

**Statement by Lika Guhathakurta, United States Representative, on  
Agenda Item 10, “Space Weather,”  
February 13, 2014**

---

Mr. Chairman, the United States is pleased with the progress made over the past year in advancing space weather capability, both nationally and internationally, and looks forward to further cooperation as interests and capabilities continue to expand around the globe. Since there are numerous opportunities and challenges in the broad international cooperation needed to achieve a truly global capability, we encourage broad member involvement in this effort.

Space weather is an international concern, requiring effort to monitor the sun and near-Earth space, to perform research to improve prediction, and to develop and deliver real-time services. Space weather involves global phenomena driven by large solar eruptions that impact large areas of Earth simultaneously, and at the same time, it involves local disturbances that can vary significantly from place to place. It is important, therefore, to have participation from countries around the globe to monitor and to understand both the drivers of space weather, as well as the impacts on Earth and in space.

Space weather is recognized as an important natural hazard risk in the United States and in a growing number of countries around the world. Consequently, it is essential that we coordinate our international efforts to improve space weather services and strengthen our resilience to space weather. Civil contingency plans are being developed in many countries, and the roles and responsibilities of national agencies in the event of severe space weather are being defined. As more countries establish their own procedures for mitigating the risks of space weather, international coordination is required to ensure that consistent information is available across all borders.

To continue the significant progress made by COPUOS to date on space weather, the United States supports the September 2013 observations and recommendations of the United Nations/Austria Symposium on “Space Weather Data, Instruments and Models: Looking Beyond the International Space Weather Initiative (ISWI).” The symposium recognized that COPUOS could foster the

improvement of space weather services by encouraging global research activities, data availability, and capacity building aligned with service needs. The symposium further recommended that with the support of Member States under the umbrella of COPUOS, efforts should continue to achieve the goal of reliable space weather prediction. In particular, the vast arrays of ground based space weather instrumentation deployed under the ISWI program should be sustained.

The United States is pleased that the Expert Meeting on Improving Space Weather Forecasting in the Next Decade was held earlier this week. We would like to thank the Office of Outer Space Affairs for their exceptional support of this meeting. Hosted by NASA and OOSA, the meeting was attended by approximately 40 scientists from 20 countries. I want to take this opportunity to report some of the major recommendations unanimously decided upon at the meeting:

- Recognizing the success of observations in recent projects, and critical information gained from them, we recommend an urgent strategy to ensure that there is continued access to observations of transients in the inner heliosphere, in particular, the Earth-directed events;
- Encourage a capability for sharing and hosting of data from space- and ground-based instruments relevant for space weather research and forecasting facilitated via the existing virtual observatories;
- Continue the deployment of new instruments and instrument arrays through the International Space Weather Initiative, along with the accompanying education and public outreach;
- Support the development of improved forecasting and nowcasting capabilities, including space weather at other planets with special emphasis towards supporting robotic exploration.

The meeting was organized with the recognition that new data sources will become available in the years ahead, new scientific discoveries will occur, and that these advances will lead to the improvement of space weather forecasting.

Given the broad scope of space weather, from basic research to direct societal applications, the United States recommends that the Subcommittee take a

comprehensive approach in defining its vision for the activities encouraged through this agenda item. This vision should promote improved data sharing, continuous and uninterrupted space-based and Earth-based observations, the development of scientific knowledge and predictive capabilities, improved understanding of societal risks, and education of a scientific work force and the general public.

Within the United States, space weather is being addressed by a number of agencies, each contributing to different aspects of this challenging work, including ground- and space-based observations, research and education, and operational services.

NASA is expanding their research and exploration into the solar system, together with other space agencies. Probes are now orbiting or are en route to Mercury, Venus, the Moon, Mars, Ceres, Saturn, and Pluto—and astronauts may soon follow. Each mission has a unique need to know when a solar storm will pass through its corner of space. This became clear during an intense episode of solar activity in March 2012, which caused reboots and data outages on as many as 15 NASA spacecraft. We have arrived at an age of interplanetary space weather forecasting, which is possible because NASA and other agencies have surrounded the Sun with spacecraft like the Solar and Heliospheric Observatory, the Solar Terrestrial Relations Observatory and the Solar Dynamics Observatory.

NASA's Van Allen Probes launched on Aug. 30, 2012 on a mission to study the Van Allen radiation belts are providing discoveries and better understanding of this mysterious and hazardous region of space advancing our knowledge of particle physics and the dynamics of space plasmas, which will lead to design and protect space-based technologies more effectively.

In addition to protecting assets throughout the solar system, several upcoming U.S. National Oceanic and Atmospheric Administration (NOAA) space missions will provide essential observations for worldwide space weather services on Earth. The Deep Space Climate Observatory (DSCOVR) is the planned near term replacement for the NASA Advanced Composition Explorer (ACE) mission. DSCOVR is set for launch in January 2015 and will obtain in situ measurements of the solar wind that are critical for high-reliability warnings of large geomagnetic storms. COSMIC-2 is a multi-satellite GNSS radio occultation mission in

partnership with Taiwan that will obtain a dense, global distribution of ionospheric measurements to improve space weather services in support of navigation and communication. Current plans call for launching six satellites in late 2015 and six in 2018.

Finally, the United States acknowledges the significant complementary efforts that are being conducted by numerous international organizations, as research-oriented and service-oriented groups. COSPAR and ILWS recently launched an initiative to create “A Space Weather Roadmap for 2015-2025,” prioritizing challenges in key areas of research and forecasting. Last month, SCOSTEP launched its 5-year scientific program known as varSITI (variability of the Sun and Its Terrestrial Impact) focusing on the weak solar activity and how it modifies space weather. We also acknowledge the work being carried out by the UN sponsored Space Weather Expert Group in support of the Long Term Sustainability of Outer Space activities. An important aspect of the Members States’ efforts within this agenda item will be to coordinate with and build upon these ongoing activities to effectively coordinate the global efforts.

Thank you, Mr. Chairman.