



Office for Outer Space Affairs
United Nations Office at Vienna



UN BASIC SPACE SCIENCE INITIATIVE:

BSS, IHY 2007, ISWI

Hans J. Haubold and Werner Balogh
Office for Outer Space Affairs, United Nations

Information Dissemination: 194 UNDP Offices, Permanent Missions

BSS Workshops 1991-2004

Telescopes, Planetariums

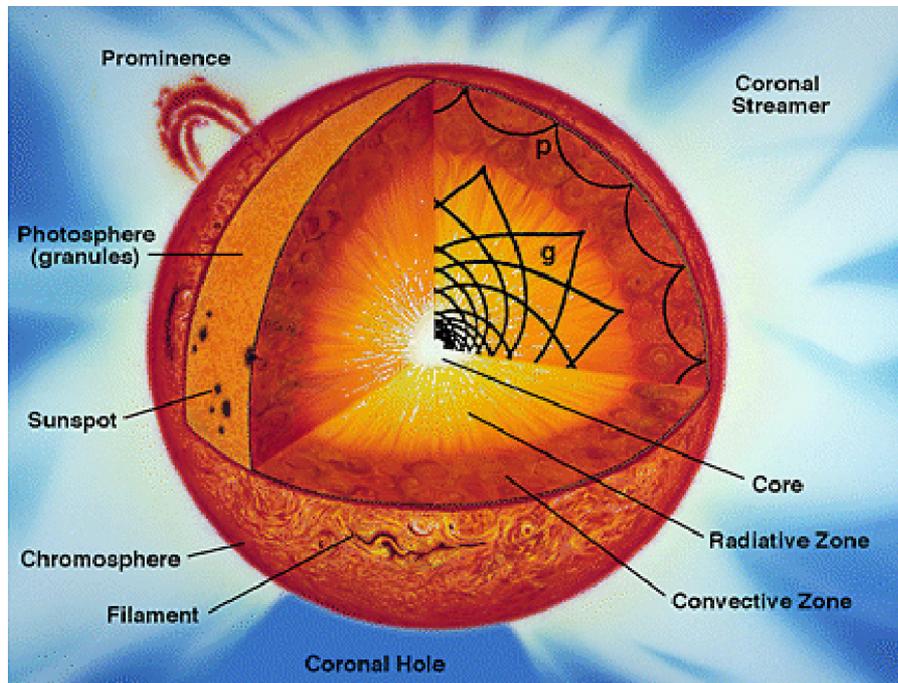
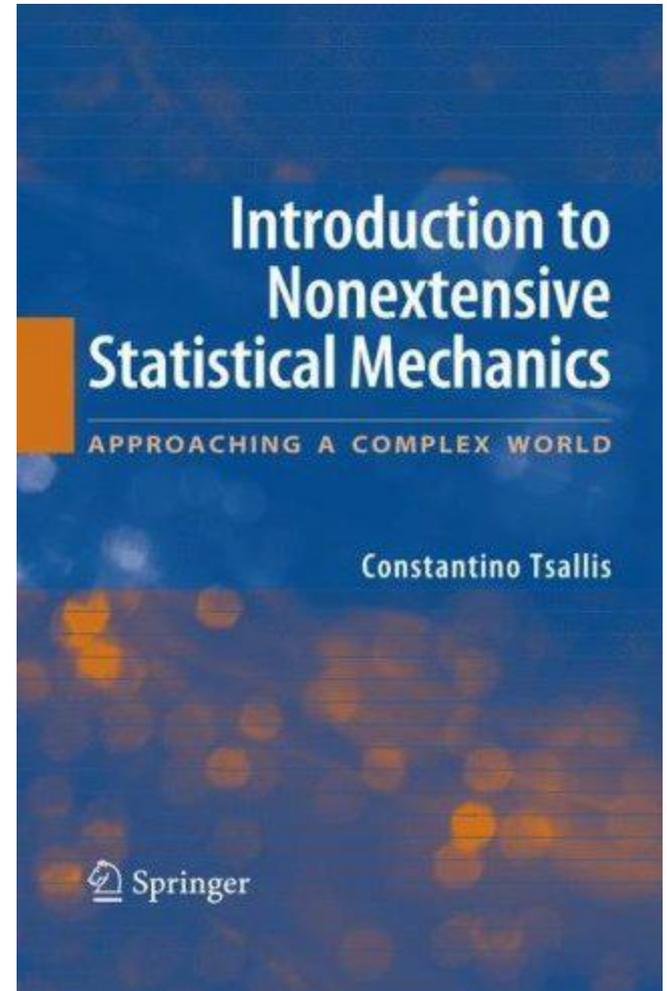
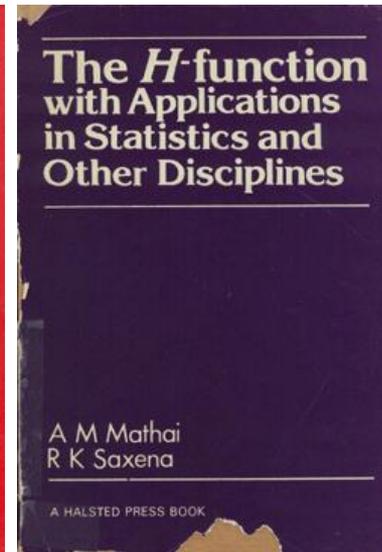
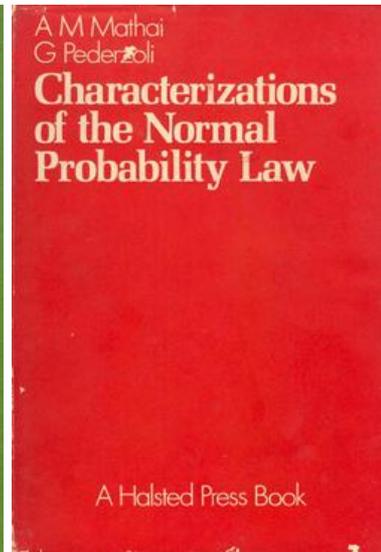
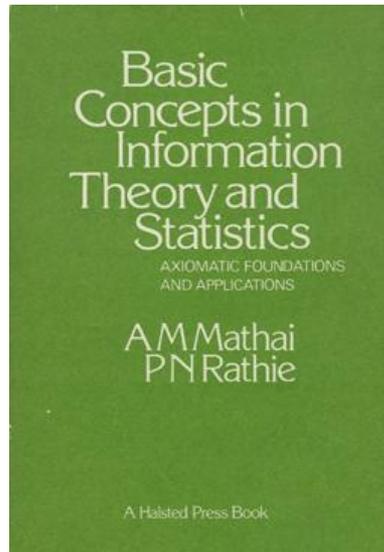
IHY Workshops 2005-2009

Instrument arrays

ISWI Workshops 2010-2012

data analysis?, modeling?





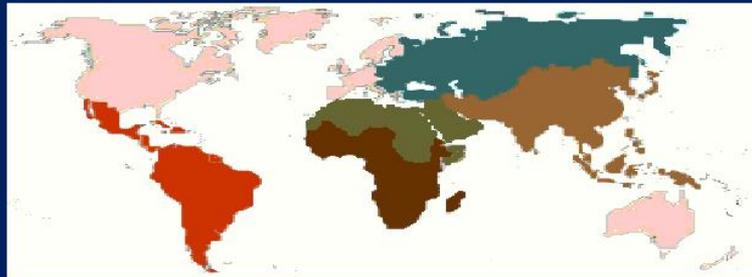
Solar Neutrino Problem
Shannon, Gauss, Fox (fractional calculus)
Tsallis' Entropy
Mathai' Entropic Pathway



UN INFORMATION DISSEMINATION NETWORK

UN Development Programme (UNDP) Offices

Permanent Missions of 194 UN Member States



Five UNDP regional groups:
ESCAP, ECLAC, ESCWA, ECA, ECE

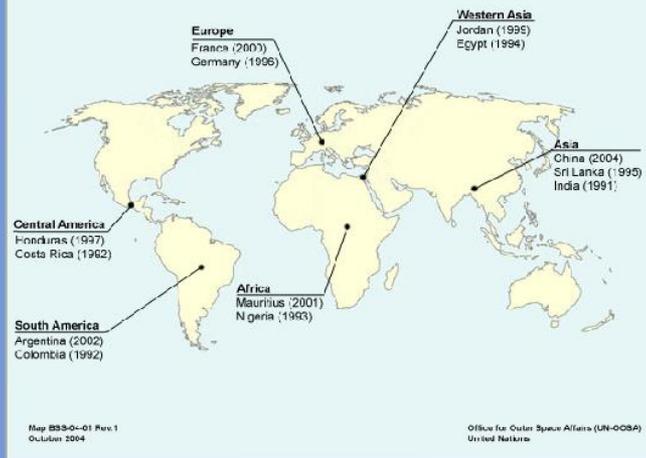




WORKSHOPS

BASIC SPACE SCIENCE (BSS)

UN/ESA Workshops on Basic Space Science



Regional:

India, Costa Rica, Colombia, Nigeria, Egypt

Inauguration of optical telescopes:

Sri Lanka, Honduras, Jordan

International:

Germany, France, Mauritius, Argentina

Review of all workshops:

P.R. China



Mauritius



Argentina



BSS TRIPOD: Telescope, Observing, Teaching

Government of Japan (NAOJ):

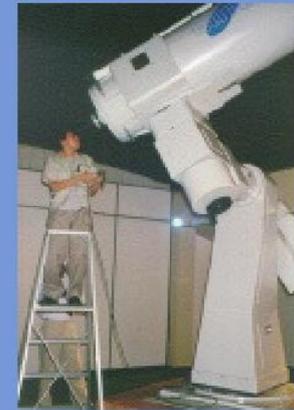
Japanese Cultural Grant Aid

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, **IAU 2010-2020**]



Sri Lanka 1996

American Association of Variable Star Observers (AAVSO):

Hands-on Astrophysics

Setting Up a Variable Star Observing
Programme

Astronomy, mathematics, computer
science





BSS TRIPOD: Telescope, Observing, Teaching

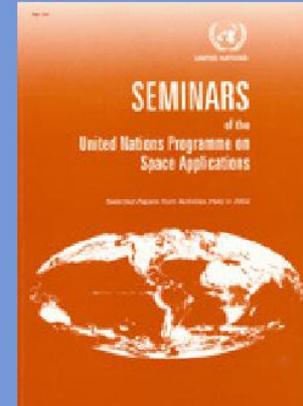
International Astronomical Union (IAU):

Astrophysics for University Physics Courses

Study/ comparison of university education curricula in developing countries

Elementary calculus
Classical mechanics
Statistical mechanics
Thermodynamics applied to astronomy
D.W. WENTZEL

Advanced teaching material recommended:
K.R. LANG
J. BENNETT et al.

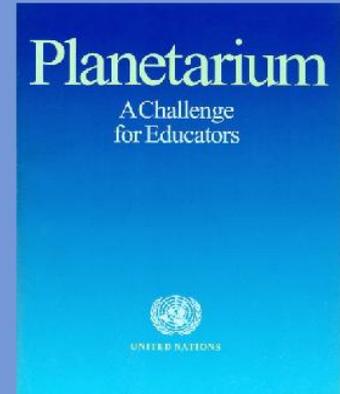




Office for Outer Space Affairs
United Nations Office at Vienna



Planetarium + Planetarium Shows: 1992



Myanmar



Peru



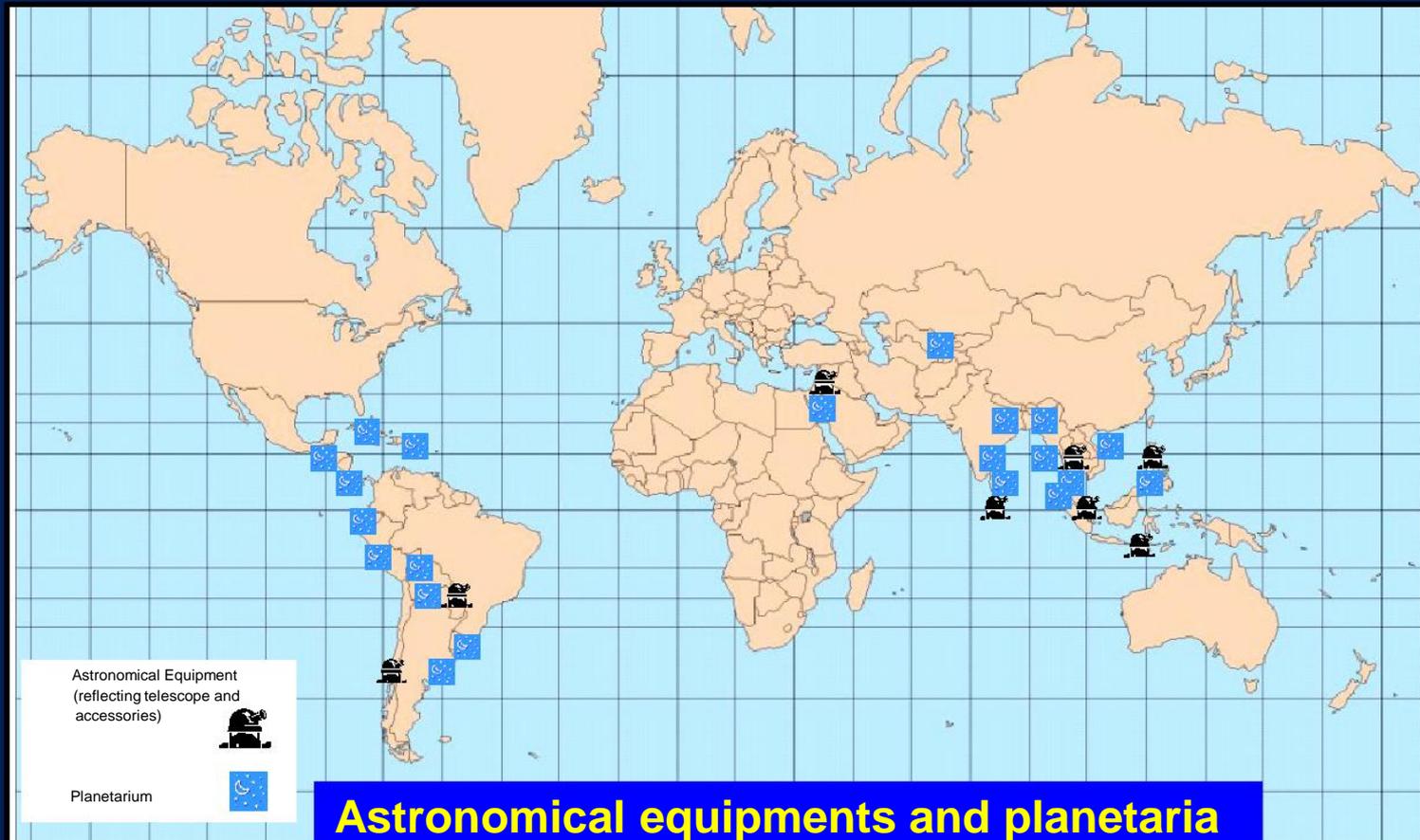
Viet Nam

Government of Japan (NAOJ)
International Planetarium Society (IPS)

Myanmar 1986, Jordan, Malaysia, The Philippines, India, Argentina, Uruguay, Vietnam, Thailand, Sri Lanka, India, Uzbekistan, Paraguay, Ecuador, Honduras, Costa Rica, Peru, Bolivia, Cuba, El Salvador 2007



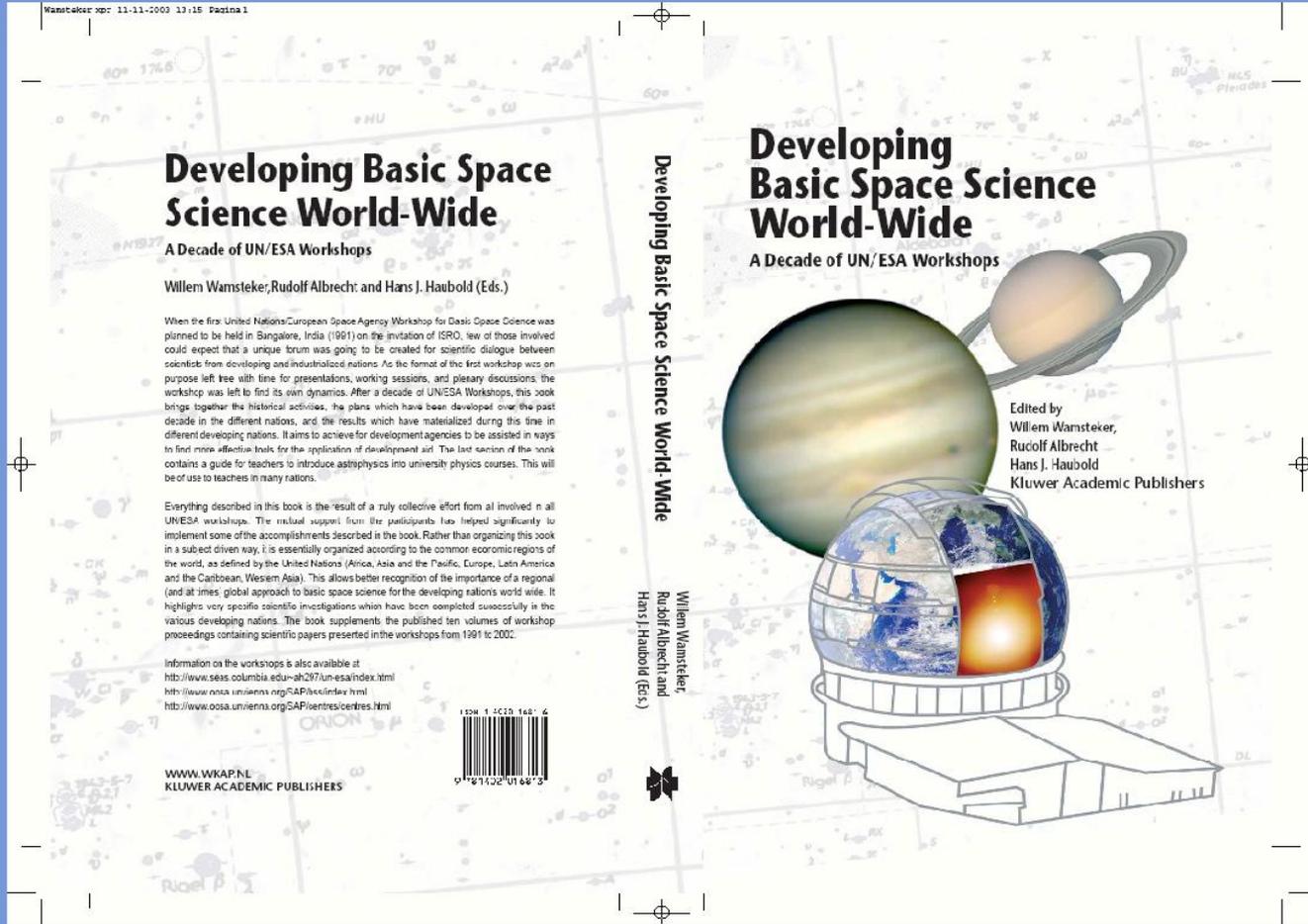
Over 25 years of commitments by Government of Japan



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



Final Report BSS



The 2002 Nobel Prize Laureates in Physics



**Raymond
Davis Jr.**



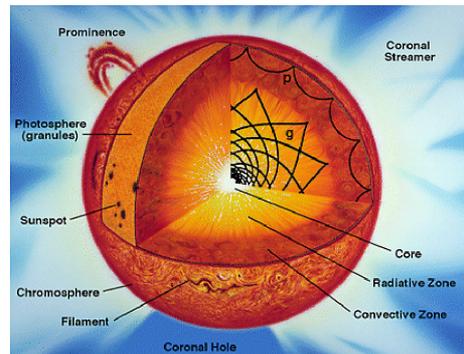
**Masatoshi
Koshiya**



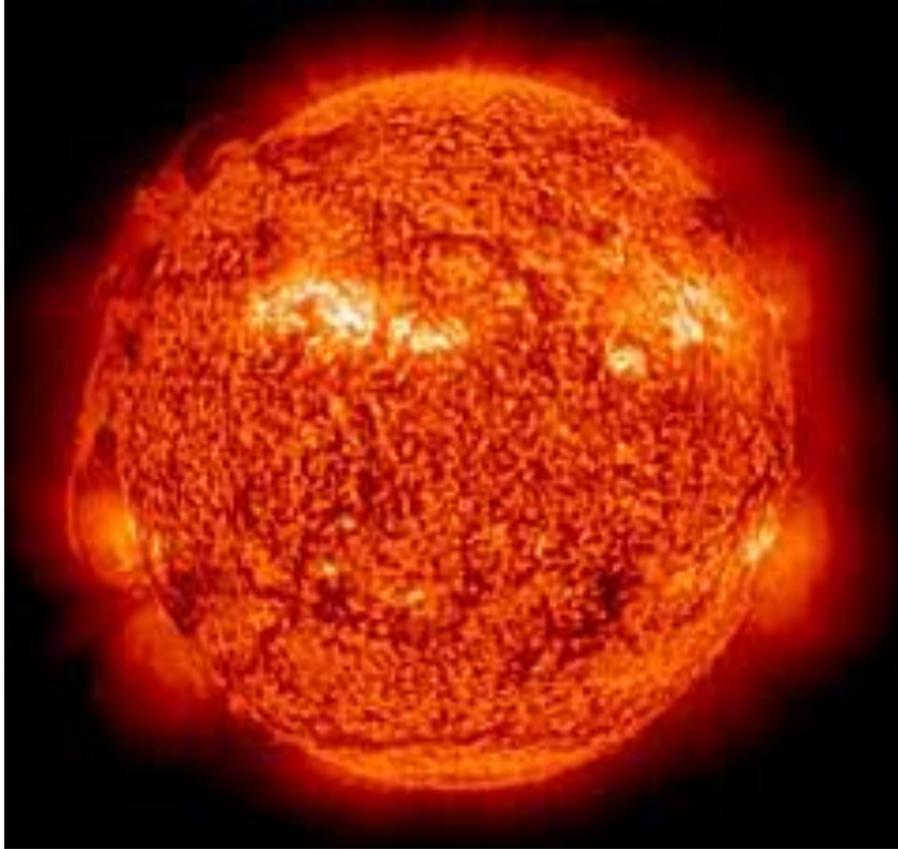
**Riccardo
Giacconi**

"for pioneering contributions to astrophysics, which have led to the discovery of cosmic X-ray sources"

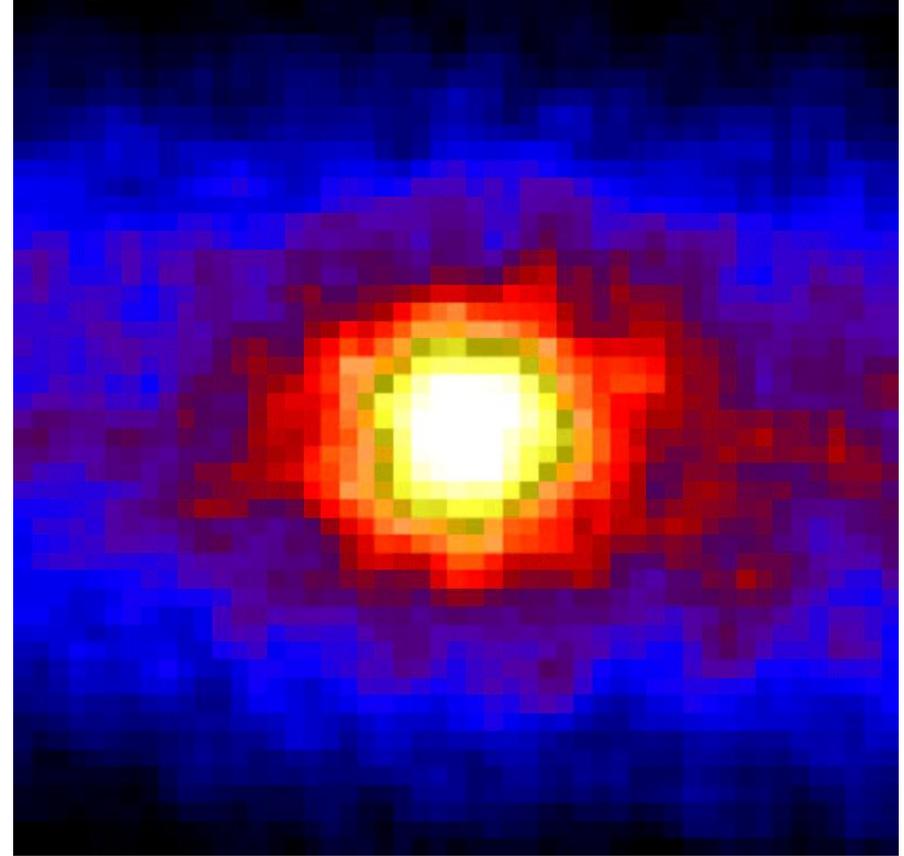
"for pioneering contributions to astrophysics, in particular for the detection of cosmic neutrinos"



Gravitationally Stabilized Solar Fusion Reactor



Sun as seen by SOHO
(ESA/NASA)



Sun as seen by a neutrino
telescope(SuperKamiokande)



IHY 2007: WORKSHOPS 2005-2009

1st 2005 UAE

Instrument (>1000) providers (7):
Japan, USA, France, Switzerland,
Armenia, Brazil, Israel

Hosts countries: > 100

Coordinated Investigation Programmes
Education and outreach

2nd 2006 India

3rd 2007 Japan (IHY2007)

4th 2008 Bulgaria

5th 2009 Republic of Korea (ISWI)





IHY TRIPOD: Instrument Array, Data, Teaching

Since 2005, deploying small inexpensive instruments such as **magnetometers, radio antennas, GPS receivers, particle detectors, spectrometers** around the world to make global Measurements of ionospheric, magnetospheric, and heliospheric phenomena

Partnership between instrument **providers** and instrument **host** nations.

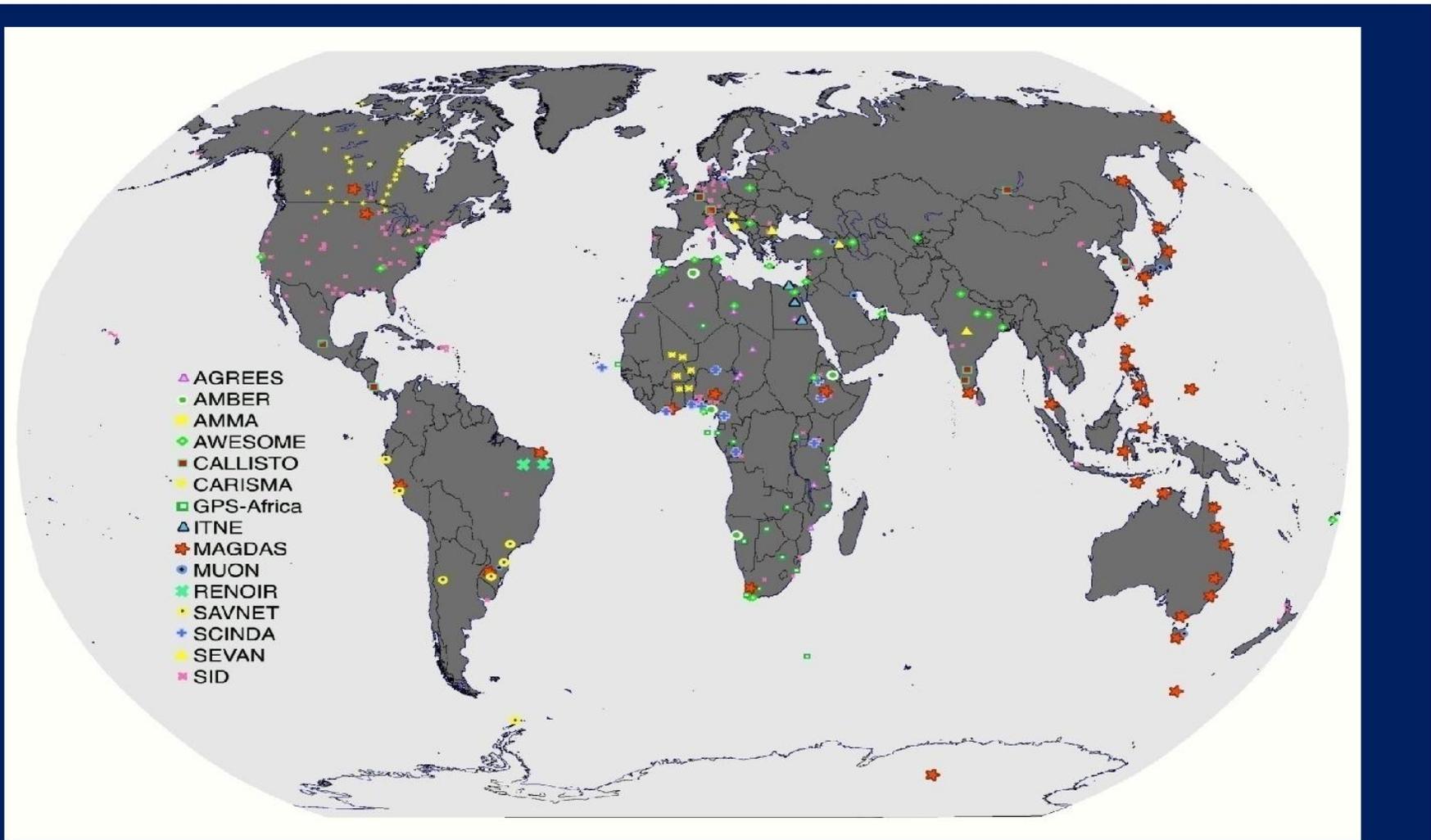
Provision of instrumentation by PI

Host institution makes available manpower, facilities, and operational support

Data taking, sharing, analysis, modeling, publication

Teaching space science at university level utilizing data





This model for developing instrument (500) arrays (15) was proven during the IHY



Office for Outer Space Affairs
United Nations Office at Vienna



Final Report IHY

Studies in Space Policy

B. J. Thompson · N. Gopalswamy

J. M. Davila · H. J. Haubold

Editors

Putting the "I" in IHY

The United Nations Report for the International
Heliophysical Year 2007

Studies In Space Policy, Vol. 3

This book about the international aspects and achievements of the "International Heliophysical Year (IHY) 2007" can be regarded as a compendium of the fertile impacts of conducting research in this field. The main focus, as the title implicates, is the international cooperation, which has emerged from this grassroots initiative. North and South, industrialized and developing countries have been coordinating their efforts and have been learning from each other in a mutual partnership under a joint understanding of sharing the scientific benefits. Through this, trans-border networks have been created and scientific as well as cultural exchange took place.

Another focus of the book shows, how much astronomy contributes to the basis of knowledge society as today's concept for mastering the future. Heliophysics has been and will be attracting large numbers of young people to enter an education and career in science and engineering. Such attractions we desperately need in all countries around the world, and we have to be glad about initiatives like IHY, which are successful in raising awareness, interest and fascination.

ISSN 1868-5307

ISBN 978-3-211-99179-4



springer.at



Thompson et al. Eds



Putting the "I" in IHY

Studies in Space Policy

B. J. Thompson

N. Gopalswamy

J. M. Davila

H. J. Haubold

Editors

Putting the "I" in IHY

The United Nations Report
for the International
Heliophysical Year 2007



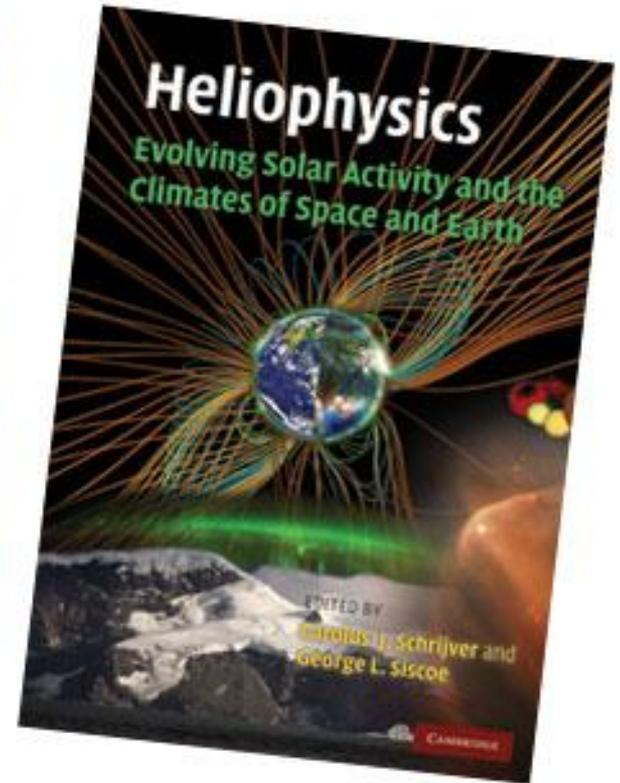
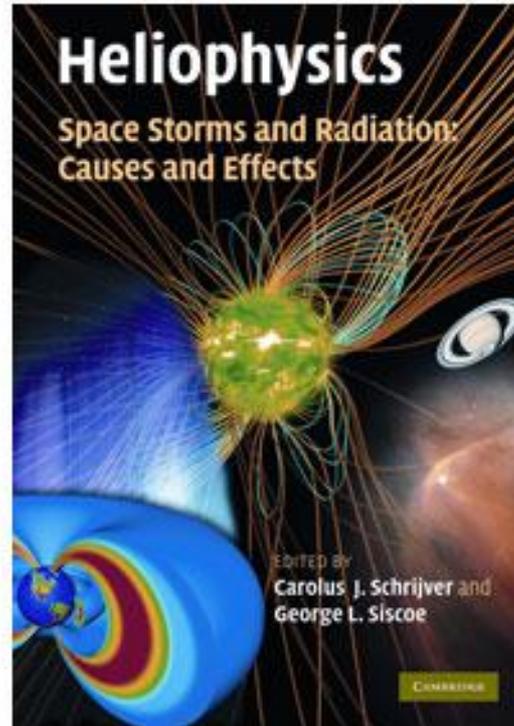
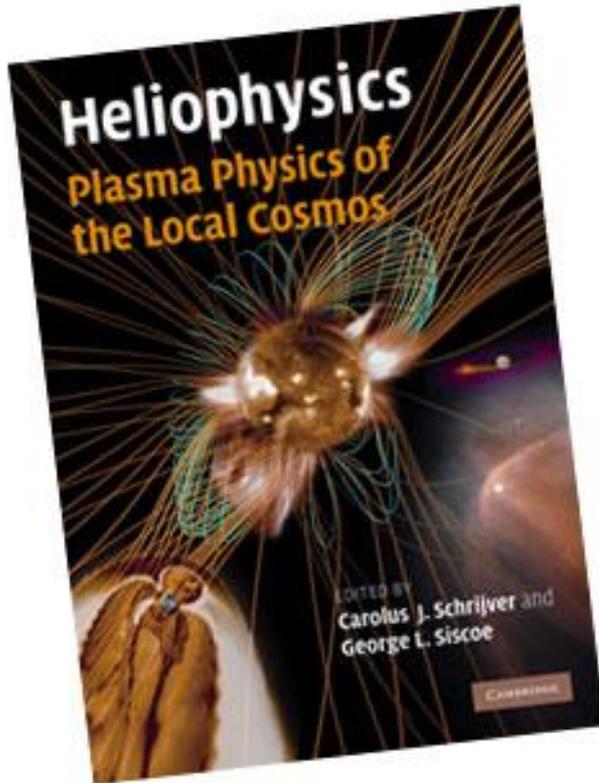
SpringerWienNewYork



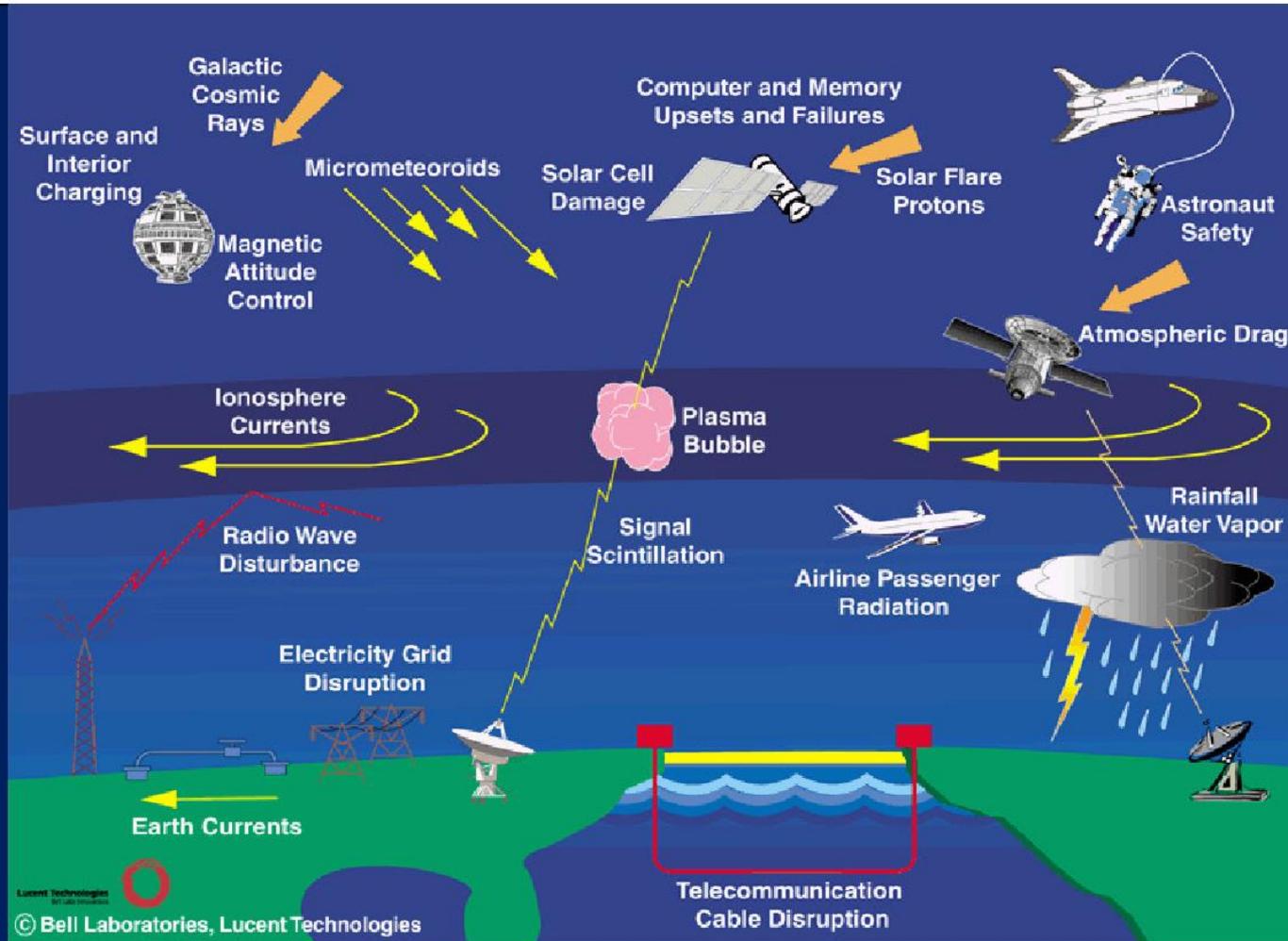
European Space Policy Institute

Textbook series on "Heliophysics"

Edited by Karel Schrijver and George Siscoe.



ISWI 2010-2012



Information Dissemination

ISWI Newsletter

- International Centre for Space Weather Science and Education
Kyushu University, Fukuoka, Japan
- To register send empty email to
ISWInewsletter-on@mail-list.com



ISWI Website

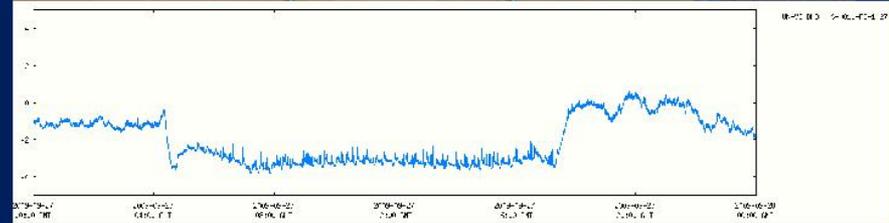
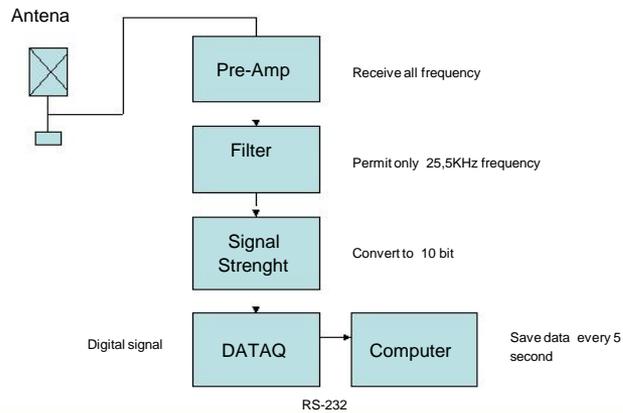
- Solar Terrestrial Influences Laboratory
Bulgarian Academy of Sciences, Sofia, Bulgaria
- www.iswi-secretariat.org

Instrument Programme

Sudden Ionospheric Disturbance Monitor (SID) operated by UNOOSA



Principle of SID monitor





Office for Outer Space Affairs
United Nations Office at Vienna



7 astronomical telescope facilities (ISON)

20 planetariums (Max goes to the Moon)

>1000 space weather instruments (COPUOS agenda item)

WSO/UV

Thank you for your attention!

Office for Outer Space Affairs
United Nations Office at Vienna
Vienna International Centre

Email: oosa@unoosa.org

UNOOSA Website: www.unoosa.org

