Report

INTERNATIONAL CONFERENCE
ON
ADVANCES IN SCIENCES OF THE EARTH:
RELEVANCE TO THE SOCIETY (ASERS)

November 24–26, 2022

THE International Conference on Advances in Sciences of the Earth: Relevance to the Society (ASERS), was held at Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India, during November 24−26, 2022. This International Conference was sponsored by the Ministry of Earth Sciences, Government of India; Science and Engineering Research Board (SERB); Indian Institute of Geomagnetism (IIG); Department of Atomic Energy (DAE); Indian National Center for Ocean Information Services (INCOIS); Geological Survey of India (GSI); National Mineral Development Corporation (NMDC); Indian Institute of Petroleum and Energy; National Geophysical Research Institute (NGRI); Indian Institute of Tropical Meteorology (IITM); National Remote Sensing Center (NRSC)–ISRO and American Institute of Professional Geologists (AIPG). The themes of the conference highlight about impact and importance of geological processes, climate change, monsoon variability and natural hazards over the society.

The ASERS aims to exhibit disciplinary diversity in various fields of Earth Sciences through themes and open sessions. The inaugural session of the conference was presided by the Chief Guest Dr. K.J. Ramesh, Former Director General, Indian Meteorological Department; Dr. Rajeev, Director, Space Physics Laboratory, Trivandrum; Dr. Shalivahan, Director, Indian Institute of Petroleum & Energy, Vishakhapatnam; Dr. Jayaraman, Former Director, National Atmospheric Research Laboratory (NARL) , Tirupati; Dr. B.K. Bansal, Former Director, National Center for Seismology, MoES, New Delhi; Dr. V.M. Tiwari, Former Director, National Geophysical Research Institute, Hyderabad; Dr. Jogendra Singh Bisen, Pro–Vice–Chancellor, Swami Ramanand Teerth Marathwada University (SRTM), Nanded and Dr. Vasant Wagh, Convener ASERS–2022. Scientific Program comprised of key–notes addresses, oral and poster sessions. More than 270 participants from different corners of the India and abroad presented and discussed their research findings in the form of oral as well as poster presentations. Two days oral sessions including key–note addresses by the eminent scientists followed by the poster presentation were grouped. A tour was organized at the end of the conference on 26th November, 2022 to the famous national geo–heritage monument Lonar Crater at Bhuldhana District of Maharashtra.

The beginning of the ASERS–2022 conference was illuminated by the excellent Presidential Address delivered by Dr. T. Radhakrishna entitled 'Potential of palaeo–geomagnetic field strength determinations to be thrust area of solid earth research in the Indian subcontinent'. In which, he explained about different components of geomagnetic fields, important and better understanding between geodynamo and geodynamic functioning. Dr. Radhakrishna discussed about his findings in which he availed the rare resources materials from a 1251 m unbiased stratigraphic succession from surface down to the basement obtained from a drill hole of the Koyna Continental Scientific Deep Drilling Project in the Western Ghats, India.

Group photograph of participants at ASERS–2022, SRTM University, Nanded, Maharashtra

On the first day of conference the lectures were arranged under six themes and a poster session, in which the first theme was on 'Solid earth and its resources' and the first invited talk was delivered by the Chief Guest Dr. T Radhakrishna who described about the potential of palaeo–geomagnetic field strength determinations to be a thrust area of solid earth research in the Indian subcontinent. Later on, the second key–note lecture was delivered by Dr. Shalivahan on exploring mineralization potential over Dhanjauri volcanics: Amalgamation of magneto telluric studies and petrophysical interpretation.

The key–note session was followed by two oral sessions in which scientists and research scholars presented their finding pertinent to the topics on petrology and geochemistry, structural geology and stratigraphy, ore geology and metallogeny, mineral resources and geophysics.

In the theme 'Climate change and monsoon' a plenary talk entitled 'Climate change impacts on monsoon and associated environmental pollutions: Challenges and opportunities' was delivered by Dr. K.J. Ramesh, and the invited talk was given by Dr. A Jayaraman on the topic 'Challenges in predicting future climate change and monsoon variability: Role of aerosols.' The key–note lectures were followed by two oral sessions in which scientists and research scholars presented their finding related to the dynamics of monsoon as seen with modern observations, field experiments, campaign role of oceanic and atmospheric processes in monsoon variability, new ideas related to monsoon with different processes such as EL Nino–Southern Oscillation (ENSO), Indian Ocean Dipole (IOD), Equatorial Indian Ocean Monsoon Oscillation (EQUINOO)

climate change impact on monsoon, hydrogeology, agriculture and monsoon information for societal benefits.

The invited talks were given by Brijesh K. Bansal on the topic 'Earthquake hazard assessment of major towns in India status and challenges', and by Dr. Francic Pavanthara on 'Extremes of Indian summer monsoon and Indian ocean variability: Limitations in simulation and prediction' under the theme 'Natural hazard prediction and mitigation'. After the key–note lectures participants presented their research work on special theme 'understanding the generation of Tongan volcanic eruption , its signature in terrestrial system' and brainstorming on preparedness for the future volcanic risk; Signature of EVT (earthquake, volcano and tsunami) in atmosphere and ionosphere system: present understanding and future perspective; weather extremes: significance, early warning and assessment of consequences; Geohazards of earthquakes, volcano, tsunami and landslides.

Dr. K Rajeev delivered an invited talk entitled 'Tropical clouds and radiative impact' under the theme 'Remote sensing and geospatial technologies. He explained about horizontal and vertical distribution of cloud their distribution properties, temporal evolution and fundamental importance and after his talk the technical session were started in which participants presented their work related to the topics: analysis of remote sensing data from satellite, airborne, and UAV platforms, use of Global Navigation Satellite System (GNSS) data and geospatial techniques; Monitoring assessment and modelling of earth resources; topographical application in earth sciences Light Detection and Ranging (LIDAR) Interferometric Synthetic Aperture Radar (InSAR); big data analytics and cloud computing; mobile and web GIS application.

Group photograph of participants of Lonar Field Trip

There was a common technical session for themes five and six. Theme five was on 'application of Artificial Intelligence and Machine Learning in earth sciences, solid earth and its resources.' Under this theme scientist/ academicians and research scholar discussed their work on solid earth and its resources, climate change and monsoon, natural hazard: prediction and mitigation, Remote sensing and Geospatial technologies.

Theme six was related to 'Environmental Pollution' and under this theme scientist/academicians and research scholar presented their work on Air/ Water/ Soil pollution; solid waste/ e–waste pollution; application of GIS and Remote sensing in environmental pollution; Pollution abatement strategies/ methods/ approaches; Pollution prediction/ monitoring/ modelling; environmental pollution and human health.

After successful completion of the oral sessions, the poster session was started and got scrutinized thoroughly by the judges and delegates.

Research scholars from BSIP (Alok Kumar Mishra, Ravi Shankar Maurya, Sadhana Vishwakarma) presented their posters under the themes 'Solid earth and its resources' and 'Climate change and monsoon'.

One day field trip was organized on last day of the conference. We visited famous Lonar Crater which is situated in the Bhuldhana District of Maharashtra.

The Valedictory Session began with the prize distribution for the oral and poster presentations presented by scientists/ academicians and research scholars. Mr. Prasad Padalkar received Best Poster Award under the theme 'Environmental pollution' and Mr. Pyduraju Yalamaneri received Best Oral Presentation Award under the theme 'Artificial intelligence and machine learning.'

The conference concluded with an emotional and gratitude–serving vote of thanks given by the President Dr. Udhav Bhosle (Vice–Chancellor, Swami Ramanand Teerth Marathwada University, Nanded) and Chief Guest Dr. Praveen Saptarshi (Professor Emeritus, IndSearch, Pune & Visiting Professor, Salisbury University, MD, USA) and Dr. Vasant Wagh (Convener ASERS–2022) highlighted the importance of various themes of Earth Sciences presented by scientists/ academicians and research scholars.

ASERS–2022 was conducted successfully and provided such a wonderful scientific environment in which scientists, scholar and students interacts with each who belong to different corners of the country. To becoming the part of such conference not only give us knowledge about the science but also boost up us to do something different in scientific field.

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