

ANNOUNCEMENT

(ONLINE) The International Space Weather Initiative Workshop on Space Weather: Science and Applications

jointly organized by the United Nations Office for Outer Space Affairs and the Vikram Sarabhai Space Centre of the Indian Space Research Organization

2 – 3 November 2021

The term "Space Weather" typically describes the physical state of the space environment spanning from the Sun to the deepest parts of interplanetary space. The space weather disturbances after originating from the Sun, evolve during their propagation through the interplanetary medium before reaching the near-planetary spaces. These disturbances cause many changes in planetary atmospheres like that in earth's magnetosphere, ionosphere, and the thermosphere. The Sun's energy in the form of solar radiation and wind, more so the latter, drives the energetics of terrestrial magnetosphere, ionosphere thermosphere system during active space weather intervals.

The space weather impacts the Earth's geomagnetic field and triggers a range of induced effects in the magnetosphere and ionosphere. The extreme manifestations of the space weather on earth are the geomagnetic storms. During geomagnetic storms, the spatio-temporal variations of currents generated in Earth's upper ionosphere and magnetosphere, cause large variations in magnetic field as measured at the Earth's surface. Other than this, a whole range of changes have been recorded in various parameters representing thermosphere-ionosphere system during storms. Today there are a whole lot of technological and social infrastructures that are directly/indirectly affected by the space weather. Among these, the most vulnerable are satellite missions, navigation and communication, electric power grids, among many others. As a consequence, there are stake holders in each segment of our society today that have interests in the processes that govern space weather and their manifestations, with special emphasis on strategies on mitigation of adverse manifestations/impacts. One of the most prominent impact of Space Weather is the enhancement of errors in communication signals used in Global Satellite Navigation Systems (GNSS) and the likes used globally today. Owing to the unique geomagnetic configuration and large scale processes, these errors are more pronounced over low and equatorial latitudes.

To promote global cooperation in space weather, the United Nations Office of Outer Space Affairs (UNOOSA) frequently organizes workshops in collaboration with the International Space Weather Initiative (ISWI). The 2021 online Workshop on Space Weather: Science & Applications is being jointly organized by UNOOSA and the Vikram Sarabhai Space Centre of the Indian Space Research Organization (ISRO), India. The Workshop will be supported by International Committee on Global Navigation Satellites (ICG), Boston College, National Aeronautics and Space Administration (NASA) and Scientific Committee on Solar Terrestrial Physics (SCOSTEP).

The focus of this online workshop will be to discuss the physics behind space weather and provide updates on the recent scientific advances made in the area of space weather. The workshop will also (a) assess the status of space weather instruments (in-situ, space-borne), data access, availability and collection and modelling efforts to advance space weather research and improve space weather forecasting; (b) continue efforts in space weather education, especially for students,

including increasing participation by women, from developing nations; (c) help forging international cooperation and collaboration in addressing space weather-related issues, such as cooperation towards establishing a truly global space-weather monitoring capability.

The Workshop is directed to doctoral students, researchers, and educators working in the field of space weather and allied areas.

Topics to be discussed:

- Sun, Solar Wind and Extreme Solar Eruptions
- Space Weather - Sources, Consequences, Observations and Modeling
- Space Weather Impacts on Magnetosphere - Thermosphere - Ionosphere System
- Space Weather Instrumentation, Data, Outreach and Education

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