# Workshop on Space Weather Science and Opportunities
## Physical Research Laboratory, Ahmedabad
17-18 October 2023

## Program Schedule

Venue: Nano-SIMS Hall

| Day 1: 17 October 2023 | | | |
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| **Time** | **Agenda** | **Speaker** | **Chair** |
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| 08:30 – 09:30 | Entry to PRL and Registration / Webex Login for online participants | | |
| 09:30 – 10:30 | Inauguration | | |
| 10:30 – 11:00 | *Networking break with Tea/coffee* | | |
| 11:00 – 12:00 | Lead talk: Overview of Space Weather | D. Pallamraju | K. Venkatesh |
| 12:00 – 13:00 | Atmospheric structure and dynamics | A. Guharay | K. Venkatesh |
| 13:00 – 14:00 | *Lunch* | | |
| 14:00 – 15:00 | Introduction to ionosphere, thermosphere and airglow emissions | R. P. Singh | A. Guharay |
| 15:00 – 15:30 | *Networking break with Tea/coffee* | | |
| 15:30 – 18:00 | Lab Visits for offline participants (PRL Main Campus) | | |

| Day 2: 18 October 2023 | | | |
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| 09:00 – 10:00 | Ionospheric dynamics and implications to satellite navigation | K. Venkatesh | A. Guharay |
| 10:00 – 10:30 | *Networking break with Tea/coffee* | | |
| 10:30 – 11:30 | The Sun and solar wind | Aveek Sarkar | A. Guharay |
| 11:30 – 12:30 | Solar wind and magnetosphere | D. Chakrabarty | A. Guharay |
| 12:30 – 13:30 | *Lunch* | | |
| 13:30 – 14:30 | Evolution of Space weather research at PRL and in India | D. Pallamraju | R. P. Singh |
| 14:30 – 15:00 | Research and Academic opportunities at PRL | Bhushit Vaishnav | R. P. Singh |
| 15:00 – 15:30 | *Networking break with Tea/coffee* | | |
| 15:30 – 17:30 | Lab Visits for offline participants (PRL Thaltej Campus) | | |

# 2nd Indian Space Weather Conference (ISWC-2)

## Physical Research Laboratory, Ahmedabad

19-20 October 2023

## Program Schedule

(Venue: K. R. Ramanathan Auditorium)

| Day 1: 19 October 2023 | | |
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| 09:00 – 09:30 | Webex Login | |
| | **Inaugural Session** | |
| 09:30 – 09:35 | Welcome Address – Prof. Anil Bhardwaj, Director, PRL | |
| 09:35 – 09:45 | Inauguration of ISWC-2 and Inaugural address<br>– Shri. A. S. Kiran Kumar, Council Chair, PRL<br>Member, The Prime Minister's Science Technology and Innovation Advisory Council | |
| 09:45 – 09:50 | Overview of ISWC-2 – Prof. D. Pallamraju, Chair, ISWC-2 | |
| 09:50 – 09:55 | Vote of thanks – Dr. K. Venkatesh, Convener, ISWC-2 | |
| 10:00 – 10:30 | *Networking break with Tea/Coffee* | |
| | **Session 1: Aditya-L1 Mission**<br>*Chair: Duggirala Pallamraju* | |
| 10:30 – 10: 40 | Overview of Aditya-L1 Mission | K. Sankarasubramanian |
| 10:40 – 11:00 | SOlar Low Energy X-ray Spectrometer (SolEx) + High Energy L1 Orbiting X-ray Spectrometer (HeL1OS) | K. Sankarasubramanian |
| 11:00 – 11:20 | Solar Ultra-violet Imaging Telescope (SUIT) | Sreejith Padinhatteeri |
| 11:20 – 11:40 | Plasma Analyser Package for Aditya (PAPA) | Satheesh Thampi |
| 11:40 – 12:00 | Magnetometer (MAG) | Vipin Kumar Yadav |
| 12:00 – 12:20 | Visible Emission Line Coronagraph (VELC) (Online mode) | R. Ramesh |
| 12:30 – 13:50 | *Lunch Break* | |
| | **Session 2: DISHA Mission**<br>*Chair: K. Sankarasubramanian* | |
| 13:50 – 14:00 | Overview of DISHA Mission | D. Pallamraju |
| 14:00 – 14:20 | Ion Drift Meter (DM) | D. Pallamraju |
| 14:20 – 14:40 | Electron Temperature Analyser (ETA) | Smitha Thampi |
| 14:40 – 15:00 | Upper Atmospheric Visible Airglow Spectral Imager (UrVASI) | C. Vineeth |
| 15:00 – 15:20 | Auroral X ray Imaging Spectrometer (AXIS) | Shyama Narendranath |
| 15:20 – 15:40 | Neutral Mass Spectrometer (NMS) (online mode) | Tarun Kumar Pant |
| 15:40 – 16:00 | *Networking break with Tea/Coffee* | |

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| **Session 3: Solar Wind Processes**<br>*Chair: Satheesh Thampi* | | |
| 16:00 – 16:12 | Using in-situ and Xray measurements from Aditya-L1 | Prasad Subramanian |
| 16:12 – 16:24 | Effects of Heating and Cooling on Proton Temperature Anisotropy within ICME at 1 AU: Role of Aditya L1 Mission | Zubair Ibrahim Shaikh |
| 16:24 – 16:36 | Probing Particle Acceleration in Solar Energetic Particle Events through Radio Observations | Anshu Kumari |
| 16:36 – 16:48 | Study of Energetic Particle Precipitation by complimentary ADITYA-L1 and DISHA data | Biswajit Ojha |
| 16:48 – 17:00 | Prospects for Space weather studies using InPTA observations and Indian Space weather observatories | M. A. Krishnakumar |
| 17:00 – 17:12 | Statistics Turbulence in the Solar Wind | Tulasi Nandan Parashar |
| 17:12 – 17:24 | Space Weather studies using Aditya-L1 and DISHA missions: Solar wind perspective | Yogesh |
| 17:24 – 17:31 | Space weather studies using Aditya – L1 and DISHA missions: An energetic particle perspective | Bijoy Dalal |
| 17:31 – 17:38 | Using In-situ and Heliospheric Observations for Continuous Tracking of a Stealth CME Observed on 5 October 2012 | Sandeep Kumar |
| 17:38 – 17:45 | Investigating 3D Properties of Space Weather drivers: A Collaborative Study Using SWASTi and Aditya-L1 | Prateek Mayank |
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| **Session 4: Magnetosphere and MI coupling**<br>*Chair: Sreejith Padinhatteeri* | | |
| 17:45 – 17:57 | Space Weather Studies Using Aditya L1 and DISHA Missions: a Magnetosphere-Ionosphere Coupling Perspective | Ankit Kumar |
| 17:57 – 18:09 | Solar wind – interplanetary drivers and their response in the Earth's polar region: Remote and in situ observations of Aditya – L1 and DISHA | Rashmi Rawat |
| 18:09 – 18:16 | Understanding the inner magnetospheric particle dynamics using data from Aditya L1 payloads | Trunali Anil Shah |
| 18:16 – 18:23 | Signatures of enhanced Oxygen ion outflow at Earth and Mars during a space weather event | Indu Venugopal |
| 18:23 – 18:30 | Unveiling Space Weather and Planetary Atmosphere Dynamics through Aditya-L1 and DISHA Data Integration | Keshav Aggarwal |
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| **19:30 – 21:00** | **Director's Dinner** *(Nursery Lawn)* | |

| Day 2: **20 October 2023** | | |
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| **Session 5: Aditya-L1 and DISHA missions**<br>*Chair: Smitha Thampi* | | |
| 09:00 – 09:20 | Aditya Solar wind Particle EXperiment (ASPEX) | D. Chakrabarty |
| 09:20 – 09:40 | High Frequency Augmented Langmuir Probe (LP) | D. Chakrabarty |
| 09:40 – 10:00 | Airglow photometer (AP) | D. Chakrabarty |
| 10:00 – 10:30 | *Networking break with Tea/Coffee* | |
| **Session 6: Space weather effects and geomagnetic storms**<br>*Chair: C. Vineeth* | | |
| 10:30 – 10:42 | Ionosphere –Thermosphere impact assessment during space weather events: A new perspective | Mridula N |
| 10:42 – 10:54 | Exploring G1-Class Geomagnetic Storm Effects on the Ionosphere-Thermosphere System: A Case Study of SpaceX's Satellite Loss | Geetashree Kakoti |
| 10:54 – 11:01 | Response of the equatorial and low latitude ionosphere to the severe geomagnetic storm of April 2023 using observations and SAMI2 modeling | Rajesh Kumar Barad |
| 11:01 – 11:08 | Reckoning Geomagnetic storm effects on Ionosphere with the integration of DISHA and ADITYA-L1 Solar observations | Siva Sai Kumar Rajana |
| 11:08 – 11:15 | On the solar cycle variability of flare-induced variability in TEC and its relationship with the $O/N_2$ ratio | Sreeraj M S |
| 11:15 – 11:22 | Mapping of high speed solar wind propagation from near Sun to the Earth and its impact on the low-latitude ionospheric system : A study using Indian Mars Orbiter Mission and InSWIM GPS observations | Richa Naja Jain |
| 11:22 – 11:29 | Mitigating the effects of disturbed space weather on Skywave communications using DISHA satellite | Ankita Manjrekar |
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| **Session 7a: Ionospheric processes**<br>*Chair: Vipin K. Yadav* | | |
| 11:30 – 11:42 | Using DISHA-ADITYA-L1 data to ascertain the Curl-free nature of Low-latitude Ionospheric Electric Field and its implications on Space Weather Conditions | Debrup Hui |
| 11:42 – 11:54 | Investigations of the Equatorial Electrodynamics and Thermospheric Tides using DISHA | Sovan Saha |

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| 11:54 -12:06 | Variation in Ionosphere during quiet time conditions | Meenakshi S |
| 12:06 – 12:18 | Study of various parameters to investigate the ionospheric Irregularities in more depth along $95^0$ E Longitude Contribution of DISHA Mission | Barsha Dutta |
| 12:18 – 12:30 | The study of hemispheric and longitudinal asymmetry in ionospheric response to geomagnetic storms using Aditya L1 and DISHA mission experiments. | Bitap Raj Kalita |
| 12:30 – 12:42 | Investigation of ionospheric variability over low-equatorial latitude region-Role of DISHA Mission | Rumajyoti Hazarika |
| 12:45 – 14:00 | *Lunch Break* | |
| **Session 7b : Ionospheric processes**<br>*Chair: D. Chakrabarty* | | |
| 14:00 – 14:12 | Synergistic insights from multi-platform multi-instrument observations of space weather events | Rakesh V. |
| 14:12 – 14:24 | Illuminating the Enigmatic Equatorial Plasma Bubbles: Insights from NASA's GOLD Imager | Deepak Kumar Karan |
| 14:24 – 14:31 | Investigations of the Earth's Mid- and High-Latitude Ionospheric processes using science payloads on-board the DISHA-H Aeronomy Satellite Mission | Kshitiz Upadhyay |
| 14:31 – 14:38 | Ionospheric Variability: Source Apportionment and their Efficacies | Anshul Singh |
| 14:38 – 14:45 | Investigation of Equatorial Plasma Bubbles (EPBs), its onset and evolution using ground and satellite-based observations | Gayathri B |
| 14:45 – 14:52 | Study of Ionospheric Plasma Irregularities During Space Weather Events Using DISHA Mission | Ipsita Katual |
| 14:52 – 14:59 | Morphological effect of Equatorial Plasma Bubbles on GPS TEC | Akshay Pramod Mane |
| 14:59 – 15:06 | Computation of ionospheric parameters in d-region using tweek analysis | Kshama Tiwari |
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| **Session 8: Atmosphere – Ionosphere Coupling**<br>*Chair: R. P. Singh* | | |
| 15:10 – 15:22 | Effect of stratospheric polar vortices on the ionosphere-thermosphere system | Sunil Kumar |
| 15:22 – 15:34 | The Role of DIHSA and ADITYA-L1 missions to understand atmospheric-ionospheric coupling processes | Ajeet Kumar Maurya |
| 15:34 – 15:46 | Study of Waves in the Upper Atmosphere from DISHA Observations | Subarna Mondal |
| 15:46 – 15:58 | Effect of high-magnitude earthquakes on ionospheric parameters | Dinesh Kumar Sharma |

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| 15:58 – 16:10 | GICs at the equator due to Strong Prompt Penetration Electric Fields (PPEFs) | Nilam Yashwant Bhosale |
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| 16:10 – 17:00 | **Discussion/Exam for workshop participants**<br>*Chair: K. Venkatesh* | |
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| 17:00 – 17:30 | Concluding Ceremony | |
| 17:30 - 18:00 | *High Tea* | |