

Putting the “I” in I*Y 2007

The following text is contained in UN Document A/AC.105/823: Report of the Scientific and Technical Subcommittee (of UN COPUOS) on its forty-first session, held in Vienna from 16 to 27 February 2004, pages 27-29 (paras 151-158).

In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee considered agenda item 13, “Solar-terrestrial physics”, as a single issue/item for discussion.

1. The representatives of Canada, China, Cuba, France, India, Japan and the United States made statements under the item.

2. The Subcommittee heard the following scientific and technical presentations on the subject of solar-terrestrial physics:

(a) “The Sun-Earth plasma environment”, by the representative of Austria;

(b) “CORONAS-F: contribution to solar-terrestrial physics”, by the representative of the Russian Federation;

(c) “The scientific importance and socio-economic efficiency of the implementation of programmes on solar-terrestrial physics”, by the representative of the Russian Federation;

(d) “International Living with a Star (ILWS)”, by the representative of the United States;

(e) “European view on International Living with a Star”, by the representative of ESA;

(f) “Report of the Task Force on Radio Astronomy and the Radio Spectrum”, by the representative of the Organisation for Economic Cooperation and Development.

3. The Subcommittee agreed that solar-terrestrial physics was important in exploring the **solar corona** and understanding the **functioning of the Sun**; understanding the effects that the **variability in the Sun** can have on the **Earth’s magnetosphere, environment and climate**; exploring the **ionized environments of planets**; and reaching the limits of the **heliosphere and understanding its interaction with interstellar space**. The Subcommittee also agreed that, as society became increasingly dependent on space-based systems, it was vital to understand how **space weather, caused by solar variability, could affect**, among other things, **space systems and human space flight, electric power transmission, high-frequency radio communications, global navigation satellite system (GNSS) signals and long-range radar, as well as the well-being of passengers in high altitude aircraft**.

4. The Subcommittee noted that severe magnetic storms resulting from coronal mass ejections had caused failures of many geostationary orbit communication satellites, radio blackouts and power outages on Earth. The Subcommittee agreed that the ability to predict space weather accurately could assist in preventing or minimizing impacts of severe magnetic storms on space-based services and systems and on ground power systems.

5. The Subcommittee noted that several **scientific missions had been undertaken** by space agencies to study the interactions between the Sun and the Earth. These included the Cluster mission, the Double Star mission, the Enhanced Polar Outflow Probe (ePOP), the Solar and Heliospheric Observatory (SOHO) and the Yohkoh mission.

6. The Subcommittee agreed that international cooperation in research and development activities in the field of solar-terrestrial physics was important to all countries, in particular developing countries, owing to the high cost of such activities.

7. The Subcommittee noted that the International Living with a Star (ILWS) initiative was a collaborative programme in solar-terrestrial physics that had been undertaken to stimulate, strengthen and coordinate space research to understand the governing processes of the connected Sun-Earth system as an integrated entity. ILWS consisted of an international fleet of more than a dozen international space missions acquiring data on the behaviour of that system by observing the Sun and its variability and measuring conditions in interplanetary space. The Subcommittee also noted that **new space missions were under development** to contribute to ILWS in the coming decade. These included the CORONAS-PHOTON project, the Picard micro-satellite mission, the Solar-B satellite and the Solar Probe, among others.