URSI GASS 2021, Rome, Italy, 28 August - 4 September 2021

Promoting the use of global navigation satellite system technologies as tools for scientific applications: Space Weather

Sharafat Gadimova
United Nations, Austria, e-mail : sharafat.gadimova@un.org

Over the past decade, space weather, caused by solar variability and its impact on the climate, atmosphere and space environment of the Earth, has been the subject of international attention, although the effort started during the International Geophysical Year, in 1957. The open data policies of space agencies and international cooperation in space missions have been extremely beneficial to the making of significant scientific progress in the field of solar-terrestrial physics.

The International Space Weather Initiative (ISWI), established in 2009, has its roots in the successful International Heliophysical Year 2007. The ISWI programme has proved to provide a framework for collaboration among teams of scientists, serving as an example of remarkable international work in instrument operation, data collection and analysis and the publication of scientific results. ISWI has established a platform for a bottom-up approach in order to produce space weather-literate communities, in particular in developing countries, work together as a network for sharing ideas, information and data, and develop joint projects.

ISWI continues to expand and deploy new and existing instrument arrays. There are currently 19 worldwide instrument arrays with close to 1,045 deployments recording data on solar-terrestrial interaction, from coronal mass ejections to variations in the total electron content in the ionosphere. Detailed information on various networks can be found on the ISWI website (www.iswi-secretariat.org). Instruments are provided to hosting institutions by entities in Armenia, Brazil, France, Germany, Israel, Japan, Switzerland and the United States of America. In general, the lead scientist or principal investigator of an ISWI project provides the instrumentation and data. The host country provides the human resources, facilities and operational support for the operation of the instrument project, typically at a local university. Host scientists become part of the science team, and all data and data analysis results are shared within the team and made accessible to all users.