54th Annual Convention of Indian Geophysical Union, CSIR-NGRI, Hyderabad
(3rd – 7th December 2017)
www.iguonline.in
### December 03 (Sunday), 2017

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<thead>
<tr>
<th>Time</th>
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<th>Venue</th>
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<tbody>
<tr>
<td>14:00-15:30</td>
<td>Registration</td>
<td>Near S B Hall</td>
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<tr>
<td>15:30-16:45</td>
<td>Inauguration</td>
<td>S B Hall</td>
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<tr>
<td>16:45</td>
<td>Visit to Seismological &amp; Airborne Geophysics Lab</td>
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<td></td>
<td>.....High Tea…..</td>
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### December 04 (Monday), 2017

<table>
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>08:00-09:00</td>
<td>Registration</td>
<td>Near S B Hall</td>
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<tr>
<td>09:00-11:00, Session: 1</td>
<td>Plenary Talk</td>
<td>S B Hall</td>
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<tr>
<td>Chair:</td>
<td>Prof. Shailesh Nayak</td>
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<tr>
<td>1</td>
<td>How lucky I am to be a Geophysicist</td>
<td>Harsh K. Gupta</td>
</tr>
<tr>
<td>2</td>
<td>Transdimensional Geophysical Inversion and Uncertainty Quantification.</td>
<td>Mrinal K. Sen</td>
</tr>
<tr>
<td>3</td>
<td>My Fifty Years of adventures measuring Gravity and Gravity Gradients at Sea, in Airplanes, and by Astronauts, on The Moon</td>
<td>Manik Talwani</td>
</tr>
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<td>4</td>
<td>International Seismological Centre (ISC): 50+ years of worldwide cooperation</td>
<td>Dmitry A. Storchak</td>
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<tr>
<td>11:00</td>
<td>Inauguration of Exhibition Stalls by</td>
<td>Prof. Harsh K. Gupta</td>
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<tr>
<td>11:00-11:25</td>
<td>Tea/ Coffee Break</td>
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<tr>
<td>11:25-13:10, Session: 2</td>
<td>Oral Presentations</td>
<td>SB Hall</td>
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<tr>
<td>Chair:</td>
<td>Prof. Harsh K. Gupta</td>
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<tr>
<td>11:25- 11:40, Talk: by Decennial Awardee:</td>
<td>Anil Bhardwaj</td>
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</table>
**Chair:** Prof. Harsh K Gupta  
**Reservoir Triggered Seismicity**

1. **Co-Seismic gravity changes in the Koyna-Warna region:** Implications of mass redistribution  
   **V.M. Tiwari**

2. **Ground electrical and electromagnetic studies in Koyna-Warna region, India**  
   **B. P. K. Patro**

3. **Scientific drilling in the Koyna region, Deccan Traps, western India: completion of 3km-deep pilot borehole**  
   **Sukanta Roy**

4. **Lineament Fabric from airborne LiDAR and its influence on triggered earthquakes in the Koyna-Warna region, Western India**  
   **K. Arora**

5. **Long-term hydrochemical earthquake precursory studies at Koyna-Warna, India: Some vital observations**  
   **D.V. Reddy**

6. **Case studies of Hydro Seismicity in Eastern Dharwar Craton**  
   **D. Srinagesh**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>13:10-14:10</td>
<td>Lunch Break</td>
<td>SB Hall</td>
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<tr>
<td>14:10-16:30</td>
<td>Oral Presentations</td>
<td>SB Hall</td>
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**Chair:** Dr. P.R. Reddy

14:10-14:30, **Invited Talk:** Deadly intraslab Mexican earthquake of 19 September 2017 (Mw 7.1). Was it unexpected and were the damage pattern in Mexico city abnormal?  
**Shrikrishna Singh**

14:30-16:30, **Session: 3A** Parallel Session  
**Solid Earth Geoscience- Theoretical, Experimental & Exploration**

**Chair:** Dr. P.R. Reddy & Dr. D. Sarkar

1. **Microspherules from the Killari infratrappeans, Deccan LIP, Maharashtra (India)**  
   **G. Parthasarathy**

2. **Seismic Coda Decay in the Region of Kumaon Himalaya**  
   **Atul Jhajhria**

3. **Scaling relations of moment magnitude, local magnitude, and duration magnitude for earthquakes originated in Shillong-Mikir plateau of northeast India**  
   **Dipok K. Bora**
<table>
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<tr>
<th>No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>4</td>
<td>Topography correction applied to magnetotelluric data from Sikkim Himalayas</td>
<td>Sushil Kumar</td>
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<tr>
<td>5</td>
<td>Improved Protocol and Techniques of Processing of Magnetic Measurements at CSIR-NGRI Magnetic Observatory</td>
<td>L. Manjula</td>
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<td>6</td>
<td>Potential of Shale Gas in Cambay basin: Preliminary Study</td>
<td>AM Dayal</td>
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<tr>
<td>7</td>
<td>Mapping complex geology and tectonics for groundwater exploration in different geological terrains – A new experience</td>
<td>Dewashish Kumar</td>
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<tr>
<td>8</td>
<td>Geochemical and Geophysical Investigations on the QaratKibrit Salt Dome Faulting System South of Adam, Oman - In Search of Uranium Anomalies</td>
<td>N. Sundararajan</td>
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**14:45- 16:30, Session: 3B**

**Parallel Session**

**Oral Presentations**

**Young Researcher Program**

**E-Class Room**

**Main Building**

**Chair:** Prof. V.P. Dimri & Prof. B.V.S. Murthy

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<tr>
<th>No.</th>
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<tbody>
<tr>
<td>1</td>
<td>Crustal underplating and isostasy of two major aseismic Laxmi and Laccadive ridges of the eastern Arabian Sea</td>
<td>Akhil Mishra</td>
</tr>
<tr>
<td>2</td>
<td>Seismic Hazard Evaluation in Central Indo-Gangetic Plains</td>
<td>M.C. Raghucharan</td>
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<td>3</td>
<td>Signatures of the Faizabad Ridge in the Central Ganga Basin from MT data along the Chitrakoot - Faizabad – Tulsipur profile</td>
<td>M. Demudu Babu</td>
</tr>
<tr>
<td>4</td>
<td>Meta-attributes for advanced interpretation of 3D seismic data from Taranaki basin off New Zealand</td>
<td>Priyadarshik Chinmoy Kumar</td>
</tr>
<tr>
<td>5</td>
<td>Conjugate Analysis of LANDSAT OLI and Satellite Gravity data for mapping structural controls and surface signatures of Gold mineralization in Bhukia, Rajasthan</td>
<td>Komal Rani</td>
</tr>
</tbody>
</table>
6. Acoustic Reverse Time Migration over Structural Geology
   Alok Kumar Routa

7. Characterization of Atmospheric Dust in relation with Land Use and Land Cover Change in Delhi
   Kopal Verma

16:30-17:30 EC Meeting Near SB Hall
16:30 Inauguration of Poster Session by Prof. Mrinal K. Sen
16:30-18:30, Session: 4 Posters & Tea/Coffee MB, Ground Floor
Chair: Prof. M.K. Sen & Dr. O.P. Pandey

18:30 -19:45 Cultural Program Open Air Theatre
20:00 Dinner Sports Complex

**December 05 (Tuesday), 2017**

9:00-10:15, Session: 5 IGU Award Lectures SB Hall
Chair: Prof. Shailesh Nayak

- Prof. Ramanathan Memorial Lecture J. Srinivasan
- Talk by Krishnan Medalist-1 Nimisha Vedanti
- Talk by Krishnan Medalist-2 Devleena Mani


10:30-11:00 Tea/Coffee Break

11:00-13:00, Session: 6 Oral Presentations SB Hall
Airborne Geophysics

Chair: Dr. D. Atchuta Rao
Rapporteur: Dr. (Ms.) M. Prashanti Lakshmi

Invited Talks:

1. 50 years of Airborne Geophysics at CSIR-NGRI Ajay Manglik
3. Role of Heliborne Geophysical Surveys in Uranium Exploration in India M.B. Verma
4 Multisensor Aero-Geophysical surveys by GSI for Mineral Exploration  
Dinesh Gupta

5 Heliborne Geophysical surveys for groundwater exploration in India  
Shakeel Ahmed

6 Felicitation of past members of the Airborne Geophysics Group

13:00- 14:00  Lunch Break

14:00-16:20, Session: 7A  Parallel Session  SB Hall
Oral Presentations (SEG)
Internal Structure of the Earth

Chair: Dr. J.R. Kayal & Dr. O.P. Mishra

Invited Talk: Recent advances in Geotomography  Dr. O.P. Mishra

1 Seismic Tomography in Deccan Volcanic Province of Western India: Crust-Mantle Velocity Structure and Intraplate Seismicity  
A.P. Singh

2 Are trapped fluids transported from deep crustal depths responsible for microseismic activity in the Kachchhintraplate region?  
G. Pavan Kumar

3 New findings on intracratonic rifting of Indian shield during Gondwana period and possible geodynamical consequences  
O. P. Pandey

4 Fluid driven earthquakes in the intraplate region of Kachchh, Northwestern (NW) India: An insight from local earthquake tomography  
P. Mahesh

5 Tomographic Imaging of the Mahanadi delta for hydrocarbon exploration and crustal structure using deep seismic and Bouguer gravity data to understand its tectonic and geodynamic settings  
Laxmidhar Behera

6 Impact of Noise Source Directionality on Crustal Velocity Structure from Ambient Noise Correlations  
R. Rajesh
New insights on the lithosphere structure and rift tectonics below northwest continental margin of India through constrained potential field modeling

Regional magnetic surveys around Adikavi Nannaya University campus, Rajahmundry

14:00-16:20, Session 7B
Parallel Session
Oral Presentation
Marine Geosciences

Chair: Prof. M. Mukhopadhyay & Dr. K.S. Krishna

Invited Talk: Geophysical Modeling for the Giant Anticlines in the East Arabian Block, Saudi Arabia - A Scenario on Progressive Deformation of Crust
M. Mukhopadhyay

1 Abiotic methane: A possible source for the formation of gas hydrates, in North-Eastern Indian Ocean (Bay of Bengal).
A.L. Paropkari

2 Developing magnetic minerals as markers of evolution of natural gas hydrate system in Bay of Bengal
F. Badesab

3 Identification, distribution and geophysical characteristics of bathymetric highs off southwest coast of India
C.M. Bijesh

4 Crustal structure of the Gulf of Kutch, North-West India
D. Gopala Rao

5 Importance of metal-speciation study in marine system
Parthasarathi Chakraborty

6 Ocean State Forecasting and Services during extreme weather conditions: for saving life and property
R. Harikumar

7 High Resolution Reconstruction Model for the Indian Ocean Plate Kinematics
V. Yatheesh

8 Nature of the ambient noise, site response and orientation of ocean bottom seismometers (OBSs): Scientific results of a passive seismic experiment in the Andaman Sea
Reddy R.
**December 06, 2017**

### 9:00-11:00, Session: 9  Oral Presentations, Seismology  SB Hall

**Chair:** Dr. Sri Nagesh;  **Co-Chair:** Dr. Prantik Mandal

1. The Gujarat Seismic Network - Status and Contributions  
   M. Ravikumar

2. Broadband Seismology and new insights into the tectonics of the Koyna-Warna reservoir triggered seismic zone  
   N.P.C. Rao

3. National Seismological Network: past, present and future  
   V.K. Gahalaut

4. Seismotectonics of Northeast India: An appraisal  
   J.R. Kayal

5. Felicitation of Seismologists

11:00-11:30  Tea/Coffee Break

### 11:30-13:30, Session: 10A  Parallel Session  E Class Room

**Chair:** Dr. R.K. Chadha & Prof. M. Radhakrishna

1. An Identification of Bayyaram Iron Ore Region from Magnetic Survey, Telangana State India  
   B.Madhusudan Rao

2. Geophysical strategy for Manganese ore exploration in complex geological situation – Experience in Joda West Block, Jamda – Koirala Belt, West Singhbhum Region  
   Avadhesh K. Dubey

3. Geophysical Investigations for Basemetal Mineralization In Karoi–Rajpura Area, Bhilwara District, Rajasthan  
   D.C. Naskar

4. Laboratory characterization of shale rock for assessing shale gas potential of Barakar and Barren Measures shale, Eastern India  
   Piyush Sarkar
5 Geophysical Surveys for Gold Mineralisation in Honnamardi North Block, Chitradurga Schist Belt, Karnataka

6 Electrical Resistivity Tomography for delineation of ground water bearing zones to prevent land slide in an open cast mine

7 Mapping of basement depth from gravity data: A machine learning approach

8 Assessment of groundwater quality in the Patancheruvu industrial development area in greater Hyderabad, Telangana State

11:30-13:35, Session: 10B  Parallel Session
Oral Presentation
Geosciences- Marine, Atmosphere and Planetary & Solid Earth

Chair: Dr. Balesh Kumar & Dr. Rajiv Nigam

Invited Talk: Challenges for Carbon dioxide Mitigation: India's Perspective towards Climate Justice

1 Harappan Port Town of Dholavira (Gujarat) impacted by Tsunami: evidences from Ground Penetrating Radar (GPR), faunal (Foraminifera) and archaeological (pottery) studies

2 River metamorphosis and evaluation of temporal terrain changes of Chalakudy river basin using geospatial technology

3 Ductile behavior of high grade gneisses along Palghat-Cauvery Shear Zone: Gondwana Correlations

4 Pre-, Syn- and Post India-Asia collisional granitoid magmatism in the SE Karakoram, India: Implications on Palaeogeography, Subduction and Transpression Tectonics

5 High resolution seafloor mapping using side scan sonar near Kalingapatnam coast, Andhra Pradesh, Bay of Bengal

V. Ramamurthy
S.N. Rai
Saumen Maiti
Atulya K. Mohanty
S. Balasingh John Samuel
6 Changes in Indian Ocean Dipole's Influence on Antarctica in the recent decade. M. Nuncio

7 Recent seismo-tectonic activities on Mars: A geological assessment P. Senthil Kumar

8 Separation of thin reservoir facies in Carbonate Reservoir through Genetic Inversion Saurabh Datta Gupta

13:35 - 14:30 Lunch Break

14:30-16:30, Session 11A Parallel Session SB Hall
Oral Presentations
Solid Earth Geoscience - Disaster Management

Chair: Prof. A.B. Roy & Prof. N. Sundararajan

1 Palaeoseismicity: Historical, Archaeological & Geological Evidence of Past Earthquakes A.B. Roy

2 A probable model for the uninterrupted occurrences of earthquakes in the rupture zone of the 2001 Bhuj earthquake for last 16 years Prantik Mandal

3 Soil classification and $V_{S30}$ mapping for seismic site effect estimation in Gujarat region, Western India B. Sairam

4 Low deformation rates in the Koyna-Warna region from a decade of GPS measurements Catherine J.K.

5 Earthquake early warning system by IOT D.V. Ramana

6 Estimation of Site Response by Spectral Analysis in an Earthquake Prone Region - A Case Study N. Sundararajan

7 Probabilistic assessment of Earthquake Hazard in North East India and adjoining regions R.B.S. Yadav

8 Human Induced Seismicity – Lessons to learn in India S. Kareemunni sa Begum

14:30-16:30, Session 11B Parallel Session E Class Room, Main Building
Oral Presentation
Atmosphere and Planetary Sciences

Chair: Dr. R.K. Tiwari & Prof. B. Madhusudan Rao
Assessment of Urban pollution from heavy metals concentration in road dust in Greater Hyderabad Municipal Corporation (GHMC), Telangana State, India.

Storm time disturbance electric fields over Indian longitudes

Last glacial-interglacial dynamics of the Indian summer monsoon

Accelerating water cycle and cloudbursts in the Central-Western Himalaya

Observation of Lithosphere-Atmosphere-Ionosphere Variability during Japan Earthquakes

Thermospheric Nightglow response to Penetrating Electric Field over the Dip Equator: A Case Study

Characteristics of Equatorial Electrojet and Counter Electrojet phenomena at different spatial scale length from the Indian sector

Impact spallation processes on Mars: A case study from Winslow crater

17:00-18:00  54th IGU Concluding Session  SB Hall

18:00  Tea/Coffee
## Overview

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<th>Presentation</th>
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<tr>
<td>1</td>
<td>09:00–09:10</td>
<td>Dr. V.M. Tiwari</td>
<td>Welcoming Remarks</td>
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<td></td>
<td></td>
<td>Director, CSIR-NGRI and VP-IGU</td>
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<tr>
<td>2</td>
<td>09:10-09:20</td>
<td>Dr. Craig Schiffries</td>
<td>Transformational Opportunities in Science and Technology</td>
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<tr>
<td></td>
<td></td>
<td>Director, DCO, Geophysical Laboratory, Carnegie Institution of Science, Washington, USA</td>
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### Session 1: Extreme Physics & Chemistry – Reservoirs & Fluxes

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<th>Title of the Paper</th>
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<tbody>
<tr>
<td>1</td>
<td>09:20–09:40</td>
<td>Prof. Murli Manghnani</td>
<td>Introduction to the DCO Extreme Physics and Chemistry Community</td>
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<td>University of Hawaii</td>
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<td>2</td>
<td>09:40-10:00</td>
<td>Dr. EVSSK. Babu</td>
<td>Kimberlites and carbon from Deep Earth</td>
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<td>CSIR-NGRI</td>
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<td>3</td>
<td>10:00-10:20</td>
<td>Dr. Sujoy K. Ghosh</td>
<td>Carbonated magmas in Earth’s mantle</td>
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<td>IIT, Kharagpur</td>
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<td>4</td>
<td>10:20–10:45</td>
<td>Dr. Brendan McCormick</td>
<td>Introduction to the DCO Reservoirs and Fluxes Community</td>
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<td>University of Cambridge, UK</td>
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Coffee/Tea Break: 10:45 – 11:00 Hrs

### Session 2: Deep Energy & Deep Life

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<th>Title of the Paper</th>
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<tbody>
<tr>
<td>1</td>
<td>11:00–11:25</td>
<td>Dr. Craig Schiffries</td>
<td>Introduction to the DCO Energy Community</td>
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<td>Director, DCO</td>
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<td>2</td>
<td>11:25-11:45</td>
<td>Prof. V.P. Dimri</td>
<td>Carbon Sequestration and Enhanced Oil Recovery</td>
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<td>Distinguished Scientist, CSIR-NGRI</td>
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<td>3</td>
<td>11:45-12:05</td>
<td>Dr. Vikram Vishal</td>
<td>Multiphase CO₂ Behavior in Deep Carbon Sinks</td>
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<td>IIT, Mumbai, Powai</td>
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<td>4</td>
<td>12:05–12:30</td>
<td>Prof. Tom Kieft</td>
<td>Introduction to the DCO Deep Life Community</td>
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<td>New Mexico Tech</td>
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<td>5</td>
<td>12:30-12:50</td>
<td>Dr. Pinaki Sar</td>
<td>Microbial life in deep, dark continental crust underneath the Deccan traps</td>
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<td>IIT, Kharagpur</td>
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<td>6</td>
<td>12:50-13:10</td>
<td>Dr. Sukanta Roy</td>
<td>Koyna Scientific Drilling Project</td>
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<td>Project Director, BGRL, MoES</td>
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Panel Discussion & Concluding Remarks

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<tr>
<td>1</td>
<td>13:10-13:30</td>
<td>Dr. V.M. Tiwari, Dr. Craig Schiffries, Prof. Tom Kieft and Prof. Murli Manghnani</td>
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13:30 – 14:30 ***The End*** Lunch