

## **Summary of Deliberations of the International Space Weather Initiative (ISWI) Steering Committee Meeting**

The first ISWI Steering Committee (SC) meeting took place in Vienna during the session of the Scientific and Technical Subcommittee of UNCOPUOS on February 9, 2011.

The following were in attendance:

H. Haubold (UNOOSA), S. Gadimova (UNOOSA), W. Balogh (UNOOSA), J. Davila (ISWI Secretariat), N. Gopalswamy (ISWI Secretariat), T. Djamaluddin (Indonesia), M. Cho (Japan), E. Yamamoto (Japan), A. Babajide (Nigeria), C. Wang (SC), K. Georgieva (SC), D. Boteler (SC), A. Glover (SC), C. Amory-Mazaudier (SC), B. Rabiou (SC), H. Hayakawa (SC), K. Yumoto (SC), J. Head (USA), M. Guhathakurta (SC), R. Ramachandran (ISRO, India). The meeting was chaired by J. Davila.

H. Haubold welcomed everyone. On behalf of the UNOOSA, he thanked Professor K. Yumoto for his generous support to some of the SC members to attend the SC meeting.

J. Davila presented the current status of ISWI, listing the current instruments and the deployments. He noted that about 1000 instruments from the 14 instrument arrays have been deployed. He summarized the benefits of the instrument deployment program: (1) By observing in new geographical regions, a more global picture of Earth's response to solar wind inputs can be obtained, (2) The Sun can be monitored 24/7 in radio and H-alpha, (3) Instrument arrays provide 3D information that can be used in tomographic reconstructions, (4) Long term these arrays will provide real-time data valuable for forecasting and nowcasting, and (5) Modeling projects allow better exploitation of existing data sets.

N. Gopalswamy reported on the ISWI schools. He pointed out that the School activity provides the science background needed for students and young scientists in instrument host groups. The Schools also motivate young people to take up careers in solar-terrestrial physics. He also pointed out the synergy with the capacity building activities of SCOSTEP and COSPAR. The ISWI School in Ethiopia was very successful, attended by 43 Students from 15 African countries. The largest number was from the host country (Ethiopia). The next ISWI School will be hosted by the Slovak Central Observatory and the Astronomical Institute of the Slovak Academy of Sciences in the Tatranska Lomnica area (August 21 – 27, 2011). H. Haubold mentioned the possibility that ISWI schools can be organized at the UN Regional Centers such as in Nigeria (English-speaking countries) and Morocco (French-speaking countries). C. Amory-Mazaudier informed that two ISWI schools will be conducted in French language, one in the Republic of Congo (September 11 – 24, 2011) and the other in Morocco (December 5 – 16, 2011). The school planned in Morocco will be organized at the UN Regional Center directed by Professor A. Touzani. Also planned are a MAGDAS School in Lagos, Nigeria in August 2011 and an ICTP Space Weather school in October 2011 (in Abuja, Nigeria).

H. Haubold mentioned the successful UN/ISWI meeting in Egypt during the first week of November 2011 in Helwan University hosted by Professor Ayman Mahrous. He suggested that the future ISWI meetings will be referred to as “UN/Host country” workshop of the International Space Weather Initiative, citing the numerous cosponsors. However, all the cosponsors will be explicitly mentioned.

B. Rabiou updated the current status of the UN/ISWI workshop to be held in Nigeria during October 17 - 21, 2011 by NARSDA and the Center for Basic Space Sciences (Federal Ministry of Science and Technology). He informed that the paperwork between UN and Nigeria is taking place on schedule. Registration deadline is likely to be around May 31, 2011. It was decided that the abstracts submitted at the time of registration will be simultaneously sent to the LOC, SOC, and UN. N. Gopalswamy will soon form the international scientific organizing committee (ISOC), which will be responsible for the scientific program of the Workshop.

S. Gadimova pointed out that the importance of ISWI presence during GNSS workshops for a global understanding of the causes of GPS anomalies.

R. Ramachandran made a statement on the space weather activities in India. In particular, she reported on Youthsat, a Russian-Indian scientific-educational satellite to be launched on February 24, 2011.

K. Yumoto (publisher, ISWI Newsletter) presented a report on the ISWI newsletter. The SC profusely thanked K. Yumoto and G. Maeda (editor) for the timely publication of the Newsletter. One of the puzzles has been the low number of subscribers to the Newsletter (under 300). The growth is only 1 – 2% per year. The EC discussed various possibilities to increase the number of subscriptions.

K. Georgieva reported on the ISWI web site development and walked the audience through the web site at <http://www.iswi-secretariat.org/> pointing out the salient features of the pages. The SC recognized the web site as an important contribution from Bulgaria to ISWI and thanked the people outstandingly maintaining the web site: K. Georgieva and Mitko Danov.

K. Yumoto presented the Data Citation Rules of ULTIMA and how that can be adapted for various ISWI instruments. The importance of providing proper citation to the data source and the instrument PI were stressed.

C. Wang presented the current status of the Meridian Project, which is a ground-based space weather network consisting of a chain of ground-based observatories with multiple instruments. The observatories are located along the 120°E meridian starting from Mohe, the most northern station in China, through Beijing, Wuhan, and Guangzhou and extended to the Chinese Zhongshan station in the Antarctic. The Meridian Project will be in full operation in 2012. International collaboration will make it possible to constitute the first complete environment

monitoring chain around the globe by connecting observatories along the 120°E meridian with those along the 60°W meridian.

A. Glover presented the space weather activities in EU, in particular on situational awareness. She mentioned the need for coordination among various international organizations involved in space weather research and education.

D. Boteler summarized the history of the International Space Environment Service (ISES) and the relevance of ISWI to the ISES activities. He noted that ISES is the world's real-time space weather services provided by its 12 Regional Warning Centers that monitor and predict solar-terrestrial activity.

H. Hayakawa described how ISWI fits in the activities of JAXA.

J. Head (US State Department) made remarks highlighting aspects of the National Space Policy relevant to ISWI's activities and reiterated his commitment to facilitating appropriate and useful State Department support for those activities.

W. Balogh made a presentation on the status of the International Academy of Astronautics (IAA) Study Group on International Cooperation on Space Weather. In the discussion following the presentation it was noted that the Study Group would not duplicate the work of the ISWI SC and that the ideal situation would be if the SC would be part of the Study Group. The IAA, as a permanent observer in the Committee, could then be used as a platform through which the SC could report to COPUOS/STSC. Discussions are also under way to consider how the Study Group might be linked to the agenda item on long-term sustainability of outer space activities, which may have a sub-group on space weather. Thus the Study Group could also act as a link between the discussion under that agenda item and under the ISWI agenda item.

Finally a group discussion led by N. Gopalswamy resulted in the following suggestions for implementation: 1. Members should strive to identify ISWI scientists from developing countries and recommend them for awards such as the Basu award in AGU. 2. Science nuggets need to be written by instrument groups to publish in the ISWI newsletter. Selected ones can be considered for NASA's Space Science updates on the web. 3. It was recommended that the Heliophysics text books sponsored by NASA may be considered for ISWI schools. Existence of these books should be brought to the notice of the ISWI community. 4. It was decided that ISWI Brochure needs to be created. J. Davila and N. Gopalswamy will create an outline, add text in consultation with the SC and the instrument providers, and get it ready by the next session of the Scientific and Technical Subcommittee in 2012. H. Haubold and S. Gadimova agreed to get the brochure printed in multiple languages. 5. Attempt should be made to increase the number of instrument concepts. Potential instrument providers should be contacted. 6. ISWI should engage other organizations with overlapping goals and coordinate activities (SCOSTEP, COSPAR, IAU Commission 49, International Living with a Star program, ... ). 7. The ISWI is currently low on science activities. This should be changed by creating a program similar to the Coordinated

Investigation Program (CIP) developed during IHY. Such a program is expected to provide a basis for active international collaboration. 8. The SC members are encouraged to work with the National Coordinators to promote ISWI activities.

--- Nat Gopalswamy (ISWI Secretariat)

Steering Committee Meeting participants



(From left to right) H. Haubold, T. Djamaludin, A. Glover, R. Ramachandran, J. Head, C. Amory-Mauzadier, J. Davila, H. Hayakawa, C. Wang, K. Georgieva, M. Guhathakurta, N. Gopalswamy, K. Yumoto, D. Boteler, S. Gadimova, B. Rabiou