



## Chapman Conference on Complexity and Extreme Events in Geosciences

National Geophysical Research Institute  
Hyderabad, India  
15–19 February 2010

### Conveners

- A. Surjalal Sharma, University of Maryland, College Park, Maryland, USA
- Vijay P. Dimri, National Geophysical Research Institute, Hyderabad, India
- Armin Bunde, University of Giessen, Giessen, Germany

### Program Committee

- Daniel Baker, University of Colorado, Boulder, USA
- Bhupen Goswami, Indian Institute of Tropical Meteorology, Pune, India
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- Vipin Srivastava, University of Hyderabad, Hyderabad, India
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- Bruce Malamud, Kings College, London, UK
- Hernan Makse, City College, New York, USA
- Peter Mueller, University of Hawaii, Hawaii, USA
- Yoshihiko Ogata, The Institute of Statistical Mathematics, Tokyo, Japan
- John Rundle, University of California, Davis, USA
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- Abhijit Sen, Institute for Plasma Research, Gandhinagar, India
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### Financial Sponsors

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Chapman Conference  
on Complexity and Extreme Events in Geosciences  
National Geophysical Research Institute  
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Meeting At A Glance

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**Monday, 15 February**

08:00 a.m. – 09:45 a.m.	Registration and Breakfast
10:00 a.m. – 11:00 a.m.	Inauguration
11:00 a.m. – 12:00 p.m.	High Tea
12:00 p.m. – 01:30 p.m.	Session 1
01:30 p.m. – 03:00 p.m.	Lunch
03:00 p.m. – 04:30 p.m.	Session 2
04:30 p.m. – 06:30 p.m.	Tea Break/Session 3 – Poster Session
06:30 p.m. – 10:00 p.m.	Cultural Program & Dinner National Geophysical Research Institute

**Tuesday, 16 February**

08:00 a.m. – 09:00 a.m.	Breakfast
09:00 a.m. – 11:00 a.m.	Session 4
11:00 a.m. – 11:30 a.m.	Tea Break
11:30 a.m. – 01:00 p.m.	Session 5
01:00 p.m. – 02:30 p.m.	Lunch
02:30 p.m. – 04:30 p.m.	Session 6
04:30 p.m. – 06:30 p.m.	Tea Break/Session 7 – Poster Session

**Wednesday, 17 February**

08:00 a.m. – 09:00 a.m.	Breakfast
09:00 a.m. – 11:00 a.m.	Session 8
11:00 a.m. – 11:30 a.m.	Tea Break
11:30 a.m. – 01:00 p.m.	Session 9
01:00 p.m.	Lunch and Excursion/Sight-seeing /Dinner at the Sailing Club

**Thursday, 18 February**

08:00 a.m. – 09:00 a.m.	Breakfast
09:00 a.m. – 11:00 a.m.	Session 10
11:00 a.m. – 11:30 a.m.	Tea Break
11:30 a.m. – 01:00 p.m.	Session 11
01:00 p.m. – 02:30 p.m.	Lunch
02:30 p.m. – 04:30 p.m.	Session 12
04:30 p.m. – 06:30 p.m.	Tea Break/Session 13 – Poster Session

**Friday, 19 February**

08:00 a.m. – 09:00 a.m.	Breakfast
09:00 a.m. – 11:00 a.m.	Session 14
11:00 a.m. – 11:30 a.m.	Tea Break
11:30 a.m. – 01:00 p.m.	Session 15
01:00 p.m. – 02:00 p.m.	Lunch
02:00 p.m. – 03:15 p.m.	Session 16
03:15 p.m. – 03:30 p.m.	Tea Break
03:30 p.m. – 05:00 p.m.	Session 17 - Panel Discussion and Closing



**Chapman Conference on Complexity and Extreme Events in Geosciences**

**National Geophysical Research Institute  
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<b>MONDAY, 15 FEBRUARY 10:00 a.m. – 12:00 p.m.</b>		
08:00 a.m. – 09:45 am.	Registration and Breakfast	
10:00 a.m. - 11:00 p.m.	Inauguration	
11:00 a.m. - 12:00 p.m.	High Tea	
<b>MONDAY, 15 FEBRUARY SESSION 1 12:00 p.m. – 01:30 p.m. – KEYNOTE SPEAKERS</b>		
12:00 p. m. – 12:30 p. m. <b>D. N. Baker</b>	The Economic and Societal Impacts of Extreme Space Weather Events	
12:30 p.m. – 01:00 p.m. <b>H. van Storch</b>	Marine Storms - Analysis, Statistics and Changes	
01:00 p.m. - 01:30 p.m. <b>H. Gupta</b>	Complex Seismic Activity at Koyna	
<b>01:30 p.m. – 03:00 p.m. –LUNCH</b>		
<b>MONDAY, 15 FEBRUARY SESSION 2 03:00 p.m. – 04:30 p.m.</b>		
<b>Time</b>	<b>Abstract Title</b>	<b>Presenting Authors</b>
03:00 p.m.	Quantitative Modeling of Extreme Seismic Events	<b>A.T. Ismail-Zadeh</b> (Invited)
03:30 p.m.	Seismicity in the Generalized Vicinity of Strong Earthquake as the Most Studied Example of Arising of Instability in Natural Systems	<b>M.V. Rodkin</b>
03:45 p.m.	Complex Tectonics and Recent Earthquakes in Northeast India: A Review	<b>J.R. Kayal</b>

04:00 p.m.	Complex Seismic Structures in the Andaman-Sumatra Subduction Zone: Fractal Dimension and B-Value Mapping	<b>S. Roy</b>
04:15 p.m.	Possibility of Slow Viscoelastic Process or Change in Rheology in Late and Long-distance Triggering of Shocks in Gujarat, Western India After the 2001 Mw 7.7 Bhuj Earthquake	<b>B.K. Rastogi</b>
<b>TEA BREAK/SESSION – 3</b> <b>04:30 p.m. - 06:30 p.m.</b> <i>Posters will be posted from 10:00 a.m. in the hall</i>		
1	Examination of the Distribution of Maximum Earthquake Magnitudes by Combining the GEV and GPD Limit Distributions of Extreme Value Theory	<b>M.V. Rodkin</b>
2	Foreshock Clustering as Precursory Pattern for the Kachchh Earthquakes in Gujarat, India	<b>S.K. Aggarwal</b>
3	Fractal Analysis and B-value Estimation for Earthquakes from Northwest Himalayan Region	<b>A. Devi</b>
4	Simulation of Strong Motion Parameters Using Deterministic Modeling of Finite Source of Two Himalayan Earthquakes	<b>A. Joshi</b>
5	B-value and Fractal Dimension Imaging of the Epicentral Zone of the 2001 Bhuj Earthquake, Gujarat, India	<b>P. Mandal</b>
6	Spatial and Temporal Variations of B-value and Fractal Analysis of the Earthquake Distribution from the Andaman-Sumatra Subduction Zone of the Indian Ocean	<b>V.S. Rani</b>
7	Extreme Events Recovered in Subsurface Images Along the Tamil Nadu Coast	<b>R. Nair</b>
8	Doughnut Precursory Seismicity Patterns in the Indian Shield Earthquakes: An Observation	<b>B. Rao</b>
9	Statistical Study of Himalayan Seismicity	<b>K. Kanna Babu</b>
10	S-wave Spectral Modeling of 244 Aftershocks of the 2001 Mw7.7 Bhuj Mainshock	<b>S.K. Dutta</b>
11	Site-Dependent Attenuation Study for Peninsular Shield of India	<b>C. Singh</b>
12	Tectonic Implications and Seismicity Triggering During Mw 6.4 Baluchistan, Pakistan Earthquake Sequence of October 28-29, 2008	<b>R.B.S. Yadav</b>
13	Extreme Seismic Events and Gravity Anomalies in the Subduction Zones	<b>V.M. Tiwari</b>
14	Analysis of the Seismicity of the Andman Region	<b>A.R. Bansal</b>

15	Slip Predictable Behaviour for Seismicity of Garhwal Himalaya, India	<b>A. Chamoli</b>
16	Analysis of Earthquake Data of Himalayas - A New Approach	<b>V.V. Hara Gopal</b>
17	Identification of Seismicity Pattern for Some Destructive Earthquakes	<b>P.N.S. Roy</b>
18	Nonlinearity in Origin of Ridges in Indian Oceanic Lithosphere	<b>B. Ashalatha</b>
19	Seismotectonics in Northeast India: A Stress Analysis of Focal Mechanisms of Earthquakes and Its Kinematic Implications	<b>S. Baruah</b>
20	Attenuation Relation for Garhwal Himalaya Obtained Using Damped Least Square Method	<b>A. Kumar</b>
21	Seismogenesis of the Lower Crustal Intraplate Earthquakes Occurring in the Kachchh Seismic Zone, Gujarat, India	<b>P. Mandal</b>
22	Paleoseismological Study in the Nepal Himalaya – Present Status	<b>B.N. Upreti</b>
23	Earthquake Epicenters Linked to the Positions of the Sun, Moon and Planets: An Instance of Organized Behavior in Complex Systems	<b>S.K. Ghosh</b>
24	Fractal Clustering of Reservoir Induced Seismicity in the Koyna-Warna Reservoir Area	<b>S. Padhy</b>
25	B-value Mapping in Hindukush-Pamir Himalaya Region: Evidence of Phase Transformation of Material Within Subducting Slab	<b>R.B.S. Yadav</b>
<b>06:30 p.m. – 10:00 p.m.</b>		
<b>Cultural Program Followed by Hosted Dinner at NGRI</b>		
<b>TUESDAY, 16 FEBRUARY</b>		
<b>SESSION 4</b>		
<b>09:00 a.m. – 11:00 a.m.</b>		
<b>Time</b>	<b>Abstract Title</b>	<b>Presenting Aurtherors</b>
08:00 a.m.	Breakfast	
09:00 a.m.	The Complex Nonlinear Process of Equatorial Spread F: How Far Are We From Operational Predictability?	<b>R. Sridharan (Invited)</b>
09:30 a.m.	Electrostatic Solitary Waves in Non-Thermal Plasmas	<b>S.V. Singh</b>

09:45 a.m.	Severe and Long-Lasting Geomagnetic Storms, Their Solar Sources and Related Disturbances in Near-Earth Geospace	<b>B. Badruddin</b>
10:00 a.m.	The Probability Distribution of Extreme Geomagnetic Events in the Auroral Zone	<b>R. Weigel</b> (Invited)
10:30 a.m.	Extreme Geomagnetic Storms and Low Latitude Geomagnetic and Ionospheric Response	<b>B. Veenadhari</b>
10:45 a.m.	Occurrence of Anomalous Geomagnetic Event During Recent Solar Cycle	<b>V.C. Dwivedi</b>
<b>11:00 a.m.- 11:30 a.m. TEA BREAK</b>		
<b>TUESDAY, 16 FEBRUARY</b>		
<b>SESSION 5</b> <b>11:30 a.m. – 01:00 p.m.</b>		
11:30 a.m.	Extreme Events in Space Weather: Characterizing the Inherent Statistical Properties	<b>T. Veeramani</b> (Invited)
12:00 p.m.	Index of Recurrence Asymmetry in Complex Systems: Application to Sunspots and Earth Surface Temperature Anomalies	<b>V.B. Kiselev</b>
12:15 p.m.	A Study on Chaotic Behaviour of Equatorial/Low Latitude Ionosphere Over Indian Subcontinent, Using GPS-TEC Time Series	<b>K. Unnikrishnan</b>
12:30 p.m.	Stratospheric ozone Depletion and Its Management: Lessons from the Montreal Protocol for Combating Other Artificially Induced Perturbations	<b>R. Gopichandran</b>
12:45 p.m.	Characteristics of Auroral Electrojets During Intense Geomagnetic Activities	<b>A.K. Singh</b>
<b>01:00 p.m. - 02:30 p.m. LUNCH</b>		
<b>TUESDAY, 16 FEBRUARY</b>		
<b>SESSION 6</b> <b>02:30 p.m. – 04:30 p.m.</b>		
02:30 p.m.	The Challenge of Diagnosing a Nonlinear Geophysical Theory of Floods in River Networks and Potential Applications Under Climate Change	<b>V.K. Gupta</b> (Invited)
03:00 p.m.	Extreme Event for Earthquake Triggered Landslides	<b>J.R. Grasso</b>
03:15 p.m.	Seismicity Analysis and Simulation of a Possible Tsunamigenic Earthquake from the Andaman Region: Impact Along the East Coast of India	<b>V.P. Dimri</b>
03:30 p.m.	Multifractal Extreme Value Theory (MEV)	<b>D. Schertzer</b> (Invited)

04:00 p.m.	Fractal and Multifractal Characteristics of Time Series in Seismogenic Regions of 1897 Assam, 1905 Kangra and 1934 Bihar Great Earthquakes	<b>S.S. Teotia</b>
04:15 p.m.	Extreme Events – Methodologies for a Rational Approach to Deal with Extreme Natural Events Under Intrinsic Uncertainty	<b>F. Wenzel</b>
<b>TEA BREAK/SESSION – 7</b> <b>04:30 p.m. – 06:30 p.m.</b> <i>Posters will be posted from 10:00 a.m. in the hall</i>		
1	Influence of Solar Wind Plasma and Interplanetary Magnetic Field on the Low-latitude Geomagnetic Variations During Descending Phase of Solar Cycle 23	<b>R. Rawat</b>
2	Understanding the Severe Magnetic Disturbances of October 2003 – Challenges for Modelling	<b>N. Nagarajan</b>
3	Nonlinear Solitary Electric Field Structures in the Earth's Magnetosphere	<b>R. V. Reddy</b>
4	Investigation of Intense Geomagnetic Storms and Associated Cosmic Ray Intensities: A Correlative Study	<b>S. C. Kaushik</b>
5	Space Applications in Disaster Assessment and Mitigation: Examples from Haryana State, India	<b>B. S. Chaudhary</b>
6	Using Forbush Decrease Events for the Prediction of Geomagnetic Storms	<b>M. Jain</b>
7	SKS/SKKS Splitting in the Kachchh rift Zone, Gujarat, India	<b>P. Mandal</b>
8	Modeling to Assess Tsunami Effects on the Indian Coasts From Earthquakes Along Makran and Andaman-Sumatra Subduction Zones	<b>A.P. Singh</b>
9	Inundation Modeling at Different Locations Along the West Coast of India Due to Tsunamigenic Earthquakes From the Makran Subduction Zone	<b>R. Krishna Kumar</b>
10	Investigations Into Cause of High Lightning Incidence and Accidents By It in a Region With Relatively Special Characteristics	<b>R. Vishnu</b>
11	Seismic Response in an Anisotropic Medium	<b>M. Majumder</b>
12	Inversion of 2-D Resistivity Data Using Rapid Optimization and Minimal Complexity Neural Network	<b>U. Singh</b>
13	Can We Resolve NMO and DMO-Nonlinear Problems in Exploration Seismic	<b>N.L. Mohan</b>
14	A Study on Non-Linear 3-D Wavelet for Scale Extraction	<b>D. Sujatha</b>
15	Estimation of Crustal Discontinuities From Reflected Seismic Waves Recorded at Shillong and Mikir Hills Plateau, North East India	<b>S. Baruah</b>

16	Discovery of Hydrocarbon in Cretaceous Deccan Basalt, India	<b>A.M. Dayal</b>
17	Artificial Neural Networks (ANN) Based Modeling for Landslides Susceptibility Zonation in Parts of Himalayas	<b>L. Nwankwo</b>
18	Radon Transform and Its Application In Seismic	<b>P.P. Mandal</b>
19	Multicomponent Seismic Applications in Coalbed Methane Development	<b>S. Gupta</b>
20	Gottwald-Melbourne Test for Chaos of Nonlinear Fluctuations in Complex Laboratory Plasmas	<b>A.N. Iyengar</b>
21	Characterization of Recharge Through Complex Vadose Zone of a Granitic Aquifer by Time-Lapse Electrical Resistivity Tomography	<b>T. Arora</b>
22	Study of Coseismic Ground Deformation Due to Recent Earthquakes & Crustal Deformation Measurements on Active Faults In and Around India Using SAR Interferometry	<b>S. P.Satyabala</b>

**WEDNESDAY, 17 FEBRUARY**

**Session 8  
09:00 a.m. – 11:00 a.m.**

<b>Time</b>	<b>Abstract Title</b>	<b>Presenting Authors</b>
08:00 a.m.	Breakfast	
09:00 a.m.	A Peep into the Complexities and Dynamics of Large Himalayan Earthquakes to Assess Their Role in the Preparedness for Future Extreme Seismic Events	<b>B.R. Arora (Invited)</b>
09:30 a.m.	Continuous Time Random Maxima: Stochastic Models for Estimating Recurrence of Extreme Events in Time Series With Long Range Correlations	<b>R. Schumer</b>
09:45 a.m.	Estimation of the Ground Motion and Site Effects of Indo-Gangetic Plains	<b>D. Srinagesh</b>
10:00 a.m.	Entropy Production and Self-organised (sub) Criticality in Earthquake Dynamics	<b>I. Main (Invited)</b>
10:30 a.m.	Could the Magnitude of an Earthquake be Bounded From Above?	<b>V. Srivastava</b>
10:45 a.m.	Quality Assessment, Reserve Estimation & Economic Analysis of Roofing Slate in the West Central Lesser Himalaya-Nepal	<b>N.R. Neupane</b>

11:00 a.m. - 11:30 a.m. **TEA BREAK**

**WEDNESDAY, 17 FEBRUARY**

**Session 9  
11:30 a.m. – 01:00 p.m.**



11:30 a.m.	Long-term Memory in Climate Records: Clustering of Extreme Events and the Detection Problem	<b>S. Lennartz</b> (Invited)
12:00 p.m.	Extreme Events in Precipitation and River Flows: Effect of Linear and Nonlinear Correlations	<b>A. Bunde</b>
12:15 p.m.	Extreme Events, Return Intervals and Long Term Memory	<b>M. Santhanam</b> (Invited)
12:45 p.m.	Study on Hydro-chemical Change of Epikarst Spring Based on Extreme Weather in the Jinpo Mountain of Chongqing: A Case Study of Extreme Drought 2006, Chongqing	<b>L. Linli</b>

**01:30 pm**  
**Lunch and Excursion / Sight-seeing / Dinner at the Sailing Club**

**THURSDAY, 18 FEBRUARY**

**Session 10**  
**09:00 a.m. – 11:00 a.m.**

<b>Time</b>	<b>Abstract Title</b>	<b>Presenting Authors</b>
08:00 a.m.	Breakfast	
09:00 a.m.	On the Statistics of Extremes in Space Weather Events – A Review of Statistical Methods Recently Applied on Solar Flare and Geomagnetic Storms Data	<b>J. Eichner</b> (Invited)
09:30 a.m.	Landslide Dam Outburst Flood in the Satluj Valley, Himachal Pradesh, India	<b>V. Gupta</b>
09:45 a.m.	High Frequency of Landslides in Aizawl, Mizoram, India	<b>R. Verma</b>
10:00 a.m.	Climate Catastrophe: Spectral Characteristics and Model Behavior of Abrupt Climate Changes Over Present to Millennial Time Scales	<b>R.K. Tiwari</b>
10:15 a.m.	Wavelet Analysis of Marine Oxygen Isotope $\delta^{18}O$ Record	<b>M. Ravi Prakash</b>
10:30 a.m.	Archives of Extreme Events in Holocene in the Himalaya	<b>S.P. Sati</b>
10:45 a.m.	Surface and Deep Water Characteristics in the Northeast Indian Ocean During the Last 60,000 Years as Inferred From Carbon and Oxygen Isotopic Compositions of Foraminifera	<b>S.M. Ahmad</b>
11:00 a.m.	Rodinia Supercontinent, Snowball Earth and Extreme Global Paleoclimate Change: Evidences From the Lesser Himalaya and Marwar Supergroup, India	<b>V.C. Tewari</b>

**11:00 a.m. – 11:30 a.m. TEA BREAK**

**THURSDAY, 18 FEBRUARY**

**SESSION 11**  
**11:30 a.m. – 01:00 p.m.**

11:30 a.m.	A Nonlinear Synthesis for Understanding Atmospheric Complexity: Space-Time Cascades	<b>S. Lovejoy</b> (Invited)
12:00 p.m.	Application of Doppler Wind Lidar Observations to Improve Scientific Understanding and Forecasting of Extreme Weather Events	<b>U. Singh</b>
12:15 p.m.	Assessing the Characteristics of Extreme Rainfall Through an Examination of Atmospheric Circulation States Using Self-Organizing Maps	<b>C.J. Lennard</b>
12:30 p.m.	Operation of Multi-objective Multi-reservoir System under Climate Change Complexities	<b>M. Zarghami</b>
12:45 p.m.	Wintertime Climatic Analysis Over the Western Himalayas	<b>A.P. Dimri</b>
<b>01:00 p.m. – 02:30 p.m. LUNCH</b>		
<b>THURSDAY, 18 FEBRUARY</b>		
<b>Session 12</b>		
<b>02:30 p.m. – 04:30 p.m.</b>		
02:30 p.m.	Thermal State of the Indian Crust by Minimizing Rate of Entropy Production	<b>R.N. Singh</b> (Invited)
03:00 p.m.	Storm Coals: A Extreme Depositional Systems in South Brazil Deposits	<b>M.A.M. Medeiros</b>
03:15 p.m.	Recent Extreme Wet and Dry Spells Across India	<b>N. Singh</b>
03:30 p.m.	Influence of Debris Cover on the Melting Processes of Glacier - a Study on Chorabari Glacier, Garhwal Himalaya, India	<b>D.P. Dobhal</b>
03:45 p.m.	Spectral Characterization of Soil and Coal Contaminated Snow Reflectance Using Hyperspectral Analysis	<b>S.K. Singh</b>
04:00 p.m.	Impact of Glacial Lake Outbursts in the Buffer Zone of Nanda Devi Biosphere Reserve, Central Himalaya, Uttarakhand	<b>M.P.S. Bisht</b>
04:15 p.m.	The High Himalayan Orogeny Time: Upper – Early Oligocene?	<b>D. Gopala Rao</b>
<b>TEA BREAK/SESSION – 13</b>		
<b>04:30 p.m. - 06:30 p.m.</b>		
<i>Posters will be posted from 10:00 a.m. in the hall</i>		
1	Declining Predictability of Indian Summer Monsoon Weather, in the Backdrop of Increasing Heavy Rainfall Events	<b>J.M. Neena</b>
2	High Intensity Rainfall Event on Subsurface Water Regime: A Case Study in Granite Watershed, Andhra Pradesh, India	<b>R. Rangarajan</b>
3	Analysis and Prediction of Rainfall Data: Fractal Approach	<b>R. Srivastava</b>

4	Scaling and Persistence in Ground Level Ozone Concentrations in Delhi	<b>A. Chelani</b>
5	Productivity Pattern in the Equatorial Indian Ocean During the Last 300,000 Years	<b>M.S. Krishna</b>
6	Extremely Long Duration Total Solar Eclipse on 22 July, 2009: Effect on D-region Ionosphere Dynamics as Studied from VLF Signals Observations	<b>R. Singh</b>
7	Consequences of the Fossil Fuel Extraction on the Climate Change of the Earth	<b>B. Kumar</b>
8	Some Characteristics of the K-T Boundary Mass Extinction Event	<b>P. Tripathi</b>
9	Complex Dynamics and Multi-scale Structure of Sediment Transport: Experimental Evidence and Theoretical Insights	<b>V. Ganti</b>
10	Geomorphic Evolution of Himalaya and its Foreland: The Last 60 ka Perspective	<b>P. Srivastava</b>
11	Active Deformation Within MBT-HFT Tectonic Wedge in Trans-Yamuna Dun of NW Sub-Himalaya: Implication on Seismic Slip Partitioning	<b>G.D. Singh</b>
12	A GIS Tool to Automatically Extract Area Altitude Distribution of Glaciers	<b>R. Kaur</b>
13	Seafloor Characterizations Using Multi-Beam Bathymetry and Backscatter Data: Appraisal of Numerical Techniques Employed	<b>B. Chakraborty</b>
14	Mantle Convection Stirring Efficiency With Both Basal and Internal Heating	<b>B. Deo</b>
15	Hydrological Complexity Model of Active Upper Crust Under Koyna (India) Region	<b>R.N. Singh</b>
16	Sustainable Management of Coral Island Aquifer Through Numerical Modeling	<b>P. Banerjee</b>
17	Deciphering Zeolitic Formations in Deccan Basalt – An Indirect Method of Finding Groundwater in Hard Rock Using Integrated Geophysical Approach	<b>D. Kumar</b>
18	Mantle Plumes, Their Depth of Origin Within the Mantle and Excess Temperatures	<b>S. Das Sharma</b>
19	Thermal Upwellings, Magmatic Extrusion and Intra-plate Rift Valley Earthquakes in India	<b>O.P. Pandey</b>

<p style="text-align: center;"><b>FRIDAY, 19 FEBRUARY</b></p> <p style="text-align: center;"><b>Session 14</b></p> <p style="text-align: center;"><b>09:00 a.m. – 11:00 a.m.</b></p>		
8:00 a.m.	Breakfast	
09:00 a.m.	Distributions of Extreme Bursts Above Thresholds in a Fractional Lévy Toy model of Natural Complexity	<b>N. Watkins</b> (Invited)
09:30 a.m.	Constraints on the Tectonic Setting of the Andaman Ophiolites, Bay of Bengal, India, From SHRIMP U–Pb Zircon Geochronology of Plagiogranite	<b>S.H. Jafri</b>
09:45 a.m.	Understanding the Complex Behavior of Crustal Heat Production	<b>N. Vedanti</b>
10:00 a.m.	Super Magnetic Storms: Hazard to Society	<b>G.S. Lakhina</b> (Invited)
10:30 a.m.	Nonlinear Development of Equatorial Ionospheric Plasma Bubbles: Evolution of intermediate scale structures	<b>A. Bhattacharya</b>
10:45 a.m.	Is There a Timescale Where the Clausius-Clapeyron Relation Describes Precipitation Rate Changes?	<b>J.O. Haerter</b>
<b>11:00 a.m. – 11:30 a.m. TEA BREAK</b>		
<p style="text-align: center;"><b>FRIDAY, 19 FEBRUARY</b></p> <p style="text-align: center;"><b>Session 15</b></p> <p style="text-align: center;"><b>11:30 a.m. – 01:00 p.m.</b></p>		
11:30 a.m.	Landslide Studies and Mitigation –With a Focus on Varunavat Landslide in Uttarkashi, Uttarakhand Himalaya, India	<b>P.C. Nawani</b> (Invited)
12:00 p.m.	Analysis and Prediction of Extreme Day Mean Values of Total Ozone Amount Interannual Changes Over Europe in the Period From 1979 to 2006 Years	<b>M. Nikiforova</b>
12:15 p.m.	The Singularity Structure of Indian Monsoon Rain	<b>V. Venugopal</b>
12:30 p.m.	Modeling Flow Over An Aligned Flat Surface Using Blasius Equation	<b>B. Basu</b>
12:45 p.m.	Intercomparison of the Total Storage Deficit Index (TSDI) Over Two Prairie Catchments	<b>C.O. Agbona</b>
<b>01:00 p.m. - 02:00 p.m. LUNCH</b>		

<b>Session 16</b> <b>02:00 p.m. – 03:15 p.m.</b>		
02:00 p.m.	Sesmological Constraints of Great Kangra Earthquake of 1905 and Associated Hazard in NW India	<b>H.N. Srivastava</b> (Invited)
02:30 p.m.	Crust-mantle Structure Below the Indo-Gangetic Plains	<b>R.K. Chadha</b>
02:45 p.m.	Earthquake Interevent Time Distributions Reflect The Proportion of Dependent and Independent Events Pairs And Are Therefore Not Universale	<b>M. Naylor</b>
03:00 p.m.	Interplanetary Transient Solar Wind Flows and Extremely Disturbed Geomagnetic Field Conditions	<b>S.C. Kaushik</b>
<b>03:15 p.m. – 03:30 p.m. TEA BREAK</b>		
<b>Session 17</b> <b>Panel Discussion and Closing</b> <b>03:30 p.m. – 05:00 pm</b>		