

Agenda Item 10: Space Weather

Mr. Chairman and Distinguished delegates,

The Indian space agency and the national academia regard the domain of Space weather as crucial not only for achieving a scientific understanding of the Sun and its influence on near-Earth space but also in connection with the security of the national space assets. In Indian academia, the interest in Solar Physics is being extended to Heliophysics, where the propagation of the disturbances from the Sun to the heliosphere, and their interaction with the planetary atmosphere, magnetic field, and surface are being researched with utmost importance. The Indian delegation takes this opportunity to update on the developments and activities undertaken in the area of Space Weather and its impacts on the Earth's atmosphere.

Mr. Chairman,

Indian academia treats the domain of space weather as a closely knit web of solar physics, studies on the propagation of solar disturbances into the heliosphere, and the study of the response of the atmosphere of the Earth to assess the impact of the solar disturbance. With its long legacy of pursuing solar science, India is rich in modeling the physics of the solar processes, as well as ground-based solar observations at different wavelengths. India's Aditya-L1 mission will be positioned at the first Sun-Earth Lagrangian point with a suit of instruments that will measure the photons (visible and UV), particles (solar wind plasma), and the interplanetary magnetic field. This mission, apart from studying the propagation of solar disturbances, will also offer insight into the physics of the Sun, especially to have a closer look at the origin of the solar corona from 1.05 times the solar radius to 3 solar radii. With the capability of simultaneous spectroscopy and imaging, Aditya-L1 is specifically designed as a space-based solar observatory. The mission is getting ready for launch in the first half of the year 2023.

Mr. Chairman,

India is conceptualising satellite aeronomy missions in LEO orbit to study the effects of the space weather on Earth's upper atmosphere. India has a network of ionosphere measurement stations called INSWIM, the acronym for Indian Network for Space Weather Impact Monitoring, which aims to obtain measurements of ionospheric parameters across several strategically chosen locations in India for space weather impact studies. Thus, a coordinated approach of space and ground-based observations of the Sun and Earth's upper atmosphere, aided by modeling and simulation will be a major step towards achieving a holistic understanding of the physics and application aspects of space weather.

Mr. Chairman,

India takes this opportunity to appraise several regional and national level workshops being organised on Solar and Heliophysics, targeting post-graduate and doctoral students, with a view of creating a multi-disciplinary pool of experts comprising physicists, engineers, computer scientists as well as data scientists, who will carry forward the legacy of research on Sun, Space Weather, and its impacts, eventually to contribute significantly to these fields with conventional as well as disruptive, out-of-the-box approaches.

Thank you, Mr. Chairman and distinguished delegates.

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