, geoconservation, and geoparks. Based on numerous examples from different countries, participants will understand what is geoheritage, why it should be conserved, how it can be identified and used, why geoheritage matters to geoscientists, and how geoheritage relates with nature conservation, land-use planning, education, and sustainable development. The importance of geoheritage in international initiatives such as the UNESCO's World Heritage and Global Geoparks will also be discussed, together with a holistic approach of geoconservation in the international arena. Participants do not need to have previous knowledge about geoheritage or geoconservation.
Resource Persons/ Presenters	Prof. José Brilha (jbrilha@dct.uminho.pt)
Affiliation	ProGEO (The European Association for the Conservation of Geological Heritage) and Professor in University of Minho, Portugal
Date & Place	**Wednesday & Thursday 04 & 05 March 2020; At venue**
Target Group	Geoscientists working in the academia, public services, geological surveys, private companies, and graduate and post-graduate geoscience students
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC05	
Title	Women in Geosciences
Details	Women are generally under-represented in the geoscience discipline, and often face gender specific challenges while pursuing their degree or upon entering the workforce. This roundtable will focus on these challenges and offer opportunities for women geoscientists to connect and network with each other. The workshop will feature two keynote speakers, both offering their perspective on being a successful geoscientist while overcoming stigmas, cultural, political, and socio-economic hardships. The keynote presentations will be followed by small group discussions where participants will examine several key issues and propose resolutions for each topic. Each of the small groups will then share their discussion highlights with the other participants, and lead a larger conversation about the given topic. This roundtable will provide students and early-career geoscientists with a variety of thought provoking themes and the necessary discussions in order to advance within the field of geoscience.
Resource Persons/ Presenters	1. Ms. Ndivhuwo Cecilia Mukosi (ncmukosi@gmail.com) 2. Prof. Ezzoura Errami 3. Dr. Tanvi Arora
Affiliation	African Association of Women in Geoscience; YES Network and Council for Geoscience, South Africa
Target Group	Field Geology and Legacy
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Female Geoscientists
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC06	
Title	Use of Fluid Inclusions in Exploration for Magmatic-Hydrothermal Ore Deposits
Details	To provide an overview of the use of fluid inclusions in exploration for magmatic-hydrothermal ore deposits
Resource Persons/ Presenters	Prof. Robert J Bodnar (rjb@vt.edu)
Affiliation	Virginia Tech Department of Geosciences, USA
Domain of the Presenters	Studying fluid inclusions and mineral deposits for 45 years
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Graduate students and young professionals, especially those working in the minerals industry
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 200** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC07	
Title	Social Responsibility in Geoscience Education
Details	It has strongly been observed over the years the need to make the geoscience students aware that social skills are also necessary to make them more well rounded and for them to have the capability of engaging stakeholders in their research and work in the field for the mutual benefit of all. Therefore, a 'Social Responsibility in Geoscience Education Workshop', which Dr. Katz presented at the last IGC in Cape Town and has now been updated and refined for the 36th IGC. Dr. Katz has been involved with this initiative since 2011 after his formal retirement from the University of New South Wales, Schools of Applied Geology and Mining Engineering and he believes that it is worth pursuing as it is relevant in developing a more complete curricula that gives the students all the technical and social skills necessary for sustainable outcomes.
Resource Persons/ Presenters	Dr. Mike Katz (mikekatz320@gmail.com)
Affiliation	Professor (Retired) of University of New South Wales, 139 Darley Road Sydney, Australia
Domain of the Presenters	Over 60 years experience in geological research, geoscience and mining education and training
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Students, academics, government, industry
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC08	
Title	Application of Radiogenic Isotopes in Ore Deposit Studies
Details	This workshop will provide an insight into the application of radiogenic and stable isotopes in ore deposit and metallogenic studies and their applications to exploration. The purpose of this Session is to cover the application of most commonly used radiogenic (Pb, Rb-Sr, Sm-Nd, Re-Os, Ar-Ar) and stable (S, O) isotopes as well as more exotic non-traditional stable isotopes (Ag, Cu, Zn etc.) in both magmatic and hydrothermal mineral deposit research. Ore deposits dating applications using different techniques (including U-Pb, Ar-Ar, Re-Os), especially demonstrating 4D evolution (i.e. reliable measurement of the absolute timing of geological events) are also welcome.
Resource Persons/ Presenters	Prof. Svetlana Tessalina (svetlana.tessalina@curtin.edu.au)
Affiliation	Curtin University Perth, Australia
Domain of the Presenters	Dr Tessalina is an expert in radiogenic and stable isotopes and their application to ore deposit studies
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Students, academics, government, industry
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 50** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC09	
Title	Mountains, water and the environment – a joint Geoscience Information for Teachers (GIFT) workshop offered by the European Geoscience Union (EGU)/36th International Geological Congress (36th IGC).
Details	The main objective of the GIFT workshops is to spread first-hand scientific information to secondary science teachers, significantly shortening the time between discovery and textbook, and to provide the teachers with material that can be directly transported to the classroom.
Resource Persons/ Presenters	Prof. Chris King; Prof. Ramanathan Baskar; another nominated from CoE, EGU (chrisjhking36@gmail.com)
Affiliation	European Geosciences Union Committee on Education, 36 Portway Wells, United Kingdom
Domain of the Presenters	Chris King is Emeritus Professor of Earth Science Education at Keele University. He is Chair of the International Union of Geological Sciences Commission on Geoscience Education (IUGS-COGE); Dr. Baskar is Professor in Environmental Sciences in GJUST, Hisar, India and involved in research on environmental geology, environmental management, geobiology, geomicrobiology and natural hazards.
Date & Place	**Wednesday 04 March 2020, Thursday 05 March 2020 and Friday 06 March 2020; At venue**
Target Group	Secondary school teachers
Number of Participants	Minimum: 70 Maximum: 100
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC10	
Title	Understanding Fe-Mn Formations and High Grade Fe-Mn Ores: Origin, Controls and Explorations
Details	BIF-hosted iron ore deposits are the main resource base for the iron ores in the world. The short course will include highlights of recent research on origin of BIF-hosted iron ore deposits and implications for exploration.
Resource Persons/ Presenters	1. Dr. Joydip Mukhopadhyay (joydip17@gmail.com) 2. Dr. Carlos A. Rosiere 3. Dr. Michiel de Kock
Affiliation	1. Professor, Presidency University, 86/1 College Street Kolkata, India 2. Professor, Federal University of Minas, Gerais, Brazil 3. Associate Professor, University of Johannesburg, South Africa
Domain of the Presenters	1. Sedimentology and sediment-hosted Fe-ore 2. Structural Geology; Fe Ore mineralisation 3. Paleomagmatism; Stratigraphy
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Exploration and mining geologists, researchers
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 75** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC11	
Title	Ground Water, Demand and Supply Management
Details	To discuss how society could be made aware of the problems related to ground water quality and quantity, along with probable solutions.
Resource Persons/ Presenters	Dr. S D Limaye (sdlimaye@yahoo.com; sdlimaye@gmail.com); Dr. Sudhanshu Shekhar; Dr. Dipankar Saha
Affiliation	Indian National Committee of International Association of Hydrogeologists (INC-IAH)
Domain of the Presenters	Hydrologist, Groundwater Experts
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Hydrogeologists
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC12	
Title	Geology, Geochemistry, Genesis and Exploration Criteria for Gold Deposits in Metamorphic Rock
Details	The course will focus on the geology of and exploration for orogenic gold deposits, the most widespread type of gold deposit globally. Dr. Goldfarb will provide descriptions of the most important Precambrian and Phanerozoic examples of orogenic gold ores formed in the world's young accretionary orogens and old cratonic greenstone belts. Topics to be covered include tectonic and structural controls, geological characteristics, geochemical and geophysical signatures, geochronological relationships, and exploration strategies. Other gold deposit types with some overlapping features will be compared and contrasted to indicate what type of resources are the most favorable targets for the explorations in various provinces. The course is aimed at geoscientists from both industry and academia, as well as students of economic geology who desire a comprehensive understanding of modern concepts on the geology of orogenic gold deposits.
Resource Persons/ Presenters	Prof. Svetlana Tessalina (svetlana.tessalina@curtin.edu.au)Prof. Richard J. Goldfarb (rjgoldfarb@mac.com)
Affiliation	China University of Geosciences, Beijing, China
Domain of the Presenters	Richard J. Goldfarb was a research geologist at the U.S. Geological Survey for 36 years. His studies have focused on global metallogeny, geology of ore deposits in the North American Cordillera with emphasis on orogenic gold, lode gold deposits in China, and fluid inclusion and stable isotope applications to the understanding of ore genesis. Rich has authored more than 230 papers on mineral resources, with many recognized as the authoritative research on gold in metamorphic terranes and on aspects of regional metallogeny. He is a past-president of the Society of Economic Geologists and past chief editor of Mineralium Deposita. Presently, Rich is a research professor at Colorado School of Mines and China University of Geosciences Beijing, and is an independent consultant to the exploration and mining industry.
Date & Place	**Thursday 05 March 2020; At venue**
Number of Days	One (01)
Contact	h.tsikos@ru.ac.za
Target Group	Geologists from Academia and Industry
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC13	
Title	Chaos and Fractal theory
Details	Geophysical phenomena tend to exhibit characteristic scale-free behaviour over a range of length- and time-scales. A large number of studies have used the concepts of fractals, percolation and diffusion-limited aggregation, seemingly belonging to the realm of disordered systems, to unravel the intricacies of geological phenomena. Power-laws abound and one finds a range of fractal dimensions of surface fractals as well as volume or mass fractals giving vital insights into geophysical mechanisms. Since the analysis and characterisation of geophysical space–time data from the viewpoint for chaos and fractals that requires an interdisciplinary approach involving mathematicians, physicists and geoscientists, this short course will be aimed at a diverse audience with the hope that it will enthuse them to carry out research in Chaos and fractal theory.
Resource Persons/ Presenters	Dr. Vipin Srivastava; Dr. Abhey Ram Bansal (abhey.bansal@gmail.com)
Affiliation	CSIR-National Geophysical Research Institute, Hyderabad, India
Domain of the Presenters	Dr. Srivastava is a theoretical condensed matter physicists who has used ideas from fractals and chaos in his research, Dr. Bansal is a Geophysicist.
Date & Place	**Thursday 05 March 2020; At venue**
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC14	
Title	Communications of Natural Hazards
Details	This short course will explore the use of practical demonstrations within the teaching or communications of natural hazards (e.g., earthquakes, landslides, weather, floods). This course will draw on a range of experiences, including the teaching of natural hazards in schools, universities and developing contexts. We encourage participants from all backgrounds with an interest in improving the understanding and communication of natural hazards geoscience through hands-on activities.
Resource Persons/ Presenters	Prof. Bruce D Malamud;
Affiliation	Kings College London, UK
Domain of the Presenters	Bruce D. Malamud is Professor of Natural & Environmental hazards at King's College London, the Past President of the EGU Natural Hazards division, and currently the executive editor of Natural Hazards & Earth System Sciences
Date & Place	**Thursday 05 March 2020; At venue**
Target Group	University teachers, high-school teachers, practioners working in communicties with impacted groups
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC15	
Title	Some editor suggested do's and don'ts when submitting manuscripts for publishing natural hazards research
Details	In this session, a current executive editor of the journal Natural Hazards and Earth System Sciences (NHESS) will discuss expectations for submitted manuscripts, including what is good-practice vs. bad-practice (likely to cause rejection) when preparing and submitting a manuscript for consideration for publishing, along with best-practice when responding to reviewer and editor comments. There will be time for questions and comments
Resource Persons/ Presenters	Prof. Bruce D Malamud;
Affiliation	-
Domain of the Presenters	Bruce D. Malamud is Professor of Natural & Environmental hazards at King's College London, past president of the EGU Natural Hazards division, and current executive editor of Natural Hazards & Earth S
Date & Place	**Thursday 05 March 2020; At venue**
Target Group	Scientists and PhD students, who are interested in learning about publishing
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC16	
Title	An Introduction to Earthquake Detection Based on Template Matching and Machine Learning
Details	Recent advancements in seismic instrumentations around the world provide an unprecedented opportunity to unravel detailed structures of the Earth's interior and decipher earthquake processes. While many earthquakes have been routinely picked by seismic network analysts, a significant fraction of them are still missing, especially during intensive earthquake swarms, episodic tremor and slip, or foreshock/aftershock sequences. These missing events could be detected by a template matching method, which uses waveforms of existing events as templates to scan through continuous data for new events with high similarities. In this short course, the Presenter first reviews recent progress on systematic detection of regular microearthquakes and slow low-frequency microearthquakes along major plate-boundary faults. These newly detected events help to better illuminate fault interfaces ruptured during large earthquakes, how faults relieve stresses in fast and slow slips, and how they interact with each other at nearby and long-range distances. Next the Presenter shows how to go beyond template-matching methods and use network-based similarity and machine-learning techniques to pick seismic phases from large continuous waveforms. This short course will include not only presentations on recent progresses of earthquake detections, but also a demonstration of computer codes that researchers can use to perform template-based and machine-learning-based detection.
Resource Persons/ Presenters	Prof. Zhigang Peng (zpeng@gatech.edu); Dr. Abhey Ram Bansal (abhey.bansal@gmail.com)
Affiliation	Georgia Tech, Atlanta, United States; Principal Scientist, CSIR-NGRI, Hyderabad
Domain of the Presenters	Geophysics
Date & Place	**Thursday 05 March 2020; At venue**
Target Group	Researchers that are interested in learning how to detect microearthquakes and low-frequency earthquakes
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC17	
Title	Hyperspectral and HyLogging technology for advancing Exploration Through Cover, Ore Body Knowledge, and borehole data maximisation
Details	Scope: Hyperspectral drill core scanning technologies, such as HyLogger™, and The Spectral Geologist software (TSG), provide detailed mineralogical information to maximise the value and digital record of drilling programs. The National Virtual Core Library (NVCL), part of AuScope's national earth science infrastructure program, now comprises more than 1000 km of freely-accessible hyperspectral drill core data. The prime objective of the NVCL is to unlock the vast resource of geological information from the upper 1 – 2 km of our Earth's crust that is stored in drill core libraries and core sheds across Australia. Sourced from various geological environments and mineral deposits across Australia, the NVCL represents one of the world's largest collections of publically available mineralogical data (http://auscope.org.au/site/nvcl.php). This course aims to improve understanding and use of the NVCL and spectral data, and free TSG viewing software" Logistics: "Case studies will be presented during this workshop, including hands-on exercises to introduce the course attendants to CSIRO's The Spectral Geologist Software (TSG) and workflows used for working with spectral data. Participants are required to bring their own laptops for the hands-on exercises.
Resource Persons/ Presenters	Dr. Carsten Laukamp (Carsten.Laukamp@csiro.au)
Affiliation	CSIRO Australia
Domain of the Presenters	Carsten Laukamp (Dr. rer. Nat., Ruprecht Karls University Heidelberg, Germany) is a group leader at CSIRO Mineral Resources, Australia, and leads the National Virtual Core Library project.
Date & Place	**Thursday 05 March 2020; At venue**
Target Group	Exploration and mining industry, Geological Surveys, Universities
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 200** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC18	
Title	Landslide susceptibility statistical modelling from theory to practice
Details	Course organized in the framework of LANDSLIP project "Landslide susceptibility statistical modelling from theory to practice". Description: Landslide susceptibility is the likelihood of a landslide occurring in a given area on the base of local terrain conditions. This basically represent the degree to which an area can be affected by future mass movements, i.e. an estimate of “where” landslides are likely to occur. The lack of standards in landslide susceptibility modelling results in a huge and diversified variety of approaches, which has been widely described in the scientific and technical literature. This short course introduces the statistical landslide susceptibility modelling. The course has two main parts: the first gives a common glossary and definitions. It describes the variables, the mapping units and, the models commonly used for landslide susceptibility assessment and zonation. The second part introduces the LAND-SUITE open source tool, which allows to perform landslide susceptibility evaluations on a variety of geo-environmental settings and for diversified purposes. The course is targeting primarily geologists and/or geomorphologists and/or more in general applied geoscientist with a limited experience on landslide susceptibility modelling, but it also provides information potentially helpful for more experienced modelers. This short course introduces the statistical landslide susceptibility modelling. The course has two main parts: the first gives a common glossary and definitions. It describes the variables, the mapping units and, the models commonly used for landslide susceptibility assessment and zonation. The second part introduces the LAND-SUITE open source tool, which allows to perform landslide susceptibility evaluations on a variety of geo-environmental settings and for diversified purposes. The course is targeting primarily geologists and/or geomorphologists and/or more in general applied geoscientist with a limited experience on landslide susceptibility modelling, but it also provides information potentially helpful for more experienced modelers.
Resource Persons/ Presenters	1. Dr. Mauro Rossi (mauro.rossi@irpi.cnr.it); 2. Dr. Claire Dashwood 3. Dr. Christian Arnhardt
Affiliation	1) CNR IRPI, Italy, Via Madonna Alta 126, 06128 Perugia, Italy; 2,3) British Geological Survey, Nicker Hill, Keyworth, Nottingham, NG12 5GG, UK
Domain of the Presenters	Proposers are focusing on mapping, modelling, forecasting landslides in the framework of the LANDSLIP project
Date & Place	**Thursday 05 March 2020; At venue**
Target Group	University teachers, high-school teachers, practioners working in communicties with impacted groups
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC19	
Title	Foundations and Perspectives of Geoethics
Details	**Rationale:** The proper and deep education on ethical issues in geosciences has been evolving in recent times, although not as quickly and deeply as necessary. Many of the professionals dedicated to Earth Sciences have been not in touch with such new concepts and tendencies as the concept of Geoethics. Geoethics is the research and reflection on the values which underpin appropriate behaviors and practices, wherever human activities interact with the Earth system. Geoethics provides a framework from which to define ethical professional behaviors in both geosciences and engineering, and to determine how these should be put into practice for the benefit of society and environment. This Short Course goes is directed towards introducing and training geoscientists in those new concept and ideas. Speakers: Nic Bilham, Martin Bohle, Giuseppe Di Capua, David Mogk, Silvia Peppoloni, Iain Stewart **Course Content:** 1. From Ethics to Geoethics: Definition, Values, Tools (Silvia Peppoloni) 2. Responsible Conduct of Research and Professionalism (David Mogk) 3. Foundations & Examples, how to tackle (Geo)ethical Dilemmas (Martin Bohle) 4. Geoethics for Society: Sustainable Development and Responsible Mining (Nic Bilham) 5. Geoethics in Natural Hazards and Risks (Giuseppe Di Capua) 6. Geoethics in Geoscience Communication (Iain Stewart) **Discussion** After completing this course, participants: 1. Will know the basic principles of ethics and how these lead to geoethics. 2. Will be aware of the dilemmas involved in making geoethical decisions. 3. Will have gained some experience in taking a geoethical approach to real world cases.
Resource Persons/ Presenters	Dr. Giuseppe Di Capua (iapgeoethics@aol.com)
Affiliation	International Association for Promoting Geoethics (IAPG); The Presenter is a Geologist at the Istituto Nazionale di Geofisica e Vulcanologia (Rome, Italy)
Domain of the Presenters	His fields of experience cover engineering geology and geoethics
Date & Place	**Thursday 05 March 2020; At venue; 1/2 Day**
Target Group	Most, if not all, of the 36th IGC attendants are potential participants
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC20	
Title	Introduction to Petroleum Geomechanics
Details	Geomechanical studies prior to drilling a well has increasingly become important as we drill deeper and highly deviated to horizontal wells in difficult terrains. This short-course has been designed to give an overview of basic rock mechanics application in drilling. Knowledge of the magnitude and distribution of stress in the crust can be combined with mechanical, thermal and rheological constraints to examine wellbore stability. The key components of a comprehensive geomechanical model are knowledge of the current state of stress, pore-pressure and rock strength.
Resource Persons/ Presenters	Dr. Satish Kumar Sinha (ssinha@rgipt.ac.in)
Affiliation	Rajiv Gandhi Institute of Petroleum Technology RGIPT, Bengaluru, India
Domain of the Presenters	Associate Professor of Geophysics, PhD from University of Oklahoma, USA, of worked in petroleum industry, teaching in petroleum institute
Date & Place	**Wednesday 04 March 2020; At venue**
Target Group	Graduate students and young professionals, especially those working in oil and gas industry
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 50** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC21	
Title	Engineering geology in management of Geo-hazards and heritage sites
Details	Interactive session with younger and early career researchers to address the critical technical issues for civil construction, protection of heritage sites and precautionary ways to select sites for multifarious developmental projects
Resource Persons/ Presenters	Dr. Vinod K. Sharma (vksharma_gsi@yahoo.co.in)
Affiliation	Retired Geoscientist (GSI) C-1/492A, Sector G, Jankipuram, Lucknow, India
Domain of the Presenters	Experience spanning over 35 years in GSI and specializing in Engineering Geology, Landslide investigations and Landslide susceptibility mapping for urban development.
Date & Place	**Friday 06 March 2020; At venue**
Target Group	Students and early researchers
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC22	
Title	Integrated Subsurface Interpretation
Details	This 2-day course is designed to provide participants with a modern awareness of the full spectrum of methods used to map and integrate subsurface data sets, primarily for the exploration and development of natural resources including petroleum and water. This course is designed to give industry professionals an appreciation of sedimentary transport processes that control depositional products, as well as knowledgeable insight into the scale and architecture of the wide range of petroleum reservoirs using 3D seismic, well-log, core and other industry data sets. This course draws from materials presented in field trips to a variety of sedimentary basins including those located in North and South America, Europe and Asia-Pacific. The course will conclude with a summary discussion of the realistic expectations in siliciclastic petroleum reservoirs, as well as new research that is changing these paradigms. By the end of the course, participants will be able to map depositional systems at a variety of scales using disparate data and discuss the implications for reservoir and seal properties.
Resource Persons/ Presenters	Dr. Jon Rotzien (jonrotzien@basindynamics.com) Dr. Sumit Verma
Affiliation	Dr. Rotzien is the President of Basin Dynamics and Adjunct Professor at University of Houston, USA Dr. Sumit Verma is Assistant Professor at University of Texas Permian Basin, USA
Domain of the Presenters	Geophysics and Basin Dynamics
Date & Place	**Friday & Saturday, 06 & 07 March 2020;At venue**
Target Group	This course is designed for employees of oil and gas companies in technical to management positions.
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 750** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC23	
Title	Geochemical mapping at all scales: Continental, regional and local
Details	To teach interested future applied geochemists the professional organisation of a geochemical survey from the field, laboratory, quality control, data processing to report writing. In mineral exploration and environmental geosciences, understanding the geochemical patterns on the Earth's surface requires the application of well-designed geochemical surveying methods that can be applied at the local, regional and even global scales. The aim of the one-day workshop is to introduce methods for designing and implementing regional geochemical surveys. This ranges from selection of sampling media and analytical methods to visualising and interpreting the results. All geochemical methods and techniques will be presented and discussed by using documented real data sets from various case studies from around the Globe.
Resource Persons/ Presenters	Dr. Alecos Demetriades (alecos.demetriades@gmail.com); Dr. Philippe Negrel
Affiliation	IUGS Commission On Global Geochemical Baselines P.O.BOX 640 47, ZOGRAFOU Athens, Greece Dr. Philippe Negrel is a Geoscientist from BRGM, France
Domain of the Presenters	Dr. Alecos Demetriades has more than 40 years experience in Applied Geochemistry. Worked at Rio Tinto Finance and Exploration Limited (1972-1973) as a researcher for the compilation of a global mineral deposits; Dr. Negrel's specialisation is Geochemistry
Date & Place	**Friday 06 March 2020; At venue**
Target Group	Applied Geochemists and Environmental Geochemists
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC22	
Title	Geotechnical, Geological and Geophysical Investigations for Seismic Microzonation and Site-Specific Earthquake Hazard Analysis
Details	The topic has a great relevance to earthquake risk resilience of structures for India and South Asia. In this short course the Geotechnical, Geological and Geophysical investigations for seismic microzonation and site specific earthquake hazard Analysis will be explained.
Resource Persons/ Presenters	Dr. B.K. Rastogi; Dr. Abhey Ram Bansal (abhey.bansal@gmail.com)
Affiliation	Dr. B. K. Rastogi, President, Ind. Soc. Earthq. Former Director General, Institute of Seismological Research, Gandhinagar and Former Scientist 'G', CSIR-NGRI, Hyderabad; Dr. A. R. Bansal is the Principal Scientist, CSIR-NGRI, Hyderabad, India
Domain of the Presenters	Geophysics & Seismology
Date & Place	**Friday 06 March 2020; At venue**
Target Group	Researchers that work on seismic data analysis, microzonation studies and hazard estimations
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC25	
Title	Fractured Reservoir characterization
Details	The proposed workshop is designed to let the audience get introduced with naturally fractured reservoirs, their distribution in the world, the principal characteristics of naturally fractured reservoirs in terms of elastic properties of rock and fluids, geophysical monitoring, reservoir fluid distribution, reservoir dynamics & fluid flow, pressure behaviour, drainage and imbibition in a simplified single-block model, flow regimes identification in fractures, etc. At the end of this course, the audience will become familiar with some of the world's Giant and supergiant NFR; also, they will be able to distinguish different flow regimes (pre-Darcy, Darcy, post-Darcy, viscous, Brinkman), drainage and imbibition in fractured systems, etc.
Resource Persons/ Presenters	Dr. Reza Azin (reza.azin@pgu.ac.ir); Dr. Nimisha Vedanti (nimisha@ngri.res.in)
Affiliation	Associate Professor, Petroleum Engineering, Persian Gulf University, Iran Sr. Scientist in CSIR-NGRI, Hyderabad
Domain of the Presenters	Dr. Azin has 20 years of experience in upstream and downstream oil and gas industries. Focus on Experimental, as well as Theoretical and Numerical; Dr. Nimisha is a Geophysicist doing reaseach in basin dynamics
Date & Place	**Friday 06 March 2020; At venue**
Target Group	Students , Researchers and Academicians working in the field of Reservoir (Geology/ Geophysics/ Engineer)
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 40** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC26	
Title	New Microscopy Workflows in Geoscience: Bridging the scale problem by utilizing correlative workflows & the power machine learning
Details	New microscopy workflows in Geoscience: Bridging the scale problem by utilising correlative workflows and the power of machine learning. Intellis and machine segmentation, Correlative workflows. 3 D, 4D microscopy applications in Geoscience research
Resource Persons/ Presenters	Mr. Shaun Graham (viswuppu2@gmail.com)
Affiliation	Carl Zeiss, Singapore
Domain of the Presenters	Shaun Graham a post graduate from Leicester university has been employed with CarlZeiss Cambridge from the past 5 years working on application of Automated Minerology in REE, PM etc.
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	All geologist who use microscopy as a solution
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC27	
Title	The 21st Century Geoscientist: Tools and Skills for Students and Early Career Scientists
Details	Building on the different offerings to students and early career scientists at the International Geological Congress, AGU proposes to host a Workshop that will showcase how to be an ethical and successful scientist in the 21st Century. Aligning with the 36th IGC's theme "Basic Science for a Sustainable Future," the training workshop will feature modules on career-building best practices related to ethics; publishing; data; communication; transdisciplinary and community science. The event will conclude with a reception for participants to network and connect with their fellow attendees. The full-day event will be free to registrants on a first come, first serve basis and will require an RSVP in advance. In the spirit of collaboration, the workshop welcomes participation from IGC attendees, partners, and YES members. The workshop will supply students and early career scientists, with a variety of tools and skillsets needed to support their near- and long-term careers in or across academia, policy, and the private sector.
Resource Persons/ Presenters	Ms. Janice Lachance (mshimamoto@agu.org) Mr. Mark M Shimamoto
Affiliation	AGU 2000, Florida Ave. NW, Washington, USA
Domain of the Presenters	Janice Lachance, Esq., FASAE, Executive Vice President, Strategic Leadership and Global Outreach, AGU
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Student and Early Career
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC28	
Title	Association of Polar Early Career Scientists (APECS) and Young Earth Science Network (YES) joint workshop for early career researcher
Details	The workshop will include both introductory lectures and also round table discussion with pioneer on the following topics to strengthen the early career researcher who are at different stage of their career: 1. How to write a research grant Proposal 2. Career after your PhD: Academic vs non-Academic 3. Networking for introverted scientists 4. How to work together for the interdisciplinary research in Geoscience ?
Resource Persons/ Presenters	Dr. Neelu Singh (neelu.singh0387@gmail.com); Dr. Meng Wang; Dr. S. Rajan
Affiliation	Dr. Neelu Singh is Vice President APECS; Dr. Meng Wang is President, Young Earth Scientists Network (YES); Dr. Rajan is an expert from NCPAOR
Domain of the Presenters	Geoscientists engaged in Polar and Ocean Research.
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Early Career Researcher and PhD scholars
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC29	
Title	Plugging in to 21st Century Geoscience Education: Rethinking Science Education for the Anthropocene
Details	Despite rapid advances in technology and the availability of information, geoscience education remains mired in 19th and 20th century models, where a sage instructor relays expert information to eager young minds. Not only is this idyllic vision of education ineffective for most learners, it is becoming increasingly inappropriate for a world that is awash in information but not the skillsets necessary to discover and parse information into usable knowledge. This course will explore active learning techniques, a way of structuring your classroom or educational experiences to engage your audience more deeply than the typical passive learning techniques deployed in most classrooms (for example, lectures followed by exams). In active learning, students and their questions take center stage, while the instructor acts as a "guide on the side", directing them in acquiring the skills necessary to ask good questions, explore topics, and build knowledge. This approach more closely mimics the scientific process of discovery that we are familiar with and apply in our everyday work. Participants will be introduced to instructivism ("learn from the expert"), constructivism ("build knowledge for yourself"), and connectivism ("build knowledge with your community") and examples of teaching in each type of approach. Participants will also see examples of how each approach is deployed in classroom settings, including in-person courses, hybrid and flipped classrooms, and completely online courses. We'll explore best practices for each setting as well as common pitfalls. Participants will work together and with the instructor to redevelop commonly taught topics into an active learning format, then critique and evaluate each other's' learning experiences. Participants will also learn about the common tools that are available for building active learning experiences, how to use them to start developing their own content, and how to evaluate the effectiveness of the content they've developed.
Resource Persons/ Presenters	Dr. Lev Horodyskyj (levh@sciencevoices.org)
Affiliation	Science Voices 416 E Carson Drive, Tempe, USA
Domain of the Presenters	Dr. Lev Horodyskyj received his PhD in Geosciences and Astrobiology from Pennsylvania State University in 2009. Since then, he has been working on innovative geoscience education, both online and offline.
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Geoscience instructors, teachers, and educators at all career levels
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC30	
Title	Archaeological issue and Geology
Details	Geology and Archaeological Issues
Resource Persons/ Presenters	Dr. Shivaji Dadaso Kshirsagar (shivajinewgeoarch@gmail.com)
Affiliation	Deccan college post graduate and research institute (deemed university), Pune, India
Domain of the Presenters	Archaeology
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Any person who is in archaeological issues in geology or other subject
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC31	
Title	Monitoring glacier ice velocities in the polar regions
Details	The main objective of the workshop is to introduce open source data, software and tools to monitor glacier ice velocities in the polar regions (Greenland, Antarctica). The outline of the workshop are as follows: 1. Remote sensing of the polar glaciers (theory and state-of-the-art tools and methods) 2. Introduction to European Space Agency's (ESA) Sentinel-1 radar mission 3. Create free user account and data download from the NASA Earth Data Alaska Satellite Facility data platforms 4. Application of offset tracking method to estimate glacier ice velocities using ESA SNAP software (open source) - This includes showing processing steps on its graphical user interface and creating a flow graph for batch processing 5. Time-series analysis (statistics and plotting) on one of the Greenland's marine-terminating glaciers using open source R software
Resource Persons/ Presenters	Dr. Saurabh Vijay (saurabhvergia@gmail.com)
Affiliation	The Ohio State University, United States Byrd Polar and Climate Research Center, 1090 Carmack Road, Columbus, OHIO 43210, USA
Domain of the Presenters	Saurabh Vijay received his PhD degree from FAU Germany and has employed remote sensing techniques to study glacier changes in Greenland and high mountain Asia
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Students and scientists working on glaciology (e.g. National Center of Polar and Ocean Research)
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC32	
Title	Ore microscopy and geometallurgical applications
Details	To make aware of process mineralogy, which is not a curriculum in most of institutions and its application in metal/materials industry through transmitted/reflected light optics. Anisotropic materials through polarized beam of light. Systematic observation of properties and ore identification procedures. Qualitative and quantitative properties. • Ore identification_1: native elements, oxides, gangue (silicate and non-silicate) minerals. • Ore identification_2: sulfides, sulphosalts. Textural analysis and interpretation for defining the mesh of grind (MOG). • Applications for nonferrous, ferrous and industrial minerals problems during process control, modification in flow sheet, quantification of liberation, misplacement and tailing losses. Detailed study on automated mineralogy. • An implication of this study for process improvement in order to assess the profitability in business.
Resource Persons/ Presenters	Dr. Navin K Sharma (drnavinin@gmail.com); Dr. John Thella; Dr. Vishwanath Uppugunduri
Affiliation	Consultant (Process Mineralogy) / Vedanta Resources Ltd./ Zeiss-India Technology and Innovation (CRDL) Zinc smelter Debari-313024, Udaipur, India
Domain of the Presenters	Dr N. K. Sharma has more than 35 years' experience in Geology, Mining, Exploration, Smelting units and Process Mineralogical. He is also a holder of two patents. Dr. Thella and Dr. Vishwanath also have long experiences in Mining and Exploration
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Professional, faculties, students in Geology, material sciences and mineral process engineers.
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC33	
Title	Making the Earth move: the art of communicating geoscience
Details	To make geoscientists (even) better at writing and speaking about their research.
Resource Persons/ Presenters	Mr. Peter Milner Spinks (science-writing@inbox.com)
Affiliation	Science-writer, Broadcaster and Media Professional - SCIENCE OUTREACH IN ACTION(http://scienceoutreachworkshops.weebly.com/presenter.html)
Domain of the Presenters	Peter Spinks holds a master's degree in research psychology and has published articles in international academic journals. Since 1980, he has broadcast and written for some of the world's foremost media organisations, including the British Broadcasting Corporation, The Guardian and The Observer newspapers and New Scientist magazine in London.
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Geoscientists worldwide
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 300** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC34	
Title	Geometallurgy and application of automated mineralogy in study of ferrous, basemetals, precious metals and REE ores
Details	With increasing demand for critical, precious metals and base metals on one side and complex, deeper and lower-grade ore bodies, geometallurgy which is an integration of exploration, mine development and optimization is a valuable tool for maximising recovery and profitability. Automated and quantitative mineralogy constitutes an integral part of the geometallurgical framework as it provides data to help develop and predict geometallurgical parameters for geological and processing performance that reflect inherent geological variability, the understanding of field relationships of various rock units in a deposit, distribution of ore and gangue minerals, define geological domains based on mineral abundances, and liberation and association of ore. The course will outline the geomet characerstics of some Indian ferrous, basemetals, precious metals and REE ores with some case studies of application of automated mineralogy in preparation of geometallurgical model that can then be used to manage risk and enhance profitability for the mine/ deposit
Resource Persons/ Presenters	Prof. vishwanath uppugunduri (vishwanath.uppugunduri.ext@zeiss.com); Dr. Naveen Sharma; Dr. John Thella
Affiliation	Retd head R&D HZL (Vedanta), J 27, Diamond District, Domalur Bangalore, India
Domain of the Presenters	Prof U.Vishwanath Retd. Head R&D OF HZL Vedanta is a pioneer in the field of geomettalurgy with more than 37 yrs experience in exploration, mining and processing of base and precious metals
Date & Place	**Saturday 07 March 2020; At venue ½ Day**
Target Group	Geoscientists worldwide
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC35	
Title	Magmatic Ni-Cu-PGE sulfide mineral systems: Genetic models and exploration strategies
Details	• Introduction to magmatic sulfide ore deposits – types of deposit, occurrence and localisation, global resource endowment, compositions of parent magmas, chemistry of sulfide liquids, mineralogy and phase equilibria of sulfides • Magmatic Ni-Co sulfide deposits in komatiites and komatiitic basalts • Magmatic Ni-Cu-Co-(PGE) sulfide deposits in small mafic-ultramafic intrusions: morphology and emplacement of host bodies, case studies including Norilsk-Talnakh (Russia), Voisey's Bay (Canada), Savannah and Nova (Australia) • Silicate-sulfide textures in Ni-Cu sulfide ores and mobility of sulfide liquid • Physical processes in magmatic sulfide ore formation: length-scales and time-scales, fluid dynamics of silicate-sulfide liquid interactions, some myths and misconceptions • Exploration strategies: from prediction to detection, lithogeochemistry and mineral chemistry tools, applying genetic models. The workshop will incorporate lecture and hands-on participation exercises on the above subjects.
Resource Persons/ Presenters	Dr. Steve Barnes (Steve.barnes@csiro.au)
Affiliation	CSIRO Mineral Resources, Perth, Australia
Domain of the Presenters	Dr Steve Barnes is an economic geologist with particular interests in magmatic ore deposits and Archean volcanism. He has been with CSIRO in Perth, Australia, since 1985, with a brief interlude in the exploration industry, and formerly held the position of Science Leader in CSIRO Mineral Resources. He has published over 150 journal papers and book chapters covering ore deposits and host rocks on six continents. He was the recipient in 2011 of the Gibb-Maitland Medal of the Geological Society of Australia WA Division for services to Western Australian geology, and is a former member of the Economic Geology editorial board.
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Exploration industry professionals, academics and students with interests in applied igneous petrology
Number of Participants	Minimum: 15 Maximum: 50
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC36	
Title	Bridging the gap between geoscience and society through communication
Details	Being a knowledge system with high potential for influencing the dynamics of life at various strata of the society, the need for strengthening connection between geoscience and society will be increasing exponentially in the forthcoming years of Anthropocene. The public and policy makers are lending their ears more frequently to the geoscientists and closely watching the results coming out of their laboratories since the life and livelihood of millions are being negatively impacted by the fury of climate change induced variations in the atmosphere and hydrosphere, increasing frequency of natural disasters etc. The proposed workshop will introduce the developments in the domain of geoscience communication and both modern and conventional tools popularly used for sharing the new knowledge with public and policy makers to the participants. Making audience familiar with the research and techniques being utilized for understanding public perception, mechanisms behind making sense of scientific information and accepting it by people from different demographics and providing directions for developing public involved geoscience communication programmes are the other aim of this training session.
Resource Persons/ Presenters	Dr V. V. Binoy (vvbinoy@nias.res.in) Prof. M Sai Baba (msaibaba@nias.res.in)
Affiliation	School of Natural Science and Engineering National Institute of Advanced Studies Indian Institute of Science Campus Bangalore - 560 012
Domain of the Presenters	Dr V.V. Binoy is an Assistant Professor in the School of Natural Science and Engineering, National Institute of Advanced Studies (NIAS), Bangalore. He is a cognitive scientist interested in social cognition, science communication and education. One major line of his research focuses on the cognitive and non-cognitive factors determining sense making of disaster warning messages by people from different demographics. He is the co-editor of the volume titled Bridging the Communication Gap in Science and Technology: Lessons from India, published by Springer, and the coordinator of a citizen science initiative titled 'Student-Scientist'. Prof. M. Sai Baba, Outstanding Scientist and formerly Director, Resources Management Group, Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam and Senior Professor, Homi Bhabha National Institute. Presently holding "TV Raman Pai Chair Professor" at National Institute of Advanced Studies, Bengaluru and working in the domain of Science Communication and Risk Communication, Human Reliability Program and Understanding Ancient Indian Knowledge Systems for applying them for the holistic development of youth. Present work includes, obtaining effective and informative insights on managing public perceptions and public acceptance of public risks associated with new and emerging technologies, through science and technology communications. Developing platforms for enhancing interaction between scientists and public using conventional and nonconventional media of communication. Outlining strategies based on science and technology communication to manage the fear of hazards from novel technologies possessed by the public.
Date & Place	**Saturday 07 March 2020; At venue ½ Day**
Target Group	Scientists, Academicians, Policy Makers, Research scholars and Post graduate students
Number of Participants	Minimum: 20 Maximum: 40
Cost	**USD 170** per Participant (Inclusive of GST)

Workshop/ Short Course: WSC37	
Title	Recognition, classification, Geometry, kinematics and microstructural study of Ductile Shear Zones
Details	The study of ductile shear zones has assumed significance in light of their major role in accumulating large amount of strain during tectonism, recorded throughout the geological history.Very often these are also the loci of extensive mineralization.These planar or curvi-planar high-strain zones are the result of inhomogeneous deformation having a dominant non-coaxial component of strain. Intervening (crustal) blocks remain relatively unaffected by the deformation. A great variety of differently deformed rock types and characteristic structural features develop as these high strain zones pass through a great range of depth.In the Indian context, from the Archaean cratonic blocks to the youngest orogenic belts like Himalayas, shear zones are present in all different scales and characters and proper identification, mapping and understanding of the shear zones are of utmost importance in conceptualizing crustal evolution, tectonism and even mineral fertility. Taking that into consideration a short half-day course during the 36th IGC is proposed for the postgraduate students, research scholars and young professionals working in deformed terrains.
Resource Persons/ Presenters	1) Dr. Abhinaba Roy, GSI (Retd.) roy.abhinaba49@gmail.com; abhinabaroy630@yahoo.com 2) SiladityaSengupta, GSI, DGCO, New Delhi senguptasiladitya@gmail.com
Affiliation	Geological Survey of India
Domain of the Presenters	Structural Geology
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Postgraduate students, Research Scholars and young professionals
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges**

Workshop/ Short Course: WSC38	
Title	To Understand and Predict Rock Mass Behavior for construction of Large Civil Structures
Details	This Training Program aims to improve participants' ability to understand and predict Rock Mass Behavior for construction of Large Civil Structures like Dams, Tunnels, and Power Houses. Besides, Slope Stability issues while constructing Highways in Hilly Terrains will also be covered.
Resource Persons/ Presenters	1) Dr. Gopal Dhawan (gdhawangeologist@gmail.com); 2) Mr. Yogendra Deva (yogendradeva@gmail.com); 3) Mr. Naresh Kumar Mathur (nkmathur55@rediffmail.com)
Affiliation	Dr. Dhawan Academy Of Geologists, 120, Maa Niwas, Jal Shakti Vihar, P4 Builders Area, Gr. Noida, Gautam Buddha Nagar, U.P. 201315 Greater Noida, India
Domain of the Presenters	Engineering Geology Dr. Gopal Dhawan (Founder Dr. Dhawan Academy of Geologists, Former CMD, MECL, Former ED, NHPC), Mr. Yogendra Deva (Former Director, GSI), Mr. Naresh Mathur(Former GM, NHPC)
Date & Place	**Saturday 07 March 2020; At venue**
Target Group	Geologist, Engineering Geologist, Engineers, Rock Support Engineers, Young Scholars, Geoscientists.
Number of Participants	Minimum: 20 Maximum: 40
Cost	This course is **free of any charges; Participants are selected on "First Come First Serve" basis.**

Business Meetings

Organisations wishing to conduct Business Meetings during the 36th IGC are invited to submit their requirements online only (https://www.36igc.org/business-meetings). Deadline for submission of requests is 31 January 2020. All attendees of Business Meetings must be registered Congress delegates.

Business Meetings are scheduled 7:00 PM onwards during 3-7 March 2020. However, organisations requiring bookings for the entire day may specifically mention this while applying.

Rooms for Business Meetings will be provided free of charge. Any special room set-up, audio-visual equipment, catering requirements etc. have to be taken care of by the meeting organisers themselves.

For any queries related to Business Meetings, please reach us at bm.wsc@36igc.org

Schedule for IUGS-IGCC Business Meetings

Dates	Details
29.02.2020	IUGS Bureau Meeting
01.03.2020	Meeting of the IUGS Executive Committee
02.03.2020	1st Meeting of the IGCC
03.03.2020	IUGS President's Reception
04.03.2020	IUGS Finance and Publication Committee Meeting
05.03.2020	Meeting of IUGS Bureau with IUGS Affiliated Organizations
06.03.2020 & 07.03.2020	IUGS - IGCC Council Meeting
08.03.2020	"Handing-over" EC Meeting and Introduction of the New IUGS Executive Committee
09.03.2020	Meeting of the Incoming IUGS Executive Committee 2nd Meeting of the Incoming IGCC

Schedule for Other Business Meetings

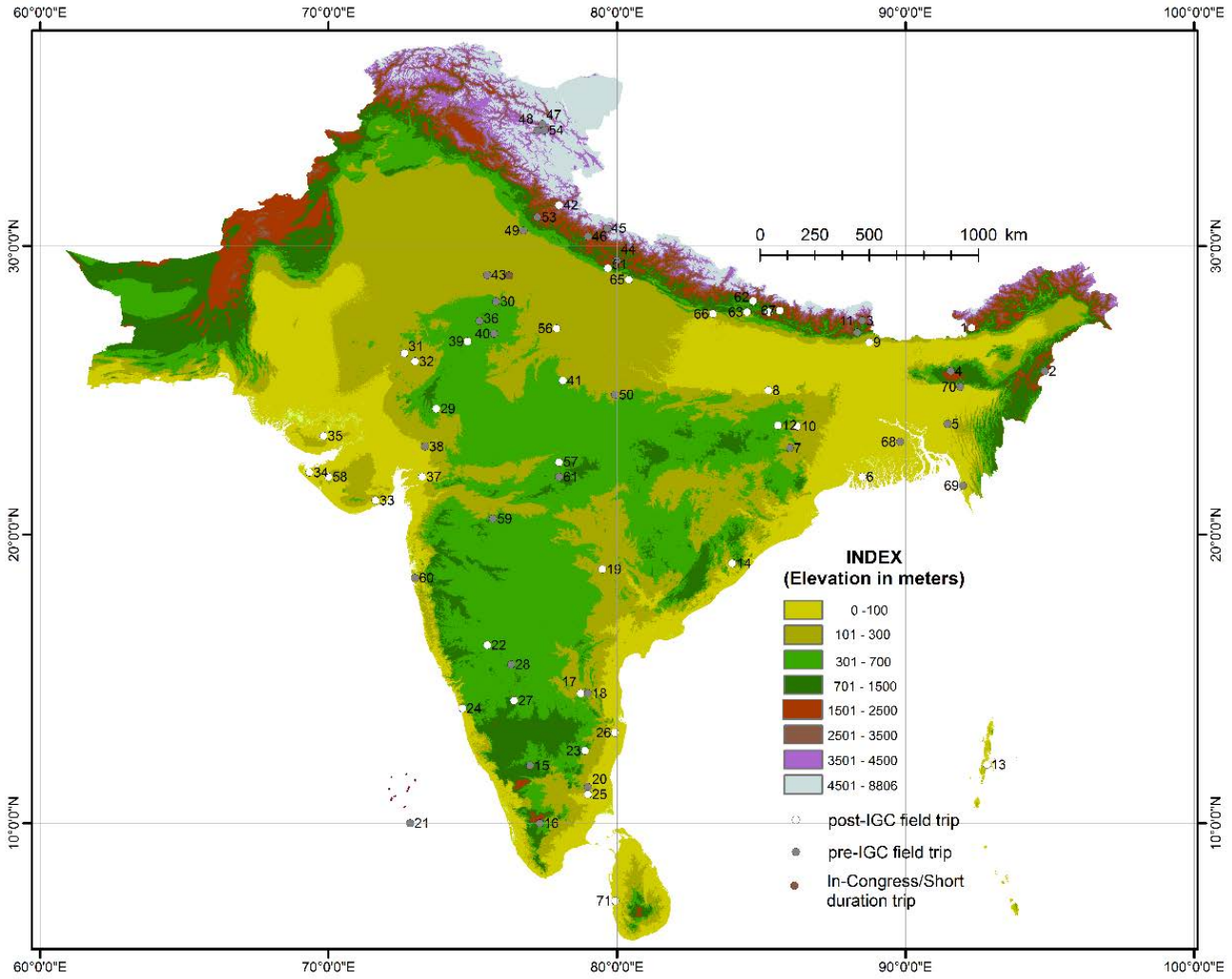
Dates	Details of the organistaion involved
2-3 March 2020	IAEG Council Meeting & Interaction with ISEG – the India National Group
3 March 2020	The International Association on the Genesis of Ore Deposits (IAGOD)
3 March 2020	Kazakhstan Geological Society KazGEO
3 March 2020	Geological Survey of India
3 March 2020	OneGeology Consortium – Operational Group meeting #4
3-5 March 2020	International Association for Promoting Geoethics (IAPG)
4 March 2020	INHIGEO
4 March 2020	International Union of Geological Sciences Commission on Geoscience Education
4 March 2020	Geological Society of India
4 March 2020	LAPIS LAZULI
4 March 2020	Geological Survey of India
5 March 2020	ICS Subcommission on Quaternary Stratigraphy
5 March 2020	International Geoscience Education Organization
5 March 2020	Geological Survey of India
5 March 2020	National Politechnical university of Armenia
5 or 6 March 2020	OneGeology
6 March 2020	Heritage Stone Subcommission, IUGS
6 March 2020	Delegate Meeting of IAMG
6 March 2020	AGID (Association of Geoscientists for International Development)
6 March 2020	Faculty of Arts and Humanities, Kairouan (Tunisia)
7 March 2020	IUGS Commission on Geoscience Information
Date to be confirmed	Bureau Meeting of CGMW
Date to be confirmed	Explorer Geophysical Consultants Pvt. Ltd, Nepal

The Indian subcontinent, by virtue of being a constituent of several older supercontinents, has common geological ancestry with many parts of the globe. Subsequent to the breakup of the Gondwanaland, the Indian landmass moved northward for over 5000 km to collide and get stitched with the Asian landmass, resulting in the present landforms, typified by the Himalayan mountain chain. The subcontinent is also host to a wide range of geological marvels - from the Archaean crustal nuclei to the present-day volcanism.

We welcome you to participate in the pre, post and in-Congress field trips to witness the unparalleled geological antiquity of the Indian subcontinent.

Somnath Dasgupta
(Co-chair)

N R Ramesh
(Co-chair)



Point locations in the above map represent the following field trips (codes):
1 - NER001, 2- NER002, 3- NER003, 4- NER004, 5- NER005, 6- ER001, 7- ER002, 8- ER004, 9- ER005, 10- ER007, 11- ER008, 12- ER009,13- ER010, 14- ER012, 15- SR003, 16- SR005, 17- SR006, 18- SR007, 19- SR009, 20- SR010, 21- SR015, 22- SR016, 23- SR017, 24- SR018, 25- SR019, 26- SR020, 27- SR021, 28- SR022, 29- WR001, 30- WR002, 31- WR003, 32-WR004, 33- WR008, 34-WR009, 35-WR010, 36-WR011, 37- WR012, 38- WR013, 39- WR014, 40- WR015, 41- NR001, 42- NR003, 43- NR004, 44- NR005, 45- NR006, 46- NR008, 47- NR009, 48- NR010, 49- NR011, 50- NR012, 51- NR013, 52- NR015, 53- NR016, 54- NR017, 55-NR018, 56- NR019, 57- CR001, 58- CR003, 59- CR004, 60- CR005, 61- CR006, 62- INTNP003, 63- INTNP004, 64- INTNP005, 65- INTNP006, 66- INTNP008, 67- INTNP014, 68-INTBG001, 69-INTBG002, 70-INTBG003, 71-INTSL001.

Field Trip Bookings

Field Trip bookings are open to Congress registrants and their accompanying persons upon full payment of booking fees. A notional one-day Congress Registration fee of USD 175 is applicable for geoscientists, who wish to participate in the Feld Trips and do not wish to register for the entire period of the Congress.

Booking of Field Trips and Congress registration are mandatory to participate in the Field Trips.

Field Trips can be booked directly on the 36th IGC website https://www.36igc.org/all-field-trips

In case of queries regarding Field Trip booking and visa requirements write to us at **fieldtrips@36igc.org**

Accompanying persons: Accompanying persons are required to pay the full cost of the field trip and a registration fee (USD 120 up to 30 November 2019, USD 135 from 01 December 2019 – 31 January 2020 and USD 150 after 01 February 2020).

Participants are required to make their own arrangements to reach the pickup destinations of the Field Trips and also their intended destinations after the completion of the Field Trips.

Delegates interested to participate in the Field Trips are requested to go through the terms & conditions prior to booking.

ER001: *Sundarban Delta System*

Duration: 5N/6D- **25 Feb 2020** to **1 March 2020**;
Starts: Kolkata Airport; **Ends at** Kolkata Airport;
Number of delegates limited to 20;
Cost: 700 USD/ 49000 INR Per Person;

Trip Overview: Sundarban Delta, the largest mangrove forest in the world is recognised as Ramsar Site of International Importance since 1992 and was declared as a Natural World Heritage Site in 1997 (UNESCO). It has earned global attention of conservationists, researchers and nature lovers. It has also been recognized as a wetland of international importance. Processes of delta building, erosional and accretionary landforms, endanger flora and fauna including variety of mangroves, archaeological evidences (500 to 1500AD) etc. are few of the things that would be showcased.

Geotourism Spots: The trip include visits to Nayachar, Ghoramara, Sagar Island, Bakkhali, Henry Island, G-Plot, Kalash Beach, Bonnie Camp, Dobankee, Sudhanyakhali, Sajnekhali, Satjelia, Jharkhali etc.

Trip Coordinators: Debasis Sengupta and Tuhin Ghosh

Other Contributors: Subhasis Roychaudhuri, Subhankar Dutta, Resmi S., Sachin Kumar Tripathi, Bhaskar Majumder, Sugata Hazra and Abhra Chanda

Day by day itinerary:

Day 1 – Tuesday, 25 Feb 2020
Arrival¬ at Kolkata NSCB International airport, shifting to hotel. Briefing session at Hotel banquet.
Halt – Kolkata

Day 2 – Wednesday, 26 Feb 2020
Traverse along Bakkhali and Henry Island
Halt – Bakkhali

Day 3 – Thursday, 27 Feb 2020
Traverse in Sagar Island – Kapil Muni Ashram, Sagar Tide Station, Geo-archaeology sites and Museum
Halt – Bakkhali

Day 4 – Friday, 28 Feb 2020
Traverse in Sundarban Forest Park, Tiger Rehabilitation Centre and mangrove nursery, Jharkhali
Halt – Satjelia

Day 5 – Saturday, 29 Feb 2020
Traverse in Sundarban Tiger Reserve, Dobanki, Sudhanyakhali, Sajnekhali
Halt – Satjelia

Day 6 - Sunday, 01 March 2020
Traverse along creeks to show the effects of fluvio-tidal regime on habituated Satjelia Island, Colonial Heritage, interaction with the residents to get acquainted with their livelihood, Rangabelia women self-help group and cyclone shelter.

Delegates will be dropped at NSCB International Airport, Kolkata on the way to New Delhi.

ER004: Rajgir - Bodh Gaya - Barabar Geotourism Spots: A Unique Geological and Historical Heritage Of Bihar

Duration: 3N/4D, **27 February** to **29 February 2020**;
Starts: Patna/Bodhgaya Airport; **Ends**: Patna/Bodhgaya Airport;
Number of delegates limited to 30 max;
Cost: 500 USD /35000 INR per person;

Trip Overview: The Rajgir-Bodh Gaya- Barabar IGC transact relates to Geotourism Spots which encompasses the roles of geosciences in decision and approaches that is of wide public interest including geological heritage, Geotourism Spots and archaeological domain.

Geotourism Spots: Nalanda Ancient University Ruins, The cyclopean wall, Chariot Mark, Gehlaur: Manhji the Mountain Man, Ghorakatora Lake , Chariot Mark, Barabar caves and other geoarchaeological site, Kuadol: Ancient town site, Buddhist ruins, Rock - cut sculptures; 80 feet Statue of Buddha, Mahabodhi temple and Bodh Gaya Archaeological Museum etc.

Trip Coordinators: A. Bishwapriya, Ringphami Awungshi and Asad Ahsan Raza

Other Contributors: Sri Shankar Sharma, S.K. Dutta, M. Ahmad, Debjani Raychaudhuri, Nischal Wanjari, Abdul Qayoom Paul

Day by day itinerary

Day 1 – Wednesday, 26 February 2020
Arrival at Rajgir. This shall followed by briefing session and theme specific lectures about the field trip.
Halt - Rajgir

Day 2 – Thursday, 27 February 2020
To oserve the pillow basalts and associated assemblage along with metasedimentary sequence along Bathani-Gehlaur-Rajgir. Enroute/ post lunch visit to geoarcheological marvels- Nalanda-Rajgir UNESCO world heritage site.
Halt - Rajgir

Day 3 – Friday, 28 February 2020
Visit to Sapneri gabbro-anorthosite suite to observe exposures of magmatic layered sequence of anorthosite-gabbro and magnetite. Visit to Barabar Caves dating from the Mauryan Empire. (322–185BCE). Observe magmatic layered sequence of anorthosite-gabbro and magnetite in the Kuadol section.
Halt – Bodhgaya

Day 4 – Saturday, 29 February 2020
Visit to UNESCO heritage site Mahabodhi temple and world famous holy city for Bodhgaya. Proceed to Churi, Gulni and Jagarnathpur hills to study the volcano sedimentary package and exposures of pillows basalt. Finish the day with a visit to Bodhgaya Archaeological Museum.
Depart to airport for an afternoon flight to New Delhi.

Special notes: Mild woolen clothes may be required during night around Rajgir and Gaya.

ER005: *The Teesta Chronicle: Tectonics – Climate and Human-Landscape Dynamics*

Duration: 5N/6D, **25 Feb 2020** to **01 March 2020**;
Starts: Bagdogra Airport; **Ends at**: Bagdogra Airport;
Number of delegates limited to 20;
Cost: 800 USD / 56000 INR per Person;

Trip Overview: Teesta River, the lifeline of eastern Himalayas, has been a popular subject of research from various angles- sedimentation, tectonics, paleoclimate. The Teesta River however, has much more to offer. This excursion will showcase Teesta basin in its entirety- signatures of active tectonics, sedimentation and paleoclimatic history, community practices in developing Disaster Risk Resilience (DRR) and, signatures of influence of engineering structures on planform of rivers. Traverses from the proximal to distal part of Teesta megafan will demonstrate sedimentary processes, evidences of tectonics and paleoclimatic signatures in the study area. The delegates will be also shown evidences of active tectonism on landforms and engineered structures. The traditional best practices and DRR initiatives of the region will provide valuable information for the disaster management professionals. One of the major Geotourism Spots attractions of the excursion will be a ride in the Darjeeling Himalayan Railway, a UNESCO World Heritage site. A visit to one of the leading tea estates will provide a flavor of the world famous Darjeeling tea.

Geotourism Spots: Darjeeling Himalayan Railway (DHR), a UNESCO World Heritage site/ jungle safari; Tea estates of Dooars; reserve forest .

Trip Coordinators: Mriganka Ghatak, Sreemati Gupta and Sanjeeb Bhattacharya
Other Contributors: Snigdha Ghatak

Day by day itinerary

Day 1 – Tuesday, 25 February 2020
Arrival of the delegates at Siliguri. An ice breaker session will be held followed by a technical presentation about the excursion.
Halt – Siliguri

Day 2 – Wednesday, 26 February 2020
10th Mile – Sevok Bridge – Sevok Khala - Teesta Low Dam - Kalagaiti Traverse
Study different aspects of Teesta fan and different terraces of the Teesta river as well as structural controls on the flow of the Teesta river. Observe the traditional structures that are multihazard resistant.
Halt – Siliguri

Day 3 – Thursday, 27 February 2020
Darjeeling Himalayan Railway (DHR) – Teesta Barrage
Experience the heritage jungle train safari by DHR starting from New Jalpaiguri to Tindharia and return back. Visit the distal part of Teesta fan at Ambari to study tectonic response of the sediments in the interior part of Teesta basin.
Halt – Chalsa

Day 4 – Friday, 28 February 2020
Chalsa – Bandar Khola – Gorubathan
Visit Chalsa to study the splay of Main Boundary Thrust and analyze the evidences of past seismic events between different terraces of the Neora and Murti Rivers.
Halt – Chalsa

Day 5 – Saturday, 29 February 2020
Lish – Thaljora – Hope
Visit to the Lish, Gish and Chel rivers to study sedimentation patterns and transform faults affecting the morphology of the rivers. Complete the day with a tour of the tea estate.
Halt – Siliguri

Day 6 – Sunday, 01 March 2020
Discussion on the field traverse and feed back. Depart to Bagdogra for taking the flight to Delhi.

Special notes: Delegates might carry light woollen clothes

ER007: Geological Field Excursion to the Jharia Coal Field: A Tribute to Sir Cyril Sidney Fox (A Legacy of 125 Years of Indian Mining and Mineral Industry)

Duration: 3N/4D, 27 Feb 2020 to 1 March 2020;
Starts: Ranchi Airport; **Ends at**: Ranchi Airport;
Number of delegates limited to 20;
Cost: 450 USD / 31500 INR Per Person;

Trip Overview: The Jharia Coal Field was mapped by Sir Cyril Sidney Fox, fellow of Indian National Science Academy. The coal field contain one of the best exposed sections of the lower Gondwana Formation i.e. Talchir / Barakar within a distance of 0.5 km. Boulder bed overlying the basement, dolerite dykes and lamprophyres are the other interesting features to examine.

Geotourism Spots: Maithon Dam, Hydel Tunnel on Barakar River, Parasnath Hill/Jain Temple, Longwall Mining at Munidih etc.

Trip Coordinators: Sahendra Singh and P. R. Sahoo

Other Contributors: B. C. Sarkar, Atul Kumar Varma and A. S. Venkatesh

Day by day itinerary

Day 1 – Thursday, 27 February 2020
Arrive at Ranchi early morning, check in at the hotel. Post lunch proceed to Jamunia River Section in the western part of Jharia Coal field to study Talchir and Barakar formation.
Halt – Ranchi / Dhanbad

Day 2: Friday, 28 February 2020
Travel to Bhuli Bansjora in the eastern part of Jharia coalfield to observe the older metamorphic basement for the Gondwana sequence, the lower boulder beds of the Talchir formation and Barakar sandstone. Complete the traverse with a visit to the open cast mine and eat lunch at Gonudih land Reclamation Park.
Halt – Ranchi / Dhanbad

Day 3: Saturday, 29 February 2020
Visit to Baliapur to observe intrusives and magmatic activity. Proceed to Lodna to observe the burning underground mines. At Gokul Park, observe the land reclamation and halt for lunch. After lunch proceed to Jamadoba coal mines of Tata steel to observe underground coal mine fire mitigation.
Halt – Ranchi / Dhanbad

Day 4: Sunday, 01 March 2020
Visit to Maithon dam Hydel power project and lunch at Maithon guest house. Post lunch depart for Ranchi airport to catch the evening flight to Delhi.

Special notes: NA

ER009: Glacial to post-glacial fluviomarine sedimentation system- Evidences from West Bokaro Coal Field

Duration: 4N/5D, 26 **February 2020** to **01 March 2020**;
Starts: Ranchi Airport; **Ends at**: Ranchi Airport;
Number of delegates limited to 25;
Cost: 500 USD/35, 000 INR per person;

Trip Overview: The field tour will provide a comprehensive idea on the transitional nature of the glacial-fluvial-marine interactive systems in the frame of post glacial transgressive-regressive setup.

Geotourism Spots: The west Bokaro Coal field is popularly known for the glacially-driven and post-glacial sedimentations in the frame of glacio-marine transitional setup followed by a coal bearing cyclic sedimentation, wave and tide generated structures and finally changeover from marine-influenced to more marine-dominated sedimentation.

Trip Coordinators: Hareshwar N Sinha

Other Contributors: Rajeeva Roy, Omnath, D P Singh, Biplab Bhattacharya, Partha Pratim Banerjee, Bipin Kumar, S. K. Sinha and B. A. Kumar

Day by day itinerary

Day 1 – Wednesday, 26 February 2020:
Arrival at Ranchi by Air and transfer to Vinoba Bhave University, Hazaribag (Ranchi to Hazaribag – 110 km). Inaugural/welcome and briefing session on field excursion and Geo-tourism
Halt – Hazaribagh

Day 2 – Thursday, 27 February 2020
Field work at Dudhi Nala river section to visit deposition of glacio-marine sedimentation of Talchir Formation and high energy fluvial Karharbari Formation.
Cultural programme by students of Vinoba Bhave University, Hazaribag in the evening.
Halt – Hazaribagh

Day 3 – Friday, 28 February 2020
Visit to Ara-Dumerbera area for study of the unconformable contact between Basement and Lower Barakar Formation, coal bearing cyclic sedimentation in the Middle Barakar Formation.Visit to Chhota River-Bokaro River confluence at Duni village to showcase changeover from Barakar Formation to Barren Measure Formation.
Halt – Hazaribagh

Day 4 – Saturday, 29 February 2020
Visit to Surajkund hot spring (temperature >800C), Barhi, Hazaribag and proceed to Bodh Gaya (sacred Buddhist site). Visit to Great Buddha Statue, Archaeological Museum, Mahabodhi temple and sacred Bodhi Tree at Bodh Gaya.
Halt – Hazaribagh

Day 5 – Sunday, 01 March 2020
Departure for Ranchi and flight to New Delhi

Special notes: Delegates may carry light woollen clothes

ER010: *Andaman Islands: An anatomy of the Accretionary Prism in an Active Burma-Andaman – Java subduction zone*

Duration: 5N/6D 25 **Feb 2020** To **01 March 2020**;
Starts: Port Blair Airport; **Ends at**: Port Blair Airport;
Number of delegates limited to 20 max
Cost: 800 USD/56000 INR per Person

Trip Overview: The Andaman ophiolite belonging to the western belt of Indo Burma Ridge (IBR) preserves a complete ophiolite sequence (mantle–cumulates–lavas) in the outer arc of the active Burma- Andaman-Java subduction zone. Its unique polygenetic setting, MORB mantle and supra-subduction zone mantle reveal the intricacies of physicochemical processes of the subduction system. Along with it, delegates will get a chance to visit several geo-tourism spots viz. Cellular Jail (Light & Sound), Corbyn's Cove beach, Chidiatapu / Mundapahar beach, Ross Island, Wandoor Beach, Mud Volcano and limestone Cave in Baratang, Natural bridge at Neil Island etc.

Geotourism Spots: Tropical forest cover, pristine beaches, incredible marine life, exotic ecosystem and territory of the one of the oldest Jarwa tribe in Indian continent are major tourist attractions.

Trip Coordinators: Tapan Pal and Anindya Bhattacharya

Other Contributors: Sachin Kumar Tripathi, Tarun Koley, Kaberi Banerjee, Biswajit Ghosh, and Debaditya Bandyopadhyay

Day by day itinerary

Day 1 –Tuesday, 25 February 2020
Port Blair- Netaji Subhash Chandra Bose Island (Ross Island) - Corbyn's cove beach
Arrival at Port Blair Airport. Briefing session on field trip followed by visit to historic Archeological monuments and also the study of Oligocene sediments of Andaman Flysch at Netaji Subhash Chandra Bose Island (Ross Island)
Halt: Port Blair

Day 2 – Wednesday, 26 February 2020
Visit to Corbyn's cove beach developed over the turbidite sequence of Oligocene age (Andaman Flysch). The traverse will also cover Beadonabad- Kodiaghat-Chidiatapu- Port Blair (South Andaman) to demonstrate the tectonic contact of the ophiolite of Mesozoic Period (Pillow basalt, submarine lava), pelagic sediment of Ophiolites, subaqueous lava flow (in the form of pillow basalts), pyroclastic andesites etc.
Halt: Port Blair Hotel

Day 3 – Thursday 27 February 2020
Visit to Havelock Island to study the trace fossil at carbonate facies of Mio-Pliocene age at Kalapathar Beach, tuff exposure along road section of Krishnanagar and inspection of the carbonate turbidites of the Mio-Pliocene forearc sediments along Radhanagar Beach
Halt – Havelock

Day 4 – Friday 28 February 2020
Visit to Neil Island to study Pleistocene Carbonate exposure along with Holocene section at Sitapur beach.Local site seeing and shopping in Port Blair
Halt: Port Blair

Day 5 – Saturday 29 February 2020
Visit to Badmas Pahar to study of Mantle rocks of Ophiolites followed by study of tuff rocks of Miocene-Pliocene (Archipelago Group of rocks) at Miletilek, Limestone Cave at Baratang and Quaternary Mud volcano.
Halt: Port Blair

Day 6 – Sunday 1st March 2020
Depart to Delhi from Port Blair

Special notes: Delegates should be prepared for hot weather. Swimsuit, sun hat, sun glasses and soft sneakers/boat shoes are essential. This particular field trip requires Restricted Area / Protected Area Permit.

ER012: *Eastern Ghats Belt, India: A type locality of ultrahigh Temperature Proterozoic Orogenic System*

Duration: 4N/5D, **26 Feb 2020** to **01 March 2020**;
Starts: Visakhapatnam; **Ends at**: Visakhapatnam;
Number of delegates limited to 15;
Cost: 700 USD/ 49000 INR Per Person

Trip Overview: Travel to interior parts of Eastern Ghats Mountains off Visakapatnam city for observing effects of ultrahigh temperature (UHT) metamorphism on rock suites including charnockite, aluminous granulite, mafic granulite, khondalite, calc-silicate granulite etc. These preserve evolutionary history of the India-East Antarctica sector during the Rodinia assembly.

Geotourism Spots: Rushikonda beach and Anantagiri hills.

Trip Coordinators: Sankar Bose and Jayanta Kumar Nanda

Day by day itinerary

Day 1 - Wednesday, 26 February 2020
Arrival at Visakhaptnam airport. Stay at Rushikonda beach resort, Visakhapatnam.
Halt: Visakhapatnam

Day 2 - Thursday, 27 February 2020
Visit to the Kaliashgiri hill to observe pelitic granulite (khondalite). Study the mineral assemblages with spectacular reaction textures of UHT metamorphism near Gajapatinagaram and Salur.
Halt: Visakhapatnam

Day 3 – Friday, 28 February 2020
Field traverse along the Visakhapatnam - Araku highway to experience varieties of felsic and mafic granulite near the S. Kota, UHT aluminous granulite of Sunkarametta and migmatitic felsic granulites hosting UHT aluminous granulite near Shimliguda
Halt: Anantagiri

Day 4 – Saturday, 29 February 2020
Visit to Sapphirine-bearing UHT granulite at Anantagiri, charnockite intrusives at Borra-Maliyaguda, UHT mafic and felsic granulite and intrusive pegmatoidal charnockite at Maruturu village .
Halt: Visakhapatnam

Day 5 - Sunday 1 March 2020
Depart from Visakhapatnam

Special notes: Delegates should be prepared for mild cold weather.

SR006: *Diamond Fields of South India – Wajarakarur Kimberlite Field, Eastern Dharwar Craton, Southern India*

Duration: 4N/5D, **25 Feb 2020** to **29 Feb 2020**;
Starts: Bengaluru Airport; **Ends at**: Hyderabad Airport;
Numbers limited to 30;
Cost: 700 USD /49000 INR Per Person;

Trip Overview: Visit to classical diamond-bearing, diamond-free kimberlites, diamondiferous conglomerates and gravels of the Dharwar Craton, southern India. The trip would cover Chigcherla, Kalyandurg, Wajrakarur Kimberlite Pipes and diamondiferous conglomerate at Banganapalle to Tungabhadra river gravel to Raichur-Tungabhadra Kimberlite pipes located at the Eastern part of the Dharwar Craton. The pipes and conglomerates can be examined and sampled.

Geotourism Spots: Vijayanagara temple (14th-16th Century AD), Belum Caves etc.

Trip Coordinators: S.Ravi and E.V.S.S.K.Babu

Other Contributors: J. N. Das
Special notes:

Day by day itinerary

Day 1 – Tuesday, 25 February 2020
Arrival at Bengaluru. Visit Lepakshi to study granite – Greenstone terrain around Ramagiri Schist Belt. Fieldwork in Chigicherla Kimberlite field.
Halt – Anantpur, Andhra Pradesh

Day 2 – Wednesday, 26 February 2020
Leave Anantpur. Examination of Kimberlite pipes at Kalyandurg, Mulagiripalle and Lattavarm
Halt – Guntakal, Andhra Pradesh

Day 3 – Thursday, 27 February 2020
Leave Guntakal. Examination of Kimberlite pipes at Wajrakarur. Visit to the Kimberlite pipe and museum at Wajrakarur camp.
Halt – Guntakal, Andhra Pradesh

Day 4 – Friday, 28 February 2020
Visit to Belum caves. Examination of diamondiferous conglomerate and ancient diamond workings at Banganpalle, Western Cuddapah lamproites.
Halt – Kurnool, Andhra Pradesh

Day 5 – day, 29 February 2020
Leave Kurnool in the forenoon. Examination of Tungabhadra river gravels at Panchalingala and Raichur–Tungabhadra Kimberlites. Study of CGK-3, SK-1, SK-2 and SK-3 Kimberlites. Departure from Hyderabad airport .

Special notes: NA.

SR009: *Jurassic Park in P-G Valley*

Duration:3N/4D, **27 Feb 2020** to **01 March 2020**;
Starts: Hyderabad Airport; **Ends at**: Hyderabad Airport
Numbers limited to 20;
Cost: 600 USD / 42000 INR Per Person;

Trip Overview: The Pranhita-Godavari Basin, India, is a pericratonic basin that came into existence following rifting along eastern Indian Craton in early Mesozoic. The basal Proterozoic rocks of about 6 km thickness are termed as the Godavari Supergroup. Their distribution is widespread on both sides of the Gondwanas with small inliers. The coal-bearing Gondwana sediments includes Talchir, Barakar, Barren Measures, Kamthi (Lower Gondwana Group), Maleri, Kota, Gangapur and Chikiala formations (Upper Gondwana Group). The Maleri and Kota Formations provide the bulk of fossil remains. The Gangapur Formation is a storehouse of plant fossils. The succession terminates with the eruption of volcanic rocks noted in the neighbourhood of Rajahmundry. The infra- and inter-trappean beds offer some of best molluscan remains in this part of the region.

Geotourism Spots: Kakatiya architecture in Warangal

Trip Coordinators: K. Ayyasami, B. Gowtham and P.B. Sarolkar

Day by day itinerary

Day 1 – Thursday, 27 February 2020
Arrival at Hyderabad. Fieldwork at Jaipuram and Ramagundam. Examination of quartzite and slate of Sullavai Group. Study of Barakar Formation and section measurement at Singareni open cast mine.
Halt – Jaipuram

Day 2 – Friday, 28 February 2020
Traverse to Nannial, Maleri and Akalpalli villages, to study various plant fossils, Paradapedon, Scutes of phytosaur and fossils of Megalosaurus, Sagenodus sp, Ceratodus hilopianus, Coprolites with ganoid, fish scales, reptilian bones, dinosaur bones and fossilwood.
Halt – Jaipuram

Day 3 – Saturday, 29 February 2020
Fieldwork in Sullavai, Kota and Dharmaram area to study Rhamphorhynchus sp indet, plant fossil Caladophelebis sp., fishes of Dapedius, fishes of Lepidotus, Dapedius, insect remains, Sphenopteris sp., Eqauisitites sp, Otozamites sp, Pagiophyllum sp. etc.
Halt – Jaipuram

Day 4 – Sunday, 01 March 2020
Fieldwork in Jaipuram, Bheemaram, Dharmaram and Rollapet area en route to Hyderabad studying the purple sandstone of Dharmaram Formation and Kota Limestone & clay. Study of vertebrate, reptilian and plant fossils in Kamthi sandstone, Dharmaram sandstone – clay and Gangapur mudstone respectively.
Departure to Hyderabad.

Special notes: NA

SR016: *Gravity gliding of Mesoproterozoic Sedimentary Cover of Kaladgi Basin*

Duration:3N/4D, **27 Feb 2020** to **01 March 2020**;
Starts: Huballi Airport; **Ends at**: Huballi Airport;
Number of delegates limited to 20;
Cost: 700 USD / 49000 INR Per Person;

Trip Overview: The deformation pattern in the Kaladgi basin during Mesoproterozoic, is unique of its kind in an intracratonic setup. The deformation of the Mesoproterozoic sedimentary cover originated by a southerly-directed gravity gliding of the cover over the basement along the basement–cover contact (unconformity) that served as a surface for detachment shall be demonstrated along a N-S transect across the basin. A continuous passage from extensional domain in the north and contractional domain in the south with a contrast in structural geometry between the unaffected basement and deformed cover shall be showcased.

Geotourism Spots: Visit to the Badami caves, a UNESCO heritage site

Trip Coordinators: Mrinal Kanti Mukherjee, Sohini Das and Sudipto Ghosh

Day by day itinerary

Day 1 - Thursday, 27 February 2020
Arrival at Hubli airport. Field work in the northern sectors of the Kaladgi basin
Visit Bilgi to observe the Non-conformity defined by the underlying undeformed Closepet granites (2.5 Ga) and the overlying sedimentary cover (1.8 Ga).
Halt – Bagalkot

Day 2 – Friday Saturday, 28 February 2020
Traverse to the central sectors of the Kaladgi basin and observe basement-cover relationship. Occurrence of Neoproterozoic Badami Group of rocks directly overlying the basement rocks of Closepet Granites shall be showcased.
Halt – Bagalkot

Day 3– Saturday, 29 February 2020
Visit southern boundary of the Kaladgi basin to study the contractional deformation structures and study the concept of gravity gliding.
Visit to Badami Caves (A UNESCO heritage site) and state Museum. Return to Hotel at Bagalkot.
Halt - Bagalkot

Day 4 – Sunday, 01 March 2020
Depart from the Bagalkot to Hubli Airport.

Special notes: NA

SR018: *Quaternary Evolution of Western Continental Margin of Karnataka-Goa Coasts with emphasis on resources and environment*

Duration: 5N/6 D, **25 Feb 2020** to **1 March 2020**;
Starts: Mangalore Airport; **Ends at**: Goa Airport;
Number of delegates limited to 20;
Cost: 750 USD / 52500 INR Per Person;

Trip Overview: A variety of spectacular coastal landforms along the dynamic coastal tract, its' natural resources and scenic beauty shall be visited. St. Mary Group of Islands (National Geological Monuments) exposing remarkable columnar joints, picturesque tabletop lateritic uplands, lateritic profiles juxtaposed over the Precambrians and Neogene rocks, misfit rivers, nick points, sea caves, tombolo, abrasion platforms, spectacular spits, pocket beaches are all to be experienced. Quaternary formations of marine, fluvial and aeolian origin and coastal hazards (efficacy of coastal engineering protection) can be readily examined.

Geotourism Spots: St. Mary's Islands, Yana karst topography and Kudle Beach, Pilikula Nisarga Dhama, wildlife & cultural heritage etc.

Trip Coordinators: N. R. Ramesh, K.S. Jayappa and K. R. Subrahmanya

Other Contributors: H. Gangadhara Bhat and V. S. Hegde

Day by day itinerary

Day 1 – Tuesday, 25 February 2020
Arrival at Mangalore. A brief introduction on field trip .
Halt – Mangalore, Karnataka

Day 2 – Tuesday, 26 February 2020
Visit to Someshwara coast/ beach, basement rocks, promontory, marine landforms, cliff beach profiles- Lateritised Tertiary sections - Ullal beach - Netravati mouth break water; Kannur terrace on Netravati; Fisheries college Laterite profile on basement gneisses. Examine basement rock complex, Neogene sediments, laterite profiles, river/ coastal landforms, Quaternary alluvium and beach, coastal erosion spots/ protection measures.
Halt – Mangalore, Karnataka

Day 3 – Tuesday, 27 February 2020
Visit to Kavoor area quarry with huge Tertiary sedimentary sequences; Tannirbhavi and Bengre beach, Pananmbur beach, Kaup light house and study coastal landforms and erosion.
Halt – Udupi, Karnataka

Day 4 – Tuesday, 28 February 2020
Visit to St. Mary's Island National Geological Monument, Brahmavar delta point, Maravanthe beach and study older marine terraces, evidences of sea level changes and coastal dynamics. Visit to Murdeshwar Tombolo.
Halt – Kumta, Karnataka

Day 5 – Tuesday, 29 February 2020
Yana geoheritage site to examine limestone deformation structures, karst topography, cave temple, palaeo erosion caves; multiple gravel-boulder formations, bauxite profiles, mines in Bhatkal plateau; beach/ coastal environmental aspects at Om, Belekere.
Halt – Vasco da Gama, Goa

Day 6 – Tuesday, 1 March 2020
Visit to Baga beach, Calangute beach (via Panjim) to examine beach settings, morphology and coastal landforms. Delegates can take the evening or night flight from Goa to Delhi and join the congress.

Special notes: NA

SR019: *Resource Survey for Dimension Stone Granite Deposits in granulitic terrain of Tamil Nadu, Southern India*

Duration: 5N/6D, **26 Feb 2020** to **2 March 2020**;
Starts: Chennai Airport; **Ends at**: Chennai Airport;
Number of delegates limited to 20;
Cost: 1000 USD / 70000 INR Per Person;

Trip Overview: The state of Tamil Nadu is known for extensive occurrences of granite, charnockite, and bronzite gabbros that are quarried for dimensional stones. The granulitic terrain of Tamil Nadu is studded with several quarries which produce commercially important dimensional stones (DS) like Jet/Kunnam Black (equivalent to Ebony black of Sweden), a unique variety like Paradiso, Thippu/ Melur/Kashmir white, Star Galaxy, Tiger skin, Pink/blue Multi, Blue pearl, Colombo/Tropical Juparana, Lady dream, Viyarah, Rosa Verde, Raw silk etc. During the proposed field transacts, different litho units and their equivalent commercial grade, granite landforms will be visited and various aspects of commercial valuation will be discussed.

Geotourism Spots: Lady of Lourdes Church, Tiruchirappalli; Rock fort and Srirangam Temple (Chola Architect) Meenakshi Amman Temple (Pandiya Architect) etc.

Trip Coordinators: K. Jayabalan and K. Aravind

Day by day itinerary

Day 1 – Wednesday, 26 February 2020
Arrival at Tiruchchirapalli .
Halt – Tiruchchirapalli (Trichy), Tamil Nadu

Day 2 – Thursday, 27 February 2020
Fieldwork in Togamalai, Kudumiyanmalai, Sittannavasal, Northamalai anr Srirangam. Study of geological significance of commercial granites of barren outcrops, working, nonworking and abandoned Dimension Stone Quarries – causative factors for failure, mining techniques. Study of geology, geomorphology and structural characters, inherited defects and its role on commercial granite explorations of DSGD.
Halt – Tiruchchirapalli (Trichy), Tamil Nadu

Day 3 – Friday, 28 February 2020
To study geological significance of commercial granites on sheet rock. Visit to DS quarries. Study of granite landforms and its role on commercial granite explorations. Visit to factory/polishing unit site, owned by TAMIN, Govt. of TN at Melur.
Halt – Tiruchchirapalli (Trichy), Tamil Nadu

Day 4 – Saturday, 29 February 2020
Traverse will focus on the geological significance of commercial granites exposed in and around Namakkal, Sankari & Edappadi areas. Geoheritage attractions include Brucefoot memorial, Ancient Church, Boat club, Tourist hill station etc.
Halt – Yercaud / Salem, Tamil Nadu

Day 5 – Sunday, 1 March 2020
Visit to quarrying sites and demonstrate Grain size, Colour& compositional variation in dyke rocks, flow, banding, streaky and its role on DSGD. Latest quarrying techniques, and utility of modern machineries, detonators, chemicals for splitting of gang saw size blocks from parent out crops, etc.
Halt – Salem, Tamil Nadu

Day 6 – Monday, 2 March 2020
Departure from Salem. Delegates may avail morning flight to Chennai.

Special notes: NA

SR021: *Gold and copper mineralization in Kolar and Chitradurga Schist Belts, Dharwar Craton*

Duration: 4N/5D; **26 February** to **1 March 2020**;
Starts: Bengaluru Airport; **Ends at**: Bengaluru Airport;
Number of delegates limited to 20;
Cost: 800 USD / 56000 INR Per Person;
Trip Overview: Neoarchaean metallogenic provinces of polymetallic and gold mineralization of Chitradurga and Kolar Greenstone belts of west and east Dharwar Cratons will provide an opportunity to study the geological and structural set up of the mineralisation and exploration methodologies.
Geotourism Spots: Geological monument of pillow lava; heritage sites of pre-historic Chandravalli caves near Chitradurga, Chitradurga fort etc.
Trip Coordinators: N. Rajendran, V. N. Vasudev and R. H. Sawkar
Other Contributors: H. M. Ramachandra
Special notes: Specific joining instructions will be provided upon receipt and confirmation of trip booking.
Day by day itinerary
Day 1 – Wednesday, 26 Feb 2020
Arrive early morning to Bengaluru Airport. The delegates will travel by bus to the southern part of Kolar Schist Belt via Hosur and Veppanapalli in Tamil Nadu State and reach Chigargunta gold mine. The delegates can study the host rock and wall rock dumps at the mine site. Surface expression of the mineralization can also be observed. Proceed to KGF located at 30km north of Chigargunta mine. Enroute, brief stops at a few old and abandoned gold mines at MallappaKonda and Bisanattam. Visit the Kotilingeswara temple, a cultural/ tourist attraction and return to KGF to see the British time mine Shafts, bungalows, the famous KGF officers Club, Oorgaum railway station, process plant tailing dumps etc.
Halt – BEML Nagar near Kolar Gold Field, Karnataka
Day 2 – Thursday, 27 February 2020
Visit to KGF to study the Geological set up and mineralisation features. The stops include (a) the Champion reef railway station where the host rock of the Champion lode is exposed; (b) the earth cutting for the railway sidings near Golkonda shaft where the western sulphide lodes, viz., the Oriental and McTagart Lodes are exposed; (c) the Banded sulphidic iron formation exposed along the western margin of the Kolar belt; and (d) Surapalli village close to which an abandoned gold prospect is located at the contact of a mylonitic felsic (volcanic?) rock and polymict conglomerate.
Halt – Chitradurga, Karnataka
Day 3 – Friday, 28 February 2020
Visit to the old Guddarangavana halli (G. R. Halli) gold mines operated by Hutti Gold Mines Company (HGML), a PSU of Government of Karnataka. The delegates can examine the old mines. The host rocks for gold-silver mineralization include highly carbonated and metabasic rocks and carbonaceous argillite. Return to Hotel.Visit ancient Chandravalli caves, large enough to inhabit, carved out amidst large boulders of Chitradurga granite.
Halt – Chitradurga, Karnataka
Day 4 – Saturday, 29 February 2020
Visit to Ingaldhal Copper Mine & Maradihalli pillow lava, about 10 to 20 km south of Chitradurga Town. Ingaldhal copper mine forms part of the 40 km long Chitradurga Sulphide Zone within the Ingaldhal Volcanics of Chitradurga Group of Dharwar Supergroup. Examine the freshely exposed copper mineralised zone within schistose volcanic rocks in road sections and cherty, pyrite, pyrrohotite-rich (~25% by vol.) sulphidic BIF on the eastern side of copper mine hill and proceed visit the well-preserved pillow structures in metabasalt near Maradihalli village declared as a National Geological Monument by the Geological Survey of India.
Halt – Chitradurga, Karnataka
Day 5: Sunday, 1 March 2020-Chitradurga to Bengaluru: 200 km.
The team will leave Chitradurga in the morning to the old Ajjanahalli open pit gold mine located at 75km SSE of Chitradurga. The Ajjanhalli mine is located close to a major shear zone marking the eastern margin of the Chitradurga belt. The Team will then proceed to examine the belt-margin shear zone where the intrusive "Bukkapatna Granite" outcrops exhibit tell-tale evidences of shearing reflected in the mylonitic structures. The Team will then proceed to GSI's camp where drill cores of some recently explored gold prospects, located near Ajjanhalli, are preserved.
The delegates travelling to Delhi will be seen off at the Bangalore International Airport in the evening.
Special notes: NA

WR001: *Palaeoproterozoic Lead-Zinc-Coper Sulphide Metallogenesis in Aravalli-Delhi Orogenic Belt, South Central Rajasthan*

Duration: 3N/4D, 26 Feb 2020 to 29 Feb 2020;
Starts: Udaipur; **Ends at**: Jaipur;
Number of delegates limited to 25 max;
Cost: 600 USD /42000 INR Per Person

Trip Overview: This trip will focus on medium to large lead, zinc and silver ore deposits that occur in diverse tectonic settings such as in the Palaeoproterozoic Aravalli Supergroup (Zawar) and intra-cratonic metasedimentary belts at Rajpura-Dariba and Agucha. The three main deposits at Zawar in the south of Udaipur, Rajpura-Dariba-Sindesar in the north of Udaipur and Agucha in Rajasthan, cumulatively constitute over 400 million tonnes of stratiform Pb-Zn ores of economic significance.

Geotourism Spots: Udaipur lake city, 2500 years old ancient zinc smelting sites at Zawar etc.

Trip Coordinators: Shubhabrata Mukhopadhyay and Sunil Vashisht

Other Contributors: S.K. Rajput, Abhisek Anand, Rajuram Saraswat, Amit Srivastava, Manideepa Roy Choudhury, Akanksha Joshi, Reenika, R.P. Dashora, Ranjan Gupta, K. C. Meena, Gaurav Mathur and Rajesh Kundu.

Day by day itinerary

Day 1 – Wednesday, 26 February 2020
The delegates shall assemble at Udaipur. They can enjoy sight- seeing in Udaipur.
Halt – Udaipur

Day 2 – Thursday, 27 February 2020
The delegates will proceed to Zawar mines early morning. Distance between Udaipur city to Zawar is about 40 km. The American Society of Metals (ASM) has also recognized Zawar for industrial revolution in Europe and a museum has been set up at Zawar Mines. This will be followed by a visit to Tidi Dam and then proceed to Udaipur.
Halt – Udaipur

Day 3 – Friday, 28 February 2020
The delegates will proceed to Dariba (80 kms) by car, spend around 1.5 hrs at the Gossan Hill Geological Monument. This will be followed by a visit to the underground mine at Sindesar- Khurd. Delegates will proceed to a hotel at Bhilwara after the mine visit.
Halt – Bhilwara

Day 4 – Saturday, 29 February 2020
After breakfast the delegates will proceed to Agucha (82km) by car to study the open cast mine of Agucha. After lunch, the delegates will proceed to Delhi via Jaipur.

Special notes: NA

WR003: *Neoproterozoic Magmatism and Tectonics of NW Indian Block: Tracing the Rodinia Break-up*

Duration: 6N/7D 24 **Feb 2020** to **1 March 2020**;
Starts: Jodhpur Airport; **Ends at**: Udaipur Airport;
Numbers limited to 25;
Cost: 950 USD / 66500 INR Per Person;

Trip Overview: The Neoproterozoic Malani Igneous Province (MIP) and Erinpura Granites in western India constitute a major igneous terrain that occurs to the immediate west of the Aravalli Mountain Range. The MIP is dominated by ~750 Ma old rhyolitic flows and tuffs that occupy about 50,000 sq. km. expanse in the desertic terrain of western India. This magmatic terrain has implications for Rodinia fragmentation, Neoproterozoic geodynamics and paleoposition of NW India.

Geotourism Spots: Mahendragarh Fort and Mount Abu etc.

Trip Coordinators: M. K. Pandit and K. K. Sharma

Day by day itinerary

Day 1 – Monday, 24 February 2020
Arrival and assembly at Jodhpur.
Halt – Jodhpur, Rajasthan

Day 2 – Monday, 25 February 2020
In this traverse, we will study the Nagana Columnar Jointed Rhyolite (Near Nagnechiji temple on Kalyanpura Road), volcanic centre (Mandli - Kalyanpura Road), Agolai Rhyolite, Kailana pyroclastic deposits and the contact between Malani Rhyolite and Marwar Supergroup. Visit to Mehrangarh fort.
Halt – Jodhpur, Rajasthan

Day 3 – Monday, 26 February 2020
The delegates will be shown exposures of the Siwana Inner Ring – peralkaline Trachyte, Malani Igneous Suite (Balotara - Siwana Road), peralkaline Siwana Granite near Mokalsar, Malani Igneous Suite (Abandoned Quarries), peraluminous Granite and doletire dyke intrusions (Jalor), Malani Igneous Suite (quarry section).
Halt – Sirohi, Rajasthan

Day 4 – Monday, 27 February 2020
Fieldwork to study Erinpura Granite in quarries near Sumerpur and type area around Jawai Dam, peraluminous Mirpur Granite, Malani Igneous Suite on Sirohi – Revdar Road and Sindreth Group Conglomerate at Sindreth Village. Visit to historic Mirpur Temple.
Halt – Sirohi, Rajasthan

Day 5 – Monday, 28 February 2020
Travel to Mount Abu and fieldwork en route. Study the Bahari Ghata Shear Zone, Sirohi, migmatized Erinpura Granite at Veervada and Granite Gneiss and mafic dykes at Mount Abu.
Halt – Mount Abu, Rajasthan

Day 6 – Monday, 29 February 2020
Fieldwork at Mount Abu. Study of Augen Gneiss at Delwara, hybrid mafic dykes and features of extension and compression part of the Delwara Shear Zone and Achalgarh Granite.Visit to Delwara Temple.
Halt – Mount Abu, Rajasthan

Day 7 – Monday, 1 March 2020
Check out and travel to Udaipur. Sightseeing at Udaipur and departure to Delhi.

Special notes: NA

WR004: *Thar Desert - Its Evolution and Geoheritage*

Duration: 6N/7D, **24 February 2020** to **1 March 2020**;
Starts: Jodhpur Airport; **Ends at**: Jodhpur Airport;
Number of delegates limited to 30;
Cost: 980 USD/68600 INR Per Person;

Trip Overview: The Thar Desert, located at West Rajasthan Shelf [WRS], occupies a unique tectonic-sedimentary domain in north-western India. The desert represents one of the most thickly populated dry land environments of the world. Thar Desert has several unique features and distinctive Neogene continental geological basin configurations. A large variety of characteristic golden sand dune fields ranging from clustered parabolic to transverse, linear, reticulate, star and barchanoid have been mapped across the vast span of the Thar Desert. The Malani Igneous Province and sediments of Marwar, Jaisalmer and Barmer Basins are endowed with many remarkable geoheritage sites. The Jodhpur and Jaisalmer cities are famous tourist destinations of India.

Geotourism Spots: Jodhpur - 'Sun City' (Mehrangarh Fort, Jaswant Palace, National Geological Monuments, Rao Jodha Rock park, Umed Palace and Kayalana Lake), Jaisalmer- 'Golden City' (Desert national park, Sam Desert, Golden Fort, Gadhisar lake, Bada Bagh and palaces) within Thar Desert (camel safari included) etc.

Trip Coordinators: S.C. Mathur, P.C. Moharana, and S. K. Wadhawan

Other Contributors: Shiv Singh Rathore, V. S. Parihar and S. L. Nama.

Day by day itinerary

Day 1 – Monday, 24 February, 2020
Arrival at Jodhpur. Assembly, registration, inauguration, general introduction and Orientation talks at Science Faculty Seminar Hall, New Campus and visit to "Thar Desert Gallery" at Prof. D. S. Chauhan Museum J. N. Vyas University, Jodhpur.
Halt - Jodhpur
Meal - Lunch and Dinner

Day 2 – Tuesday, 25 February, 2020
Visit to the National Geological Monuments of Thar Desert (Malani igneous suite of rocks and Jodhpur Group of rocks on Mehrangarh ridge followed walk to Mehrangarh Fort, palaces and bird's eye view of Jodhpur (blue city) from top of Fort Rampart. Central Arid Zone Research Institute: After lunch followed by visit to CAZRI Museum and Research Farms developing and managing of dry land resources are also part of the itinerary. Heritage Walk from Clock Tower to Gulab Sagar and Rajmahal Jhalra (ancient Traditional and Ground water bodies).
Halt – Jodhpur

Day 3 – Wednesday, 26 February 2020
Transects along Kaylana natural Lake and Desert rocky uplands of Malani Igneous Suite of rocks; arid fluvial System - Calcrete deposits over pediments, traditional water conservation systems (ponds) and Khadin (Runoff farming system) at Agolai. Examination of Colluvio-Aeolian Sequences and view superimposed Parabolic Dune Landscape at Shergarh Tri-junction.
Halt – Sam near Jaisalmer

Day 4 – Thursday, 27 February, 2020
Transect to Mohangarh to visit Engineering geological marvel at zero head of Indira Gandhi canal project. Visit to Bada Bagh heritage site to see development activities of renewable energy resources in the Thar Desert. At abandoned Deserted Village, i.e. Kuldhara, and its unique designs, water conservation structures of 13th century will be a unique experience. Camel Safari up and down the active dunes, study of aeolian landscapes, contemporary active sand dunes and migration.
Halt – Sam

Day 5 – Friday, 28 February, 2020
Geoheritage walk to historical Sonar Fort (UNESCO World Heritage Fort), palaces and havelis (architectural marvel buildings) constructed by Jaisalmer limestone. Visit to ancient heritage Gadhisar Lake and Akal Jurassic Park situated within the Desert National Park (Site 15).
Halt – Sam

Day 6 – Saturday, 29 February, 2020
Return to Jodhpur. Visit to Damodara Rann and surrounding Desert Rocky Landscape then to Bhojka Boulder Spread & Serir - Residual Gravels of fluvial channel deposits and Lawan Playa Salt deposits. Examine sandstone open cast mining, sandstone cutting, polishing and processing industries at Keru.
Depart from Jodhpur to New Delhi by train or halt the night and depart next day by Air to join 36 th IGC at Delhi NCR to be held from 2nd March, 2020.

Special notes: NA

WR008: *Quaternary Miliolitic Limestone of Saurashtra*

Duration: 5N/6D, **25 Feb 2020** to **1 March 2020**;
Starts: Ahmedabad Airport; **Ends at**: Ahmedabad Airport;
Numbers limited to 35;
Cost: 800USD / 56000 INR Per Person;

Trip Overview: The biogenic carbonate deposits of Late Quaternary age are widespread along the tropical and the sub-tropical coast around the globe, and are used to define the history of Quaternary sea level change in Bahamas and Bermuda. In Indian context these rocks occur along the Gujarat coastline, particularly along Saurashtra. These deposits are well studied for its clues to the sea level changes and local tectonics during 120 to 40 ka.

Geotourism Spots: Mahatma Gandhi's birthplace Porbandar, Buddhist caves, Portuguese fort, coastal geomorphosites at Diu and Asiatic lion sanctuary etc.

Trip Coordinators: K. S. Misra and Nilesh Bhatt

Day by day itinerary

Day 1 – Tuesday, 25 February 2020
Arrival at Ahmedabad by Air from Delhi/Mumbai and road travel to Porbandar, Ice breaking, briefing. Night stay at Porbandar.
Halt – Porbandar

Day 2 – Wednesday, 26 February 2020
Field visit of Ranavav-Adityana and coastal sites. Visit to Kirti MandirMahatma Gandhi's birthplace. Night stay at Porbandar.
Halt – Porbandar

Day 3 – Thursday, 27 February 2020
Field visit of Junaghadh Uperkot quarries and Budhist caves carved in Miliolite. Fluvial section of Ojat river near Anandpur, Night stay at Sasan Gir.
Halt – Sasan Gir

Day 4 – Friday, 28 February 2020
Sasan-Devaliya lion sanctuary visit, Noli river section, Jamwala water fall in miliolite, Una miliolite dune exposures.
Halt – Diu

Day 5 – Saturday, 29 February 2020
Tidal notches and coastal cliffs in miliolite on Diu coast, Old miliolite quarries and sections at Diu fort, Nagwa beach visit.
Halt – Diu

Day 6 – Sunday, 1 February 2020
Breakfast at Diu Hotel. Return from Diu to Ahmedabad airport.

Special notes: NA

WR009: *A walk on Mars : Jarosite localities of Kachchh, India*

Duration: 4N/5D **25 Feb 2020** to **29 Feb 2020**;
Starts: Ahmedabad Airport; **Ends at**: Ahmedabad Airport;
Number of delegates limited to 30;
Cost: 750 USD / 52500 INR Per Person;

Trip Overview: This trip to Kachchh, western India, showcases the occurrence of the hydrous sulphate mineral, jarosite, widely reported from the surface of Mars but rare in natural terrestrial localities, in various horizons of a Cenozoic succession.

Geotourism Spots: White desert (Rann of Kachch); Dholavira (world's oldest civilisations -Harappan locality) etc.

Trip Coordinators: Satadru Bhattacharya and Souvik Mitra

Other Contributors: Saibal Gupta, Santanu Banerjee and Ramananda Chakrabarti

Day by day itinerary
Day 1 – Tuesday, 25 February 2020
Arrival at Ahmedabad in the morning and transfer to Bhuj by road.
Halt – Bhuj, Gujarat

Day 2 – Wednesday, 26 February 2020
Fieldwork in Mata nu Madh area. Visit to Siyot caves and Lakhpath fort.
Halt – Bhuj, Gujarat

Day 3 – Thursday, 27 February 2020
Fieldwork in and near Jatavira, Fulra, Harudi and Naredi.
Halt – Bhuj, Gujarat

Day 4 – Friday, 28 February 2020
Fieldwork in and near Dholavira. Visit to archaeological site in Dholavira.
Halt – Dholavira, Gujarat

Day 5 – Saturday, 29 February 2020
Departure from Dholavira to Ahmedabad. Delegates can take the late evening flight from Ahemadabad to Delhi.

Special notes: NA

WR010: *Stratigraphic Architecture and Palaeo-environments in the Kachchh Rift Basin during the Jurassic*

Duration: 6N/7D, **24 Feb 2020** to **01 March 2020**;
Starts: Ahmedabad Airport; **Ends at**: Ahmedabad Airport;
Number of delegates limited to 35;
Cost: 800 USD /56000 INR Per Person;

Trip Overview: Kachchh is a pericratonic rift basin at the western margin of the Indian Craton. It was situated in the northern Malagasy Gulf and was part of the Indo-East African faunal province. The basin is characterized by a Jurassic succession representing environments and the biodiversity of the southern margin of the Tethyan Ocean. This succession with its very diverse and well-preserved fossil record made Kachchh one of the key localities for studying the Jurassic stratigraphy and biota of Gondwana. The trip will include visits to the most important outcrops and stratigraphic units for understanding the evolution of palaeoenvironments and biota of the basin during the Jurassic time interval.

Geotourism Spots: Great Rann of Kachchh, Pachchhmaipir Temple and viewpoint, temples and palaces in Bhuj, etc.

Trip Coordinators: Dhirendra Kumar Pandey

Other Contributors: Debahuti Mukherjee, Franz. T. Fürsich, Matthias Alberti and Gaurav Chauhan

Day by day itinerary

Day 1 – Monday, 24 February 2020 Theme: Lower Jurassic to Bathonian succession of Pachchham Island
Pickup at 0800 Hrs at Ahmedabad Airport and arrival of delegates in Bhuj. In the evening: Introductory lecture on the Jurassic geology of Kachchh.
Halt – Bhuj

Day 2 – Tuesday, 25 February 2020
Pachchhmaipir (Kala Dongar) and Sadhara Dome (Gora Dongar)
Visit to Kala Dongar at Pachchhmaipir with view across the Great Rann of Kachchh and study the lower part of the sedimentary succession (Late Bathonian – Middle Oxfordian succession of eastern Kachchh Mainland). After Kala Dongar proceed to the core of the Sadhara Dome (Gora Dongar) to study the Middle Sandstone member of the Kaladongar Formation to Shelly Shale member of the lower Jumara Formation
Halt – Bhuj

Day 3 – Wednesday, 26 February 2020
The traverse covers the Bathonian to Kimmeridgian succession of western Kachchh Mainland.Transect through the eastern part of the Jhura Dome towards the village of Jhura Camp. Observe the Sponge Limestone member (Upper Bathonian) and study trace fossils and storm beds at the top of the Patcham Formation (Upper Bathonian). Also study the Shelly Shale member and Ridge Sandstone member of the lower Jumara Formation of Lower Callovian to Middle Callovian and Gypsiferous Shale, Dhosa Sandstone, and Dhosa Oolite members of the upper Jumara Formation (Upper Callovian – Middle Oxfordian.)
Halt – Bhuj

Day 4 – Thursday, 27 February 2020)
Further explore the Bathonian to Kimmeridgian succession of western Kachchh Mainland starting at Jumara Dome to observe the Offshore coral meadows of the Middle – Upper Bathonian, Jumara Coral Limestone member. Study other exposures of lower and upper Jumara Formation.
Halt – Bhuj

Day 5 – Thursday, 28 February 2020
The traverse mainly covers upper Jurassic succession in the western Kachchh Mainland and starts with the visit to Boladi Nala and Jhuran River to study the Middle Jhuran Formation in the Jhuran River and observe the basinal to prodelta deposits and sedimentary dykes. Observe road-cut section of the Middle–Upper Jhuran Formation 1.5 km south of Jawahar Nagar representing upper prodelta to delta-front deposits. Complete the traverse with Upper member of the Jhuran Formation and Ghuneri Member of the lower Bhuj Formation in the Jhuran River: delta-front to delta top deposits
Halt – Bhuj

Day 6 – Friday, 29 February 2020
The D traverse is mainly to study the Upper Jurassic succession in the Wagad Uplift and includes visit to Lakhapar to study the Megacucullaea Bed and Trigonia Ridge Sandstone north of Lakhapar. We shall also study Middle Jhuran Formation in the Jara Mara River.
Halt – Bhuj

Day 7 – Saturday, 01 March 2020
Today we continue our study in the Wagad Uplift and study sections at Tramau River, Kantkote Hill near Kantkote Village and Bharodia.

In the evening travel to Ahmedabad and drop off early in the morning at Ahmedabad Airport on 2 March 2020 and delegates will leave Ahmedabad with the flight/train for Delhi.
Halt – Bhuj

Special notes: NA

WR012: *Late Quaternary Continental Sequences of Gujarat, Western India: an Appraisal of Climatic, Tectonic and Eustatic Processes*

Duration: 3N/4D, **26 Feb 2020** to **29 Feb 2020**;
Starts: Vadodara Airport; **Ends at**: Vadodara Airport;
Number of delegates limited to 15;
Cost: 750 USD / 52500 INR Per Person;

Trip Overview: The field trip covers semi-arid belt of Gujarat state in western India. Near complete continental records dating back to ~125 ka B.P. are exposed in 30-50 m high river cliffs of Mahi, Narmada and Sabarmati rivers. The distinct sedimentary facies, aggradation and incision phases show complex interaction between fluvial, marine, aeolian and tectonic processes.

Geotourism Spots: Pavagarh, Champaner (UNESCO heritage site), Lothal, Rani ki Vaav- step well etc.

Trip Coordinators: D. M. Maurya, L. S. Chamyal and Alpa Sridhar

Day by day itinerary

Day 1 – Wednesday, 26 February 2020
Arrival at Vadodra early in the morning and depart to Rajpipla. Fieldwork and meals on the road. En route stops at Rayka, Chanod and Tilakwada to discuss the fluvial response to Late Pleistocene monsoon dynamics.
Halt – Rajpipla, Gujarat

Day 2 – Thursday, 27 February 2020
Start from Rajpipla back to Vadodra via Juna Ghanta and Kadipani. Tectonic triggers for fluvial sedimentation and palaeoflood deposits will be showcased and discussed in this traverse.
Halt – Vadodra, Gujarat

Day 3 – Friday, 28 February 2020
Visit to Oran and Mahudi tracing the palaeo-Thar margins.
Halt – Vadodra, Gujarat

Day 4 – Saturday, 29 February 2020
Traverse through Kothiyakhad, Mujpur and Champaner to understand marginal environments and fluvial response to Holocene monsoon dynamic. Visit to Pavagadh and Champaner UNESCO Heritage Site.
Depart to Delhi by a late evening flight to join the congress.

Special notes: NA

NR001: Dhala Structure, India- a Palaeoproterozoic Complex Impact Crater

Duration:3N/4D, **27 Feb 2020** to **01 March 2020**;
Starts: Khajuraho Airport; **Ends at**: Khajuraho Airport;
Number of delegates limited to 25;
Cost: 580 USD/ 40600 INR Per Person

Trip Overview: The Dhala impact structure covers nearly 64 sq. km in parts of Shivpuri district, Madhya Pradesh in north-central India. It is the seventh oldest impact structure with possibly the oldest known suevite deposit in the world. Despite the deep level of erosion and post-impact tectono-thermal events, the impactites are exceedingly well preserved, with nearly all shock metamorphic features. The impact melt breccia is exposed on surface over a strike length of about 6 km but suevite has only been identified in drill core. Granitoids with high- and low strain zones of Archean age (2,500-3,600 Ma) are the prevalent country rocks.

Geotourism Spots: Khajuraho Temple-a UNESCO World heritage site etc.

Trip Coordinators: Jayanta Kumar Pati and Kuldeep Prakash

Day by day itinerary

Day 1 – Thursday, 27 February 2020
Arrival at Khajuraho airport by afternoon. Visit to Khajuraho Group of Temples- an UNESCO World Heritage Site. Travel to Jhansi (175 km NW of Khajuraho) by AC Bus.On the way select field stops showing the regional geology of Bundelkhand craton and deformational signatures associated with Bundelkhand Tectonic Zone. Arrival at Jhansi followed by briefing on the Geology of Dhala Impact Structure.
Halt – Jhansi, U.P.

Day 2 – Friday, 28 February 2020
Visit to Dhala impact structure, on the way stop to study Karera Shear Zone, Mahuar River Section; Contact among Granites and Diorites, giant Quartz Vein. At the site, delegates will observe the monomict Breccia Outcrops and the exposures of Impact Melt Breccia and Monomict Breccia.
Halt – Jhansi, U.P.

Day 3 – Friday, 29 February 2020
Visit to Dhala impact structure. In this traverse, delegates can observe brecciated giant quartz vein, mylonites and sheared diorite, Central Elevated Area comprising post-impact sediments, exposures of impact melt breccia and monomict breccia. Visit to Cultural Heritage sites such as Scindia Chattri Mahal, Tourist Village etc., in Shivpuri district.
Return to Hotel
Halt – Jhansi, U.P.

Day 4 – Friday, 01 March 2020
After breakfast delegates will be dropped off at Khajuraho Airport for final departure.

Special notes: NA

NR003: *Archives of Late Quaternary Climate Fluctuations in Satluj valley, Himachal Pradesh*

Duration: 4N/5D, **26 Feb 2020** to **1 March 2020**;
Starts: Chandigarh Airport; **Ends at**: Chandigarh Airport;
Number of delegates limited to 20;
Cost: 700 USD / 49000 INR Per Person;

Trip Overview: Satluj River originating from Trans-Himalaya, debouch in Indo-Gangetic plain. The valley lies in the North western limits of ISM tract and is in climatically sensitive zone with range of climatic regimes from south to north. Noticeably, in the Satluj and its tributary stream (e.g. Baspa river valley), temporal and spatial distribution of valley fill deposits show that variable modes of depositional processes operated during major climatic fluxes of (Indian Summer Monsoon dynamics: ISM).

Geotourism Spots: Monasteries, temples, Sangla valley etc.

Trip Coordinators: Md. Atif Raza and H S Saini

Other Contributors: Sharat Dutta, R.V.Chunchekar, R. Bhavani and S.A.I. Mujtaba

Day by day itinerary

Day 1- Wednesday, 26 February 2020
Trip will start from the gate no. 1 of Chandigarh Airport, Chandigarh. The first spot will be at Pinjore garden, Pinjore and then we will proceed to the Hotel at Shimla. In the evening there will be small brief about the trip which will be followed by the local site seeing.
Halt – Shimla, Himachal Pradesh

Day 2- Thursday, 27 February 2020 – Shimla to Rampur Bushahr
The delegates will take the Shimla to Rampur Bushahr with stops at Bethal and Duttnagar. Representative section showcasing major climatic transition events on account of palaeoclimatic variability in the catchment and the transition facies from Humid Pre-LGM and cold-arid LGM conditions in sedimentary facies will be studied in these locations.
Halt – Rampur, Himachal Pradesh

Day 3- Friday, 28 February 2020
Quaternary sections of alluvial fans, debris and terrace deposits of Satluj and Glacio-fluvio fans, rock avalanches, fluvio-lacustrine sequence and glacial morphology near Sangla along Baspa valley and possible damming site will be elaborated. Paleo-rock avalanches near Kharogla and Quaternary sections and glacial valley in Chitkul, the last village of India, will be studied.
Halt – Rampur, Himachal Pradesh

Day 4- Saturday, 29 February 2020
The traverse will commence at Rampur with the study of 22m thick fluvial section exposed on the left blank of Satluj River (Rampur-Nogli Section). Lower part of the section is well exposed in Nogli area, while upper part is well exposed in the upstream near Rampur. The delegates will also study the rolling and sloping morphology of the ~69ka depositional surface (oldest phase) near Nirsu/Shattal.
Halt – Shimla, Himachal Pradesh

Day 5- Sunday 01 March 2020 – Shimla to Chandigarh airport
Take the Himalayan Queen toy train at Shimla to enjoy the mesmerising beauty of Himalayas and tunnels. Alight at Shoghi/Kandaghat and proceed to the Chandigarh airport by bus.

Special notes: Proper woollen cloths, sun hat, sun glasses and field shoes etc. Delegates should be able to sustain cold winter as well as should not have high altitude problems while on breath-taking roads at the margin of deep gorges during Rampur Bushahr to Sangla/Chitkul.

NR011: *Siwalik vertebrates and Siwalik Fossil Park, Saketi (Himachal Pradesh)*

Pre-Trip: 2N/3D, **28 Feb 2020** to **01 March 2020**;
Starts: New Delhi International Airport; **Ends at**: New Delhi International Airport;
Number of delegates limited to 20;
Cost: 400 USD/28000 INR per person;

Trip Overview: The Siwalik rocks embody in the form of fossils, the varied flora and fauna that thrived during the middle Miocene to Early Pleistocene. The vertebrate fossil rich Markanda valley can be examined for the whole package of rocks from Lower Siwalik subgroup (Nahan Formation) to Upper Siwalik subgroup (Kalar Formation = Lower Boulder Conglomerate). Siwalik Fossil park at Saketi displays around 300 fossil vertebrate specimens in the museum (a catalogue has been published by Geological Survey of India in 2013).

Geotourism Spots: Siwalik Fossil Park, Saketi, dist. Sirmaur H.P; Dinosaur museum & Rock Garden, Chandigarh; Pinjore Gardens, Pinjor (Haryana) etc.

Trip Coordinators: Rajeev Patnaik, Hemant Kumar and R. S. Chandel

Day by day itinerary

Day 1 – Friday, 28 February, 2020
Arrive early morning at Chandigarh and proceed to Kala Amb by road. On the way study Middle Siwalik and Upper Siwalik sequence near Village Ogli along Markanda River Section. After the river section visit the Siwalik Fossil Park and browse through the preserved fossil exhibits and life size fiberglass models. Also study the fossiliferous mudstone sequence of Saketi Formation at Kanthro and fossiliferous sequence near Devni – Khadri village.
Halt- Kala Amb

Day 2 – Saturday, 29 February, 2020
Start the day's traverse with a visit to a palaeolithic tool site and fossiliferous sequence of Saketi Formation. Following this visit the Sirmaur Cultural Museum situated in the Mahamaya Balasundari Temple complex, Tirlokpur, Sirmaur, H.P. Museum. At Chandigarh delegates will spend time at Rock Garden and Sukhana Lake.
Halt- Chandigarh

Day 3 – Sunday, 01 March, 2020
Visit the museums at Department of Geology and Department of Anthropology Panjab University. After lunch visit the Government Museum & Art Gallery, Chandigarh.
After the museum tours depart to Chandigarh airport to board the evening flight to Delhi.

Special notes: NA

NR012: *Field Workshop on Vindhyan Supergroup*

Duration: 10N/11 D, **20 Feb 2020** to **01 March 2020**;
Starts: Varanasi Airport; **Ends at**: Khajuraho Airport;
Number of delegates limited to 30;
Cost: 1000 USD 70000 INR Per Person;

Trip Overview: The Vindhyans of the Son Valley are the most interesting geological succession for discussing the global stratigraphic and palaeobiological riddles. The field workshop would cover the entire succession of the Vindhyan Supergroup from the base to the top. In depth studies are published and it is also logistically easily accessible. Important aspects of geological interest include Palaeoproterozoic phosphatic stromatolites of Chitrakoot area, thick porcellanite Formation, spirally coiled algal fossils Grypania, and advanced carbonaceous remains of Bhander Group.

Geotourism Spots: Chitrakoot, Khajuraho etc.

Trip Coordinators: Santosh Kumar Pandey and Surendra Kumar

Other Contributors: Santosh Kumar Pandey and Prof. Surendra Kumar

Day by day itinerary

Day 1 – Thursday, 20 February 2020
Arrival at Varnasi Airport. Assembly & Registration.Sarnath Visit, Ice-Break Party and Ganga Arti at Varanasi.
Halt – Varanasi, Uttar Pradesh

Day 2 – Friday, 21 February 2020
Departure for Sonbhadra / Chopan. Field traverse en route at Dala and Chopan. The delegates will study the Bijawar Phyllite, contact between basal conglomerate and Bijawar Phyliite. At Chopan Kajrahat Limestone, Arangi formation, Porcellanite and mafic intrusive will be studied.
Halt – Chopan, Uttar Pradesh

Day 3 – Saturday, 22 February 2020
On day 3, delegates will visit Patwadh, Ghurma and Markundi Ghat Section to study various sedimentary units. Salkhan Fossil Park will be visited in this traverse.
Halt – Chopan, Uttar Pradesh

Day 4 – Sunday, 23 February 2020
Visit to Drummondganj Ghat section at Rewa to study exposures of Panna shale, Jhiri shale and Rewa sandstone units.
Halt – Rewa, Madhya Pradesh

Day 5 – Monday, 24 February 2020
Visit to Chorhat, Gudh road and Chuiyya Ghat section. Exposures of Dhandraul quartzite, Porcellanite/Deonar Formation, glauconitic sandstone etc will be studied.
Halt – Rewa, Madhya Pradesh

Day 6 – Tuesday, 25 February 2020
Departure to Maihar. Fieldwork en route at Aber, Pathna Nala and Liji Nala section. Stromatolitic limestone and associated shale / sandstone will be studied.
Halt – Maihar, Madhya Pradesh

Day 7 – Wednesday, 26 February 2020
Fieldwork along the Sarlanagar-Dhanwahi Road to study different sedimentary units of the Vindhyans. At Emaliya and Dulni, bioherms of stromatolite and carbonaceous fossils will be observed at Bhander Limestone.
Halt – Maihar, Madhya Pradesh

Day 8 – Thursday, 27 February 2020
Departure to Chitrakoot. En route delegates will ba able to study Maihar Sandstone and Sirbu Shale at Rampur.
Halt – Chitrakoot, Madhya Pradesh

Day 9 – Friday, 28 February 2020
Visit to Jankikund Section to study the Tirohan Limestone. Dolerite Dyke, Bundelkhand Granite and FSVS will be studied at Sangrampur Hill Section. Contact of Tirohan Limestone and Kaimur Sandstone can be observed at Tarauhan Ghat Section.
Halt – Chitrakoot, Madhya Pradesh

Day 10 – Saturday, 29 February 2020
Departure to Khajuraho. UNESCO Temple Site Visit and Valedictory Function.
Halt – Khajuraho, Madhya Pradesh

Day 11 – Sunday, 01 March 2020
Drop off at Khajuraho Airport to catch the flight to Delhi.

Special notes: NA

NR013: *Paleoseismology along the Foothill Zone of Central Himalaya, Uttarakhand, India*

Duration: 4N/5D, **25 Feb 2020** to **29 Feb 2020**;
Starts: Delhi; **Ends at**: Delhi;
Numbers limited to15 max.;
Cost: 960USD/ 67200 INR Per Person

Trip Overview: The excursion show case a geological setting across Sub Himalayan frontal fold thrust belt and overthrust Lesser Himalayan sequence. The main focus will be on study of active faults and associated geomorphic landforms marked by lateral-propagation of fault related folding, and deflection - migration of rivers. Excavated trenches across the surface rupture (late Medieval time) associated with great paleo-earthquake along the Himalayan Frontal Thrust (HFT) or Main Frontal Thrust (MFT) will be demonstrated.

Geo-tourism spots: Geo-Archaeological site etc.

Trip Coordinators: R. Jayangonda Perumal and Javed N. Malik

Other Contributors: V.C. Thakur, Priyanka Singh Rao, Ishwar Singh, Arjun Pandey, M.S. Gadhavi, Santiswarup Sahoo, Pankaj Baghel

Day by day itinerary

Day 1 – Tuesday, 25 February, 2020
Leaving Greater Noida and reaching Haldwani town at 8 pm. It lies along the foothills of Himalayan Frontal Thrust (HFT).
Halt – Haldwani

Day 2 – Wednesday, 26 February, 2020
Field work across the Himalayan frontal thrust (HFT), Main Boundary Thrust (MBT), Nainital Lake (fault related lake) and Ramgarh Thrust (RT) and Almora Klippen. This will give an overview of Himalayan tectonics and how frontal thrust propagates toward modern foreland basin.
Halt – Haldwani

Day 3 – Thursday, 27 February,2020
Trench campaign along HFT at Ramnagar where previously reported two late medieval earthquakes. Visit to retreating fault scarp site near Karkar river, and Geomorphic expression of fold growth, upliftment of river channel, and fault scarps in and around Ramnagar.
Halt – Haldwani

Day 4 – Friday, 28 February,2020
Paleoseismological site along Main Boundary Thrust (Mountain facing or north facing scarp, and will show late normal fault activity along the MBT,) Tectonic Geomorphic expression across the MBT. Trench campaign along the HFT at Chourgalia town with upliftment of two levels of terraces.
Halt – Haldwani

Day 5 – Saturday, 29 February,2020
Vacate the hotel at Haldwani, and Visit to fault scarp site at Tanakpur, western Nepal Border (Kali or Sarda river), and afternoon leaving back to Greater Noida. In this site, the fault scarp shows 8 m high with footwall syncline and records of C.E. 1505 earthquake with coseismic landslides along the mapped fault scarp.
Leave the field site at 1 or 2 pm to return back to India Export Mart, Greater Noida, by 11 pm.

Special notes: Delegates may carry warm clothes

NR018: *The Chenab Arch Bridge: Engineering Marvel (CANCELLED)*

CR001: *A Magnificent Trail to Gondwana Geology, Nature and Heritage: Satpura Basin of Central India*

Duration: 4N/5D; **27 February 2020** to **02 March 2020**;
Starts at Nagpur Airport; **Ends at** Bhopal Airport;
Number of delegates limited to 20;
Cost: 525 USD / 36750 INR Per Person;

Trip Overview: The Satpura Basin in Central India is unique among all the Indian Gondwana basins by having the longest range of stratigraphic record spanning from Upper Carboniferous to Cretaceous. It is the westernmost Gondwana basin that is located over the Central Indian Tectonic Zone (CITZ) and forms an ENE–WSW trending linear tract between Son–Narmada North Fault in the north and Central Indian Shear Zone in the south. The basin is approximately 200km long and 60km wide and is believed to be originated as pull-apart basin due to extension related to strike-slip movement along Son-Narmada Lineament.The Field trip proposes a journey of nearly 200 Ma across Satpura basin to show stunning sedimentological features of entire Gondwana sequence of nearly 5km thickness, from early Permian Talchir Formation to Lower cretaceous Jabalpur Formation.

Geotourism Spots: Patalkot valley, Pachmarhi hill station, Satpura National Park, Bhimbetka caves and Sanchi Buddhist Stupa etc.

Trip Coordinators: Vijay V. Mugal and R.G. Khangar

Other Contributors: Tapan Chakraborty, Srikantamurthy, Md. Merajuddin Khan and Savita N. Chaurpagar

Day by day itinerary

Day 1 – Thursday, 27 February 2020
Arrival at Nagpur by 7.00 AM. Proceed to Khirsadoh village of Chhindwara district, Madhya Pradesh. Different litho-facies and sedimentary structures in Talchir Formation will be showed at Khirsadoh section with special emphasis on initiation of sedimentation in Satpura basin. Coal bearing Barakar Formation will be studied in open cast mines and overlying Motur Formation in Likhawadi section along tributary of Pench River.
Halt – Hotel on Pachmari Highway

Day 2 – Friday, 28 February 2020
Visit the Permo-Triassic contact with underlying Bijori and overlying Pachmarhi Formation near Bhurabhagat area. Different litho-facies and sedimentary structure association of Jabalpur and Pachmarhi formations will be studied in detail in Patalkhot. Excellent exposure of Upper Gondwana, Denwa Formation will be visited in Saptdhara section (at the confluence of Denwa and Dudher Rivers).
Halt – Pachmari

Day 3 – Saturday, 29 February 2020
Study of different facies in Pachmarhi Formation with emphasis on depositional environment and tectono-sedimentary evolution of the basin.
Halt – Pachmarhi

Day 4 – Sunday, 01 March 2020
Examination of unconformable contact between Barakar and Bagra formations. Number of coal seams of Barakar Formation are exposed in contact with conglomerate and sandstone association of Bagra Formation. This Stop will provide opportunity to study the tectonic evolutionary history of the basin.
Halt – Pachmarhi

Day 5 – Monday, 02 March 2020
Visit to National and world heritage sites of Bhimbetka and Sanchi Budhist Stupa. Depart to Bhopal airport for taking the evening flight to Delhi.

Special notes: Field vehicles would be having first aid kit. However, delegates are advised to carry necessary medicines as per their requirement.

CR003: *Monogenic Alkaline Lava Flow Fields in Deccan Traps- Kachchh & Saurashtra*

Duration: 5N/6D; **24 February 2020** to **29 February 2020**;
Starts at Bhuj Airport; **Ends at** Ahmedabad Airport;
Number of delegates limited to 30;
Cost: 800 USD/ 56000 INR Per Person;

Trip Overview: Volcanism in continental flood basalt provinces are hot topics of research due to their intrinsic fundamental nature and their temporal relationship with mass extinctions. The trip envisages visits to alkaline monogenetic cones containing mantle xenoliths, circular rhyolitic igneous complexes, Ir rich Anjar sediments close to the K-Pg boundary, alkaline and tholeiite lava flows, dykes and sills that are unparalleled in the Deccan Traps. This field trip offers a different perspective to mantle plume evolution vis-à-vis volcanism and offers an insight into the complex spatio-temporal evolution of the magmatic plumbing systems associated with large CFB provinces.

Geotourism Spots: Great Rann of Kutch, Lothal – Indus Valley Civilization port, Aaina Mahal and Bhujia Fort etc.

Trip Coordinators: Raymond A Duraiswami and Nitin R. Karmalkar

Other Contributors: Purva Gadapallu

Day by day itinerary

Day 1 - Monday, 24 February 2020
Arrival at Bhuj and checkin. Later, drive to Bhuj Fort by car. Climb Bhuj Fort atop Bhujia Hills on foot to see melanephelinite plug and experience a beautiful sun set.
Halt – Bhuj.

Day 2 – Tuesday, 25 February 2020
Visit to monogenetic volcanic cones at Dhrubiya and Nanama and visit mantle xenolith locations. Visit to Essexite dyke-sill complex. Physical volcanology of alkaline (basanite) flows.
Halt – Bhuj.

Day 3 – Wednesday, 26 February 2020
Visit to Kachchh mainland fault, Habo dome, intrusive sill/dykes and Dhrang laccolith.
Halt – Bhuj.

Day 4 - Thursday 27 February 2020
Visit to study physical volcanological features of lava flows in and around Anjar. This would be followed by enroute stop at inter flow sediment site (Wankaner-Chotila road section) and travel to Rajkot-Upleta.
Halt –Upleta

Day 5 - Friday 28th February 2020
Travel to Patanvav in a vehicle (~15 km). Visit to Osham igneous complex (rhyolite-pitchstone-basalt). Physical volcanological features such as flow banding, pyroclastics, etc. related to felsic volcanism shall be showcased.
Halt –Upleta

Day 6 - Saturday 29th February 2020
Wrap-up session. Departure by bus to the Ahmedabad airport to avail the late night flight to New Delhi to attend the 36th IGC.

Special notes: Delegates needs to be prepared for hot weather. Sun hat, sunglasses and appropriate shoes/ sneakers are essential. They need to carry own water bottles.

INTBG001: Environmental Geology and Delta-Building Processes at the Mangrove Forest (Sundarbans) (Cancelled)

INTBG002: Environmental & Quaternary Geology with Coral Island (St. Martin's Island) Cox's Bazar - St. Martin's Island

Duration:4N/5 D **26 Feb 2020** to **1 March 2020**;
Starts: Hazrat Shah Jalal International Airport (Dhaka); **Ends at**: Hazrat Shah Jalal International Airport (Dhaka);
Number of delegates limited to 80;
Cost: 750 USD / 52500 INR Per Person;

Trip Overview: Cox's Bazar is sandy beach with an unbroken length of 155 km making it the longest natural sea beach in the world. The sand at Cox's Bazar beach and surrounding areas is rich in heavy-metal mineral content. St. Martin's Island is a small island in the northeast part of the Bay of Bengal, about 9 km south of the tip of the Cox's Bazar-Teknaf Peninsula. It is the only coral island in Bangladesh.

Geotourism Spots: Himchari, Inanai, Maheshkhali etc.

Trip Coordinators: Md. Bazlar Rashid

Other Contributors: Syeda Jesmin Haque, A.J.M. Imdadul Haque

Day by day itinerary

Day 1 – Wednesday, 26 February 2020
Airport pickup from Dhaka airport to Hotel. Hotel Check-In and welcome drinks
Halt – Dhaka

Day 2 – Thursday, 27 February 2020
Check-Out from Hotel and fly from Dhaka to Cox's Bazar. Transfer to hotel, check-In and welcome drinks. Visit to Marine Drive. Visit the spots Marine Drive and surrounding beach area
Halt – Cox's Bazar

Day 3 – Friday, 28 February 2020
Departure from Hotel to Moheshkhali Island. Visit the spots at Moheshkhali and surrounding beach area. Return to Cox's Bazar.
Halt – Cox's Bazar

Day 4 – Saturday, 29 February 2020
Departure from Hotel to Teknaf Jetty. Teknaf Jetty to St. Martin's Island
Visit the spots St. Martin Island and return to Teknaf. Departure from Teknaf to Cox's Bazar hotel.
Halt – Cox's Bazar

Day 5 – Sunday, 1 March 2020
Deperture from Cox's Bazar to Dhaka by air and take the flight from Dhaka Airport to New Delhi to attend the congress.

Special notes: NA

INTBG003: Geological Exposure of Bangladesh (Sylhet)

Duration: 5N/6D, **25 Feb 2020** to **1 March 2020**;
Starts: Hazrat Shah Jalal International Airport (Dhaka); **Ends at**: Hazrat Shah Jalal International Airport (Dhaka);
Number of delegates limited to 36;
Cost: 940 USD / 65800 INR Per Person;

Trip Overview: Sylhet, located in the northeastern region of Bangladesh has a complex having diverse sacrificial geomorphology; high topography of Plio-Miocene age such as Khasi and Jaintia hills and small hillocks along the border. At the centre there is a vast low lying flood plain of recent origin with saucer shaped depressions, locally called Haors. Sari River section presents an excellent geological section for the Neogene (Mio-Pliocene) sequence in northeastern Bangladesh.

Geotourism Spots: Jaflong, Sari River, Madhabkunda etc.

Trip Coordinators: Akratul Ahsan

Other Contributors: Rubel Sheikh and Minhazul Abedin Shakik

Day by day itinerary

Day 1 – Tuesday, 25 February 2020
Arrival in Dhaka, Received from Hazrat Shahjalal international Airport to hotel.
Halt – Dhaka

Day 2 – Wednesday, 26 February 2020
Departure from Dhaka towads Jaintiapur. Arrival at Jaintiapur.
Halt – Jaintiapur

Day 3 – Thursday, 27 February 2020
Boat Journey at Sari River and Explore river Cut section. Start journey towards Jaflong and explore exposed geological section. Post lunch delegates can explore DupiTila type section at Dupigaon. Back to Nazimgarh Wilderness Ressort.
Halt – Jaintiapur

Day 4 – Friday, 28 February 2020
Journey towards Bisnakandi and explore the site at Bisnakandi. Start Journey towards Jaintiapur. Transfer to Sylhet.
Halt – Sylhet

Day 5 – Saturday, 29 February 2020
Start Journey towads Ratargul Swamp Forest enjoy boat journey to and the visit to Swamp Forest. Return to hotel. Visit Sylhet City and Surrounding's Geological Exposure.
Halt – Sylhet

Day 6 – Sunday, 1 March 2020
Check out and fly to Dhaka International Airport. Take flight to Delhi to attend the congress.

Special notes: NA

INTNP003: The Kathmandu Transect across the Middle of the Himalaya: Ancient to Active Tectonics

Duration: 5N/6D **23 Feb 2020** to **28 Feb 2020**;
Starts: Kathmandu; **Ends at**: Kathmandu;
Number of delegates limited to 20;
Cost: 835 USD /58450 INR Per Person;

Trip Overview: The excursion will cover the classic Himalayan geology of the Kathmandu region - Main Frontal Thrust; Intra Siwalik thrusts and Foreland Basin sediments (Siwaliks); the Main Boundary Thrust and Lesser Himalayan sediments; the Ulleri augen gneiss; multiple exposures of the Main Central Thrust system from south to north including the Mahabharat Thrust and permutations of the MCT 'zone;' the Greater Himalayan Crystalline rocks; and the Kathmandu Nappe. Further, the epicentral region of the devastating 2015 Gorkha Earthquake, and the progress and challenges of geological / civil engineering in this area will be showcased.

Geotourism Spots: Nawakot and Langtang Earthquake Damage Zones, View of High Himalaya in Langtang and Kakani, cultural sites of Kathmandu etc.

Trip Coordinators: B.N. Upreti

Other Contributors: A. Webb

Day by day itinerary

Day 1 – Sunday, 23 February 2020
Flight to Kathmandu from Delhi. Drive to Hetauda.
Halt – Hetauda

Day 2 – Monday, 24 February 2020
Traverse from Hetauda to Trishuli (MFT, Siwaliks, MBT, Lesser Himalaya, Mahabharat thrust in the morning, afternoon drive north).
Halt – Trishuli

Day 3 – Tuesday, 25 February 2020
Explore the Lesser Himalaya, Main Central thrust, Galchi shear zone / South Tibet detachment, NW Kathmandu Nappe.
Halt – Trishuli

Day 4 – Wednesday, 26 February 2020
Traverse from Trishuli to Syabrubesi (Nawakot Durbar, earthuake damage around Nawakot, Lesser Himalaya, Lesser Himalaya duplex).
Halt – Syabrubesi

Day 5 – Thursday, 27 February 2020
Traverse from Syabrubesi via Rasuwa Garhi (Nepal-China border) to Trishuli (Main Central thrust, Greater Himalayan Crystalline rocks, earthquake damage). Afternoon return to Trishuli.
Halt – Trishuli

Day 6 – Friday, 28 February 2020
Trishuli-Kakani-Kathmandu LH - MCT - GH - STD -TH section exploring the Tethyan sedimentary rocks. The trip ends at Tribhuvan International Airport, Kathmandu.

Special notes: NA

NR020: Qutub and Himayun Tom Complex (Delhi): UNESCO world heritage sites

Day Trip: 1 day, **2 – 8 March 2020**
Starts: India Expo Mart Greater Noida; **Ends at**: India Expo Mart Greater Noida;
Number of delegates limited to 25;
Cost: 103 USD / 7210 INR Per Person;

Trip Overview: The one-day trip showcases three main natural stones used for construction of most outstanding UNESCO heritage monuments of Delhi. These are (i) Red Sandstone; belonging to Vindhyan Basin and (ii) Delhi quartzite, (iii) White marble belonging to Aravalli mountain belt.

Geotourism Spots: Qutub Minar Complex, Humayun's Tomb Complex

Trip Coordinators: Gurmeet Kaur and Fareeduddin

Other Contributors:
Itinerary

Morning Session - The visit to Qutb Complex includes introduction to the geological, architectural and historical background of the complex. It will be a guided tour to the different monuments in the Qutb Complex and the delegates will be shown use of Delhi Quartzite, Marble and Red Sandstone as building materials in the different monuments in the entire Qutub complex.

Lunch: 1 pm – 2 pm

Evening Session – This session includes visit to the second site i.e. Humayun's Tomb Complex. The session includes a brief introduction about the geological, architectural and historical account of the monument. The delegates will be shown around the different rock types used in the entire complex.
The trip will end at India Expo Mart at 6:30 p.m.

Special notes: NA

NR021: Tectonic configuration of Siwalik Belt and unfolding structural evolution of Siwalik fold-thrust belt in Kala Amb-Nahan area, Sirmaur distt., Himachal Pradesh

Day Trip: 1 day, **2 March 2020** – **8 March 2020**;
Starts: India Expo Mart Greater Noida; **Ends at**: India Expo Mart Greater Noida;
Number of delegates limited to 15;
Cost:173 USD /12110 INR Per Person;

Trip Overview: Kala Amb, a small town in Sirmour district in Himachal Pradesh bordering with Ambala district of Haryana, can be approached from New Delhi by NH-44 and NH-7 totalling 250 km approx. The proposed Tectonic Configuration of Siwalik can be examined between Kala Amb and Nahan in a stretch of 15km transect.

Geotourism Spots: The Kala Amb-Nahan area in Outer Himalayan Range offers some spectacular and picturesque landscape manifested with lowly dissected hill ranges in northwestern India. The area has always been a vibrant arena for various geoscientific researches with reference to rich Siwalik vertebrate fossil occurrences and neotectonic features.
The transect offers complete picture of Siwalik fold-thrust bet and may be regarded as window to dynamics of Himalayan tectonics as a whole.

Trip Coordinators: Manoj Kumar and Rajinder Kumar

Other Contributors:
Itinerary

Depart from IEML early in the morning for Kala Amb, Himachal Pradesh. Breakfast en route. Fieldwork in the Siwaliks of the Himalaya to study the Nahan Thrust and the visit Siwalik Fossil Park or Saketi Fossil Park. Return to IEML by night.
Meals – Breakfast en route, packed Lunch and evening snacks.

Special notes: Delegates should be prepared for hot weather, sun-hat and sun-glass. Though the most of the exposured are on road cuts/ sides still wearing trekking shoe is desirable.

WR016: Visit to Surat Diamond Industry

Day Trip: 1 day, **2 March 2020 – 8 March 2020**;
Starts: Surat Airport ; **Ends at**: Surat Airport ;
Number of delegates limited to 30;
Cost: 142 USD /9940 INR Per Person;

Trip Overview: Surat (21.17°N 72.83°E) lying adjacent to Arabian Sea towards north of city of Mumbai (erstwhile Bombay), is the second largest and fastest growing cities of Gujarat and is the World's main centre for the cutting and polishing of diamonds (< 5 cents > 5 carat). India is now the main supplier of finished diamonds to the world. The saying goes that the 11 out of 12 diamonds set in jewellery in the world are cut & polished in Surat and is known diamond city of India.
Surat being the World's largest Diamond Lapidary Industry, this visit will provide a golden opportunity for the foreign delegates who deal with diamond research, exploration of diamonds to produced calibrated finished diamonds for use in jewelleries by both traditional and sophisticated processes. The visit will offer a peep into the exotic world of 'Diamond' and help understand the magnitude of India's contribution in diamond value chain in the world.

Geotourism Spots: World's largest Diamond Lapidary Industry & Retail Diamond Jewellery Centre etc.

Trip Coordinators: S. Ravi and J.N. Das

Itinerary

Arrive at Surat by an early morning flight from Delhi. Visit to the Diamond industry. Return to Delhi by evening flight from Surat.

Special notes: NA

NER001: *29.28.NER001: Geodynamic evolution of Northeastern Himalayas: Traverse along Tezpur-Bomdila-Tawang section Assam and Arunachal Pradesh (CANCELLED)*

NER002: Nagaland Ophiolite Complex: Type locality for Intra-Oceanic Subduction within the Neo-Tethys *(CANCELLED)*

NER003: *A Glimpse of the Enigmatic Himalayan Inverted Metamorphic Sequence: A Classic Section across the Darjeeling-Sikkim Himalayas*

Duration: 7N/6D, **9 March** to **15 March 2020**;
Starts: Bagdogra Airport; **Ends at**: Bagdogra Airport;
Number of delegates limited to 25;
Cost: 975 USD / 63000 INR per person;

Trip Overview: Himalayan tectonics and metamorphism has been largely considered within the framework of the collision and subduction of the Greater Indian plate with the Eurasian plate during the Eocene (~ 50 Ma), resulting in intense crustal shortening and deformation, accommodated by intracontinental thrusts and internal deformation of Greater Indian plate. Causes for the metamorphism in abnormally thickened crust has been addressed involving thermal modelling, field studies, quantitative P-T estimation, geochronological and isotopic studies. An enigmatic feature of Himalayan metamorphism is the presence of a sequence of progressively higher grade rocks occurring at shallower structural levels, reported from the Darjeeling- Sikkim region, and later described with remarkable similarity from all along the nearly 2000 km length of the Himalaya referred to as "inverted" metamorphism.

Geotourism Spots: Lachung, Yumthang valley, Lachen etc.

Trip Coordinators: Ravikant Vadlamani, Sudipto Neogi and Kathakali Bhattacharyya

Other Contributors: Om Prakash Kaptan and Asit Kumar Swain

Day by day itinerary

Day 1 – Monday, 9 March 2020
Delegates arrive at Bagdogra from congress venue. An ice-breaking session, a short technical and logistic briefing for orientation.
Halt - Bagdogra

Day 2 – Tuesday, 10 March 2020
Leave Siliguri in the plains and approach the Himalayan mountain front at Sevoke. The traverse covers the Coronation Bridge on the Teesta River of middle to upper Siwalik rocks, the MBT zone at Kalojhora, the Daling-Ramgarh Thrust at Sethi Khola followed by a wide stretch of intercalated sericite-cholite schists/phyllite of the greenschist facies Daling Group.
Halt – Gangtok

Special notes: There are specific instructions for the Field Excursion which will be communicated on receipt of confirmation of participation.

Day 2 – Wednesday, 11 March 2020
Traverse from Gangtok to Mangan includes the Tashi View point where an aerial view of the route across the IMS zone. Observe the highly deformed gneiss (orogen parallel L-tectonite developed in the Lingtse gneiss Klippe, the Garnet-in isograd at Dett RangRang and the first appearance of staurolite at Zimchung in the Pelling thrust zone.
Halt - Mangan

Day 3 – Thursday, 12 March 2020
The traverse will cover the last exposures of quartzo-feldspathic gneiss with muscovite flakes before the muscovite-out zone which lies just beyond Chungthang town. The traverse ends with a stop at Bop village exposing calc-silicate gneiss bands and quartzo-feldspathic gneiss, with foliations showing steep dips, typical of the MCT zone.
Halt – Lachung

Day 4 – Friday, 13 March 2020
In the return journey to Gangtok the delegates will spend time to examine exposures of typical Higher Himalayan pelitic migmatite near Bitchu, augen gneiss mylonite near Bhewma and a very prominent Thrust, the Main Central Trust (MCT) between Bhewma–Bop-Malten, separating the Lesser Himalayan domain from the Higher Himalaya or Greater Himalaya.
Halt – Gangtok

Day 5 – Saturday, 14 March 2020
Trip to Darjeeling Hill Station via Teesta Bazaar and Peshok. Observe the typical exposures of Darjeeling Gneiss at Lamhatta.
Halt – Darjeeling Town

Day 6 – Sunday, 15 March 2020
Return journey from Darjeeling Town to Siliguri/Bagdogra Airport, via Kurseong-Tindharia and Rohini/SuknaCantt.
Disperse from Bagdogra to Kolkata airport or Delhi airport for respective International flight connections

NER004: *Tectonic Evolution of NE Indian Craton, Meghalaya Plateau: Journey from Pre-Grenvillian - Grenvillian Orogeny to Pan-African Orogeny and Gondwana break-up*

Duration: 4N/5D, **9 March 2020** to **13 March 2020**
Starts: Guwahati Airport, Assam; **Ends at**: Guwahati Airport, Assam;
Number of delegates limited to 20;
Cost: 650 USD /45500 INR per person;

Trip Overview: Meghalaya Plateau is a part of the Eastern Indian shield since the Mesoproterozoic time. It preserves signatures of major global events ranging from Rodinia assembly to Gondwana assembly, Gondwana break-up, K-T boundary. Tertiary limestone of Meghalaya Plateau also records Paleocene-Eocene Thermal Maxima (PTEM) event. Relatively less known North East Indian craton is an area to explore Pan Gondwana reconstruction.

Geotourism Spots: Meghalaya- "The Abode of Clouds", Mawsynram (heaviest rainfall receiving area), caves and magnificent waterfalls, Mumluh cave, Cherrapunjee- GSSP for Meghalayan age etc.

Trip Coordinators: Tapan Pal and D.V. Whuorie

Other Contributors: M.A. Khonglah, K. Thenunuo, Debahuti Mukherjee, B.N. Mahanta, N. Surdas Singh and Pulak Sengupta.

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival at Guwahati Airport from New Delhi. Visit to Old Temple/boat Cruise at mighty Brahmaputra River.
Halt – Guwahati

Day 2 – Tuesday, 10 March 2020
Guwahati to Shillong traverse along Shillong-Nongpoh-Umling section to observe the signatures of Palaeo-to Meso-Proterozoic metamorphism and deformation. Proterozoic sedimentation and Pan-African granitoids of North East Indian Craton will also be shown. Visit to Orchid Lake View Resort at Barapani.
Halt – Shillong

Day 3 – Wednesday, 11 March 2020
Shillong to Cherrapunjee via Nongstoin to study intracratonic volcano-sedimentary of Proterozoic basin, high grade supracrustal rocks, different varieties of charnockites, basic granulites and granite gneiss variants of Meghalaya craton.

Day 4 – Thursday, 12 March 2020
Cherrapunjee to Shillong to observe the K-Pg boundary section at Therriaghat. Visit to Lumshynna Cave, similar to GSSP-Mawmluh cave. This traverse is mainly for studying of biotic recovery after 'mass extinction' and evolution of planktonic foraminifera across the boundary.
Halt – Shillong

Day 5 – Friday, 13 March 2020 –
Course wrap and drop at Guwahati Airport for flight to New Delhi.

Special notes: Delegates are advised to carry raincoat/umbrella, sun hat, sunglasses etc.

NER005: *Unfolding of Quaternary History and Associated Geoarchaeological Remains of Tripura, Northeastern India*

Duration: 4N/5D, **9 March 2020** to **13 March 2020**
Starts: Agartala Airport; **Ends at**: Agartala Airport
Number of delegates limited to 20
Cost: 490 USD / 34300 INR Per Person

Trip Overview: Intermontane Khowai and Haora valleys in Tripura have extensive outcrops of older Quaternary fluvial deposits, developed as terraces. They contain buried, multi-layered, prolific Stone Age sites with abundant exquisite artefacts of fossil wood, discovered in a unique stratigraphic framework. Pleistocene valley sediments laid over deformed Neogene sedimentary sequences are also deeply incised. Integrated study on environmental setting of cluster/pattern of sites and their radiometric dating have led to prove habitation of late Pleistocene early man in a region stretching from Bengal basin to Irrawaddy valley. Evolution of human culture in sync with evolution of river valleys is well demonstrated here. The traverse aims at examining the geo-archaeological context of the sites based on morpho-stratigraphy, litho-stratigraphy and chrono-cultural stratigraphy and unique nature of prehistoric tool assemblages.

Geotourism Spots: Geo-archaeological sites in Khowai Valley, Unakoti rock-cut sculptures etc.

Trip Coordinators: N. R. Ramesh, Manjil Hazarika and B. C. Poddar

Other Contributors: Biswajit Dev Barma and Salim Javed

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival of 36th IGC Delegates at Agartala. Assembly in Conference Hall. Welcome Reception followed by a presentation on the Field Excursion
Halt – Agartala

Day 2 – Tuesday, 10 March 2020
Traverse to study Neogene-Quaternary Contact and Tertiary rocks (western limb of the Anticlinal structure), unconformity and sedimentary structures of Neogene sequence. Study the deformation and structural disposition of the rocks of Surma Group at Baramura. Cross-section/terraces of Haora river valley at Jarania. Also part of the itinerary are the Chaturdasha Temple and Ujjayanta Palace and Museum.
Halt – Agartala

Day 3 – Wednesday, 11 March 2020
In this traverse, delegates will be exposed to Tertiary-Quaternary rocks and rocks of Tipam Group at Teliamura, the paired terraces of the Khowai river and visit the pre-historic site with Pre-Neolithic and Neolithic artifacts.

Day 4 –Thursday, 12 March 2020
Traverse to Sekerkot and Bishalgarh to study terraces and landforms of Sonai river, pedogenic process - Latosol (Oxisol sequence) and evidences of paleo-seismicity. Sipohijala Wildlife Sanctuary, Neermahal Water Palace and Rudrasagar Lake will be the attractions of the day.
Halt – Agartala

Day 5 –Friday, 13 March 2020
Delegates will visit the Border bridge on Sonai Gang river at Mohanpur, Bairagi Para and Sonai Gang village. Fluvial processes, Quaternary (Holocene) landforms, river bank erosion etc will be showcased in the traverse. A cluster of archaeological sites will be visited at Sonai Gang.
After lunch the delegates will be dropped off at Agartala airport for respective departures.

ER002: *Proterozoic Gold Mineralizing System in North Singhbhum Mobile Belt*

Duration: 3N/4D, **9 March** to **12 March 2020**;
Starts: Ranchi, Jharkhand, India; **Ends at**: Ranchi, Jharkhand, India;
Number of delegates limited to 25;
Cost: 650 USD / 45500 INR per person;

Trip Overview: The transect will start from Ranchi and end in Jamshedpur encompassing various segments of Chotanagpur Gneissic Complex (CGC) and North Singhbhum Mobile Belt (NSMB). The North Singhbhum mobile belt has more than 20 occurrences of Gold distributed all over the long 200 km belt. The gold mineralization in North Singhbhum Mobile Belt occurs along three major axes (structurally controlled shear/ weak zones). The field trip is so designed that the delegates will be able to see the gold mineralization axes of North Singhbhum Mobile Belt.

Geotourism Spots: Visit to Lawa Gold Mine

Trip Coordinators: Pankaj Kumar and Sahendra Singh

Other Contributors: Arun Kumar Kujur, Sushanta Layek, Abhishek Das and Rajarshi Chakravarti

Day by day itinerary

Day 1 – Monday, 9 March 2020
The delegates will arrive at Ranchi. Local sightseeing at Rock garden and Tagore hill, Ranchi. Presentation on field trip and cultural program.
Halt – Ranchi

Day 2 – Tuesday, 10 March 2020
The traverse will include various components of Chotanagpur Gneissic Complex, CGC-NSMB contact, Gold mineralization axes of North Singhbhum Mobile Belt and panning of stream sediment for Gold at Subarnarekha river. The major tourist attraction include visit to Dassam Falls, Surya Mandir and Jubilee park.
Halt – Jamshedpur

Day 3 – Wednesday, 11 March 2020
Study the stratigraphy of North Singhbhum mobile belt and a visit to Lawa Gold Mine. Rocks of Chaibasa Formation, Dhalbhum Formation, Lower Dalma Formation and Chandil Formation and a visit to the Lawa Gold Mine, which is the only currently operating mine in North Singhbhum Mobile Belt.
Halt – Jamshedpur

Day 4 – Thursday, 12 March 2020- Jamshedpur/ Ranchi, Jharkhand
Traverse to study the the iconic pillow basalt and agglomerates of Upper Dalma Formation and a visit to Dalma wildlife sanctuary. The delegates will travel back to Ranchi in the afternoon from wherein they will catch flight to New Delhi for their onward journey to respective destinations.

ER008: *Landslide failure mechanisms, hazard and risk scenarios in Darjeeling Himalayas*

Duration: 4N/5D, **9 March 2020** to **13 March 2020**;
Starts: Bagdogra Airport; **Ends at**: Bagdogra Airport;
Number of delegates limited to 30;
Cost: 720 USD / 50400 INR Per Person;

Trip Overview: The proposed fieldtrip area is part of the active Himalayan Fold-Thrust-Belt (FTB) where interplay of varied geological factors vis-a- vis rapid urbanization and growth are responsible for initiating different types of landslides for over a century. The varied landslide failure mechanisms and their intimate relationships with a series of varied Himalayan lithology and regional tectonic structures and the interactions of landslide hazards with thick settlement and built-up areas in the Darjeeling Himalayas would be showcased with added measures for evaluating risk.

Geotourism Spots: UNESCO World Heritage Site- Darjeeling-Himalayan Railway; Tea Gardens etc.

Trip Coordinators: Saibal Ghosh and Timir Baran Ghoshal

Other Contributors: Tamoghno Ghosh and Rabisankar Karmakar

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive at Bagdogra by flight. The delegates will be transferred to Siliguri by road.
Halt – Siliguri, West Bengal

Day 2 – Tuesday,10 March 2020
Traverse via Sevok-Berik-Lukuvir to Darjeeling to observe the transition between quaternary deposits making up the piedmont slope truncated over small hillocks of Siwalik Group of rocks belonging to Neogene age and an active rockfall zone at Sevoke. Observe the anthrpogenic Sweti Jhora landslide zone on NH10 and a structurally controlled landslide at Berik, 27-mile landslide zone and the 500 m long Lukuvir landslide.
Halt – Darjeeling, Sikkim

Day 3 – Wednesday, 11 March 2020
Traverse to Mirik, Limbudhura, Gayabari and Bukulung and will focus on the Limbudhura landslide of 2015 and 2003 debris flow at Gayabari, an incident that resulted in loss of 25 lives. Bunkulung debris fan, the accumulation zone of a large paleo-landslide located on the right bank of Balason river will also be studied.
Halt – Darjeeling, Sikkim

Day 4 – Thursday, 12 March 2020
Observe the Kharay Khola landslide and the flanks of the complex Gayabari/14th mile landslide at Giddapahar. Tindharia landslide, triggered by rainfall after the 2011 Skkim earthquake will also be part of the traverse.
Halt – Siliguri, West Bengal

Day 5 – Friday, 13 March 2020
Departure to Bagdogra Airport and dispersal.

Special notes: Delegates are advised to carry raincoat/umbrella, sun hat, sunglasses etc.

SR003: *The Deep Crust of the Archaean Dharwar Craton*

Duration: 5N/6D, **10 March 2020** to **15 March 2020**;
Starts: Bengaluru Airport; **Ends at**: Coimbatore Airport;
Number of delegates limited to 18;
Cost: 900 USD / 63000 INR Per Person;

Trip Overview: Granite-greenstone belts and granulite-gneiss terrain are well exposed in the Archaean Dharwar Craton (3.5- 2.5 Ga, DC). The rocks show regional metamorphism with pressures of 6 to 11 k bars and temperatures of 650 to 820oC. The Dharwar Craton (DC) is bounded to the South by the E-W trending Moyar-Bhavani shear zone, where the lower continental crust is extensively reactivated during the Pan-African event (~ 0.5 Ga). Archean metasedimentary units, chromitite bearing layered igneous complexes, two different types of granulites, incipient charnockite formation, it's structures, and geochemical signatures shall be examined.

Geotourism Spots: Waterfalls, Mysore Maharaja Palace, Ancient Hindu temple architecture, Tiger reserve forest, Nilgiri mountains etc.

Trip Coordinators: C. Srikantappa, K.G. Ashamanjari and K. N. Prakash Narasimha

Day by day itinerary

Day 1 – Tuesday, 10 March 2020
Arrival at Bengaluru and proceed to Mysore by road. Traverse will focus on the transition zone with incipient charnockitization in Dharwar Craton, Peninsular gneiss, closepet granite and Kollegal shear zone.
Halt – Mysore, Karnataka

Day 2 – Wednesday, 11 March 2020
Traverse to study pelites, carbonates, BIF, amphibolites and chromitite layered ultramafic complexes that are part of the Sargur Schist belt.
Halt – Mysore, Karnataka

Day 3 – Thursday, 12 March 2020
Traverse to Biligiri Rangan Hills to study post - accretional granulites ca. 3.4 Ga.
Halt – Mysore, Karnataka

Day 4 – Friday, 13 March 2020
Traverse to Ooty via Gundlupet and Bandipur and will focus on Peninsular gneiss, amphibolites and the Pan-African imprints in the Moyar Shear Zone.
Halt – Ooty, Tamil Nadu

Day 5 – Saturday, 14 March 2020
In this traverse, early Proterozoic, syn-accretional Nilgiri granulites (~2.5 Ga), ultramafic enclaves, Moyar Shear Zone will be explored along the Ooty – Mettupalayam road. The Mettupalayam – Coimbatore section of the traverse will focus on the Paleo to neo-proterozoic imprints in Bhavani shear zone, reactivation of lower crust and Bhavani layered igneous complex.
Halt – Coimbatore, Tamil Nadu

Day 6 – Sunday, 15 March 2020
Departure of delegates from Coimbatore.

SR005: *Neoproterozoic -Early Cambrian Crustal Evolution in south India: Implications of east Gondwana Assembly*

Duration: 6 N / 7 D, **9 March 2020** to **15 March 2020**;
Starts: Tiruchirappalli Airport; **Ends at**: Trivandrum Airport;
Number of delegates limited to 20;
Cost:1200 USD / 84000 INR Per Person

Trip Overview: The Granulite Terrain of Southern India is selected to showcase the Neoproterozoic-Early Cambrian crustal evolution events encompassing the accretionary tectonics, metamorphic, magmatic episodes (Ophiolites) and the kinematics of the major shear zones for understanding the East Gondwana assembly. Palghat-Cauvery Shear Zone (PCSZ) and Neoproterozoic mobile belt extending up to the southern tip of Indian Peninsula will be covered during this excursion.

Geotourism Spots: Meenakshi Temple, Kodaikanal hill station, Rock memorial at Kanyakumari, Kovalam beach etc.

Trip Coordinators: N.P. Nathan, S. Raju and T.R.K. Chetty

Other Contributors: Mathew Joseph, R. Vijay Kumar, S. Balakrishnan, V. Kumaravel, H. Naik and R. Ram Prasad

Day by day itinerary

Day 1 – Monday, 09 March 2020
Arrival at Tiruchchirapalli and rest at hotel. A briefing session about the whole transect in the evening.
Halt –Tiruchchirapalli, Tamil Nadu

Day 2 – Tuesday, 10 March 2020
Traverse to Manamedu, Sittampundi and Sivanmalai to study Neoproterozoic Ophiolite suite of rocks around Manamedu, Neoarchean Layered Anorthosite Complex, PGE mineralisation and ruby development around Sittampundi and under-saturated syenite and its variants around Sivanmalai hill.
Halt – Karur, Tamil Nadu

Day 3 – Wednesday, 11 March 2020
Traverse to study shear kinematics at Devattur (.317 hill) and anorthosite, corona development in garnet at Virupakshi Hill, Oddanchatram. Site visits at Kodaikanal will be part of the itinerary.
Halt – Kodaikanal, Tamil Nadu

Day 4 – Thursday, 12 March 2020
This traverse will involve study of UHT mineral assemblages (Sapphirine) around Pettuparai, pelitic gneisses and mafic granulite assemblage, study of garnet-sillimanite assemblages and interference fold pattern in calc-granulite at Andipatti – Usilampatti. Delegates can visit the famed Meenakshi temple at Madurai.
Halt – Madurai, Tamil Nadu

Day 5 – Friday, 13 March 2020
Traverse to Rajapalayam-Tirunelveli sector to study the Sapphirine bearing granulites, incipient charnockite development and granite emplacement in Mottamalai quarry, Rajapalayam. Study Khondalite Group of rocks and deformation in crystalline limestone/marble at Nanjankulam Limestone Quarry Section.
Halt – Tirunelveli, Tamil Nadu

Day 6 – Saturday, 14 March 2020
Traverse to explore Khondalite Group of rocks of Trivandrum block and shear kinematics at Valliyur Ashram mound, C-Type massive charnockite and associated granulites of Kottaram.
Halt – Kanyakumari, Tamil Nadu

Day 7– Sunday, 15 March 2020
Traverse from Kanyakumari to Trivandrum to study Incipient Charnockite development in Manali Quarry, Trivandrum. Visit to Kovalam Beach and Anathapadmanabaswamy Temple.

Delegates will be leaving to their respective places from Trivandrum International Airport.

SR007: *A journey from Paleo to Neoproterozoic; Sedimentation, Magmatism and Mineralization in the Cuddapah Basin, India*

Duration: 4N/5D, **9 March 2020** to **13 March 2020**;
Starts: Tirupati; **Ends at**: Hyderabad;
Number of delegates limited to 25;
Cost: 700 USD / 49000 INR per person

Trip Overview : The Proterozoic Cuddapah basin in the eastern Dharwar Craton is a prominent Precambrian sedimentary basin in India that has well-preserved clastic and non-clastic sedimentary sequences. It witnessed significant magmatic activity during sedimentation. Evidences for the Palaeoproterozoic life in the form of stromatolites; organo-sedimentary structures are well preserved in the Vempalle Formation of the Cuddapah Supergroup. The Neoproterozoic Kurnool basin consists of a sequence of rudaceous-arenaceous-argillaceous-carbonate rocks. The well-known Banaganapalle conglomerate horizon; the lower Formation in the Kurnool Group is known for ancient diamond activity in India. The proposed field traverses include best exposed type sections in the basin.

Geotourism Spots: Natural Arch of Tirumala, Belum caves etc.

Trip Coordinators: V.V. Sesha Sai and S. Bhattacharjee

Other Contributors: Vikash Tripathy

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival at Tirupati. Field work at Mangampeta Baryte mines and observations of the Geological set up of the world's largest bedded baryte deposit at Mangampeta. Examination of the bedded barytes, host carbonaceous tuff, overlying variegated tuff and felsic volcanics.
Halt: Kadapa

Day 2 – Tuesday, 10 March 2020
Field traverse in Parnapalle-Tummalapalle section. study the Eparchean unconformity in the Parnapalle section where the Gulcheru conglomerate horizon, the oldest sedimentary unit in the basin directly overlies the Archean basement and other units.Visit to Tummalapalle uranium mines to study the geological set up of the 2.0 Ga host Vempalle dolomite.
Halt: Kadapa

Day – 3 Wednesday, 11 March 2020
Traverse in Pulivendela-Muddanuru section covering the 1.9 Ga ultramafic-mafic-felsic magmatic rocks associated with the shale-dolomite sequence of Tadpatri Formation of Chitravati Group and glauconite bearing sandstone of Gandikota shale-arenite sequence. Visit to Gandikota Fort and Gandikota gorge.
Halt: Kurnool

Day-4 Thursday, 12 March 2020
Traverse in Kurnool-Banaganapalle-Belum section covering Cuddapah Supergroup and Kurnool Group of rocks. Visit to the Belum caves.
Halt: Kurnool

Day-5 Friday, 13 March 2020
Traverse to study the Gulcheru conglomerate sequence in Tandrapadu section and Owk shale- Paniam Quartzite sequence of Kurnool Group.

Depart Kurnool. Arrival at Rajiv Gandhi International Airport, Hyderabad by road for onward journey.

SR010: *Cretaceous Stage Boundaries*

Duration: 4N/5D, **9 March 2020** to **13 March 2020**
Starts: Chennai Airport; **Ends at**: Chennai Airport
Number of delegates limited to 20;
Cost: 900 USD Per Person, 63000 INR Per Person

Trip Overview: The Talchir Formation of Lower Gondwana comprising boulder bed, conglomerates, splintery shale is limited to outcrops in Guduvanchery near Chennai. It exposes a near complete sequence of the Cretaceous from the Aptian through Maastrichtian. The oldest sedimentary unit is the fluviatile, plant fossil bearing Upper Gondwana clay of Aptian age. The overlying marine rocks begin with basal coral-algal reefoidal limestone. The overlying gypsiferous clay and sandstone yield many fossils. A younger shell bank facies is exposed in 3 sub-basins, viz. Ariyalur, Vriddachalam and Puducherry. The overlying coarse sandstone contains dinosaur fossils. Rocks of Danian age top the succession. An integrated bio-stratigraphic study on invertebrates reveal the remarkable coincidence of biozonal boundaries with many lithostratigraphic levels.

Geotourism Spots: Mahabalipuram- ancient rock cut temples etc.

Trip Coordinators: K. Ayyasami and B. Gowtham

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive at Chennai by early morning and proceed to Perambalur. The particpants will be introduced to the Talchir Group of rocks and outcrops of the Cretaceous sequence rich in fossils.
Halt – Perambalur

Day 2 –Tuesday, 10 March 2020
Observe Belemnite, ammonites, worm tubes, Inoceramus and ammonites at Kallakudi mine section.
Halt – Perambalur

Day 3 – Wednesday, 11 March 2020
The traverse will begin at the Badlands of Karai exposing the delegates to fossiliferous sandstone and gypsiferous clay rocks of the Cretaceous sequence.
Halt – Perambalur

Day 4 – Thursday, 12 March 2020
Traverse will focus on the study of fossiliferous limestone, sandstone and clay units at Chittali, Andur-Varagur nala, Siranattam, TANCEM mines, Kallankurichchi, Mel Mattur and Kunnam.
Halt – Perambalur

Day 5 – Friday, 13 March 2020
Depart from Perambalur to Chennai via Tiruvakkarai fossil wood park, Mahabalipuram. Observe the Dinosaurian remains in cross bedded sandstone and clay at Kallamedu.
Drop off at Chennai Airport in the evening for the return journey.

SR015: *Coral Reef ecosystem around Lakshadweep, Arabian Sea, Western India*

Duration: 5N/6D, **9 March 2020** to **14 March 2020**;
Starts: Agatti Airport; **Ends at**: Agatti Airport;
Number of delegates limited to 20;
Cost: 750 USD / 52500 INR Per Person;

Trip Overview: Located approximately 200 to 450 km west of the coastline of Kerala, the Lakshadweep Archipelago in the Arabian Sea consists of ~36 coral islands. The chain of atolls is part of the Chagos-Laccadive Ridge and formed due to the volcanic activity of the Réunion Hotspot. The coral reefs growing on the submerged seamounts form highly diverse ecosystems. Different marine habitats with an abundant fauna and flora will be visited during the trip (mainly via snorkeling). In addition, Holocene beach rocks and storm deposits as well as recent sediments can be studied on the islands.

Geotourism Spots: Karavatti natural museum etc.

Trip Coordinators: Dhirendra Kumar Pandey

Other Contributors: Mohideen Wafar, P. Pookoya, Franz. T. Fürsich, Matthias Alberti and Idrees Babu K.K.

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival of delegates on Agatti Island with the morning flight from Kochi and transfer to Kavaratti Island. Briefing about the general geology and biodiversity of the Lakshadweep Archipelago.
Halt – Kavaratti Island

Day 2 – Monday, 10 March 2020
Visit a Coral nursery and lagoon (water depth: ~3-4 m) and the Natural History Museum and Aquarium on Kavaratti Island. Visit the southernmost point of Kavaratti Island to observe storm deposits of the Holocene period.
Halt – Kavaratti Island

Day 3 – Monday, 11 March 2020
Observe different ecosystems including marine ecosystems along the outer reef edge (Snorkelling involved), sandy beach fauna in the western part of Kavaratti Island and the rocky shore ecosystem in eastern part of Kavaratti Islands.
Halt – Kavaratti Island

Day 4 – Monday, 12 March 2020
Travel from Kavaratti Island to Agatti Island and explore the coral meadows in the shallow lagoon and coral mounds in the deeper lagoonVisit to the desalination plant on the island and the Centre for Marine Living Resources and Ecology (CMLRE).
Halt – Agatti Island

Day 5 – Monday, 13 March 2020
Travel from Agatti Island to the Bangaram Atoll. Observe the effects of coastal erosion and migratory birds at Thinnakara.
Halt – Agatti Island

Day 6 – Monday, 14 March 2020
Check-out from accommodation. Delegates leave Agatti Island with the morning flight to Kochi.

Special notes: Marine Aquarium and Museum on Kavaratti Island, desalination plant on Agatti Island, etc.

SR017: *Neoproterozoic alkaline carbonatite complexes, Southern India*

Duration: 4N/5D, **9 March 2020** to **13 March 2020**;
Starts: Bengaluru Airport; **Ends at**: Bengaluru Airport;
Number of delegates limited to 25;
Cost: 800 USD / 56000 INR Per Person;

Trip Overview: Neoproterozoic alkaline carbonatite complexes in southern India, (within a 200km long NNE – SSW trending belt extending from Gudiyattam in the north to Bhavani in the south) help to examine the Precambrian plate tectonics and crustal evolution processes. Three major carbonatite bodies are reported within this zone, viz. Sevattur carbonatite, Samalpatti carbonatite and Pakkanadu-Mulakkadu carbonatite. These alkaline and carbonatite rocks occur rarely, and carry enormous significance in terms of their economic potentiality, their genesis and petrological association.

Geotourism Spots: Marine Aquarium and Museum on Kavaratti Island, desalination plant on Agatti Island, etc.

Trip Coordinators: M. Srinivas and N.V. Chalapathi Rao

Other Contributors: K. Sreenu, V. Madhavan and T.R.K. Chetty

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival and pick up from Bengaluru Airport in the morning. Transfer to Krishnagiri and fieldwork en route. Delegates will be observing charnockite at Vaniyambadi, study ultramafic / lamprophyric rock and syenite outcrops at Nimiyumpattu. They will also observe dykes, micaceous pyroxenite and coarse-grained hornblende gneisson the way.
Halt – Krishnagiri

Day 2 – Monday, 10 March 2020
This traverse through Sevattur, Karambur and Toranampatti will enable the delegates to study Sevattur carbonatite complex and associated highly deformed gneiss. Vermiculite mines at Koratti, porphyritic syenite around Karmabur and the Elagiri pluton can also be studied.
Halt – Krishnagiri

Day 3 – Monday, 11 March 2020
The delegates will study the carbonatite and syenite bodies near Jogipatti and Garigalpalli. Garnetiferous syenite, ultramafics with carbonatite and pyroxenite – carbonatite association will also be studied in this traverse. Hogenakal Waterfalls will be the tourist attraction of the traverse.
Halt – Salem

Day 4 – Monday, 12 March 2020
Visit Pakkanadu to study dunite and pyroxenite of Pakkanadu Complex. At Panangattur village study syenites, carbonatites and ultramafic suite of rocks. Syenites and other features will be studied in the section of Pakkanadu – Kundamalai.
Start for Bengaluru for overnight trip by road.

Day 5 – Monday, 13 March 2020
The delegates will be dropped off at Bengaluru Airport for their return journey.

SR020: *Geological study of Neyveli lignite deposit, Ariyalur fossiliferous beds and nearby geoheritage sites, Tamil Nadu*

Duration: 2N/3D, **9 March 2020** to **11 March 2020**
Starts: Puducherry Airport; **Ends at**: Puducherry Airport
Number of delegates limited to 20
Cost: 550 USD / 38500 INR Per Person;

Trip Overview: Neyveli lignite deposit is found in Mio-Pliocene Cuddalore Sandstone deposited in the Ariyalur-Pondicherry depression. The delegates would experience the mining practices adopted at Neyveli Lignite Corporation India Ltd. The transect also covers visit to Tiruvakkarai fossil wood park, the fossiliferous Ariyalur area representing strong evidences of the great Cenomanian (98 Ma) transgression, 26 December 2004 Tsunami (caused by the great Sumatra earthquake) affected Cuddalore coast and Pichavaram, the second largest Mangrove forest in the world.

Geotourism Spots: Nataraja Temple, Chidambaram, Pondicherry – French colonial settlement etc.

Trip Coordinators: T. Ramkumar, T. Kannadasan and S Vasudevan

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival early morning at Puducherry. Transfer to Chidambaram by road.
Halt – Chidambaram, Tamil Nadu

Day 2 – Monday, 10 March 2020
Visit to Neyveli Lignite Mine Visit, Artesian Ground water control and Natraj Temple.
Halt – Chidambaram, Tamil Nadu

Day 3 – Monday, 11 March 2020
Visit to Pichavaram Mangrove Ecosystem, Thiruvakarai Fossil Wood Park and Pondicherry Beach.
The delegates will be dropped off at Puducherry Airport after the traverse for their return journey

SR022: *Gold, Iron and Manganese mineralization in Dharwar-Shimoga, Gadag, Sandur, Hutti-Maski and Jonnagiri Schist Belts, Dharwar Craton*

Duration: 6N/7D, **9 March 2020** to **15 March 2020**;
Starts: Hubballi Airport; **Ends at**: Bengaluru Airport;
Number of delegates limited to 20;
Cost: USD 950/ INR 66,500 per person;

Trip Overview: The excursion covers 4 important goldfields, two of them (Ganajur & Gadag) located in Western Dharwar Craton and the other two (the currently active Hutti gold mines & due to commence Jonnagiri gold mines) in the Eastern Dharwar Craton. These goldfields fall along a west to east 230km long transact across the north-northwesterly trending Neoarchean greenstone belts. The host rocks at these gold fields and styles of mineralization are different and that makes this field excursion highly attractive. The added attraction is a visit to large iron and manganese mine located in Sandur greenstone belt in the central part of the Dharwar craton.

Geotourism Spots: World Heritage site at Hampi, Yerragundi Rock Edicts of Ashoka and Chalukya, architecture at Lakkundi and Ravadurga Fort, Gooty.

Trip Coordinators: V.N. Vasudev and R. H. Sawkar

Other Contributors: N. Rajendran and H.M. Ramachandra

Day by day itinerary

Day 1 – Monday 9th March 2020 – Arrival from Delhi
The delegates arrive from Delhi. They will be received at Hubballi Airport (See Foot Notes). Briefing about the excursion at the hotel in the evening followed by dinner.
Halt – Hubballi, Karnataka

Day 2 – Tuesday, 10 March 2020 – Hubbali to Gadag (295 km)
Examine the surface characteristics of Sulphidic BIF-hosted gold deposits at Ganajur near Haveri town, proposed for mining by M/s Deccan Gold Mines Limited (DGML). Visit the old mines located on the Western Lode System at the old Hosur-Champion mine in the western part of the Gadag schist belt. Visit the Lakkundi archaeological Museum, Lakkundi Temples and the elaborate Step Wells.
Halt – Hubballi, Karnataka

Day 3 – Wednesday, 11 March 2020 – Gadag to Hosapete: 100 km
Traverse to the old gold mines at Kabuliyatkatti, Attikatti, Mysore and Sangli along the contact of metavolcanics and the overlying metasediments. Examine exposures of Quartz porphyry and pillowed metabasalt and polymict conglomerate.
Visit the famous UNESCO World Heritage sites at Hampi ruins of Vijayanagara Empire.
Halt – Hosapete, Karnataka

Day 4 – Thursday, 12 March 2020 - Hosapete to Hutti. 145 km
Visit the iron ore mines of M/s Ramgad Minerals and Mining Ltd (RMML) in the Ramandurg hill range in the western part of the Sandur Schist belt and also Hutti Gold Mines. Briefing by the Hutti Management & officers of the Hutti Exploration Department about HGML mining operations.
Halt – Hutti, Karnataka

Day 5 – Friday, 13 March 2020 – Hutti Gold Mines.
Visit Uti open pit cum underground gold mine located 20km east of Hutti and take a west to east traverse in the southern part of the open pit to examine the host rocks (Metagabbro-Felsic volcanics) and surface expressions of the mineralization.
Halt – Hutti, Karnataka

Day 6 – Saturday, 14 March 2020 – Hutti-Jonnagiri-Gooty - 212 km
Visit to Jonnagiri Geologists camp maintained by M/s Geomysore Services India Pvt Ltd. Examine the drill cores at the large Core Library. Visit the granodiorite-hosted gold mineralization from fabric free granodiorite (GD) to foliated GD to the mineralized intensely schistose mylonitic GD.
Halt – Gooty

Day 7: Sunday, 15 March 2020 – Gooty to Bengaluru 266 km
Visit to Gooty Ravadurg Fort.
Depart Gooty and arrive at Bengaluru by1800 hrs.

Special notes: Specific joining instructions will be provided upon receipt and confirmation of trip booking.

WR002: *Copper Mineralisation of Khetri, Rajasthan*

Duration: 2N/3D, **9 March 2020** to **11 March 2020**;
Starts: Delhi; **Ends at**: Jaipur;
Numbers limited to 20;
Cost: 400 USD / 28000 INR Per Person;

Trip Overview: The Khetri Copper Belt is studded with several copper deposits and prospects, spread over 80 km. Visit to Chandmari open cast mine and Kolihan underground mine give a comprehensive idea about the copper mineralization of the area.

Geotourism Spots: Copper mining in Khetri area of Rajasthan dates back to over 2000 years in the Mauryan period. The Khetri Copper Belt is studded with several copper deposits and prospects, spread over 80 km. Extensive Cu mineralization with subordinate iron sulphide, Au, Ag, REE and uranium is hosted by rocks of the Mesoproterozoic Delhi Supergroup. There is growing evidences and opinions that the mineralization is of IOCG type. Zones of albitisation host low grade uranium deposits.

Trip Coordinators: Shubhabrata Mukhopadhyay and Nagesh Kumar Rajpurohit

Other Contributors: Rohan Das, Vineet Kumar, Gargi Sharma and V. N. Mishra

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival at Jaipur and transfer to Khetri. Visit to Kolihan underground copper mines.
Halt – Khetri

Day-2: 10 March 2020
Visit to Chandmari open cast copper mine.
Halt – Khetri

Day-3: 11 March 2020
Leaving for Jaipur from Khetri.

WR011: *Late Quaternary Palaeoenvironments of Thar Desert Margin and Geo-archaeology*

Duration: 3N/4D, **9 March** to **12 March 2020**
Starts: India Expo Mart, New Delhi; **Ends at**: India Expo Mart, New Delhi;
Numbers limited to30
Cost: 650 USD / 45500 INR Per Person

Trip Overview: The eastern margin of the Thar Desert is rich in Palaeolithic sites and would have been a corridor for human migration 'Out of Africa'. Kuchaman, Didwana and Talchappar salt lakes occur in the desertic set up. Paleolithic sites such as Singi Talav, a Lower Palaeolithic site, Amarpura a Middle Palaeolithic site, the stabilized sand dune (16 R) nearly 350-ka exhibiting cambisols and associated calciorthids with Palaeoltihic tools have been dated by several radiometric dating techniques. Most of these sites occur bordering the present day Didwana Lake. Kataoti, a middle Palaeolithic site associated with ostrich egg shells is an undulating gravel ridge. The boulder and gravel bed, lie disconformable over the ferricrete bed at Jayal. Talchappar is a Salt Lake bordered by an historical mound that dates back to the Mughal period.

Geotourism Spots: The World Heritage city of Jaipur, the Kuchaman Fort, Sambhar Salt Lake, Kuchaman, Didwana and Tal Chappar Salt Lakes with the Black Buck Wildlife Sanctuary.

Trip Coordinators: Hema Achyuthan and S.K. Wadhawan

Other Contributors: Surender Atal, Saumya Brahma and Pawan Kumar

Day by day itinerary

Day 1 – Monday, 9 March 2020
Travel to Jaipur and cover various Quaternary aeolian deposits along Aravalli Hill ranges en route.
Halt: Jaipur

Day 2 – Tuesday, 10 March 2020
Travel from Jaipur to Kuchaman City studying geomorphological and geo-archaeological tools sites at Bichchun and Sambhar Salt Lake. Visit geological and geo-archaeological sites around Kuchaman City.
Halt: Kuchaman City

Day 3 - Wednesday 11 March 2020
Visit five geological sites around Didwana Salt Lake. An evening Heritage walk through Kuchaman City - the traditional bazaar, and visit to an elegant and majestic hill top Kuchaman Fort.
Halt: Kuchaman City

Day 4 - Thursday 12 March 2020
Depart from Kuchaman City and study two geological sites enroute Tal Chappar. Arrival Tal Chappar around noon and visit to geological site at Tal chappar lake near the Black Buck Sanctuary. Departure for Jaipur/ New Delhi.

Special notes: Delegates should be prepared for warm and bright days and pleasant mornings and nights. Normal field shoes, hats and dark glasses are recommended.

WR013: *Field Excursion to Dinosaur Fossil Park, Rahioli, Balanisor, Gujarat*

Duration: 1N/2D, **9 March 2020** to **10 March 2020**
Starts: Ahmedabad Airport; **Ends at**: Ahmedabad Airport;
Number of delegates limited to 20
Cost: 400 USD / 28000 INR Per Person

Trip Overview: This site of global significance hosts both the hatcheries and graveyards of titanosaurid sauropods and abilisaurid theropods. Reported species include Rajasaurus narmadensis, Rahiolisaurus gujaratensis and titanosaurus. The dinosaur eggs are taxonomically assigned as Megaloolithus rahioliensis (Sauropod eggs). The Late cretaceous fossil sites are well preserved by the state of Gujarat. This site provides evidence to show that dinosaur burried their eggs in the soft sand of paleo-rivers. Rahioli locality shows nesting sites with sauropod eggs- Megaloolithus rahioliensis (Megaloolithidae) and theropod eggs- Ellpisoolithus khedaenis (Elongatoolithidae). Both the nest-sites in the calcretised sandstone occur at same stratigraphic level but geographically separated over a distance of less than 400m. It is a unique site in the world, as it hosts prolific and associated skeletal remains of both titanosaurs and abelisaurs.

Geotourism Spots: Sabarmati Ashram, Mahatma Gandhi Museum and Sabarmati River Front, laser Show at Akshardham Temple etc.

Trip Coordinators: Harish Mistry and D.S. Chudasama

Other Contributors: Dhananjai Verma, N.V. Nitnaware, Alok Chitranshi, Monalisha Chakra and Manjari Pathak

Day by day itinerary

Day 1 – Monday, 09 March 2020
Arrival at Ahmedabad Airport and pick-up. Checkin at the Hotel and breakfast. Departure for visit to-Dinosaur Fossil Park. Visit to Sabarmati River Front during evening time.

Day 2 – Tuesday, 10 March 2020
Visit to Historical Sabarmati Ashram, Ahmedabad, Gandhi Kutir and Akshardham Temple and Spiritual-Cultural activities, Gandhinagar.
Drop off at Ahmedabad International Airport in the evening for onward journey.

WR014: *Visit to the state-of-the-art Marble and Natural Stones Processing Unit near Udaipur, Rajasthan*

Duration:2N/3D, **9 March 2020** to **11 March 2020**;
Starts: Udaipur Airport; **Ends at**: Udaipur Airport;
Numbers limited to 25;
Cost: 500 USD / 35000 INR Per Person

Trip Overview: The Rajasthan State has a tradition and history of marble mining and processing and the stone has been used in several buildings of archeological significance and contemporary civil structures of prominence. This field trip would cover all the aspects of marble mining, processing and finishing. Visit to the state of the art mechanical open-cast mines around Rajnagar and Udaipur in southern Rajasthan will provide an opportunity to the delegates to observe marble deposits belonging to the Aravalli/ Delhi Supergroup of Precambrian age. Processing of mined blocks at automated units will provide a glimpse into the next stages for multi-purpose usage.

Geotourism Spots: Haldighati, Shilpgram

Trip Coordinators: Pradeep Agarwal and Sanjay Saxena

Day by day itinerary

Day 1 – Monday, 09 March 2020
Arrival at Udaipur. Local sight seeing.
Halt – Udaipur

Day 2 – Monday, 10 March 2020
Visit to mines around Rajnagar and Udaipur.
Halt – Udaipur

Day 3 – Monday, 11 March 2020
Departure from Udaipur to Delhi.

WR015: *Visit to the Indian Institute of Gems & Jewellery's Training and Educational Institute at Jaipur, Rajasthan*

Duration: 1N/2D, **9 March 2020** to **11 March 2020**
Starts: Jaipur Airport; **Ends at**: Jaipur Airport;
Number of delegates limited to 25;
Cost: 400 USD / Price: 28000 INR Per Person;

Trip Overview: Jaipur- the capital of Rajasthan state is a world class business centre for colored gemstones, especially for emerald. The Gem Promotion Council of India has a technologically advanced well-equipped training and gem testing centre that specializes in processing of colored stones. The visit to institute provides an opportunity to understand processing of stones and jewellery designing. The institute awards degrees/diploma related to skill development and jewellery designing.

Geotourism Spots: Jaipur-the Pink City has Amber Fort, City Palace Museum and Hawa Mahal that are places of great tourist attraction.

Trip Coordinators: P.C. Bakliwal, A.K. Grover and Yogendra Singh Bhamboo

Day by day itinerary

Day 1 – Monday, 09 March 2020
Arrival at Jaipur from Delhi. Local sight seeing.
Halt – Jaipur

Day 2 – Monday, 10 March 2020
Visit to the Indian Institute of Gems & Jewellery's Training and Educational Institute.
Departure from Jaipur

NR004: *Holocene Climate Change and its impact on the dispersal of Indus valley/Saraswati Civilization*

Duration: 1N/2D, **9 March 2020** to **10 March 2020**;
Starts: India Expo Mart; **Ends at**: India Expo Mart;
Number of delegates limited to 20;
Cost: 400 USD / 28000 INR per person;

Trip Overview: This excursion is intended to show landscape of the ancient Harappan/Saraswati civilization along with geological archives of Holocene climate change. It will include study of carbonate and sulphate bearing lacustrine deposits signifying monsoon and it's weakening during Holocene, palaeochannel of ancient Saraswati River near Fatehabad and modern Ghagghar River, archeological mounds spanning Hakaraware to post-Harappan urban phases, two phases of sand dunes deposition and the fluvio-aeolian transitions.

Geotourism Spots: Archeological mounds of Pre to post Indus/ Harrapan civilization at Rakhigarhi, Kunal, Birrana and Bannawali etc.

Trip Coordinators: Mohammad Atif Raza and S A I Mujtaba

Other Contributors: Sharat, Dutta, R.V. Chunchekar, R. Bhavani, H.S. Saini and S. J. Hasan

Day by day itinerary

Day 1 – Monday, 9 March 2020 - IEM, Noida to Hisar
Trip will start from the Indian Expo Mart, Noida at 08:00 hrs by bus towards NW to study signatures of transition from Fluvial to Aeolian (two phases) environment at Rohtak by-pass. Signatures of humid phases followed by Aeolian transition will also be shown in the form of carbonate and sulphate lake deposit in this traverse.
Halt - Imperium Resort, Hisar

Day 2 – Monday 10 March 2020 - Hisar to IEM, Noida
The next day will be a short trip to Ferozshah Palace followed by visit to the present day Ghagghar Channel which is considered to be the paleochannel of mighty Saraswati River. At Banawali Archaeology site, a well-known Harappan site on the bank of the Saraswati, palaeochannel will be showcased with well preserved three-fold sequence of Harappan culture. Rakhigarhi Archaeological site will be the last location of the traverse.
Drop at Indian Expo Mart, Noida

Special notes: Please carry sun hat, sunglasses and field shoes etc.

NR005: *Pre-Himalayan metamorphism – magmatism in the Kumaun Lesser Himalaya*

Duration: 5N/6D, **9 March 2020** to **14 March 2020**;
Starts: Pantnagar Airport; **Ends at**: Pantnagar Airport;
Numbers limited to 20;
Cost: 1100 USD / 77000 INR Per Person

Trip Overview: The Kumaun region shall be examined in terms of tectono- litho-stratigraphy, metamorphic complexities and nature and extent of different tectonic contacts, viz. Himalayan Frontal Thrust (HFT), Main Boundary Thrust (MBT), Ramgarh Thrust (RT), South Almora Thrust (SAT), North Almora Thrust (NAT), Baijnath Thrust (BT), smaller klippes of Dharamghar and Askot and the Main Central Thrust (MCT). The route along the Kathgodam – Garbadhar road would offer a comprehensive synoptic study of Himalayan orogen for making observations relevant to the Himalayan geological framework and its role in the Cenozoic Himalayan exhumation, metamorphism and fore land sedimentation.

Geotourism Spots: Himalayan geomorphology and Nainital etc.

Trip Coordinators: Mallickarjun Joshi, Pankaj Saini and D.S. Chauhan

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival at Pantnagar Airport and transfer to Bhimtal. Traverse to Amritpur to study the geology around Bhimtal – Nainital area.
Halt – Bhimtal, Uttarakhand

Day 2 – Tuesday, 10 March 2020
Traverse to Almora to study the Bhimtal mega anticlinal structure and related aspects, Ramgarh Thrust and related tectonics and proceed to Chhara and Jauransi to observe foot wall and hanging wall deformation respectively.
Halt – Almora

Day 3 – Wednesday, 11 March 2020
Traverse from Almora to Kausani with stops at Chaunsali, near Lodhia, Khatyari, Pathariya and Sunari. Observe the relationship of deformation and metamorphism in Almora metamorphics, 710 Ma Chaunsali granite intruding the Almora metamorphics, contact relationship of younger Lodhia granite with metamorphics.
Halt – Kausani

Day 4 – Thursday, 12 March 2020
The traverse to Chakori includes with observation of glacial features south of Kausani and a visit to the Kausani Shawl Factory. Explore the archaeo-seismological evidences at Baijnath Temple, the Baijnath Thrust and tectonics and Dharamgarh Thrust at Kamedidevi.
Halt – Chakori

Day 5 – Friday, 13 March 2020
Leave Chakori to visit to the Patal Bhuvneshwar Cave and study different features of karst topography related to Pithoragarh formation of Garhwal Group and visit to Magnesite Mines at Jiroli.
Halt – Bhimtal

Day 6 – Saturday, 14 March 2020
Department Bhimtal

NR006: *Tectonics of the Higher Himalayan Crystallines along Alaknanda-Dhauli Ganga Valleys, Uttarakhand Himalaya*

Duration: 6N/7D, **9 March 2020** to **15 March 2020**
Starts: Dehradun Airport, **Ends at**: Dehradun Airport;
Number of delegates limited to 15
Cost: 950 USD / 66500 INR Per Person

Trip Overview: The main objectives of this field excursion are to study typical characters of the Cenozoic India-Asia convergence in the Uttarakhand Himalaya along a cross-section in Alaknanda-Dhauli Ganga Valleys. It includes position and definition of the MCT vis-a-vis the Munsiari and Vaikrita Thrusts, position and characters of the South Tibetan Detachment System (STDS), deformation of the HHC and its detailed shear sense analysis, structural control on melt accumulation of the Himalayan migmatites, Himalayan inverted metamorphism, evolution of high grade metamorphic rocks and the processes involved in their exhumation.

Geotourism Spots: Tapovan Hotspring, Badrinath Temple, Devprayag, Rishikesh and Haridwar etc.

Trip Coordinators: A.K. Jain and D.C. Srivastava

Other Contributors: Saurabh Singhal, Aliba Ao, P.K. Mukharjee, Rahul Dixit, Sandeep Singh and Gargi Deshmukh

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive at Dehradun by early morning and the delegates will be transferred to Joshimath after a long day's travel via Haridwar.
Halt – Joshimath

Day 2 – Tuesday, 10 March 2020
Observations along the Alaknanda River from Patalganga to Helang involving the Proterozoic Inner Lesser Himalayan Sedimentary Sequence (iLH), its deformation and the MCT zone (Munsiari Group). One travels through dominant lithologies of the iLH carbonate–slate (Pipalkoti Group) and quartzite–volcanics (Garhwal Group/Berinag Group) from Patalganga village upstream along Highway NH-58 northeastwards towards Helang through the villages of Langsi and Gulabkoti.
Halt – Joshimath

Day 3 – Wednesday, 11 March 2020
The second day covers parts of the Alaknanda River and Dhauli Ganga from Raghuveer lodge to Rini village involving upper parts of the MCT zone (Munsiari Group), quartzite imbricate (Garhwal Group/Berinag Group) above NHPC Power Project and Tapovan, the Vaikrita Thrust and lower parts of the Joshimath Formation along Highway NH-58 eastwards towards Tapovan through Joshimath and Barhgaon.
Halt – Joshimath

Day 4 – Thursday, 12 March 2020
This section involves the central parts of the Higher Himalayan Crystallines (HHC) between Rini and further northeast. The main section in this traverse covers (i) typical lithologies of the Suraithota Formation, (ii) mapping and delineating parts of the section revealing top-to-the SW shear sense, and (iii) its changeover to the top-to-the NE shear sense, (iv) transition zone of the changeover, and finally (v) the first appearance of migmatite from Bhapkund Formation.
Halt – Joshimath

Day 5 – Friday, 13 March 2020

This day is mostly devoted to the upper parts of the HHC and deals with the Bhapkund Formation covering (i) typical migmatite of the Bhapkund Formation, (ii) investigating many shear sense and relations between top-to-the SW shear sense and top-tothe NE shear sense, and (iii) relation between migmatite and leucogranite.

Halt – Joshimath

Meals –

Day 6 – Saturday, 14 March 2020

Last day is mostly devoted to the uppermost parts of the HHC and Tethan Himalayan Sequence (THS)deals with the Bhapkund Formation covering (i) migmatite of the Bhapkund Formation, (ii) Malari Granite, its deformation and emplacement of leucogranite, and (iii) various stages of deformation along the South Tibetan Detachment System (STDS).

Halt – Joshimath

Day 7 – Sunday, 15 March 2020

The delegates will leave in the morning to Haridwar or Dehradun for their return journey to Delhi.

NR008: *Evolution of the Lesser Himalaya – A Columbia-Rodinia-Gondwana Connect*

Duration: 7N/8D, **9 March 2020** to **16 March 2020**
Starts: Chandigarh Airport; **Ends at**: Dehradun Airport;
Number of delegates limited to 15;
Cost: 1000 USD / 70000 INR Per Person

Trip Overview: The Proterozoic Lesser Himalaya sedimentary successions represent a unique record of sedimentation and volcanism during Columbian assembly through Meso-Neoproterozoic passing into Gondwana. The proposed sectors in the excursion represent a unique stratigraphy with sedimentary record of over a period of nearly 1000 Ma. The Lesser Himalaya represent a sedimentation and magmatic history comparable with that of Peninsular basins and a time period wherein no sedimentation occurred in this part of Himalaya after Cambrian except for some patches of Permian sedimentation representing the Gondwana connect. The record of the sedimentary rocks which are interstratified with volcanic rocks with 1800±13 Ma ages suggests the connection of the Indian plate with the Columbia Supercontinent.

Geotourism Spots: Rudraprayag, Rishikesh and Haridwar and Valley of Flowers- a world heritage site etc.

Trip Coordinators: Shailendra Singh, O.N. Bhargava, Vibhuti Rai and B.P. Singh

Other Contributors: Manoj K. Pandit, Amit Dharwadkar, Bhrigu Shankar, Bishakha, Pawan Kumar Gautam and D.M. Banerjee

Day 1 – Monday, 9 March 2020
Arrive at Chandigarh by afternoon and proceed to Nighalidhar by Car / AC Buses.
Halt – Nigalidhar

Day 2 -Tuesday, 10 March 2020
Field visit around Nigalidhar to study the rocks of Nigalidhar Syncline
Halt – Nigalidhar
Day by day itinerary

Day 3 – Wednesday, 11 March 2020
Depart from Nigalidghar to Dehradun; enroute field work around Nigalidhar and Sataun.
Halt – Dehradun

Day 4 – Thursday, 12 March 2020
Study of rocks of Mussoorie syncline, field work in Maldeota, Surkhet & Gopichand ka Mahal area.
Halt – Dehradun

Day 5 – Friday, 13 March 2020
Study of geological sections along Mussoorie – Tehri Road
Halt – Dehradun

Day 6 – Saturday, 14 March 2020
Dep: Dehradun by Car/ A/c Buses on way to Rudraprayag, Enroute Study of Geological Sections
Along Kauriyala – Rudraprayag road, Arr: Rudraprayag, Halt at Rudraprayag
Halt – Rudraprayag

Day 7 – Sunday, 15 March 2020
Study of Siliciclastic-Volcanic rocks along Rudraprayag – Kund road section
Halt – Rudraprayag

Day 8 – Monday, 16 March 2020
On the final day we depart Rudraprayag by car/AC bus to Dehradun. Enroute study the tectonics, deformation and sedimentation of Lesser Himalayan rocks.
The delegates will be dropped off at Dehradun Airport in the evening for their return journey.

Special notes: Meeting Point – Arrival Gate No.1 @Chandigarh Airport

NR009: *Trans-Himalayan Ladakh Batholith: A key to Magma Chamber Processes and Dynamics*

Duration: 4 N / 5 D, **9 March 2020** to **13 March 2020**
Starts: Leh Airport; **Ends at**: Leh Airport;
Number of delegates limited to 50
Cost: 990 USD / 69300 INR Per Person

Trip Overview: The Ladakh Batholith represents an integral part of calc-alkaline, Trans-Himalaya magmatic belt extending from east of Nanga Parbat to Lhasa, and is bounded by the Shyok Suture Zone (SSZ) in the north and Indus Suture Zone (ISZ) in the south. The batholith is partly covered by north dipping fore-arc and molasse sedimentary rocks. The beginning of northern subduction of Neo-Tethys at ca 110 Ma below the Asian plate produced vast amount of Andean-type calc-alkaline magmatism forming the Ladakh Batholith and Dras arc. The spectacular field features of Ladakh Batholith demonstrate tectono-magmatic processes as modern analogue of the older Neoarchaean and Proterozoic orogens.

Geotourism Spots: The captivating landscape of Trans-Himalayas and monasteries etc.

Trip Coordinators: Santosh Kumar and Rajneesh Bhutani

Other Contributors: Bhrigu Shankar Singh and Brajesh Singh

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival at Leh airport, transfer to hotel, medical check-up, whole day rest for acclimatization due to sudden change in altitude, technical briefing in the evening before dinner.
Halt – Leh

Day 2 – Monday, 10 March 2020
Traverse starts close to the hotel to observe granite outcrops and then proceeds to university campus at Leh to demonstrate the mechanism of injection of mafic to hybrid magmas into host granites. Lunch will be at a spot close to confluence of Indus and Zanskar rivers or somewhere at magnetic Hills. Final spot will be at Alchi monastery to study more features.
Halt – Leh

Day 3 – Monday, 11 March 2020
Traverse to outskirts of Leh to demonstrate the number of closely associated mafic sheets and brecciated syn-plutonic dyke into the granites. Also to observe rounded to elliptical enclave and enclave swarms because of differential stress applied on magma chamber that exhibit magmatic fabrics. The day will end with a visit to Khardund La pass.
Halt – Leh

Day 4 – Monday, 12 March 2020
On the fourth day we shall examine the intrusion of granite-leucogranite-pegmatites in to the pre-existing diorites. Following the field observations, we proceed to hot-spring area for picnic lunch. The rest of the day will be visits to Shey palace and Leh palace.
Halt – Leh

Day 5 – Monday, 13 March 2020
Adieu and departure from Leh.

Special notes: Carry Sunscreen lotion • Get a complete physical check up to make sure you have no serious health issues. • If you have a blood pressure problem, do consult your doctor before planning the trip. • People more than 60 years are not advisable to travel. • Please apply for Restricted area permit at your respective India Embassy before travelling to Leh.

NR010: *Ladakh- an archive for Quaternary landscape, climate and neotectonics*

Duration: 6N/7D, **9 March 2020** to **15 March 2020**
Starts: Leh Airport; **Ends at**: Leh Airport;
Number of delegates limited to 25
Cost: 1200 USD / 84000 INR Per Person

Trip Overview: This excursion is designed to showcase the landscape of Trans Himalaya (Ladakh) that formed in response of the suture zone tectonics and cold and arid Tran Himalayan climate. Ladakh is a tectonically active zone between the Indus Suture Zone and the Karakoram fault having voluminous Quaternary deposits of glacial, lacustrine, fluvial and aeolian origin. The trip is designed to exhibits massive alluvial fans, vast terraces, paleolakes, deposits of large floods, past glacial advances and aeolian landscape representing an intricate balance between the tectonics of Himalaya and arid climate. We will provide a luxurious and academically scintillating platform to all those interested in understanding the surface processes and landscape evolution in a geologically charged region of Himalaya.

Geotourism Spots: Entire stretch offers Geotourism Spots with its lunar/martian topography, highest mountain passes, highest motorable roads, suture zone geology, batholiths exposures, beautiful river confluences, lakes and palaeolakes and rock art. Several centuries old monasteries and Gompas are a major attraction and treat to the eyes and soul.

Trip Coordinators: Binita Phartiyal and Pradeep Srivastava

Other Contributors: Anupam Sharma

Day by day itinerary

Day 1 – Monday, 9 March 2020
Acclimatization day. No physical work and long walks. Visit to Shanti Stupa in the evening.
Halt – Leh

Day 2 – Tuesday, 10 March 2020
Travers covering introduction to basic geology of suture zone, river systems and their sediments, landscape of flood disaster, an active thrust, aeolian sand ramp.
Halt – Leh

Day 3 – Wednesday, 11 March 2020 - Downstream Indus
Traverse showcasing massive paleolake deposits, its formation and stratigraphy, seismites, cryogenic deformations (?) and neotectonically deformed sedimentary sequences. Visit to Stok Palace.
Halt – Leh

Day 4 – Thursday, 12 March 2020
Observe the confluence of the rivers Indus and Zanskar; well dated moraines of glacial advances during LGM and Holocene floods deposits.
Halt – Leh

Day 5 – Friday, 13 March 2020 Leh-Lamayuru-Leh
Visit to Lamayuru moonland topography - a vast paleolake formed at ~40 ka BP and show evidences of neotectonic activity along the thrust in form of dated deformed fluvial deposits, lakes.
Halt – Leh

Day 6 – Saturday, 14 March 2020 KhardungLa top
Drive to world's highest motorable road at the Khardungla top (5603 m asl). Observe glacial landscape exhibiting series of well dated moraines ridges archiving three glacial advances of the past.
Halt – Leh

Day 7 – Sunday, 15 March 2020
Final adieu and return to Delhi

Special notes: Delegates must carry warm clothing, gloves, cap, UV glasses, sunscreen lotions and personal medicines. All other instructions will be provided at the start of the trip.

NR015: *Unravelling the Quaternary mystic of Great Ganga Canvas-A myopic overview along Dehradun-Gangotri-Chamoli transect, India (CANCELLED)*

NR016: *Outer to Central Himachal Himalaya Transact – Sedimentary and Tectonic Story Unfolded*

Duration: 5N/6D, **9 March 2020** to **14 March 2020**;
Starts: Chandigarh Airport; **Ends at**: Chandigarh Airport;
Number of delegates limited to 30;
Cost: 750 USD / 52500 INR Per Person

Trip Overview: The Himachal Himalaya is one of the best worked out stretches encompassing sequences ranging in age from Palaeoproterozoic to Quaternary that include (i) Type Sections of several formations exposed in the Outer and Lesser Himalaya, (ii) Full succession of the Himalayan Foreland Basin covering the Thanetian to Pleistocene interval, (iii) excellent exposures of fossiliferous horizons of the Siwalik Supergroup and the Sirmur Group, and (iv) autochthonous, parautochthonous and allochthonous tectonic belts and klippe and windows in the Lesser Himalaya. The proposed transact unfolds comprehensive geodynamic evolution of the Outer and the Lesser Himalaya catering to stratigraphers, sedimentologists, palaeontologists, geomorphologist, structural and metamorphic geologists and also to those interested in Neotectonics.

Geotourism Spots: Scandal Point at Shimla Ridge (a water divide between Ganga and Indus Rivers, Satluj Gorge and Bhimakali heritage Temple etc

Trip Coordinators: O.N. Bhargava, Manoj Kumar and S.K. Tangri

Other Contributors: Hemant Kumar, Dipayan Guha, Parminder Singh Sethi and Ravi Shankar Chaubey

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive at Chandigarh by early morning. Traverse covers Cenozoic Stratigraphy through the Siwaliks and Sub-Himalaya and associated tectonic features. The features to be studied include Himalayan Frontal Thrust (HFT), Nahan Formation, Main Boundary Fault (MBF), Lithology and Biostratigraphy of Subathu Formation and others.
Halt – Barog / Solan, Himachal Pradesh

Day 2 – Tuesday, 10 March 2020
Traverse covers Neoproterozoic Lesser Himalaya Stratigraphy, Jutogh thrust sheet and associated tectonic features.
Halt – Naldhera, Himachal Pradesh

Day 3 – Wednesday, 11 March 2020
Paleoproterozoic to Neo-protreozoic Stratigraphy through the Lesser and Higher Himalaya and associated tectonic features will be the focus this traverse.
Halt – Rampur, Himachal Pradesh

Day 4 – Thursday, 12 March 2020
Traverse to showcase Paleoproterozoic to Neoproterozoic Stratigraphy through the Higher and Lesser Himalaya and associated tectonic features.
Halt – Shimla, Himachal Pradesh

Day 5 – Friday, 13 March 2020
Local site visits in and around Shimla to see the Shimla Ridge & other Heritage sites of British era.
Halt – Shimla, Himachal Pradesh

Day 6 – Saturday, 14 March 2020
Departure from Shimla to Chandigarh for return journey.

NR017: *Cryospheric (Glaciological) and Cultural Field Trip to Ladakh*

Duration: 6N/7D, **9 March 2020** to **15 March 2020**
Starts: Leh Airport; **Ends at**: Leh Airport;
Numbers limited to 25
Cost: 1200 USD / 84000 INR Per Person

Trip Overview: Stok village in northern part of Zanskar Range, in the downstream of Stok Glacier will be visited. The Stok village catchment (52km2) has 7 smaller glaciers ranging between 0.2-1.2 sq km. The Stok catchment under Hemis National Park is attractive place for the researchers and climbers for understanding cryospheric processes and is a hub for Snow Leopards, Himalayan Blue Sheep, Mormot and several bird species. The elevation at the trekking point is roughly around 3700m asl and the highest point (Stok glacier) lies at about 5400m asl.

Geotourism Spots: Glaciological and geological landscapes, Stok Summit and Paleo-glaciation etc.

Trip Coordinators: A. L. Ramanathan

Other Contributors: C. Chatterjee and Md. Soheb

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive at Leh. Acclimatization and rest.
Halt – Leh

Day 2 – Tuesday, 10 March 2020
Acclimatization and briefing.
Halt – Leh

Day 3 – Wednesday, 11 March 2020
Move from Leh to Changma camping site. A six-hour trek from the starting point to camp.
Halt – Changma camping site

Day 4 – Thursday, 12 March 2020
Trek through lateral moraines, outwash plains and braided streams to next camping site at Mankarmo
Halt – Mankarmo camping site

Day 5 – Friday, 13 March 2020
Trek while observing the lateral moraine, end moraines, arete, horn, outwash plains etc to reach Stok Kangri Base Camp.
Halt – Stok Kangri Base Camp.

Day 6 – Saturday, 14 March 2020
Reach Stok glacier through a 3-hour trek while observing a cluster of terminal moraines, arete, horn. View the Goleb Glacier and reach the Stok Summit. Trek back to village down slope and return to Leh by road.
Halt – Leh

Day 7 – Sunday, 15 March 2020
Departure from Leh to Delhi

Special notes: Carry Sunscreen lotion • Get a complete physical check up to make sure you have no serious health issues. • If you have a blood pressure problem, do consult your doctor before planning the trip. • People more than 60 years are not advisable to travel. • Please apply for Restricted area permit at your respective India Embassy before travelling to Leh.

NR018: The Chenab Arch Bridge: Engineering Marvel (CANCELLED)

NR019: *Natural Stones and UNESCO architectonic Heritage Sites of Agra and Fatehpur Sikri, North India*

Duration: 2N/3D, 9 March 2020 to 11 March 2020
Starts: India Expo Mart; **Ends at**: India Expo Mart
Number of delegates limited to 25
Cost: 300 USD / 21000 INR Per Person

Trip Overview: The trip is aimed towards visiting two major architectural heritage site viz. Taj Mahal and Fatehpur Sikri. Taj Mahal, a UNESCO World Heritage Site, is the ivory-white marble mausoleummade up of marble [from Ras Formation of Kumbhalgarh Group of the Delhi Supergroup (1700 - 1000 Ma)] from Makrana in Rajasthan which is now Asia's first Global Heritage Stone Resource (GHSR). The other heritage site to be visited is Fatehpur Sikri. The natural stones of Fatehpur Sikri is made up from the Bhander Group sandstone of the Proterozoic Upper Vindhyan which has commonly been used as dimension stone. Visit to the quarries of red Vindhyan sandstones will also be undertaken. The field trip would adopt the professed aims of Heritage Stone Sub-commission (HSS) of the IUGS to study the above architectural splendours from heritage angle.

Geotourism Spots: Taj Mahal (one of the seven wonders of the world), Agra Fort, Buland Darwaza, Fatehpur Sikri, Vindhyan sandstones in Dholpur etc.

Trip Coordinators: Fareeduddin, Gurmeet Kaur and Kireet Acharya

Other Contributors: V.K. Sharma

Day by day itinerary

Day 1 – Monday, 9 March 2020
The visit to Taj Mahal complex includes examining diverse rock types used in the Taj Mahal Complex (an assembly of different monuments). A visit to the (ASI) museum inside the complex is planned to showcase artifacts and architectural and historical account on the Taj Mahal Complex and its making. Agra Fort has palaces, mosques and pavilions made in diverse rock types.
Halt –Agra

Day 2 – Monday, 10 March 2020
After an early breakfast, there will be visit to historical quarries of Rupbas. After the quarry visits around 1pm we reach Fatehpur Sikri and break for lunch. Afternoon visit planned for Imperial complex of Fatehpur Sikri.
Return to Agra around 7pm
Halt – Agra

Day 3 - Wednesday 11th March 2020
Delegates can revisit Taj Mahal again for an early morning view of the monument.
Vist the old market from the Mughal period and can witness the inlay work being done practically in one or two factories and souvenir shopping etc.
Depart from Agra around 1.30 pm and reach India Expo Mart, Noida.

Special notes: Delegates should be prepared for warm and bright days and pleasant mornings and nights. Normal field shoes, hats and dark glasses are recommended.

CR004: *Sculptures in Deccan Basalt: Impact Crater to Rock-Cut Caves*

Duration: 3N/4D, **9 March 2020** to **12 March 2020**;
Starts: Aurangabad Airport; **Ends at**: Aurangabad Airport;
Numbers limited to 30
Cost: 637 USD / 44590 INR Per Person

Trip Overview: Lonar Crater is the best preserved terrestrial impact crater in basalt. It provides unique opportunities for comparison with craters in lunar maria and Mars. Rock cut caves of Ajanta and Ellora are the world heritage sites carved in the pahoehoe lava flows of the Deccan Volcanic Province.

Geotourism Spots: Rock cut caves of Ajanta and Ellora, Daulatabad, Temple Ruins in Lonar and Bibi ka maqbara (tomb) etc.

Trip Coordinators: Bibhas Sen and D. S Jeere

Day by day itinerary

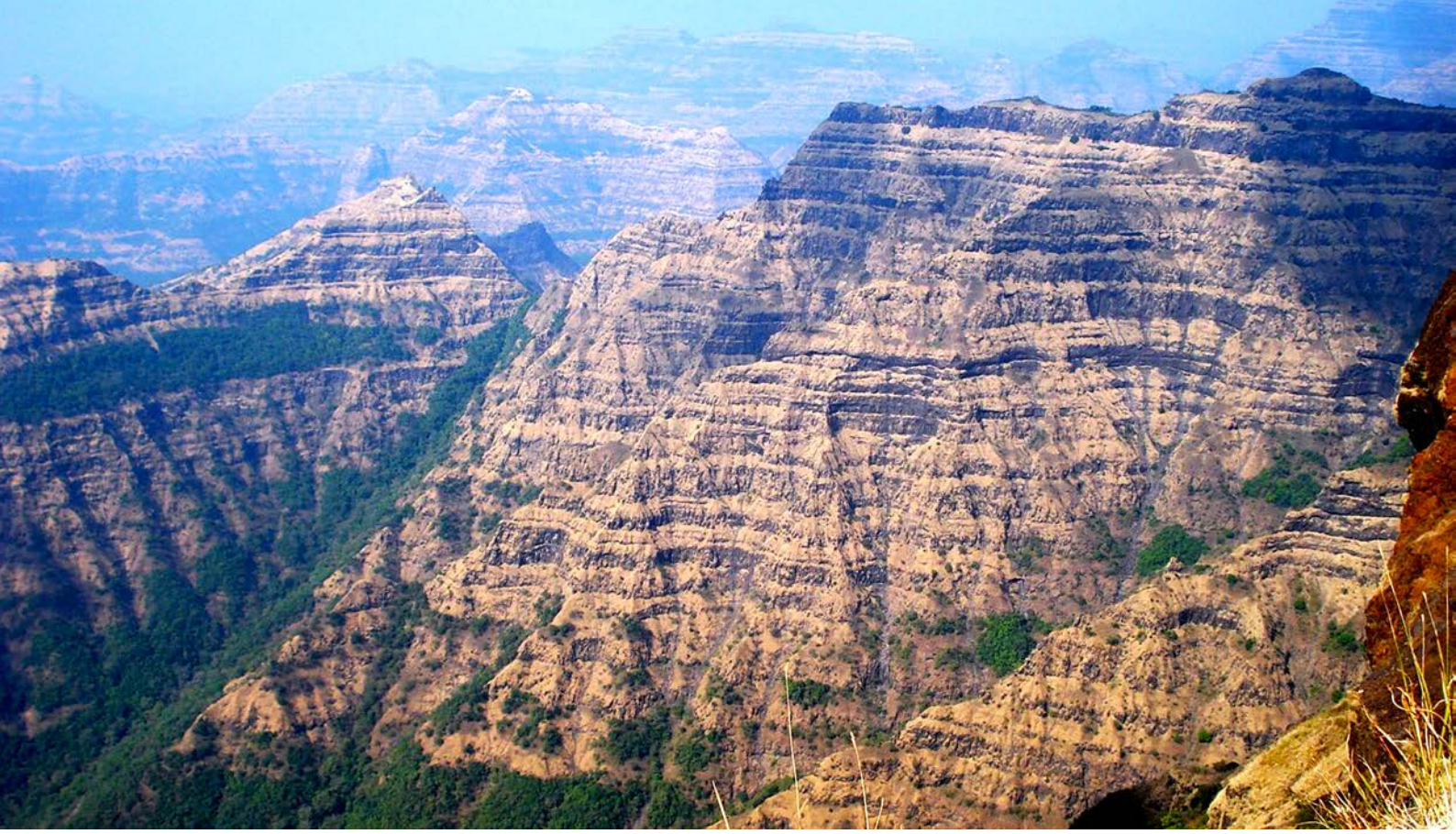
Day 1 – Monday, 9 March 2020
Assembly at Aurangabad and ice-breaking session. Departure from Aurangabad to Jalna Hotel.
Halt – Jalna

Day 2 – Tuesday, 10 March 2020
Visit to Lonar crater – impact crater in the Deccan Volcanic Province. Field work at Lonar, return to Aurangabad.
Halt – Aurangabad

Day 3 – Wednesday, 11 March 2020
Visit to Ajanta caves.
Halt – Aurangabad

Day 4 – Thursday, 12 March 2020

Visit to Ellora caves. Departure from Aurangabad in the evening.



CR005: *Deccan Volcanic Province | Characters and Landscapes*

Duration:7N/8D, **9 March 2020** to **16 March 2020**
Starts: Pune Airport; **Ends at**: Mumbai Airport;
Number of delegates limited to 30
Cost: 800 USD / 56000 INR Per Person

Trip Overview: The field traverse is in western part of the Deccan Volcanic Province (DVP). It transects the Main Deccan Plateau, Western Ghat Escarpment zone and the Konkan tract. It provides a chance to observe all the essential components of DVP viz. lava flows, lava channel/ tube, dykes and spectacular landscapes carved out of this stunning lava pile.

Geotourism Spots: Hill as well as island forts of Maratha kingdom and an ancient temple etc.

Trip Coordinators: Makarand S. Bodas

Other Contributors: Poushali Chatterjee, M. I. Treesa, Tulika Pal, Yogendra Singh and Suravi Banerjee

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive early morning at Pune Airport
Visit to Private Repository/ Museum housing cavity minerals from Deccan Volcanic Province located in Sus-Pashan area of Pune city.
Halt – Pune

Day 2 – Tuesday, 10 March 2020
Traverse in Kanherwadi area takes the delegates to a lava tube, a feature that is rarely seen in the DVP. The variations in the tube morphology from lower to upper part of the tube will be shown during a walk along the Kanherwadi ridge.
Halt – Ahmednagar

Day 3 – Wednesday, 11 March 2020

In this Bhuleshwar- Diveghat traverse, field party gets a unique opportunity to observe majority of the morphological features seen in the Deccan Lava flows in a short distance. The visitors get a chance to compare these features with those observed in Hawaii and comment on whether the Hawaiian nomenclature can be used in the Deccan Province. As a part of Geo-tourism, the Bhuleshwar Temple will also be visited.

Halt – Pune

Day 4 – Thursday, 12 March 2020

The field traverse to Panchgani – Mahabaleshwar to examine the large laterite capping (the largest Table land in Asia at Panchgani) developed over the Deccan lavas and view the Western Ghat Escarpment at Mahabaleshwar. Experience the landscapes developed in the DVP due to scarp retreatment and its associated features.

Halt – Mahabaleshwar

Day 5 – Friday, 13 March 2020

Traverse has to showcase the Deccan landscapes in Mahabaleshwar. Pratapgad fort, a major geo-tourism attraction will be visited. Transit to Kashid crossing Poladpur an important pass over the western ghat escarpment. The delegates will be given the opportunity to study and sample the least contaminated (crustally) Ambenali and Poladpur formations constituting Upper part of Western Ghat Deccan Sequence.

Halt – Kashid

Day 6 – Saturday, 14 March 2020

Observe coastal dyke swarms that exposes dolerite, lamprophyres, tephriphonolite as well as nephelinite dykes cutting the Deccan lava flows in Murud-Janjira area.

Halt – Kashid

Day 7 – Sunday, 15 March 2020

Explore the petrological diversity observed in the coastal dyke swarm in Murud-Janjira area as a manifestation of the magmatism associated with the continental extension. A visit to the Rajpuri- Murud- Korlai dyke swarm gives the delegates an opportunity to appreciate the similarities as well as differences between the Rajpuri- Murud- Korlai and the Greenland and Hawaiian dyke swarms. This is the end of the field trip. After lunch at Kashid, the delegates will be taken to Mumbai for their return journey.

CR006: *Crustal Evolution and VMS Metallogeny in the Proterozoic Betul Belt, Central India*

Duration: 3N/4D, **9 March 2020** to **12 March 2020**;
Starts: **Nagpur Airport**; Ends at: **Bhopal Airport**;
Number of delegates limited to 20
Cost: 500 USD / 35000 INR Per Person

Trip Overview: The Betul Belt (BB) is an important component of the Central Indian Tectonic Zone and forms a conspicuous litho-tectonic unit that is interpreted as island arc set up. The maximum and minimum age limits for the Betul supracrustal rocks are 1550±50 and 850±15 Ma (Rb-Sr) respectively. The felsic volcanic rocks within the bimodal volcanic sequence in BB host strata bound Volcanogenic Massive Sulphide deposits (VMS) of Zn-Cu type and Zn-Pb-Cu type.

Geotourism Spots: Bhimbetka Caves and Sanchi Stupa - world heritage sites etc.

Trip Coordinators: M. L. Dora

Other Contributors: Mohd. Shareef, Mohd. Atif Raza, Srinivasa Rao Baswani, S. A. Chore and Hemraj Suryavanshi

Day by day itinerary

Day – 1 Monday, 9 March 2020
Arrive at Nagpur by afternoon. The delegates will be received at the Airport and transferred to Chindwara by road.
Halt – Chindwara, Madhya Pradesh

Day – 2 Tuesday, 10 March 2020
The traverse covers Jilherdev- Bhuyari area. The delegates will be able to study Hyaloclastite in Kanhan river, Jilherdev felsic volcanics, foliated Rhyolite, VMS mineralization, White Smoker (Carbonate alteration) and associated Ca-Mg and Fe-Al alteration.
Halt – Chindwara, Madhya Pradesh

Day – 3 Wednesday, 11 March 2020
The day's traverse is from Chindwara to Betul with stops at Bargaon, Bhawaratekra, Bhanskhapa and Mourya en route. The traverse will focus on the variation in mineral assemblage of the country rocks over a 150 kms and the contact relationship between the felsic and mafic volcanics in the area.
Halt – Betul, Madhya Pradesh

Day – 4 Thursday, 12 March 2020
The final traverse from Betul to Bhopal via Padhar, Bhimbetka and Sanchi. Exposures of basement gneiss and metasediments and the Padhar Mafic-Ultramafic Alaskan Arc magmatism will be studied. The trip will end with visits two UNESCO world heritage sites – Bhimbetka Caves and the Sanchi Stupa.
Delegates will be dropped off at Bhopal airport for their return journey.

INTNP004: Greater Himalayan Cross-section: The Everest Area, Eastern Nepal

Duration: 14N/15D, **8 March 2020** to **22 March 2020**;
Starts: Kathmandu, Nepal; **Ends at**: Kathmandu, Nepal;
Number of delegates limited to 15
Cost: 3000 USD / 210000 INR Per Person

Trip Overview: The Everest Region of eastern Nepal includes a complete section of the Greater Himalaya, the metamorphic core of the range, and it includes examples of classic Himalayan leucogranites plus a suite of Quaternary to modern features including glacial valleys, moraines, lake deposits, and recent landslides.

Geotourism Spots: Sagarmatha National Park, Namche Gompa, Phortse, Gompa, Gokyo Tsho Mt. Everest etc.

Trip Coordinators: Ananta Prasad Gajurel and Mary Hubbard

Day by day itinerary

Day 1 – Sunday, 8 March 2020
Fly Delhi to Kathmandu. Welcome reception and rest.
Halt – Kathmandu, Nepal

Day 2 – Monday, 9 March 2020
Kathmandu city tour, field trip briefing and equipment check.
Halt – Kathmandu, Nepal

Day 3 – Tuesday, 10 March 2020
Fly to Lukla and hike to Phakding, lunch in Ghat (5 hours walk). Observe the MCT fabric and minor shear zones.
Halt – Phakding, Nepal

Day 4 – Wednesday, 11 March 2020
Hike to Namche (5 hours) and observe the Bemkar cross-fault fabric
Halt – Namche, Nepal

Day 5 – Thursday, 12 March 2020
Rest day and day hike in Namche.
Halt – Namche, Nepal

Day 6 – Friday, 13 March 2020
Hike to Phortse, lunch in Sanasa (8 hours). Look at cross-cutting normal fault and Bemkar fabric.
Halt – Bemkar, Nepal

Day 7 – Saturday, 14 March 2020
Day hike through Bemkar fault fabric/ afternoon discussion.
Halt – Bemkar, Nepal

Day 8 – Sunday, 15 March 2020
Hike to Nga (6 hours). Look at Greater Himalayan folds/glacial features Halt – Nga, Nepal

Day 9 – Monday, 16 March 2020
Hike to Gokyo (4 hours), optional Gokyo Ri. Look at Glacial features and leucogranites
Halt – Gokyo, Nepal

Day 10 – Tuesday, 17 March 2020
Hike to Namche (8 hours)
Halt – Namche, Nepal

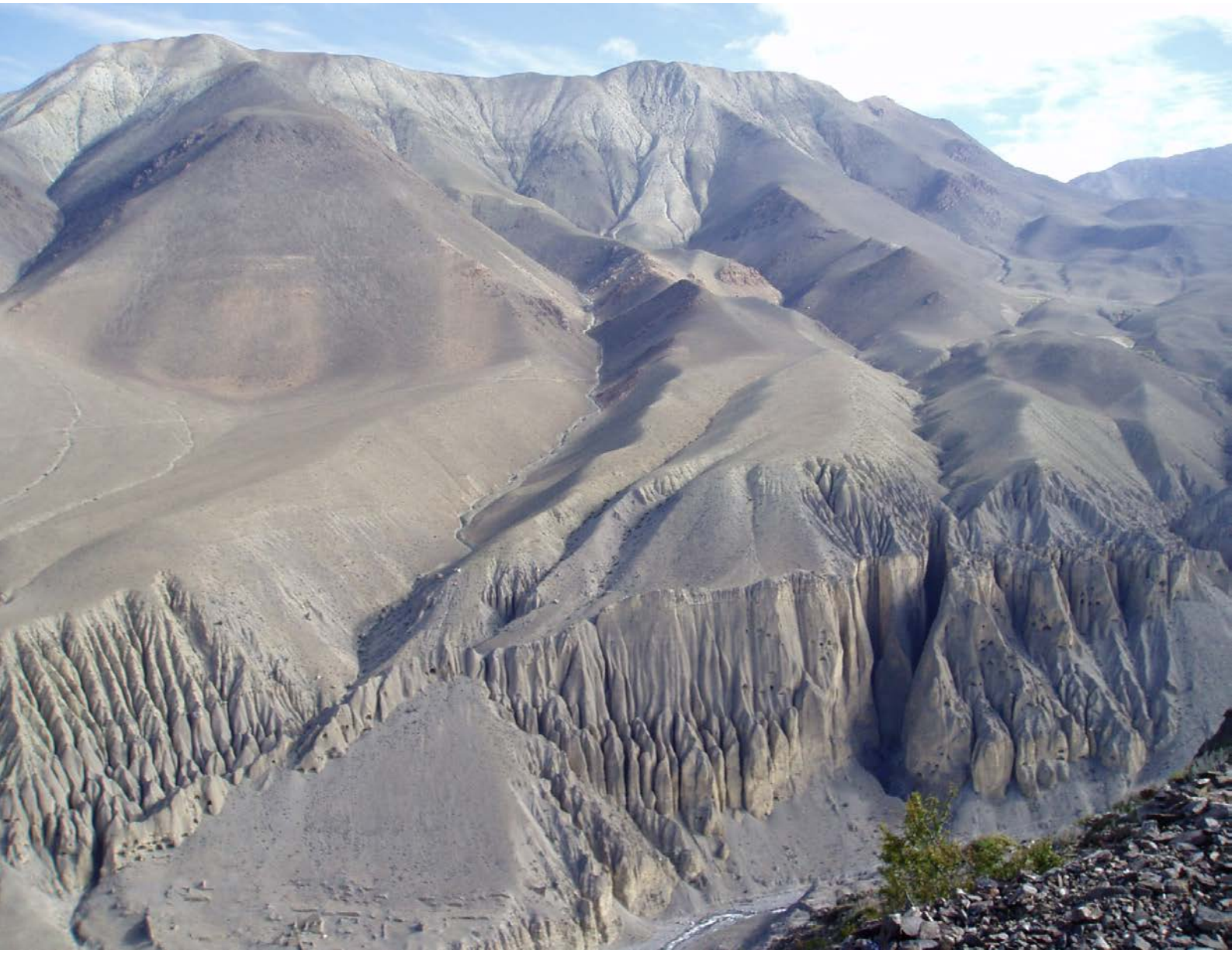
Day 11 – Wednesday, 18 March 2020
Hike to Lukla
Halt – Lukla, Nepal

Day 12 – Thursday, 19 March 2020
Fly to Kathmandu.
Halt – Kathmandu, Nepal

Day 13 – Friday, 20 March 2020
Contingency for delayed flight from Lukla
Halt – Lukla / Kathmandu, Nepal

Day 14 – Saturday, 21 March 2020
Contingency for delayed flight from Lukla
Halt – Lukla / Kathmandu, Nepal

Day 15 – Sunday, 22 March 2020
Depart Nepal.



INTNP005: A Full Cross section of the Dynamic Himalaya in Central Nepal

Duration: 9N/10D, **9 March 2020** to **18 March 2020**
Starts: Lumbini; **Ends at**: Pokhara;
Number of delegates limited to 30
Cost: 1135 USD / 79450 INR Per Person

Trip Overview: The Lumbini-Pokhara-Muktinath transect is ideal for studying and understanding the structure and evolution of the Himalaya. Complete exposures of the Paleozoic-Mesozoic succession of Tethys sediments are present in the Kali Gandaki River section for examining deformation, magmatism, metamorphism and exhumation caused before and after India-Asia collision.

Geotourism Spots: Kali Gandaki Valley, Caves at Pokhara, Lumbini (Birth place of Lord Buddha), Siddhab Baba temple at Butwal, Tal Barahi Temple at Pokhara, World Peace Pagoda at Pokhara, Muktinath Temple, Ancient Monastries at Kagbeni, Muktinath etc.

Trip Coordinators: Lalu Paudel

Other Contributors: Khum Paudayal, Jorn Kruhl and Ranjan K Dahal

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive at Kathmandu from Delhi. Take the connecting flight to Bhairahwa. Delegates will be received at Bhairahwa Airport and driven to Lumbini.
Halt – Lumbini, Nepal

Day 2 – Tuesday, 10 March 2020
Traverse from Lumbini to Tansen via Butwal.
Halt – Tansen, Nepal

Day 3 – Wednesday, 11 March 2020
Traverse from Tansen to Pokhara.
Halt – Pokhara, Nepal

Day 4 – Thursday, 12 March 2020
Visit to geological and touristic sites around Pokhara
Halt – Pokhara, Nepal

Day 5 – Friday, 13 March 2020
Traverse from Pokhara to Tatopani.
Halt – Tatopani, Nepal

Day 6 – Saturday, 14 March 2020
Traverse from Tatopani to Marpha
Halt – Marpha, Nepal

Day 7 – Sunday, 15 March 2020
Traverse from Marpha via Jomsom to Muktinath
Halt – Muktinath, Nepal

Day 8 – Monday, 16 March 2020
Visit to geological and geo-touristic sites around Muktinath
Halt – Muktinath, Nepal

Day 9 – Tuesday, 17 March 2020
Return from Muktinath to Pokhara
Halt – Pokhara, Nepal

Day 10 – Wednesday, 18 March 2020
Depart from Pokhara to Kathmandu by flight or bus.

Special notes: 1. Delegates will have the option to end the excursion at Muktinath and make (parts of) the round Annapurna trek, visit to Upper Mustang, etc. 2. From Pokhara, delegates may fly to Kathmandu, take buses to Kathmandu or go back to the Indian Boarder near Lumbini by bus or plane (there are frequent flights and tourist buses for Kathmandu and Lumbini).

INTNP006: Transboundary Geotraverse from Nainital-Almora- Dharchula in India to Darchula-Dadeldhura- Dhangadhi in Nepal

Duration: 8 Nights & 9 D, **9 March 2020** to **17 March 2020**
Starts: India Expo Mart Limited, Greater Noida; **Ends at**: Dhangadhi, Nepal;
Number of delegates limited to 20
Cost: 1035 USD / 72450 INR Per Person

Trip Overview: The field excursion will be an opportunity to compare geology from both parts of India and Nepal. The excursion will feature the Siwalik, Lesser Himalayan and Higher (or Greater) Himalayan sequences in Nepal and India, including the Miocene strata in the inner belt, active faults, backthrusts, and overturned strata containing columnar stromatolites. Paleozoic granites, augen gneisses, and amphibolites, talc, dolomite and other economic mineralization sites will also be visited.

Geotourism Spots: Nainital, Almora, Khalanga, Dharchula, Mahakali River, Baitadi Dadeldhura etc.

Trip Coordinators: M R Dhital

Other Contributors: C. S. Dubey

Day by day itinerary

Day 1 – Monday, 9 March 2020
Start from the congress venue, drive to Kathgodam and Nainital. Observation of active faults, Siwaliks and volcanic rocks on the way: 227 km driving distance
Halt – Nainital, Uttarakhand, India

Day 2 – Tuesday, 10 March 2020
Nainital to Almora: Explore the historic route of Heim and Gansser of the Lesser Himalayan and Greater Himalayan sequences, augen gneisses, inverted metamorphism, Main Central Thrust (?), and other faults: 63 km
Halt – Almora, Uttarakhand, India

Day 3 – Wednesday, 11 March 2020
Almora to Pithoragarh: Explore the inner belt of the Lesser Himalaya, observe folds, thrusts, overturned carbonate sequences, and metamorphism: 115 km (Night stay at).
Halt – Pithoragarh, Uttarakhand, India

Day 4 – Thursday, 12 March 2020
Pithoragarh to Dharchula and back to Pithoragarh: Observing Miocene beds, thrusts, Folds, and large landslides: 180 km (Night stay at Pithoragarh).
Halt – Pithoragarh, Uttarakhand, India

Day 5 – Friday, 13 March 2020
Pithoragarh to Tanakpur: Observing Lesser Himalayan sequence, Almora Thrust as well as other thrusts and faults (150 km).
Halt – Tanakpur, Uttarakhand, India

Day 6 – Saturday, 14 March 2020
Tanakpur to Dadeldhura: Investigation of Siwaliks and intra-Siwalik thrusts, study of Budar Thrust, active faults, and uplifted alluvial terraces: 170 km.
Halt – Dadeldhura, Nepal

Day 7 – Sunday, 15 March 2020
Dadeldhura-Patan-Gokuleshwar-Baitadi: Study of Carbonate sequence, Miocene strata, intensely folded Patan slates and quartzites, overturned stromatolites, and augen gneisses with blue quartz: 150 km.
Halt –Baitadi, Gothalapani, Nepal

Day 8 – Monday, 16 March 2020
Baitadi-Dhangadhi: Study of Ordovician granites, MCT (?): 200 km (Night stay at).
Halt – Dhangadhi, Nepal

Day 9 – Tuesday, 17 March 2020
Dhangadhi to Kathmandu. Delegates will be seen off at Tribhuvan International airport, Kathmandu.

INTNP014: Hydrogeological Transect from Indo-Gangetic Plain to Lesser Himalaya in Nepal Himalaya

Duration: 6N/7D, **9 March 2020** to **15 March 2020**;
Starts: Kathmandu Airport; **Ends at**: Kathmandu Airport;
Number of delegates limited to 20;
Cost: 935 USD / 65450 INR Per Person;

Trip Overview: The diversity of groundwater occurrence, utilization condition, and problems related to different geological and physiographic set up, hydrogeology from plain to mountainous area etc. shall be showcased. The journey shall be across the major geological structure like MFT and MBT.

Geotourism Spots: Chitwan National Park, Lumbini- Birthplace of Gautam Buddha, Ramapithecus Park at Dobhan, Palpa, Tansen- the ancient town, Pokhara etc.

Trip Coordinators: Dinesh Pathak and G. K. Rao

Other Contributors: Surendra Raj Shrestha

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrival at Kathmandu by flight from Delhi. Drive to Sauraha, around 15 km east of Bharatpur, Chitawan.
Halt – Sauraha, Nepal

Day 2 – Tuesday, 10 March 2020
Visit the resettled village with groundwater supply for irrigation and drinking and Lift irrigation in Chitawan (Doon valley); travel along foothill of Siwalik then through Siwalik region; Stop at Parasi to observe Arsenic contaminated site and interact with affected people.
Halt – Bhairahawa, Nepal

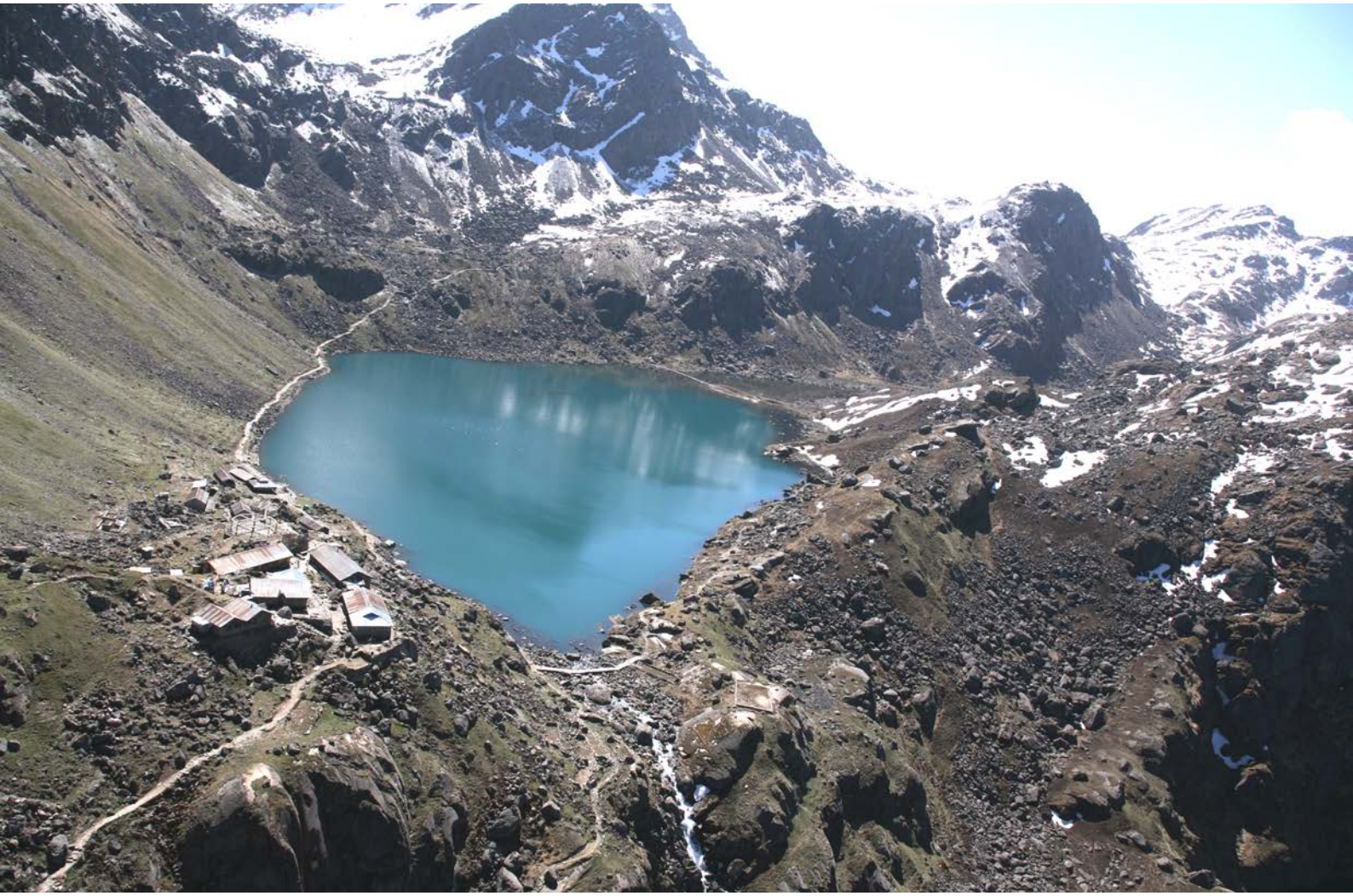
Day 3 – Wednesday, 11 March 2020
Morning – Short visit of Lumbini, the birthplace of Gautam Buddha; Observation of Bhairahawa-Lumbini Groundwater irrigation project with irrigation command area, well network, canal system, effectiveness of the project.
Afternoon –Travel towards Tansen (via Siddhartha Highway) observing the Deep well drilled at Bhabar zone (Butwal); drive through Siwalik region; Rockfall site at Siddhababa area which is typical road side slope stability problem in Middle Siwalik; observe Ramapithecus site; Observe Main Boundary Thrust (MBT); various rock sequence of Lesser Himalaya including Tansen Group consisting of Gondwana rocks then reach Tansen (Palpa).
Halt – Tansen, Nepal

Day 4 – Thursday, 12 March 2020
Observe the mountain aquifer, springs at Intermontane valley (Madanpokhara, near Tansen) and use of shallow groundwater for domestic and irrigation; short visit of ancient city – Tansen, then move to Pokhara along Siddhartha Highway through the Lesser Himalayan terrain.
Halt – Pokhara, Nepal

Day 5 – Friday, 13 March 2020
Visit sites important from groundwater perspective (caves, subsurface channel flow; land subsidence due to groundwater at Armala; site seen around Pokhara valley with the view of snowy peaks.
Halt – Pokhara, Nepal

Day 6 – Saturday, 14 March 2020
Travel through Prithvi Highway and arrive at Kathmandu.
Halt – Kathmandu, Nepal

Day 7 – Sunday, 15 March 2020
Visit groundwater recharge site with artificial groundwater recharge provision and monitoring wells at Gokarna and Deep well pumping methane and other gaseous contaminated water (half day). End of excursion and return by evening flight from Tribhuvan International Airport.



INTSL001: Geology of the High-Grade Proterozoic Terrains of Sri Lanka

Duration: 3N/4D, **9 March 2020** to **12 March 2020**
Starts: Colombo; **Ends at**: Colombo;
Number of delegates limited to 15;
Cost: 835 USD / 58450 INR Per Person

Trip Overview: Sri Lanka, the 'pendant' of Gondwana, is a collage of distinct crustal blocks that preserve important records of major Neoproterozoic tectonothermal events. The geology of Sri Lanka provides important insights into continental growth in the Neoproterozoic Earth. Tectonics of Sri Lanka has also been in focus in relation to the history of the assembly of supercontinents, particularly because of its central position within the India-Madagascar-Africa-East Antarctica collage of the late Neoproterozoic Gondwana supercontinent. Due to similarities of lithologies, geochronology of the rock in the Lützow- Holm Complex (LHC) of East Antarctica and the Highland Complex (HC) of Sri Lanka, several workers have considered that LHC as an extension of the HC of Sri Lanka. Hence speculation on the East Antarctic Geology may be done standing on Sri Lankan basement.

Geotourism Spots: Dambulla Cave Temple, Wahawa Hotwater Spring and Dolerite dykes, Arrested charnockite around Kurunegala, Temple of Tooth etc.

Trip Coordinators: L.R.K. Perera, Sanjeewa Malaviarachchi and Prasanna Dharmapriya

Day by day itinerary

Day 1 – Monday, 9 March 2020
Arrive in Colombo from Delhi by early morning, checkin to the accommodation. The traverse begins at the University of Peradeniya and the route is through Gampola, Nawalapitiya and Kadugannawa. The UHT granulites in the Highland Complex and Gneisses in the Kaduganawa are the focus of this traverse.
Halt – Peradeniya, Sri Lanka

Day 2 – Tuesday, 10 March 2020
Fieldwork to study arrested charnockite around Kurunegala and migmatitic gneisses around Dambulla and Habarana at the inferred tectonic boundary between the HC and the WC. Visit to the Dambulla Cave Temple.
Halt – Polonnaruwa, Sri Lanka

Day 3 – Wednesday, 11 March 2020
Field traverse to study Vijayan Gneisses close to the thrust contact between the HC and the VC, Wahawa Hot water spring, Highland Complex rocks.
Halt – Mahiyanganaya, Sri Lanka

Day 4 – Thursday, 12 March 2020
Traverse to study the Highland Complex rocks (Khondalite – marble sequence, metagranitoides, Intercalated metapelitic and psammopetic rocks in charnockites) and Rupaha Serpentinite body and high-temperature metasomatic rocks.
Halt – Katunayake (Close to the airport) / Peradeniya, Sri Lanka

Special notes: Participants can depart from Colombo after the traverse on 12 March 2020 or the next day.

Note: *Meals (Breakfast, Lunch, Dinner) based on time of arrival and departure are included. The field vehicles shall have first aid kit. Delegates are to carry their own medicines, if required. The T&C section at https://www.36igc.org/terms-conditions may be consulted for inclusion, exclusions and other important information related to the field trips.*

Geoexpo and Sponsorship Opportunities

GeoExpo

An elaborate GeoExpo has been planned at the venue of the 36th IGC- the India Expo Centre, Greater Noida, Delhi. It has been designed to offer a wide range of opportunities catering to the needs and budgets of the exhibitors. It has a mix of pre-fabricated booths and raw spaces. The latter can be customized as per the requirements of the Exhibitors.

The Exhibitor's Manual has been made live which lays down the guidelines for the exhibitors regarding the booth construction and other aspects of the Geoexpo. It contains a catalogue of exhibition kit namely, panels, furniture, electricals, planters etc.

Sponsorship Opportunities

The 36th IGC offers innovative and rewarding sponsorship opportunities. Six categories of sponsorship namely, Titanium, Platinum, Diamond, Gold, Silver and Bronze have been devised in the Premium category. In addition, a Standard category of packages has also been launched to suit to the budgets and requirements of all ranges of sponsors. On specific requests, packages can also be customised. For details, please visit our website.

Current Exhibitors' List

AGS Aarhus GeoSoftware
AGU
Aimil Ltd.
AMETEK INSTRUMENTS PVT LTD
Beijing Deyan Technology Co., Ltd.
British Geological Survey
CCGM/CGMW
China University of Geosciences, Beijing
DMG Tamil Nadu
F.W.Breithaupt & Sohn
French Geological survey (BRGM)
Geological Society of America

Geological Society Of China
Geological Society of London
Geological Survey of India
GeoScience World
German Research Center for Geoscience
German Research Foundation
Inter University Accelerator Centre
International Association for Mathematical Geosciences
IUGS
International Association of Sedimentologists
JCS Services Pvt Ltd
Kazakhstan Geological Society (KazGeo)
MAPCIS Research
National Centre for Polar and Ocean Research
National Institute of Advanced Industrial Science and Technology,
Orca Affairs
Organizing Committee for IGC 2024, Korea
Pan India Group
U.S. Geological Survey
VSEGEI (Russian)
Zing Technologies
Commissioner Geological & Mining Department Gujarat
Agilient Technologies India Pvt Ltd.
Bruker Corporation
Cambridge University Press
Chennai Metco Pvt Ltd
Council for Geoscience, South Africa
Deep-Time Digital Earth
Geological Survey of Canada
DMG Jharkhand
Hindustan Copper Ltd.
Nanjing Binzhenghong Instrument Co., Ltd.
NEERI

DMG Nagaland
Nanometrics
Olympus Medical Systems India Pvt Ltd
Rajasthan State Mines and Minerals Ltd.
Springer Nature
State Committee for Geology and Mineral Resources, Uzubekistan
Prospectors
Coal India
Mineral Exploration Corporation Ltd.
Federation of Indian Geosciences Associations
Indian National Science Academy
Matrix India Minerals
Wadia Institute of Himalayan Geology
YES Congress
Oil and Natural Gas Corporation Ltd.
National Aluminum Company Ltd.

Breaking Boundaries – Unifying Geosciences

The 6th Young Earth Scientists (YES) Network Congress is being organized by Indian Chapter of YES Network under the umbrella of 36th International Geological Congress (IGC) at New Delhi, India during 2-8 March 2020. YES Network is an international organisation of early career Earth Scientists from different geosciences organizations across the world who are primarily under the age of 35 years. 6th YES congress provides an excellent opportunity to young researchers and academicians to interact and share their research experiences with fellow researchers from YES and experts from 36th IGC.

YES congress covers

- 16 Scientific Sessions
- 3 Invited lectures
- 5 Workshops
- 2 Field Visits
- Round table meetings
- Networking café for job opportunities

The details are given further here. Kindly contact the below mentioned persons for further queries

- Mr. Meng Wang, President YES Network and Chairman International Organising Committee (yeswangmeng@gmail.com)
- Dr. Tanvi Arora, Secretary General, YES Network, (networkyes.secretary@gmail.com)
- Dr. Shib S. Ganguly, Vice President YES Network (ganguli.ism@gmail.com)
- Dr. L. Surinaidu, National Representative-India and Chairman Local Organising
- Secretary of 6th YES Congress (suryangri@gmail.com)
- Dr. Sunil Rohil, Secretary, Indian Chapter of YES (sunil.rohil@gmail.com)

YES - Technical Sessions

Date	Technical Sessions - Time				
	9:00-10:30	11:00-12:00	12:00-13:00	15:00-16:30	16:30-18:00
Mar. 05	**45.6.1** Shear Zones and Crustal Deformations (SZCD)	**45.6.2** Water: Sustainability for Life (WS)	**45.6.3** Integrated Geoscience (IG)	**45.6.4** Crunch in Computational Geoscience(CCG)	**45.6.5** Geoscientific Challenges and Advances in Natural Resource Exploration
Mar. 06	**45.6.6** Tectonics, Surface Processes and Climate	**45.6.7** Hydrogeophysical studies for Vadose Zone characterization **45.6.8** Non-invasive Geophysical Methods and Numerical Modelling for Groundwater Resources Exploitation and Management	**45.6.9** Multiproxy approach in Paleo Monsoon Reconstruction during Quaternary Period	**45.6.10** Quaternary Landform Evolution in a Mountainous Landscape	**45.6.12** Advances in Earth and Planetary Sciences
Mar. 07	**45.6.13** Geochemical Signatures of Paleo Monsoon Variability	**45.6.14** Understanding the Earth Structure and Mantle dynamics through Geophysical Observations	**45.6.15** Geodynamic Significance and potential of the Precambrian Ultramafic Complex	**45.6.16** Biogeochemical Cycling of Carbon and Nitrogen in Terrestrial and Coastal Environments	**45.6.17** Ichnology in shallow marine and transitional environments

YES - Workshops

	March 03	March 04	March 05	March 06	March 07
	WP I	**WP I**	**WP I**	**WP II**	**WP II**
19.00 – 20.30 Hrs.	Workshop on Integrated Groundwater-Surface Water Modeling (Part I)	Workshop on Integrated Groundwater-Surface Water Modeling (Part II)	Workshop on Integrated Groundwater-Surface Water Modeling (Part III)	Workshop on Urban Geology	Workshop on Geophysical Methods for Groundwater Exploration

Apart from the above 3 workshops, 2 more workshops are arranged which are "Women in Geoscience (WSC05)" and "Association of Polar Early Career Scientists (APECS) and Young Earth Science Network (YES) joint workshop for early career researchers (WSC28)"

YES – Round Table Meetings

	March 03	March 04	March 05	March 06	March 07
19.00 – 20.30 Hrs.	YES EC Meeting (Closed)	YES NR Meeting (Closed)	YES Bid and Presentations	YES AGU Workshop	YES Dinner

YES – Networking Café:

- YES Network members will be asked to drop their CV by the Networking lounge
- Shortlisted candidates will be interviewed by invited companies and university representatives for Research opportunities

YES – Field trips:

- A field trip is organised in Rajasthan by Advent Oilfield Services for 10 members on First come first serve basis.
- An excursion is arranged by AMITY International University, Delhi for 25 members on first come first serve basis.

GeoHost Support Program

The GeoHost Support Program of the 36th IGC is unprecedented, offering 1000 Full Support to the selected delegates, the break-up of which is given below:

- 1000 Registration Support
- 1000 Travel Support and
- 1000 Local Hospitality Support.

These are being awarded either as full support comprising all the three components or in combination.

The application process for the Geohost Support program came to an end on 15 November 2019; we received more than 3000 applications. The lists of GeoHost awardees were announced during November - December 2019 and January 2020. We expect more than 1200 GeoHost awardees from over 100 countries to participate in the Congress.

Workshop/ Training Program for GeoHost Awardees:

To spur capacity-building and encourage early career researchers and students (Category A GeoHost awardees), we will be organizing Congress Theme Workshop Series (CTWS). About 10 workshops (two per day) related to the Congress theme, **Geosciences**: **The Basic Science for Sustainable Future** shall be held for the GeoHost awardees under Category B, and other geoscientists of international repute will be the resource persons for the workshops. We will soon publish more details of the workshop on the Congress website.

GeoHost Reception and Awards Function: We will be organising a Geohost reception for the GeoHost awardees, workshop participants and others during the Congress. Apart from this, we will be honouring selected awardees on the occasion.

For Sponsorship opportunities for the Geohost program, please write to geohost@36igc.org

The GeoHost Committee is looking forward to welcoming the GeoHost awardees at the 36th IGC.

36th IGC Contact Information

The following are the contact email IDs for your enquiries:

General Support	:	support@36igc.org
Field Trips	:	fieldtrips@36igc.org
Geoexpo (Exhibition)	:	expo.sponsor@36igc.org
Sponsorship (Premium & Standard)	:	expo.sponsor@36igc.org
Workshop/Short Courses	:	bm.wsc@36igc.org
Business Meetings	:	bm.wsc@36igc.org
GeoHost Sponsorship	:	geohost@36igc.org

Contact details of the 36th IGC

Telephone: + (91) 11 29965750; 26057035
Postal address: 36th IGC Secretariat, C-2, Pushpa Bhawan, Madangir Road, New Delhi-110062

To attend the Congress, one may need to obtain Visa (conference Visa) or an e-Visa (e-conference visa). Details are available at: https://indianvisaonline.gov.in/evisa/.

Following countries/delegates are exempted from visa application:

1. Foreign citizens possessing an Overseas Citizen of India (OCI) registration certificate or holders of a Persons of Indian Origin (PIO) Card. They have the right of domicile in India and are allowed unlimited entries into India.
2. Citizens of Bhutan and Nepal do not need a Visa to visit India (unless arriving from Mainland China).
3. Citizens of Maldives (entry permissible up to 90 days unless arriving from Mainland China).

Citizens of all other countries should apply for and obtain a visa issued by the Indian High Commission/Indian Embassy in that country. The procedure to apply and the type of visa required (conference visa or e-conference visa) would depend on the country of citizenship.

e-Visa

The Indian Government presently offers the e-Visa facility to citizens of 169 countries.
To check the eligibility criteria and application procedure for an e-Visa please visit:
https://indianvisaonline.gov.in/evisa/tvoa.html
Citizens of countries not listed in the link above should apply for a visa at the Indian embassy / nearest Consulate.
For more information from the Ministry of External Affairs, visit:
https://www.mea.gov.in/indian-missions-abroad-new.htm

For e-Conference visa, applicants of the eligible countries/territories may apply online minimum 4 days in advance of the date of arrival with a window of 120 days. Foreigners applying for e-Conference visa will be permitted to club the activities permitted under e-Tourist visa only.

Note: e-Visa is non-extendable, non-convertible and not valid for visiting Protected/Restricted and Cantonment Areas (https://www.mea.gov.in/Images/pdf/ForeigD-FAQs-onPAPandRAP.pdf). If one intends to visit Protected/Restricted/Cantonment areas, one would require prior permission from the Civil Authority (https://mha.gov.in/sites/default/files/ForeigD-FAQs-on ConferenceVisa%20%281%29.pdf).

We recommend that delegates register for the Congress and apply for visa well in advance (about 10 weeks prior to the event).

Delegates may need to provide with their visa application an official letter of invitation, and/or confirmation of Congress registration, political clearance and security clearance for the event. These documents will be issued only after the registration fee is paid.

Other important links:
https://mha.gov.in/PDF_Other/AnnexIII_01022018.pdf
https://mha.gov.in/PDF_Other/AnnexI_01022018.pdf

Traveling to Bangladesh

For visa information, delegates traveling to Bangladesh may visit
http://www.dip.gov.bd/site/page/d34b2e25-44dc-4cc0-b9e1-89bd1a124bc1

Traveling to Nepal

For visa information, delegates traveling to Nepal may visit http://www.nepalimmigration.gov.np/

Traveling to Sri Lanka

For visa information, delegates traveling to Sri Lanka may visit http://www.eta.gov.lk/

Delegates can apply for e-Conference visa by having the political and security clearance provided on 36th IGC official website.

Note

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