

COPUOS-STSC 57th Session, Vienna, 03 - 14 February 2020 - Germany

Item 11: Space weather

Madam Chair,

Distinguished Delegates,

Societies are becoming increasingly dependent on space-based systems. However, with this growing dependency, the dangerous effects of space weather become an ever-greater challenge. It is therefore important to understand how space weather affects space systems and human space flight, electric power transmission, as well as global navigation satellite system (GNSS) signals in order to ensure the continued safety and functionality of these vital infrastructures.

Considering the growing importance of space weather information for modern societies, the German Federal Government supported the establishment of a new point of contact position at the German Space Administration for coordination of national space weather activities, as well as of a new institute of the German Aerospace Center (DLR) in 2019. The Institute for Solar-Terrestrial Physics will study in detail how space weather affects the functionality and reliability of space- and ground-based systems and services and how it impacts human health. Its research will include technologies for communication, navigation, satellite operations, human spaceflight and electric power grids, among others.

The Institute also represents DLR in the Pan-European Consortium for Aviation Space Weather User Services (PECASUS), which is one of three global space weather centers of the International Civil Aviation Organization (ICAO). The task of DLR in the consortium is to coordinate, provide and develop space weather information and services for GNSS users.

With its national expertise and capacities, Germany contributes actively to the efforts on space weather by UNCOUOS. The International Space Weather Initiative is supported through two projects. The student project SOFIE hosts a web platform to share and study space weather observation data, while the "Global Ionospheric Flare Detection System" provides real time warnings of solar flares. Furthermore, German experts engage actively in the Expert Group on Space Weather of this Subcommittee.

In addition to DLR, further research activities on space weather are underway in Germany. Both the German Geodetic Research Institute at the Technical University of Munich and the German Research Centre for Geosciences are modelling various effects of space weather, in particular in the ionosphere. One of these research efforts models the vertical total electron content in the ionosphere, which allows the detection of space weather effects. Another one models the electron density distribution of the ionosphere and the plasmasphere. This allows for the detection and further investigation of short and small-scaled disturbances in the ionosphere.

Madam Chair,

Distinguished Delegates,

The diversity of these activities underlines the importance that Germany attaches to understanding and mitigating the negative effects of space weather. I would also like to emphasize that Germany recognizes the need for close international collaboration and data exchange to mitigate potential space weather threats in a proper way. We therefore support the UNCOUOS efforts in enhancing and coordinating international space weather activities and in building up a dedicated international coordination group for space weather, which could deliver close international collaboration and coordination for improved space weather services and ultimately enhance global resiliency against the adverse effects of space weather.

Madam Chair, Distinguished Delegates,
We thank you for your kind attention.