題名　ISWI Newsletter - Vol. 4 No. 116
差出人　George Maeda

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* ISWI Newsletter - Vol. 4 No. 116 5 November 2012 *
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*  I S W I = International Space Weather Initiative *
*  (www.iswi-secretariat.org) *
*
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Attachment(s):
(1) "UNBSSI Quito presentation", 2.1 MB pdf, 20 pages.

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: Re:
: UNBSSI and some of its achievements
: - the start of WGSSA in South Africa
: - short web article on UN/Ecuador Workshop on ISWI
:

Dear ISWI Participant:

The Quito workshop was Number 20 in a long series of annual
UNBSSI workshops. It is now a time to reflect on them, and
review them in some way.

I start by attaching the UNBSSI presentation that was
delivered at Quito last month. This pdf contains both
the presentation abstract and the PowerPoint that was
delivered at Quito by the representatives from UNOOSA
(United Nations Office for Outer Space Affairs).

One remarkable achievement of UNBSSI is visible here
: http://www.saao.ac.za/~wgssa/index.php
This South African initiative (WGSSA) started in 1997 and is still
going strong under the stewardship of Dr. Peter Martinez.
They put out a publication at least annually. The WGSSA
publications can all be viewed here:
: http://www.saao.ac.za/~wgssa/archive.php
----------> It is an impressive collection.

Finally, for today, the OOSA/UNPSA website now has text
and photos on the "UN/Ecuador Workshop on ISWI."
Please visit here
: http://www.unoosa.org/oosa/en/sapidx.html
to see the text and photos; this information was courtesy
of UNOOSA. This workshop, too, was an achievement of UNBSSI.

Faithfully yours,
: George Maeda
: The Editor
: ISWI Newsletter

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I S W I Newsletter
under the auspices of the United Nations

This pdf was circulated in Volume 4, Number 116, on 5 November 2012.

The following are

(1) Abstract for the UNBSSI PowerPoint presentation at UN/Ecuador Workshop on ISWI.

(2) The presentation itself.

# UNITED NATIONS PROGRAMME ON SPACE APPLICATIONS

United Nations Basic Space Science Initiative (UNBSSI) 1991-2012

S. Gadimova and H.J. Haubold, Office for Outer Space Affairs, United Nations, Vienna International Centre, Vienna, Austria, Sharafat.Gadimova@unvienna.org

The UNBSSI is a long-term effort for the development of astronomy and space science through regional and international cooperation in this field on a worldwide basis, particularly in developing nations. UNBSSI workshops are co-sponsored and co-organized by ESA, JAXA, and NASA.

A series of workshops on BSS was held from 1991 to 2004 (India 1991, Costa Rica and Colombia 1992, Nigeria 1993, Egypt 1994, Sri Lanka 1995, Germany 1996, Honduras 1997, Jordan 1999, France 2000, Mauritius 2001, Argentina 2002, and China 2004; http://neutrino.aquaphoenix.com/un-esa/) and addressed the status of astronomy in Asia and the Pacific, Latin America and the Caribbean, Africa, and Western Asia. Through the lead of Professor Dr. Masatoshi Kitamura (1926-2012) from the National Astronomical Observatory Japan, astronomical telescope facilities were inaugurated in

seven developing nations and planetariums were established in twenty developing nations based on the donation of respective equipment by Japan.

Pursuant to resolutions of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) and its Scientific and Technical Subcommittee, since 2005, these workshops focused on the preparations for and the follow-ups to the International Heliophysical Year 2007 (UAE 2005, India 2006, Japan 2007, Bulgaria 2008, South Korea 2009; http://www.unoosa.org/oosa/SAP/bss/ihy2007/index.html). IHY's legacy is the current operation of 16 worldwide instrument arrays with close to 1000 instruments recording data on solar-terrestrial interaction from coronal mass ejections to variations of the total electron content in the ionosphere (http://iswi-secretariat.org/). Instruments are provided to hosting institutions by entities of Armenia, Brazil, France, Israel, Japan, Switzerland, and the United States.

Starting in 2010, the workshops focused on the International Space Weather Initiative (ISWI) as mandated in a three-year-work plan as part of the deliberations of UNCOPUOS. Workshops on ISWI were scheduled for Egypt in 2010 for Western Asia, Nigeria in 2011 for Africa, and Ecuador in 2012 for Latin America and the Caribbean. The latter one was held from 8-12 October 2012 at the Astronomical Observatory of Quito (http://oaq.epn.edu.ec/iswi/index.html ). This workshop will review the results of the operation of the above instrument arrays and will discuss ways and means to continue space weather research and education, particularly focusing on programmes as implemented by the International Center for Space Weather Science and Education at Kyushu University, Fukuoka, Japan (http://www.serc.kyushu-u.ac.jp/index_e.html ), which was established through the UNBSSI in 2012. Similar research and education centers were also established in Nigeria (http://www.cbssonline.com/aboutus.html ) and India (http://www.cmsintl.org/ ).

Activities of UNBSSI are also coordinated with the Regional Centres for Space Science and Technology Education, affiliated to the United Nations (http://www.unoosa.org/oosa/en/SAP/centres/index.html ) and the International Committee on Global Navigation Satellite Systems (http://www.unoosa.org/oosa/en/SAP/gnss/icg.html ).

Further Reading:

W. Wamsteker, R. Albrecht, and H.J. Haubold (Eds.): Developing Basic Space Science World-Wide: A Decade of UN/ESA Workshops, Kluwer Academic Publishers, Dordrecht/Boston/London 2004.

B.J. Thompson, N. Gopalswamy, J.M. Davila, and H.J. Haubold (Eds.): Putting the "I" in IHY: The United Nations Report for the International Heliophysical Year 2007, Studies in Space Policy Volume 3, Springer, Wien/New York 2009.

K. Yumoto (Ed.): Selected Papers of MAGDAS for ISWI/MAGDAS School on Litho-Space Weather, 15-20 August 2011, International Center for Space Weather Science and Education, Kyushu University, Fukuoka, Japan, 2012, pp. 264.

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# *United Nations Basic Space Science Initiative*

# *International Heliophysical Year 2007*

# *International Space Weather Initiative*

Sharafat Gadimova and Hans Haubold

United Nations Office at Vienna
Office for Outer Space Affairs
Space Applications Section

***United Nations/Ecuador Workshop on the International Space Weather Initiative***

***08 – 12 October 2012***

***Quito, Ecuador***

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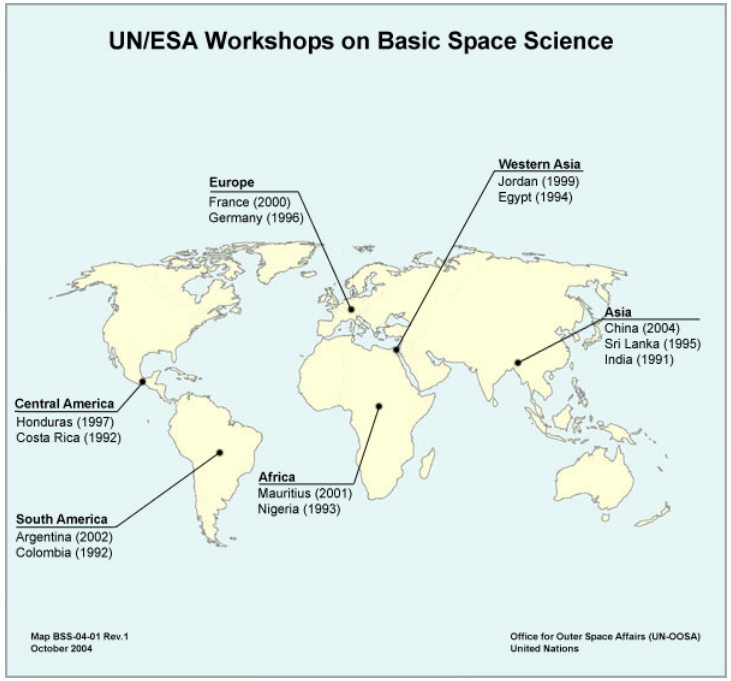
## *Workshops on Basic Space Science (1991 – 2004)*

***The status of astronomy in Asia and the Pacific, Latin America and the Caribbean, Africa, and Western Asia were addressed in the following series of workshops:***




- **Regional:**
  **India (1991), Costa Rica (1992), Colombia (1992), Nigeria (1993), Egypt (1994)**

- **Inauguration of optical telescopes:**
  **Sri Lanka (1995), Honduras (1997), Jordan (1999)**

- **International:**
  **Germany (1996), France (2000), Mauritius (2001), Argentina (2002)**

- **Review of all workshops:**
  **P.R. China (2004)**

***Website: http://neutrino.aquaphoenix.com/un-esa/***

## *Workshops on Basic Space Science (BSS): 1991 – 2004*

- **Through the Official Development Assistance (ODA) of Japan astronomical telescope facilities were inaugurated in 7 developing nations, and planetariums in 20 developing nations**
- **Teaching material, hands-on astrophysics material, and variable star observing programmes had been developed for the operation of such astronomical telescope facilities in an university environment: basic space science TRIPOD concept**

### BSS TRIPOD: Telescope, Observing, Teaching

- **Equipment: astronomical telescope**
  - **National Astronomical Observatory Japan (NAOJ), Government of Japan**
- **Data taking and analysis: observing programmes**
  - **American Association of Variable Star Observers (AAVSO)**
- **Teaching: astrophysics for university physics courses**
  - **International Astronomical Union (IAU)**

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## *Workshops on Basic Space Science (1991 – 2004):*

## *BSS TRIPOD –Telescope, Observing, Teaching*

- **Government of Japan (NAOJ): Japanese Cultural Grant Aid**
  - 45cm reflecting telescope
  - CCD & computer equipment
  - Building/ dome/ maintenance provided by local institution
- Singapore 1987, Indonesia 1988, Thailand 1989, Sri Lanka 1995, Paraguay 1999, The Philippines 2000, Chile 2001, Mongolia 2008

- **American Association of Variable Star Observers (AAVSO):**
  - Hands-on Astrophysics
  - Setting Up a Variable Star Observing Programme
  - Astronomy, mathematics, computer science


- **International Astronomical Union (IAU): Astrophysics for University Physics Courses**
  - Study/ comparison of university education curricula in developing countries
  - Elementary calculus
  - Classical and Statistical mechanics
  - Thermodynamics applied to astronomy

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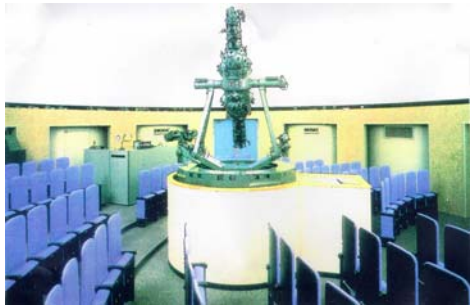
## *Workshops on Basic Space Science (1991 – 2004):*

### *Planetariums*

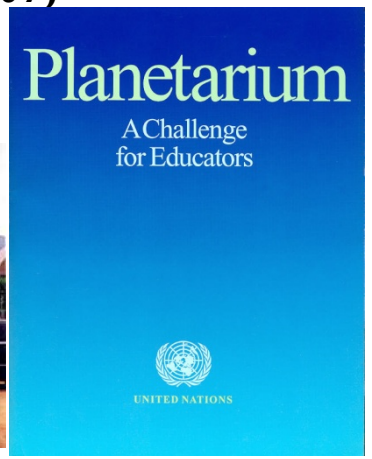
- **Government of Japan: National Astronomical Observatory Japan**
- **Host country**
- **United Nations Office for Outer Space Affairs**
  - **Myanmar (1986), Jordan, Malaysia, the Philippines, India, Argentina, Uruguay, Vietnam (1998), Thailand, Sri Lanka, Uzbekistan, Paraguay, Ecuador, Honduras, Costa Rica, Peru (2003), Bolivia, Cuba, El Salvador (2007)**



Myanmar 1986

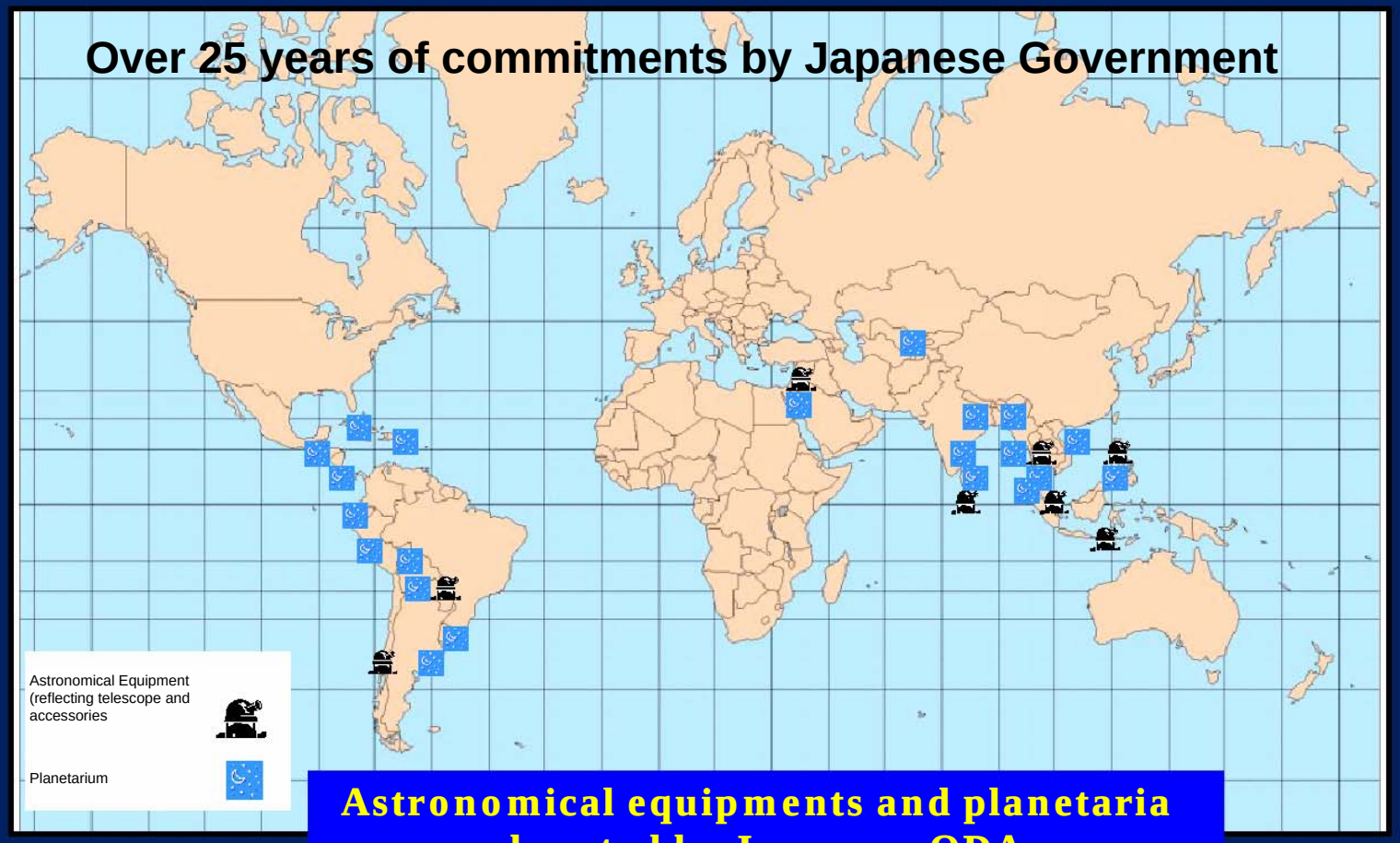
Peru 2003

Viet Nam 1998



## Workshops on Basic Space Science (1991 – 2004):

### Planetariums




**Astronomical equipments and planetaria donated by Japanese ODA**

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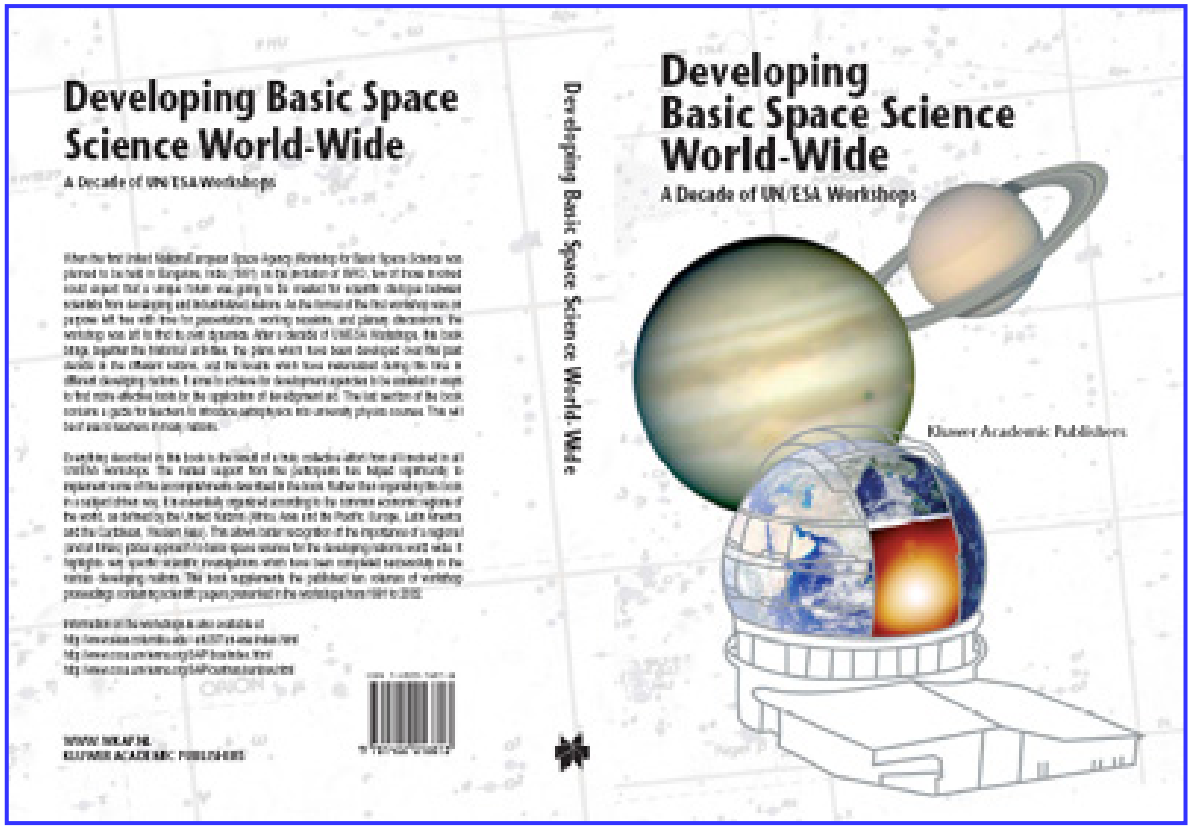
## *Workshops on Basic Space Science (1991 – 2004):*

## *Final Report: Developing Basic Space Science World-Wide*




- **40 workshop follow-up projects**
- **70 scientists and engineers**
  - **Regionally and internationally**

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## *Workshops on International Heliophysical Year 2007 (IHY): 2005– 2009*

***Advancing understanding of the heliospherical processes that govern the Sun, Earth, and Heliosphere, and demonstrating the beauty, relevance, and significance of space and Earth science to the world***

- **2004: Session of UNCOPUOS called for addressing solar-terrestrial interaction: global climate, space weather, Sun-Earth-heliosphere-system**

- **Workshops: United Arab Emirates (2005), India (2006), Japan (2007), Bulgaria (2008), South Korea (2009)**
- **Outreach: flyers, posters, brochures, booklets**
- **Follow-up projects:**
  - **Low-cost, ground-based world-wide instrument arrays**
  - **ADS**
  - **Virtual observatories**
  - **BSS TRIPOD - -> IHY TRIPOD**
  - **GNSS on board of instrument arrays**

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## *Workshops on International Heliophysical Year 2007 (IHY): 2005– 2009*

## *UNBSS TRIPOD - - > IHY TRIPOD*

### *IHY TRIPOD: Instrument Array, Data, Teaching*

- **2005: Deploying small inexpensive instruments such as magnetometers, radio antennas, GPS receivers, particle detectors around the world to make global measurements of ionospheric, magnetospheric and heliospheric phenomena**
  - **Partnerships between instrument providers and instrument host nations**
    - **Provision of instrumentation by PI**
    - **Host institution makes available manpower, facilities, and operational support**
- **Data taking, sharing, analysis, publication**
- **Teaching space science at university level utilizing data**

- ***Coordinated Investigation Programmes*** *in disciplines:* ***heliosphere and cosmic rays, solar, magnetospheres, ionized atmospheres, climate, astro/heliobiology***

**International Heliophysical Year 2007 (IHY2007) to**
**International Year of Astronomy 2009 (IYA 2009)**
**UNGA 62/200 of 2007**

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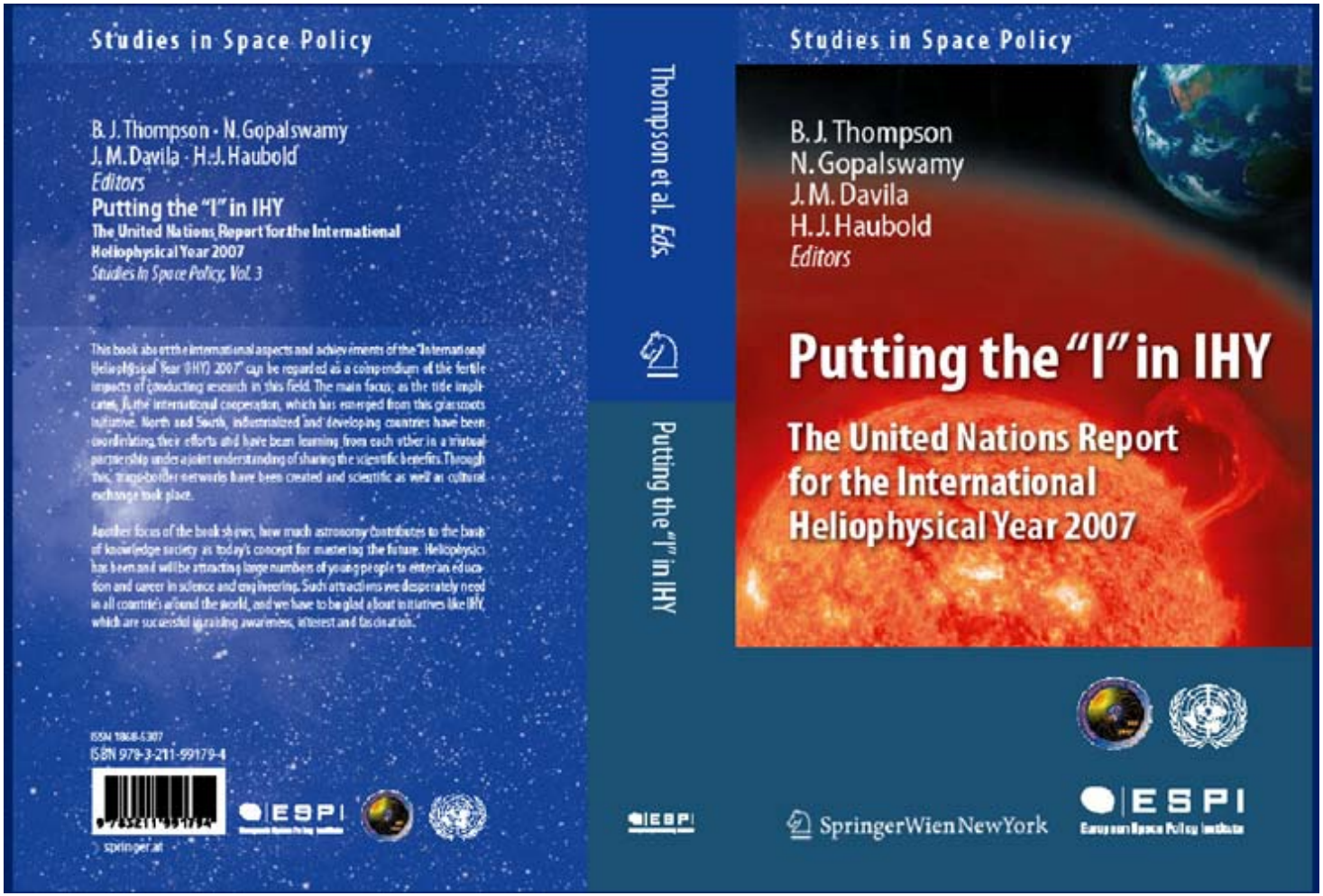
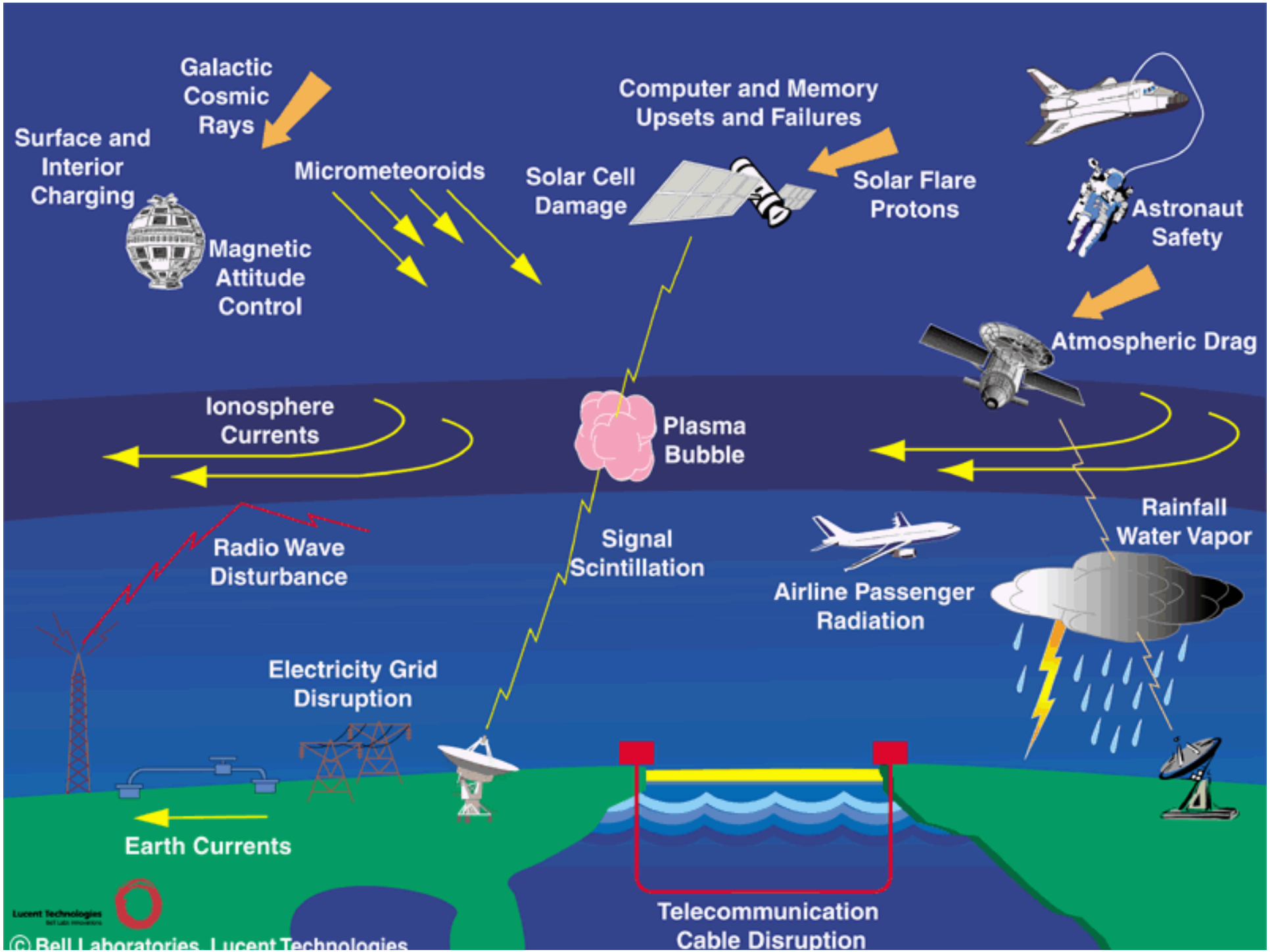
## *Workshops on International Heliophysical Year 2007 (IHY): 2005– 2009*

### *Final Report IHY*




Galactic Cosmic Rays
Surface and Interior Charging
Micrometeoroids
Magnetic Attitude Control
Computer and Memory Upsets and Failures
Solar Cell Damage
Solar Flare Protons
Astronaut Safety
Atmospheric Drag
Ionosphere Currents
Plasma Bubble
Radio Wave Disturbance
Signal Scintillation
Airline Passenger Radiation
Rainfall Water Vapor
Electricity Grid Disruption
Earth Currents
Telecommunication Cable Disruption
Lucent Technologies
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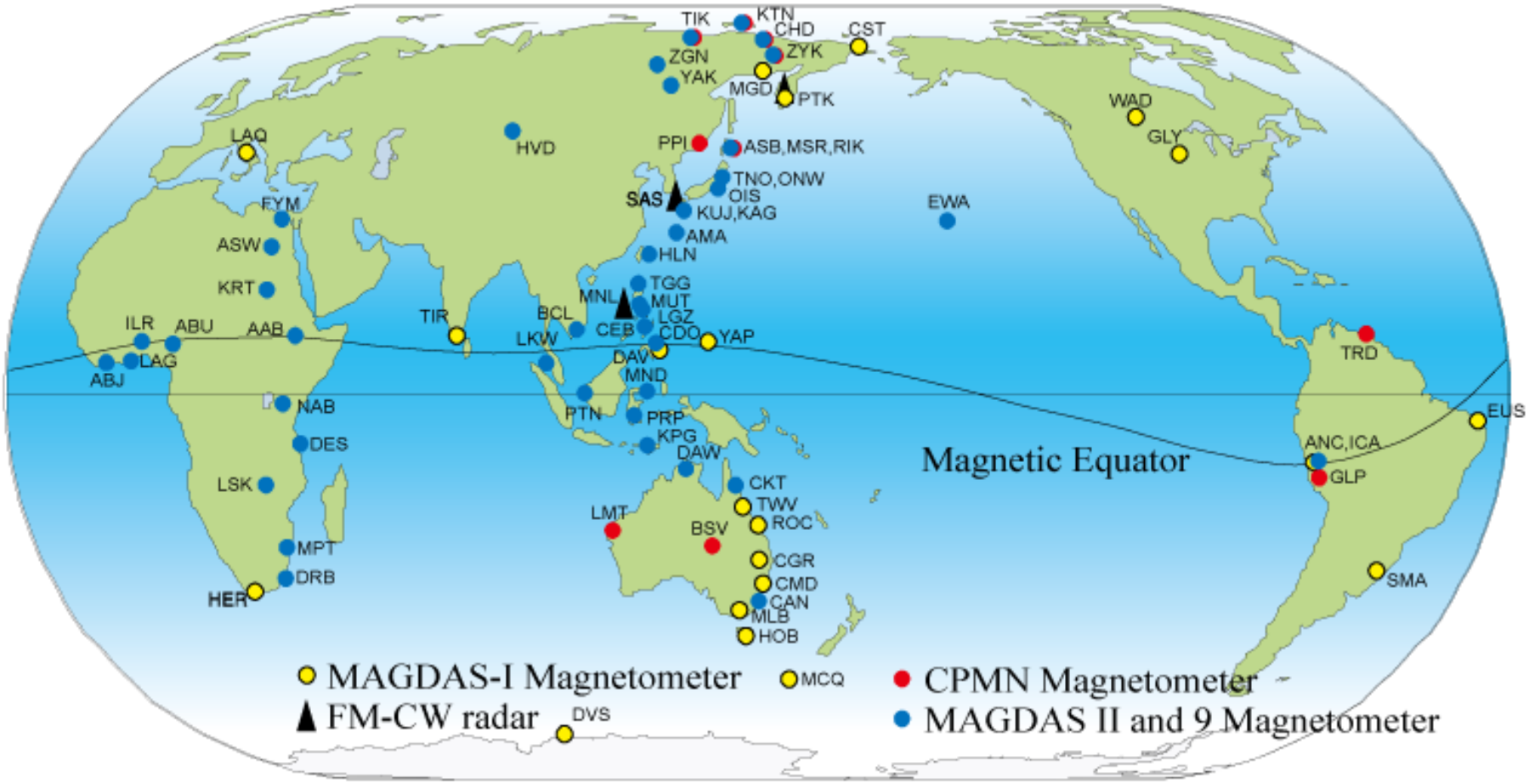
## *Workshops on International Space Weather Initiative (ISWI): 2010– 2012*

***2010: The Workshops focused on the International Space Weather Initiative as mandated in a three-year work-plan as part of deliberation of the United Nations Committee on the Peaceful Uses of Outer Space.***

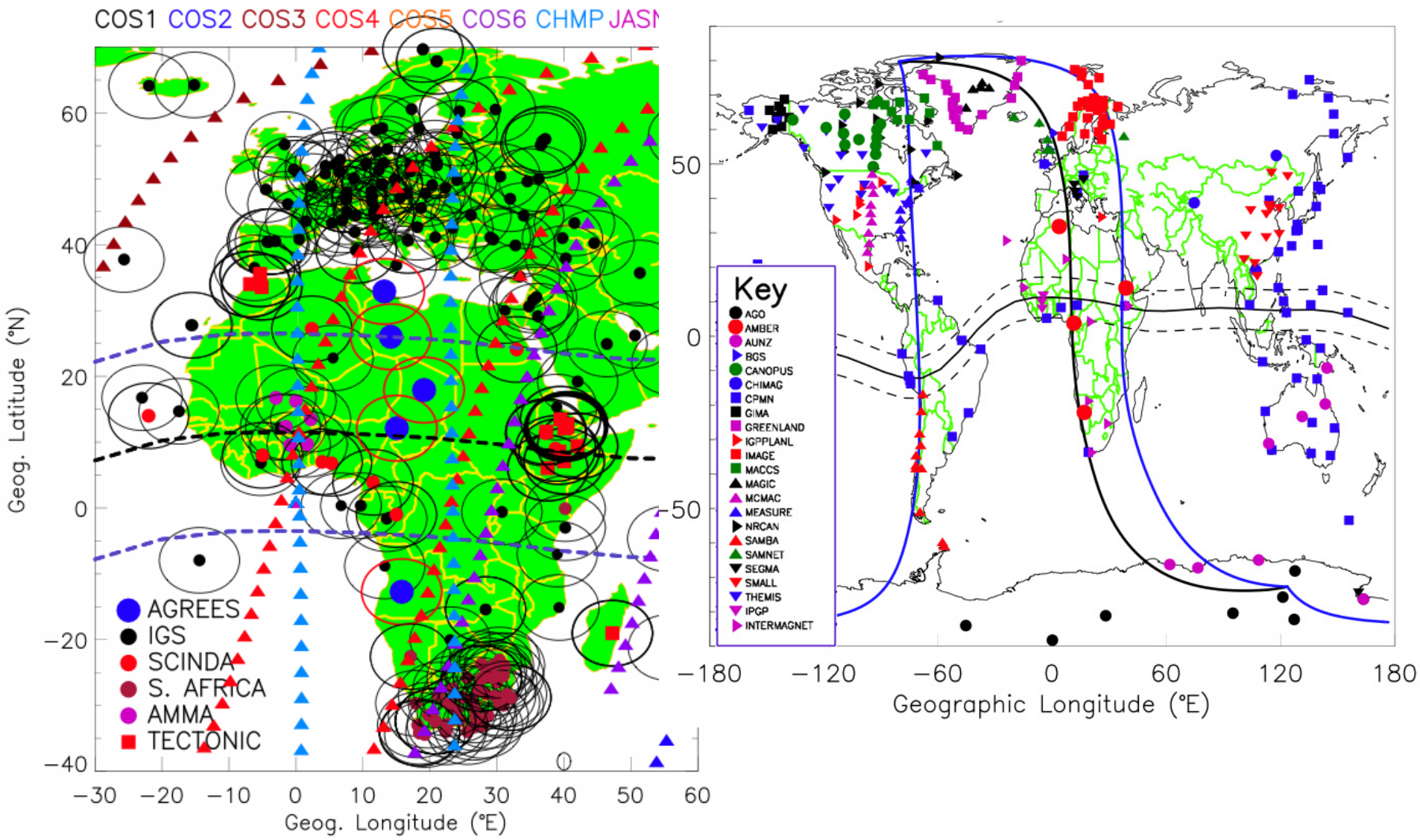
- **Workshops: Egypt (2010), Nigeria (2011), Ecuador (2012)**
  - **Review the results of the operation of the instrument arrays**
  - **Discuss ways and means to continue space weather research and education, particularly focusing on programmes as implemented by the International Centre for Space science and Education at Kyushu University, Fukuoka, Japan**
    - **Similar research centres and education centres were also established in Nigeria and India**

# MAGDAS/CPMN

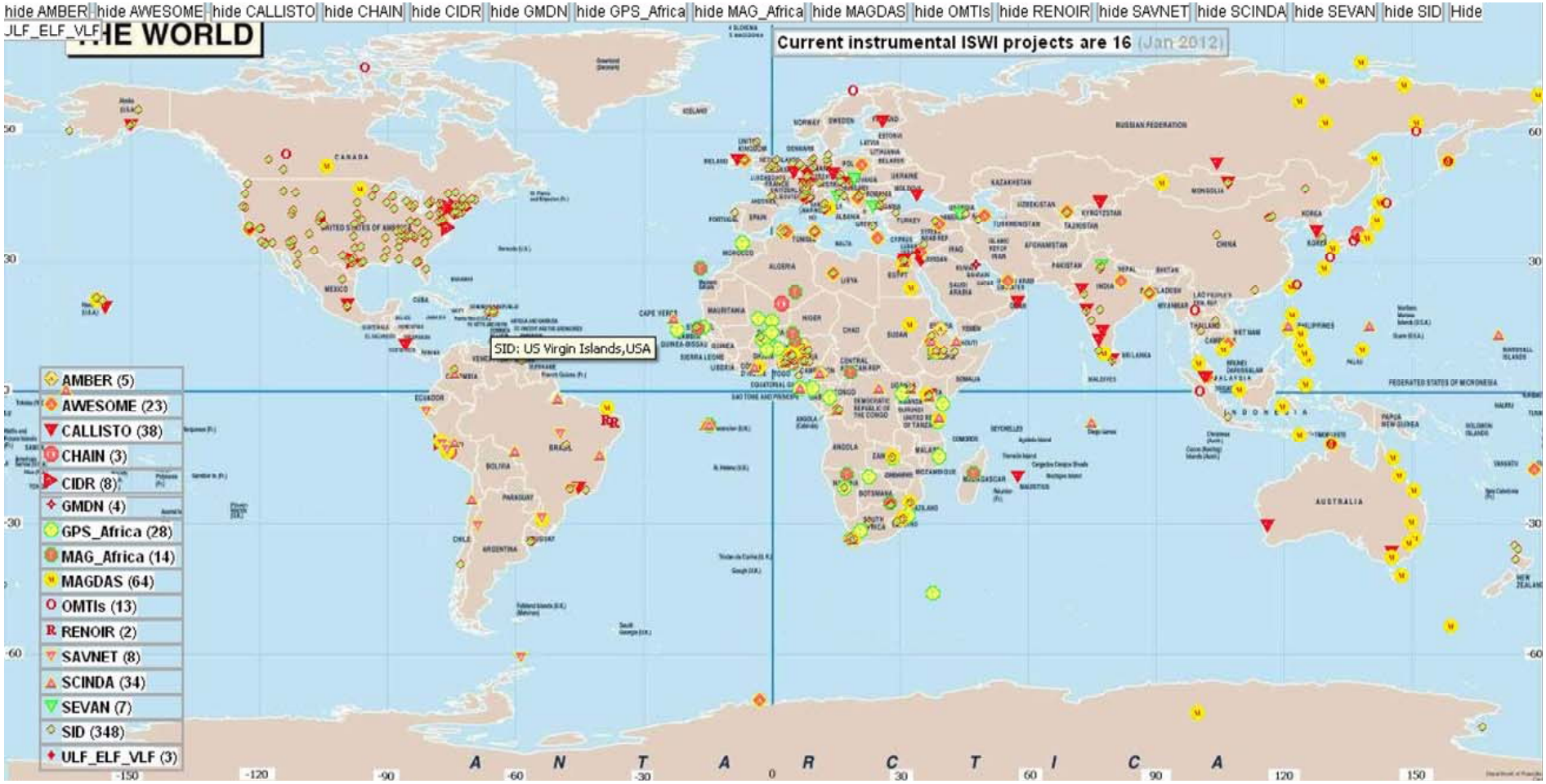
(MAGnetic Data Acqusition System/Circum-pan Pacific Magnetometer Network)




**Location of the 64 MAGDAS stations**




**GPS Network and AMBER Mags**

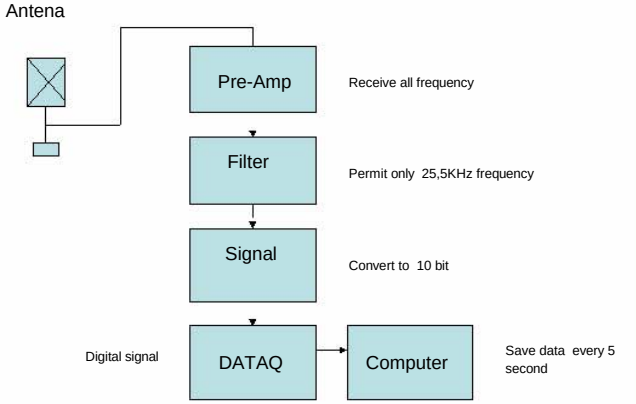


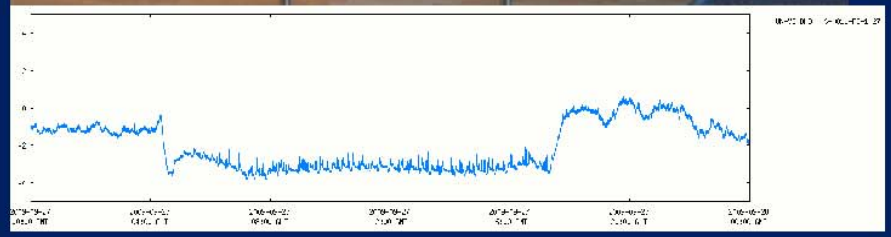

**ISWI 2012: 16 + 2 Instrument Arrays**

# Instrument Programme

## Sudden Ionospheric Disturbance Monitor (SID) operated by UNOOSA


**Principle of SID monitor**



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## *Information Dissemination and Capacity Building*

**Training for capacity building in developing countries:**

***provide support to the regional centres for space science and technology education, affiliated to the United Nations, which also act as the ICG Information Centres***

- ***Africa: Morocco and Nigeria***
- ***Latin America and the Caribbean: Brazil and Mexico***
- ***Asia and the Pacific: India***
- ***Western Asia: Jordan (2011)***

- ***Remote Sensing & GIS, Satellite Meteorology & Global Climate, Satellite Communications, Space & Atmospheric Science and Global Navigation Satellite Systems (in development)***

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