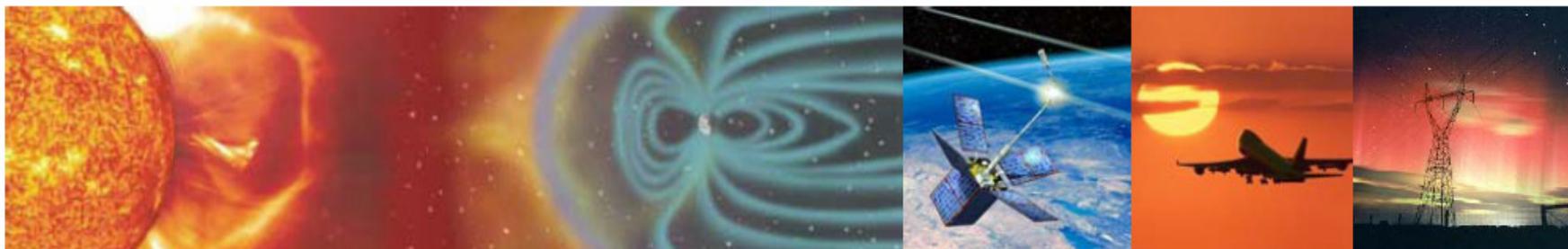


The International Space Weather Initiative

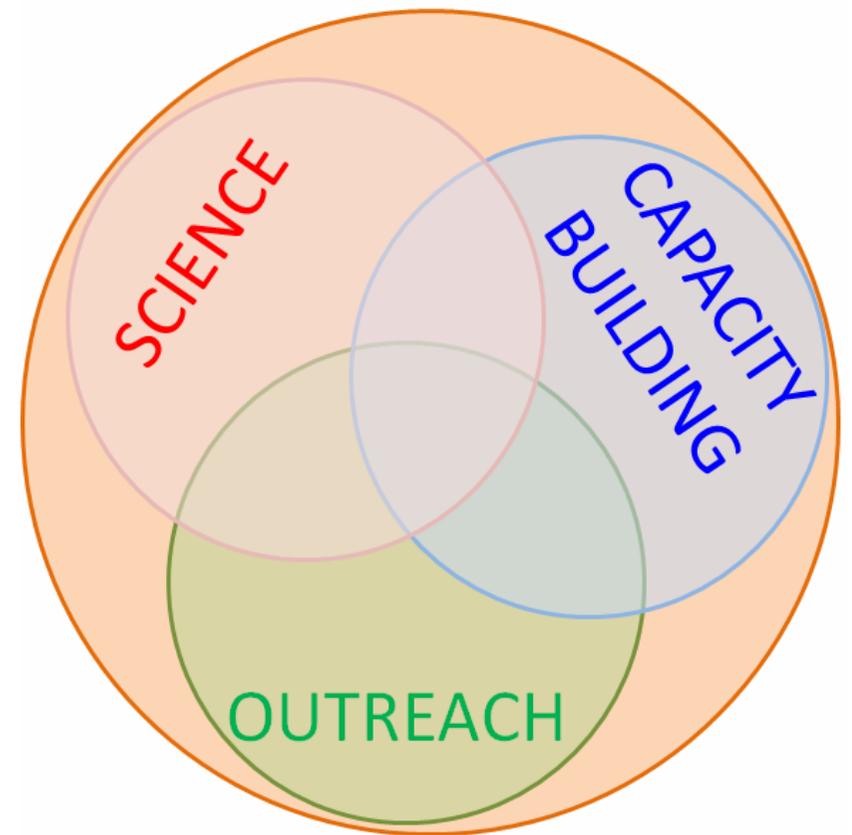
Nat Gopalswamy, ISWI Executive Director

NASA GSFC, Maryland, USA



Science, Capacity Building & Outreach

- ISWI is a program of **international cooperation** to advance the space weather science by a combination of instrument deployment, analysis and interpretation of space weather data
- Grass-roots organization – **bottoms-up** approach to produce a space-weather-literate communities especially in developing countries
- Accomplished via **workshops, schools, and public events**
- Collaboration with SCOSTEP, ILWS, & COSPAR



What is IHY?



- IHY is a program of international cooperation in science and outreach, which will run for two years: March 2007-March 2009
- The IHY Opening Ceremony was held in February 2007 at the United Nations in Vienna.
- IHY is an official United Nations program, proclaimed by a U.N. General Assembly Resolution.
- Currently, 76 nations have IHY organizing committees, and there are IHY activities in most U.N. member states

International Heliophysical Year (IHY 2007)

Fostering International Scientific Cooperation

<http://www.ihy2007.org>

IHY Scientific Goals

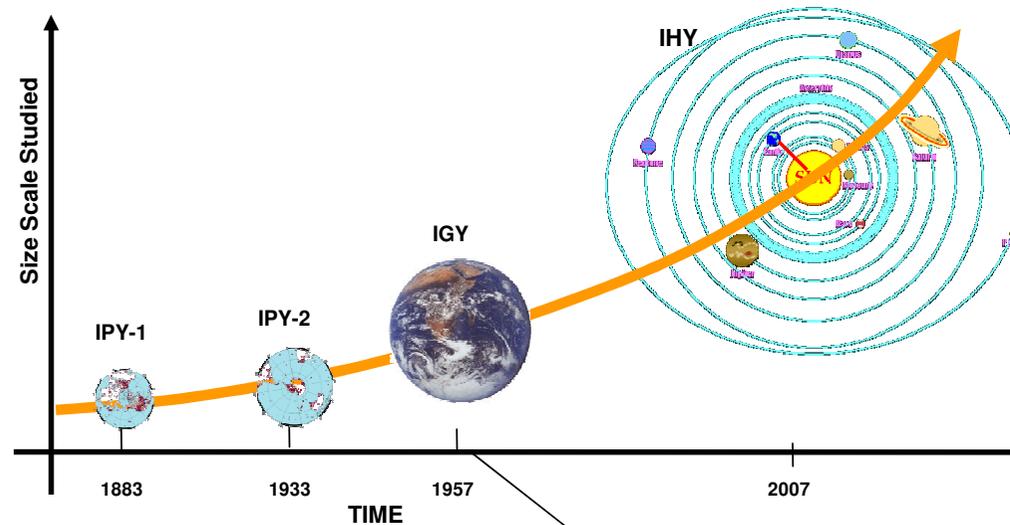
Understand Earth's response to the global processes and drivers which affect planetary and terrestrial atmosphere and climate

Understand the Sun-heliosphere system outward to the heliopause -- The new frontier

Foster international scientific cooperation in the study of Heliophysical phenomena now and in the future

Communicate the unique scientific results of the IHY to the scientific community and to the general public

Inspire the next generation explorers

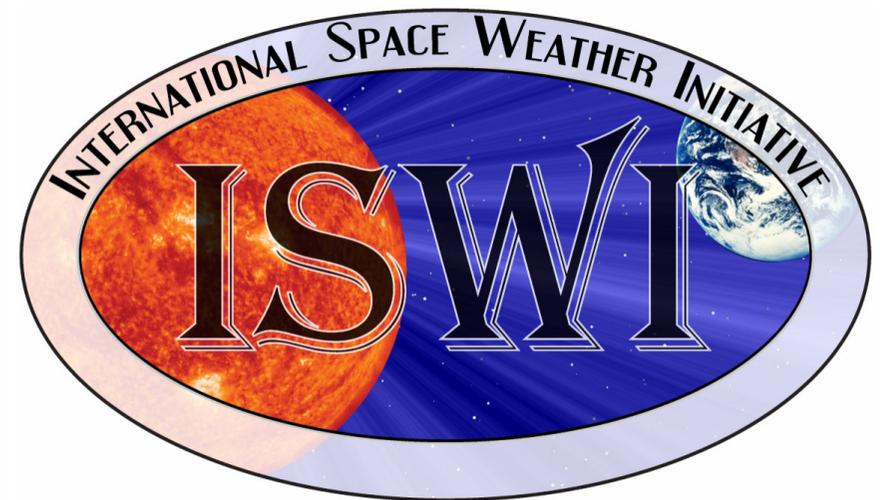
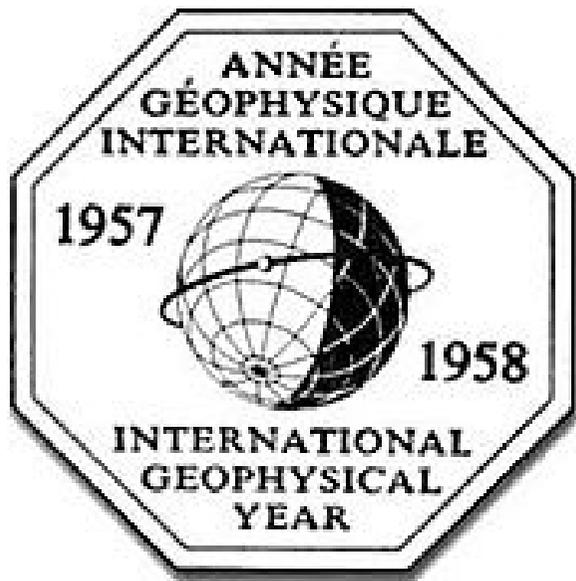


NASA and Space Science were born during IGY 1957-58

IHY 2007 will extend the spirit of IGY to study the universal physical processes in the heliosphere

In 1957 we were sticking our heads above Earth's atmosphere. In 2007 we will stick our thumb into the LSIM

Links to the Past and Future



http://ISWI-secretariat.org

International Space Weather Initiative
ISWI

38,292 Visitors
19 Nov 2009 - 2 Dec 2013
Click to see

HOME About Organization Projects Meetings Publications News&Blogs

ISWI current projects are 17 (May 16, 2013)

Good Evening.
Welcome to: International Space Weather Initiative (ISWI)

ISWI is a program of international cooperation to advance the space weather science by a combination of instrument deployment, analysis and interpretation of space weather data from the deployed instruments in conjunction with space data, and communicate the results to the public and students.

ISWI is a follow-up activity to the successful IHY 2007, but focusing exclusively on space weather.

The goal of the ISWI is to develop the scientific insight necessary to understand the science, and to reconstruct and forecast near-Earth space weather. This includes instrumentation, data analysis, modeling, education, training, and public outreach.

© ISWI 2018

ANTARCTICA



Mitko Danov
Web Master

ISWI

(International Space Weather Initiative)

Newsletter

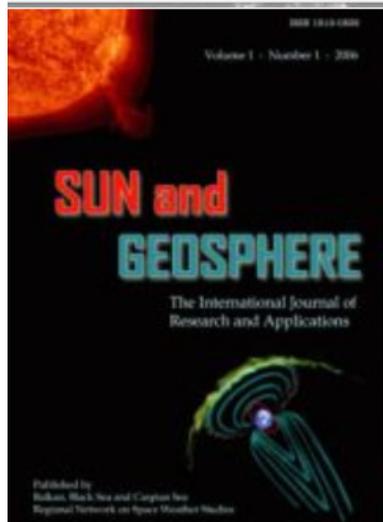
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SUN and GEOSPHERE

International Journal of Research and Applications

online ISSN 2367-8852

Sun and Geosphere is a peer-reviewed international journal published by the **Balkan, Black Sea and Caspian Sea Regional Network on Space Weather Studies (BBC SWS Regional Network)**.

The **BBC SWS Regional Network** was founded in June 2005 by decision of the "IHY Regional planning meeting for the Balkan and Black Sea region", *Sozopol, Bulgaria, 6–8 June 2005* ([see Protocol](#)). In this protocol as item 3 (below the MEMORANDUM OF UNDERSTANDING) is written

*"The Regional Network will publish an International referred Scientific Journal **SUN and GEOSPHERE** with international editorial board."*

The first issue of the magazine was printed in early 2006 in Baku Azarbeydzhan. First Editor-in-Chief was Elchin Babayev from **ShAMAKHY Astrophysical Observatory ShAO**. He is now Honorary Editor.

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"Sun and Geosphere" appears twice a year and is open to original contributions in solar and solar-terrestrial physics also to all topics included in "Space Weather".



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ZAGREB

Posjeti građana: uto-pet 20:00-22:00 (od 1.I. do 31.V. i od 16.VI. do 31.VIII.)
vrijeme (nema promatranja!): pon-pet 09-14. Subotama, nedjeljom i praznicima

Astronomski podaci+ Programi+ 0

PROGRAMI / ZNANOST I STRUČNI RAD /

IHY-ISWI Regional Meeting



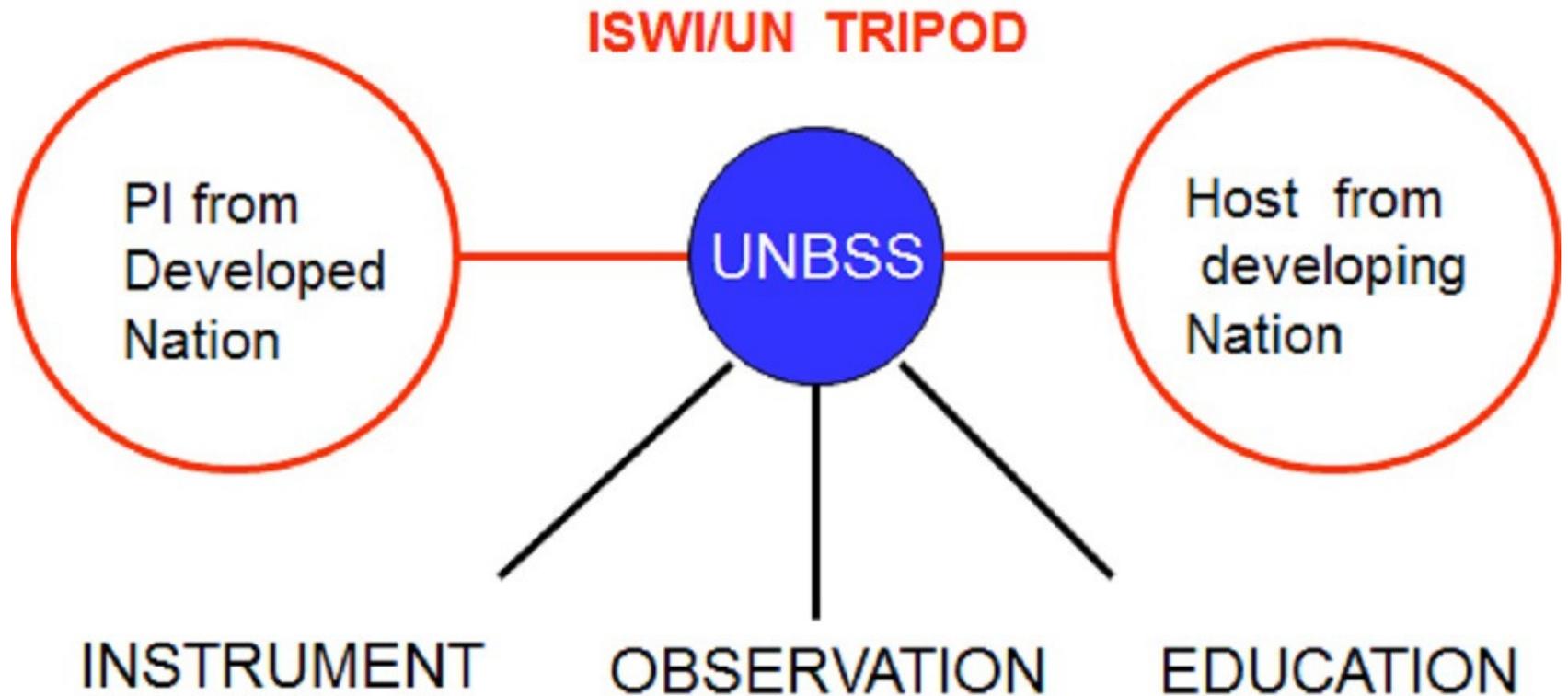
ZVJEZDARNICA
ZAGREB



Heliophysical phenomena and Earth's environment
7-13 September 2009, Šibenik, Croatia

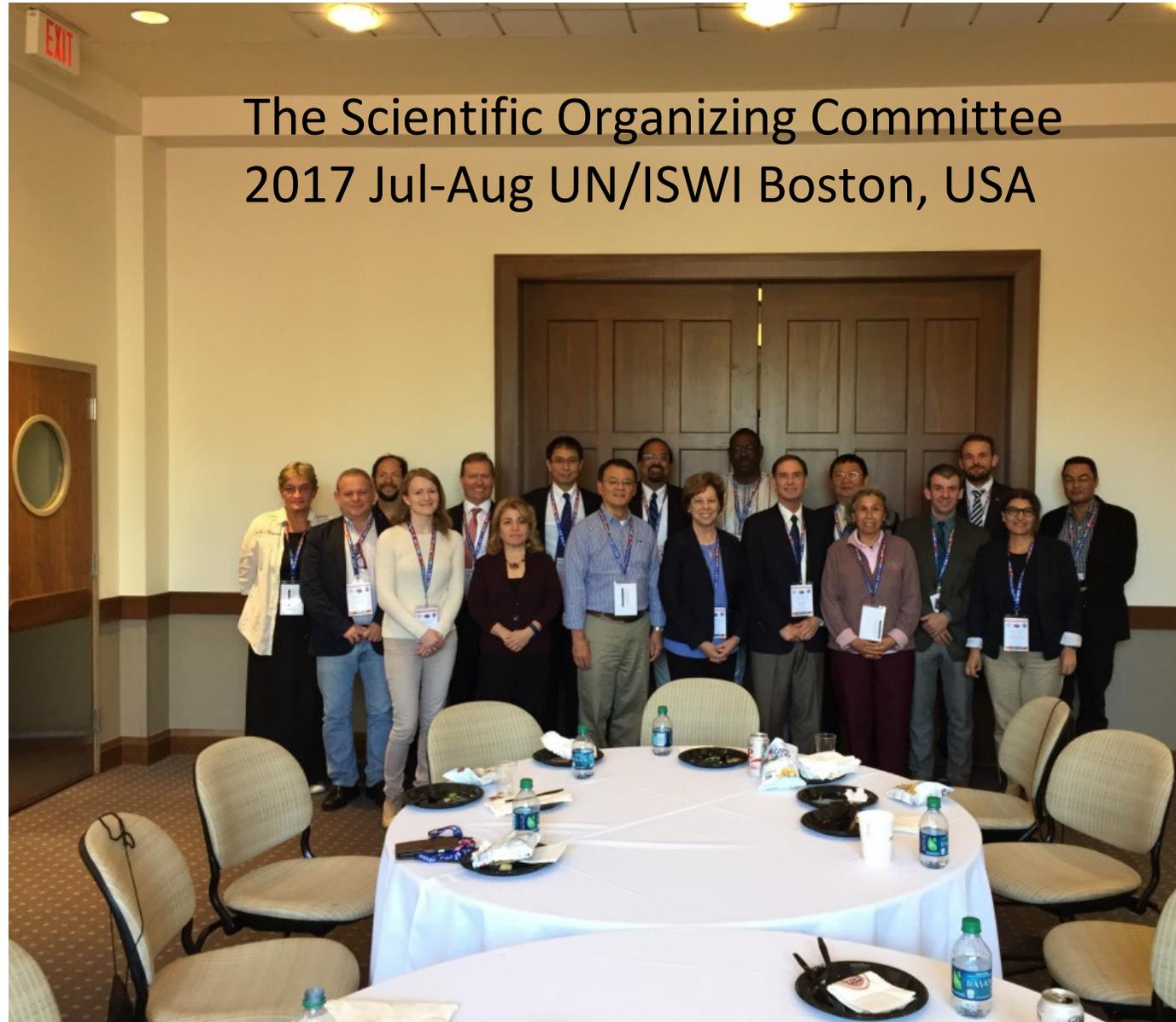
The UN Connection

GNSS
for Space
Weather
Applications



More from Shafa Gadimova

The Scientific Organizing Committee
2017 Jul-Aug UN/ISWI Boston, USA



SOC Co-Chairs
Shafa & Nat



Objectives of Capacity Building

- Training in handling space-weather instruments
- Training in data handling
- Training in data analysis and interpretation

- Running advanced schools introducing topics from the solar interior to surface of Earth
- Hands-on experience to handle instruments and data sets
- Running intense mini workshops to target students/faculty handling a specific instrument group (OMTI, MAGDAS, SCINDA, CALLISTO, ...)
- Running ISWI workshops to enhance the general background in space weather

General Guidelines

- To provide intense training to students and young scientists on the Sun – Earth System and Space Weather
- Tailored to suit the scientific interest of the region (expertise, instruments hosted, ...)
- Typically supported by local scientific bodies and ISWI
- Potential co-sponsors: UNOOSA, SCOSTEP, EOARD, COSPAR, ICTP, ILWS, ...

ISWI School – Bahir Dar Ethiopia: 28 Oct – 4 Nov 2010



SPONSORS





2011 ISWI-Europe Summer School in Space Science

August 21-27, 2011, Astronomical Institute of the SAS, Tatranská Lomnica, Slovakia

Background Information >

Background Information

 Print

Major Topics

Poster

Scientific Program

Lecturers

Selected Candidates

Co-organizers

Venue and Transportation

Accommodation

Technical Remarks

Local Organizing Committee

Visa Information

Contacts

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Photo Gallery

Movies of A. Gojdicova

The ISWI is a follow-up activity to the successful IHY 2007 (that conducted many programs not only to popularise space science all over the world but also to create favorable conditions for joint research and training in some sort of global framework), but focusing exclusively on space weather. European scientists are successfully participating in the ISWI and many research level scientific instruments have been installed in many parts of Europe in the framework of the IHY and ISWI. In order to make maximum use of these and other similar initiatives and establish strong space research groups in Europe, a high level training of young students and researchers is very crucial. The present summer school is a continuation of the African Regional ISWI School, which was conducted during October 28-November 4, 2010 in Ethiopia and its major objectives include teaching the fundamental knowledge and skills in

- Fundamental and Space Physics
- Computational Space Physics
- Modern data analysis and Interpretation Methods
- Scientific Instrumentation for Space Exploration
- Programming using Open source.

http://stara.suh.sk/id/iswi/summer_school/

<https://iswi-secretariat.org>

Excursion to the Lomnický Peak Observatory

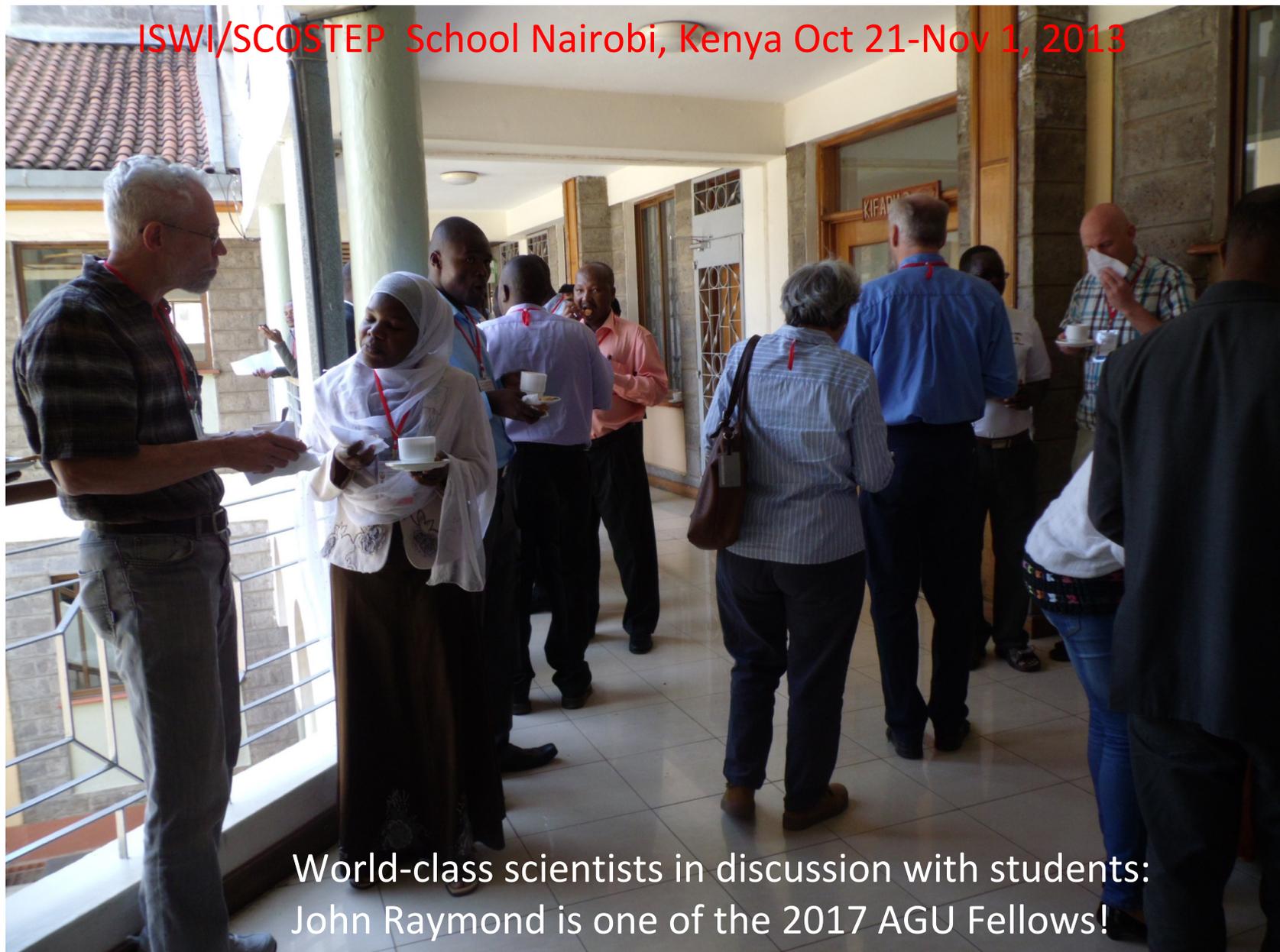
24 August 2011



Space Science Schools: ISWI/SCOSTEP Partnership



ISWI/SCOSTEP School Nairobi, Kenya Oct 21-Nov 1, 2013



World-class scientists in discussion with students:
John Raymond is one of the 2017 AGU Fellows!

COLAGE Mini School (2018)

- Latin American School on Data Analysis and Simulations for Space Physics
- *April 23-26, 2018, Buenos Aires, Argentina*
- **3 Lecturers** supported by ISWI
- - *Planetary Magnetospheres*, **Dr. Frances Bagenal** (University of Colorado, USA)
- - *Particle acceleration and shocks*, **Dr. David Ruffolo** (Mahidol University, Thailand)
- - *Turbulence in the Solar Wind*, **Dr. William H. Matthaeus** (University of Delaware, USA)
- - *Space Weather*, Dr. Clezio DeNardin (INPE, Brazil)
- - *Solar and Heliospheric Physics*, Dr. Nat Gopalswamy (NASA GSFC, USA)



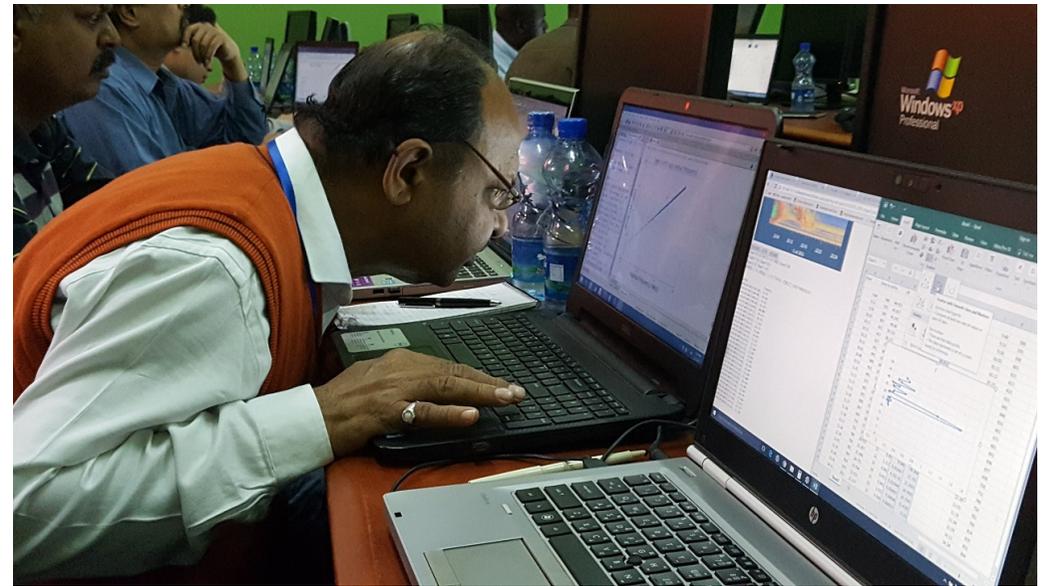
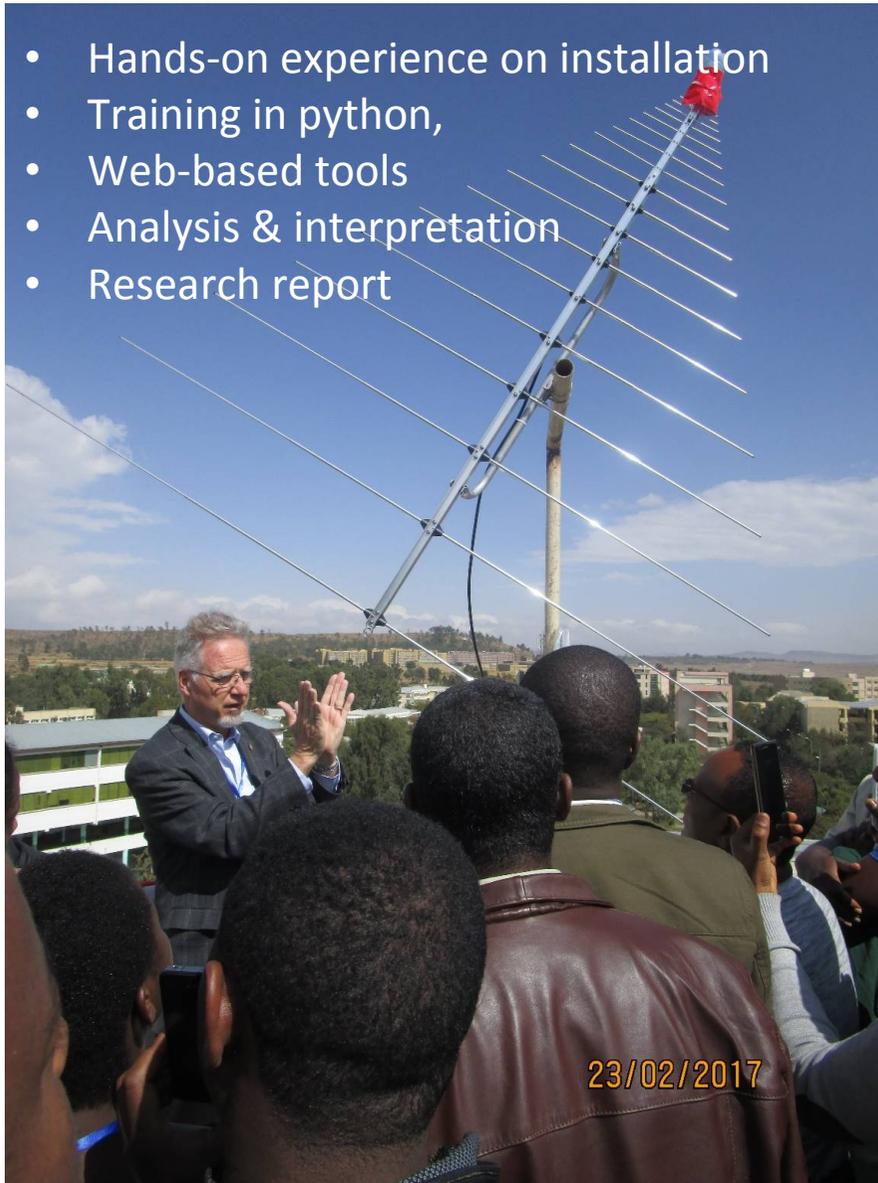
ISWI Instrument Sites: 1000s trained



19 Instrument Networks
iswi-secretariat.org

- Scientists from developing and developed nations work together in deploying and operating space weather instruments (currently there are more than 1000 deployments in more than 100 countries)
- Students and faculty participate at all levels of the instrument project and science
- 18 instrument networks from 8 countries (USA, Germany, Japan, Brazil, France, Israel, Armenia, Switzerland)

- Hands-on experience on installation
- Training in python,
- Web-based tools
- Analysis & interpretation
- Research report

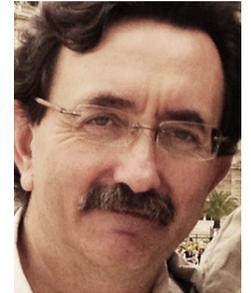


ISWI Mini Workshop – Mekelle University Feb 19-25, 2017



Two New ISWI Instrument Networks

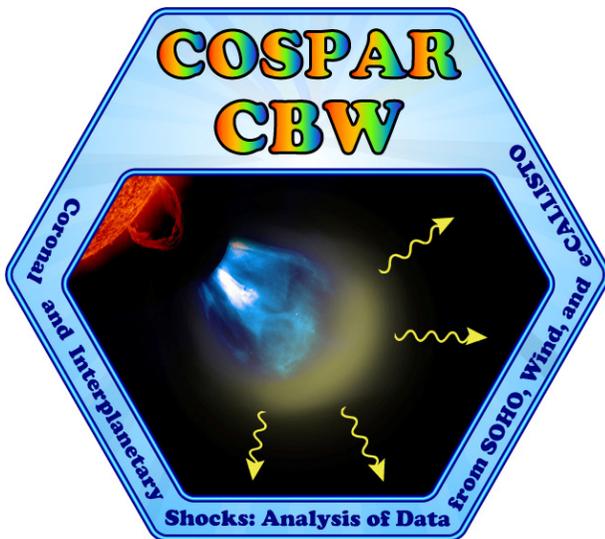
- Realistic Ionosphere Ionosphere (RI) headed by Drs Bodo Reinisch and Ivan Galkin from the University of Massachusetts Lowell
- BU All Sky Imagers (BU_ASI) headed by Drs Carlos Martinis and Michael Mendillo from Boston University
- There are 19 networks now



<http://ISWI-secretariat.org>

COSPAR Capacity Building Workshop on Shock Waves from the Sun **May 21 - June 1, 2018, Mekelle, Ethiopia**

- The main objective of the COSPAR Capacity-Building Workshops is to encourage the scientific use of space data by scientists in developing countries.
- Accordingly, the Mekelle workshop will involve analysis of data from SOHO, STEREO, ACE, Wind missions in conjunction with ground based radio data from ISWI instruments
- To benefit about 30 PhD students from Ethiopia, African countries, and other countries in the region
- Scientists from Ethiopia, Greece, India, Italy, UK, USA will lecture and run hands-on activities in analyzing space- and ground-based data
- Agencies interested in space weather are co-sponsoring



Outreach Activities: ISWI School lecturers give public lectures and interact with high school students

- Question-answer session with about 100 science students from local high schools during the ISWI/SCOSTEP School on Space Science in India – Nov 2016



Debbie Scherrer explains how to make a spectrograph during the teacher workshop

