Panel Session 4: Toward Improved Space Weather Services and Preparedness

Global Capacity Building by ISWI, COSPAR, and SCOSTEP

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2018 Space Weather as a Global Challenge Dialogue, Embassy of Japan, Washington DC, July 24, 2018
• Collaboration between developing and developed countries
• SWx Instrument deployment
• Space Science Schools
• ISWI workshops: Science with ISWI instrument data + Space data
• Outreach activities
• Part of UN Space Weather Agenda

• Capacity building workshops
• Initially for all astronomy
• Now solar and space weather workshops
• SWx Roadmap
• Biennial meetings
• Interdisciplinary Body of ICSU
• UN Observer

• Capacity building activities
• Space Science Schools
• Solar-terrestrial Research: Climate and weather
• Targeted 4-yr science programs
• Annual Symposia
• Quadrennial meetings
• Interdisciplinary Body of ICSU
• UN Observer

Supported by Member Countries. Prominently: USA & Japan
ISWI/SCOSTEP Space Science Schools: Sun to Earth Topics

International Heliophysical Year Schools (2007 – 2011): Brazil, China, Egypt, India, Slovakia, Nigeria, Indonesia (Sep 2012); Kenya (October 2013), Peru (2014), India (Nov 2016), Azerbaijan (October 2018)

50-80 graduate students in each school: several hundred students trained
31 July – 4 August, 2017 Boston College, Boston, MA

• Flagship meeting for UNISPACE+50
• Keynote talks and panels discussion on: Space Weather Policy Issues
• Economic Impact & Global response
• Science workshop: talks & posters
• ISWI instrument collaboration

Previous UN/ISWI Workshops in: Bulgaria, Ethiopia, India, Japan, Korea, Nigeria, Ecuador, Zambia
Space Weather: Policy & Economic Impact
UNISPACE+50
ISWI Science
Jul 31-Aug 4 2018
Science Sessions: Posters & Talks
100-150 participants in UN/ISWI workshops
Primary sponsors: UNOOSA & ISWI
Local support from the host
Additional sponsors that vary from place to place
Publication in refereed journals based on science presentations
Objectives:
• Encourage the scientific use of space data by scientists in developing countries
• Provide a highly practical training in the use of space data from current missions

Details:
• Coronal mass ejections and shocks: sources of extreme space weather
• Data from many space missions + ground-based instruments
• First week of lectures; second week of data analysis by six groups (with an embedded lecturer in each group)
• Daily progress reports and final presentations; continued collaboration post-workshop
Final presentations made by students after daily progress reports
• Hands-on experience
• Training in python
• Web-based tools
• Analysis & interpretation
• Research report
• ISWI instrument donated to Ethiopia
• USA, Japan, Germany, France, Armenia, and Brazil provide SWx instruments
• Currently 18 networks with >1000 instruments in >100 countries
• Important ISWI capacity building activity

SCOSTEP/ISWI scientists interact with high school students

iswi-secretariat.org
A total of 1045 instruments located in 112 countries
Summary

• ISWI, COSPAR, and SCOSTEP are international scientific organizations heavily involved in space weather capacity building activities.
• There is close collaboration between these organizations to exploit the synergy.
• The activities provide all aspects of the Sun-Earth connected system with prominent focus on SWx: From the interior of the Sun to the interior of Earth.
• Hundreds of PhD students and young scientists have been trained in space weather and imparted with the skills needed to do research in space weather science.
• Participation by other organizations are welcome.