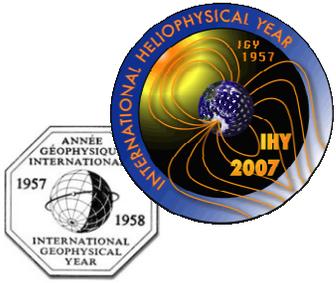


THE INTERNATIONAL HELIOPHYSICAL YEAR (IHY)

February 2007-2009

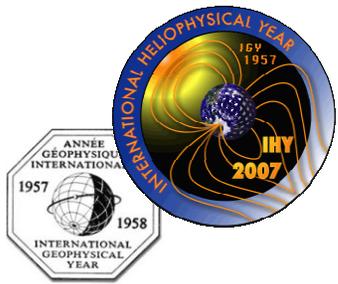
*Joseph Davila, Barbara Thompson, Nat Gopalswamy
NASA-Goddard Space Flight Center*

February 2009

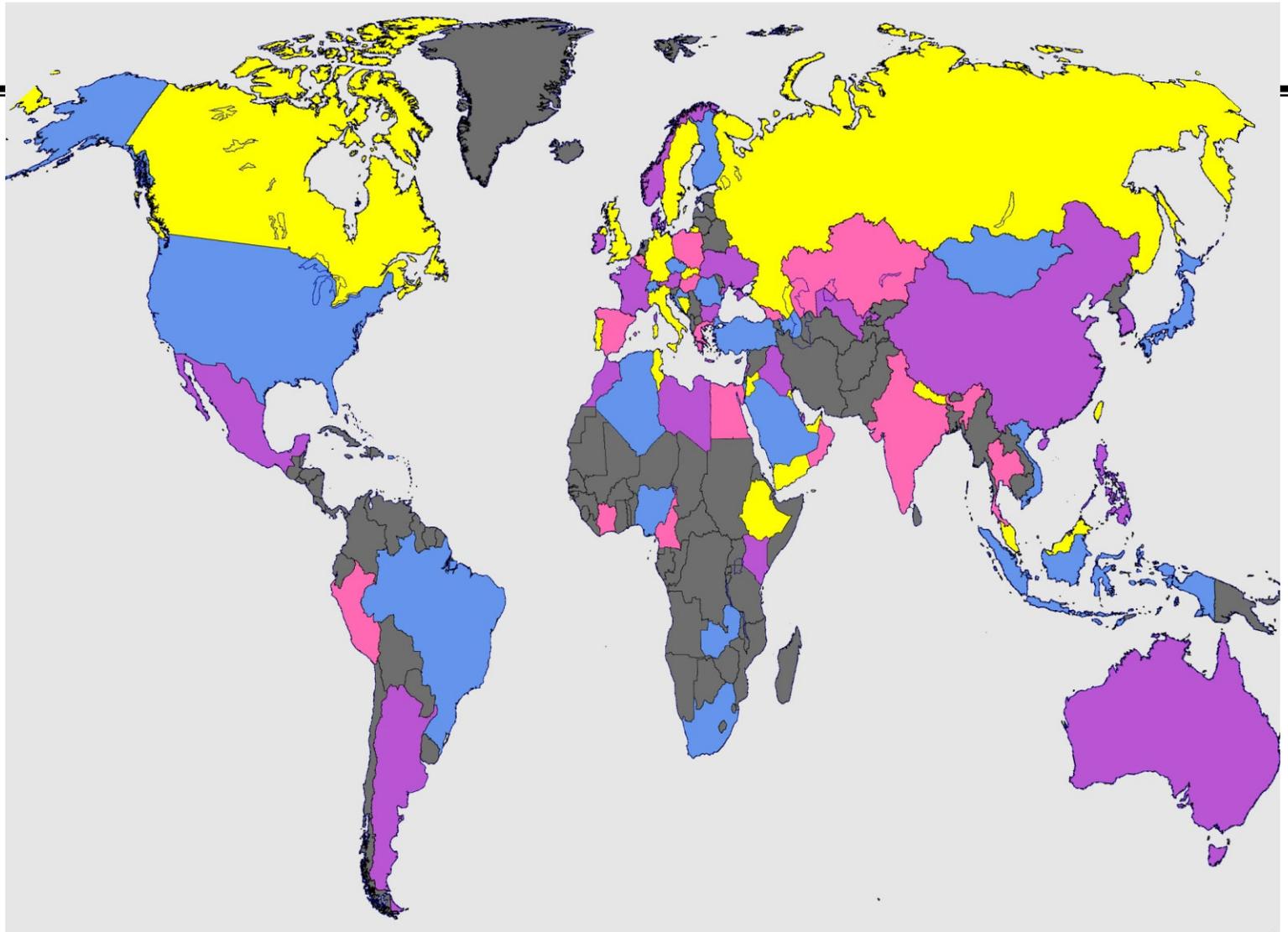


IHY Objectives

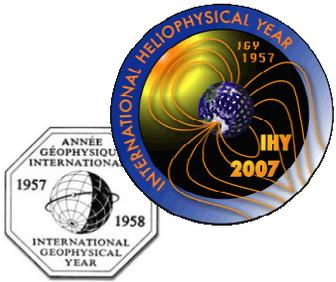
- **Develop the basic science of heliophysics through cross-disciplinary studies of universal processes.**
- **Determine the response of terrestrial and planetary magnetospheres and atmospheres to external drivers.**
- **Promote research on the Sun-heliosphere system outward to the local interstellar medium - the new frontier.**
- **Foster international scientific cooperation in the study of heliophysical phenomena now and in the future.**
- **Preserve the history and legacy of the IGY on its 50th Anniversary.**
- **Communicate unique IHY results to the scientific community and the general public.**



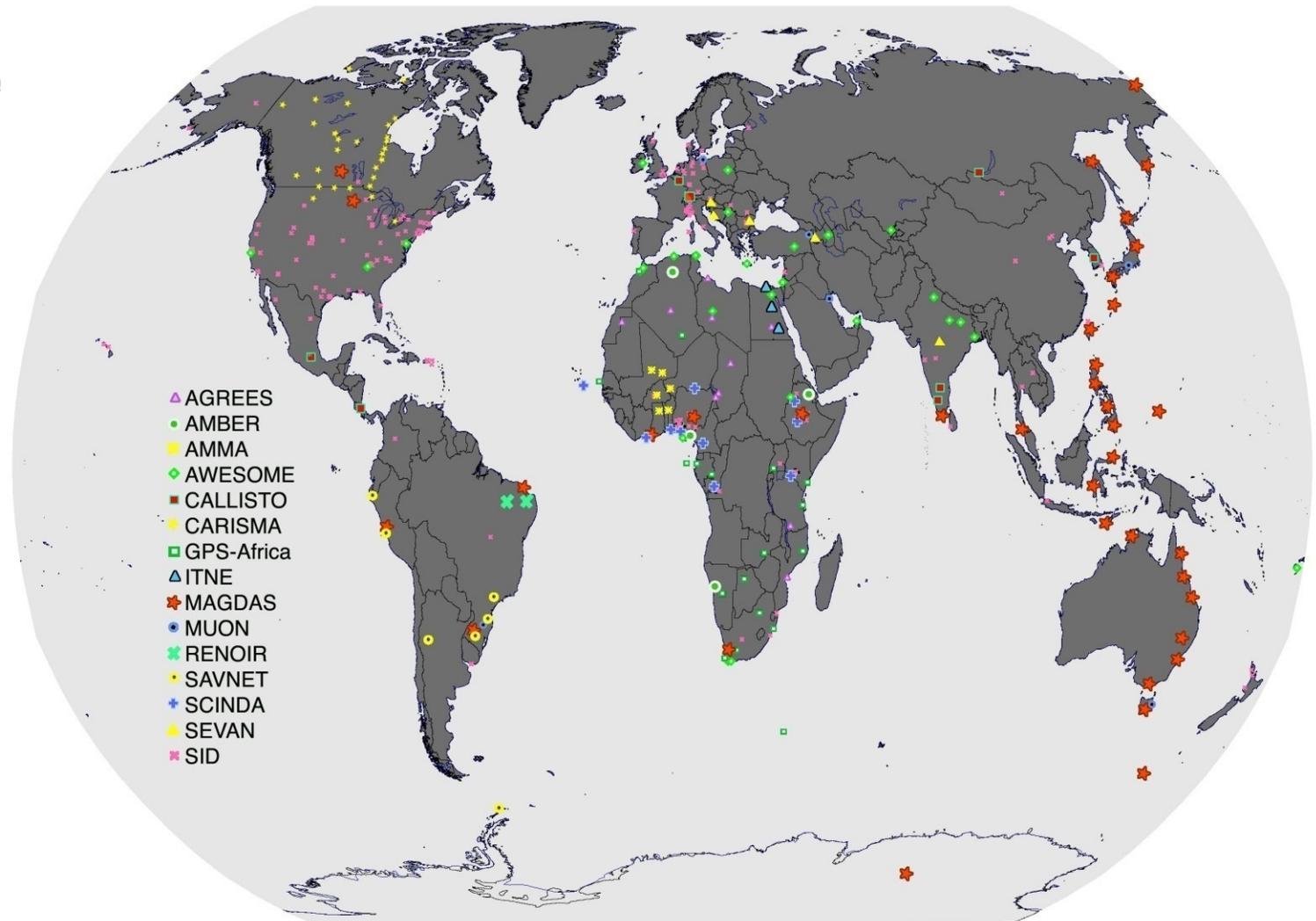
IHY Participation



- 71 countries with National committees

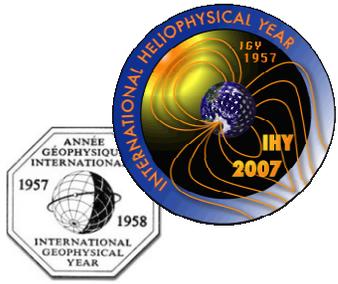


IHY Participation



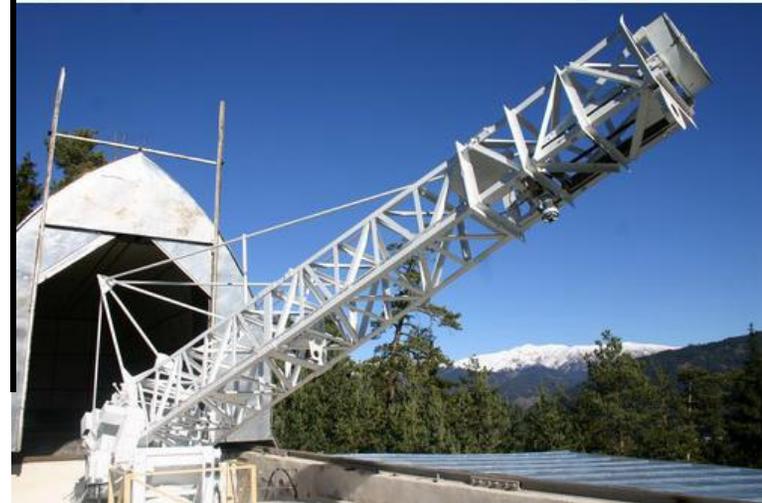
- UNBSS
 - 17 Distributed instrument observatory programs
 - 5 New data analysis programs for space data

IHY (<http://ihy2007.org>)

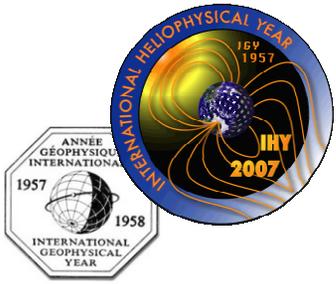


IHY Research Participation

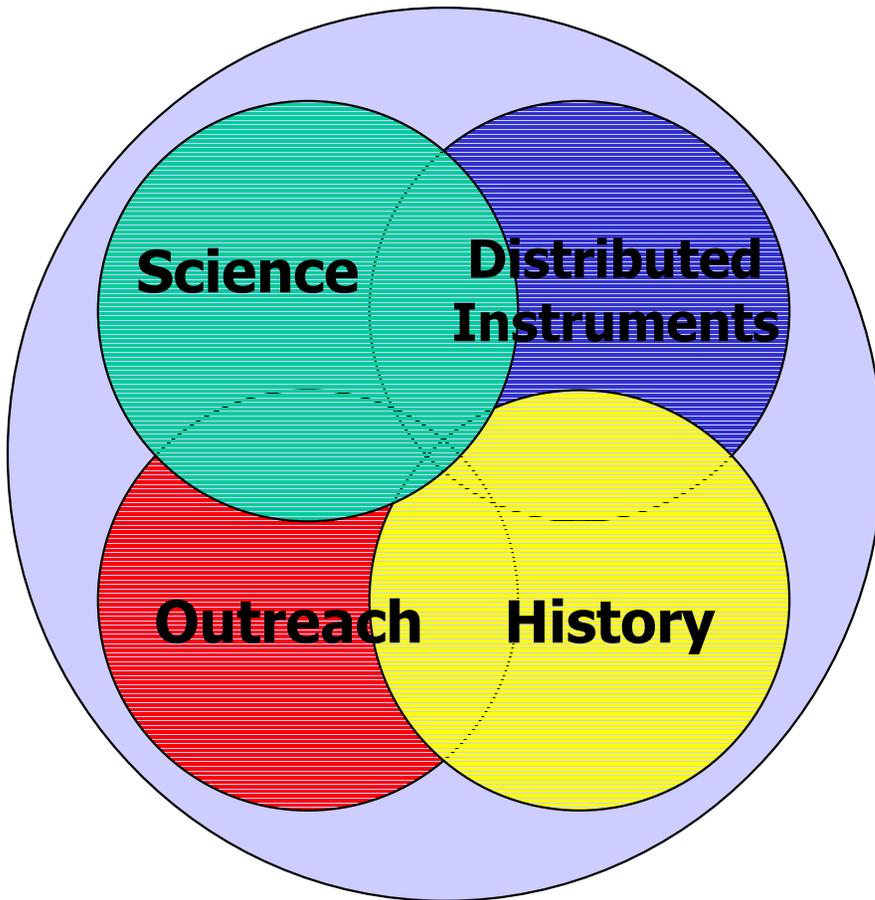
CIP Participation by Nation		
Continent	Proposing nations	Participating nations
North America	Canada (6) Mexico (2) USA (22)	Costa Rica
South America	Brazil (5)	Argentina Chile Peru
Europe	Armenia Austria (3) Bulgaria Czech Republic (2) Finland (6) France Germany (4) Hungary (4) Ireland Italy (12) Norway (3) Poland Romania (2) Russia (6) Slovakia Spain Sweden (2) Switzerland UK (9) Ukraine (2)	
Africa	South Africa (5)	Algeria Cape Verde Côte d'Ivoire Egypt Ethiopia Libya Morocco Nigeria Tunisia
Asia	China (2) India (4) Japan (6)	Korea Malaysia UAE
Australasia	Australia (2) Indonesia	



- 200 Observatories
- 65 Coordinated Investigation Plans (CIPs)
- Thousands of scientists

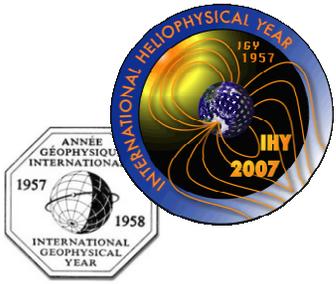


Four Elements of the IHY Program

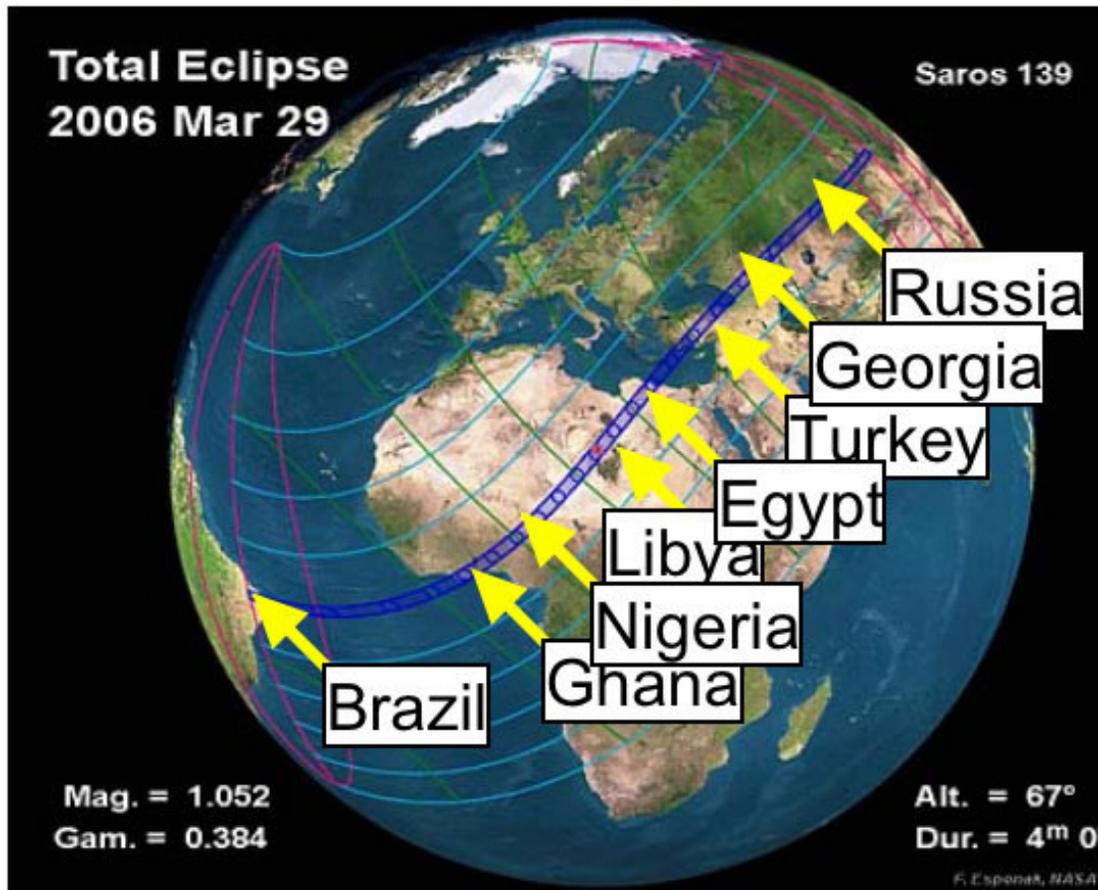


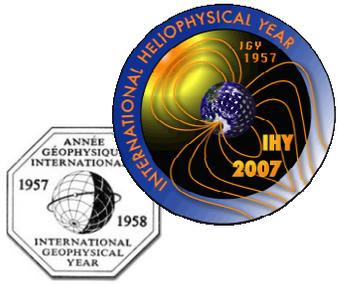
- 1. Science of Universal Processes**
 - *Coordinated Investigation Programs (CIPs) Scientific Research*
- 2. Distributed small instrument program**
 - *New observational capability*
- 3. Education, outreach**
 - *Promoting space science*
- 4. IGY History preservation**
 - *Preserving the history of space physics*

See website at <http://ihy2007.org> for more information.

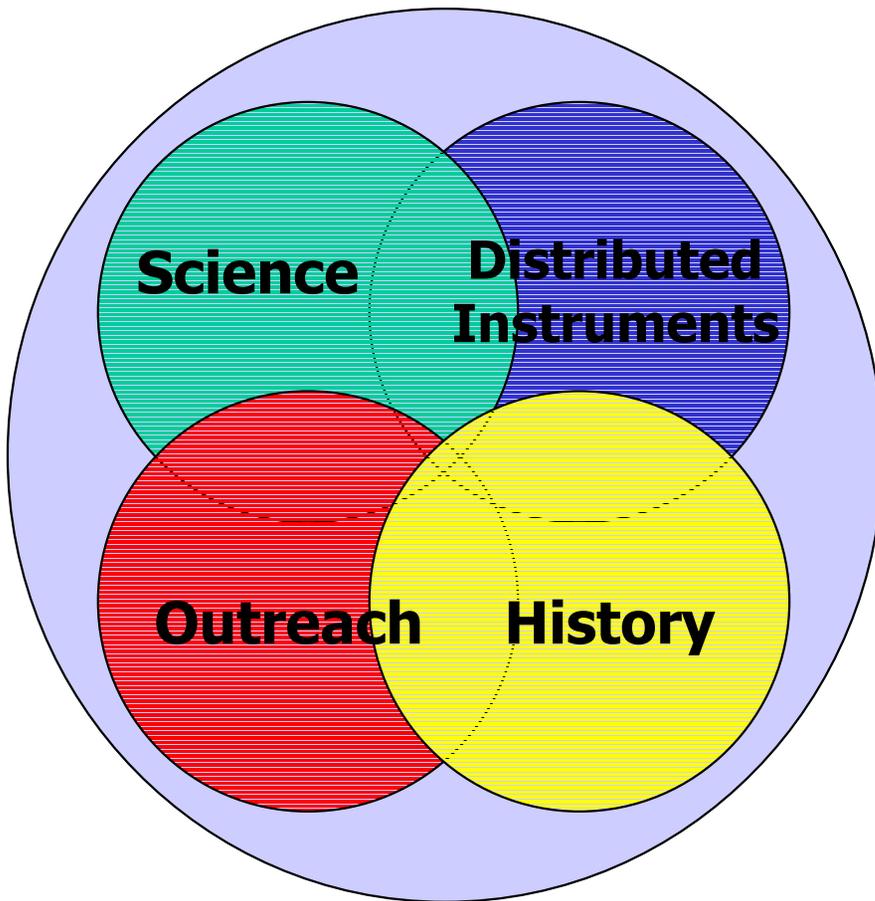


International Campaigns



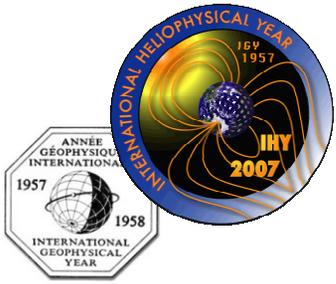


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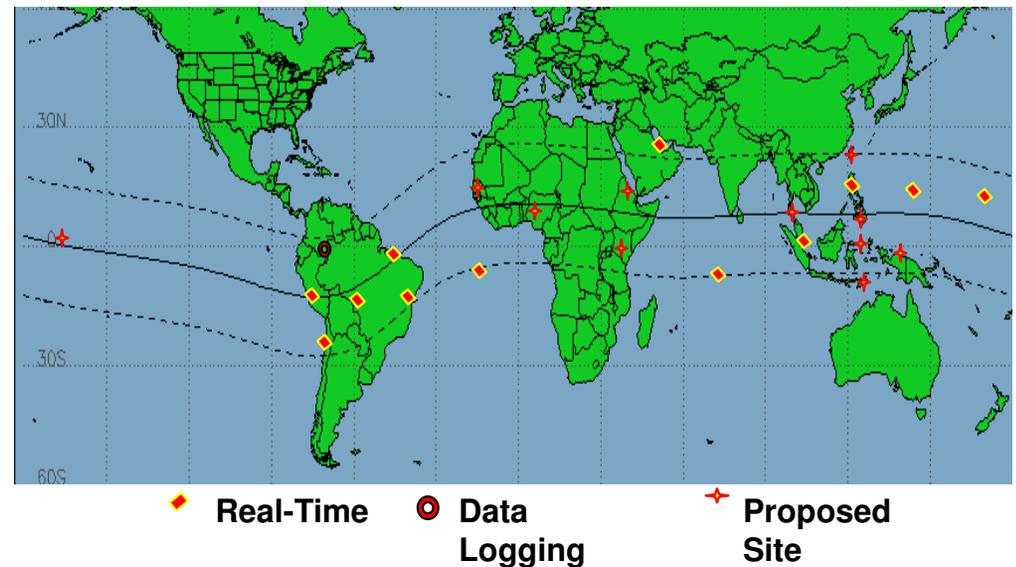
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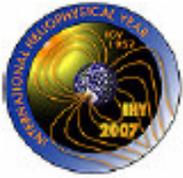
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Distributed Instruments: Basic Concept

- The lead scientist or principle investigator will provide instrumentation (or fabrication plans)
- The host country provides the workforce, facilities, and operational support typically at a local university.
- Host scientists become part of science team
- All data, and data analysis activity is shared
- All participate in publications and meetings
- UN-BSS dedicated to the program at least thru 2009

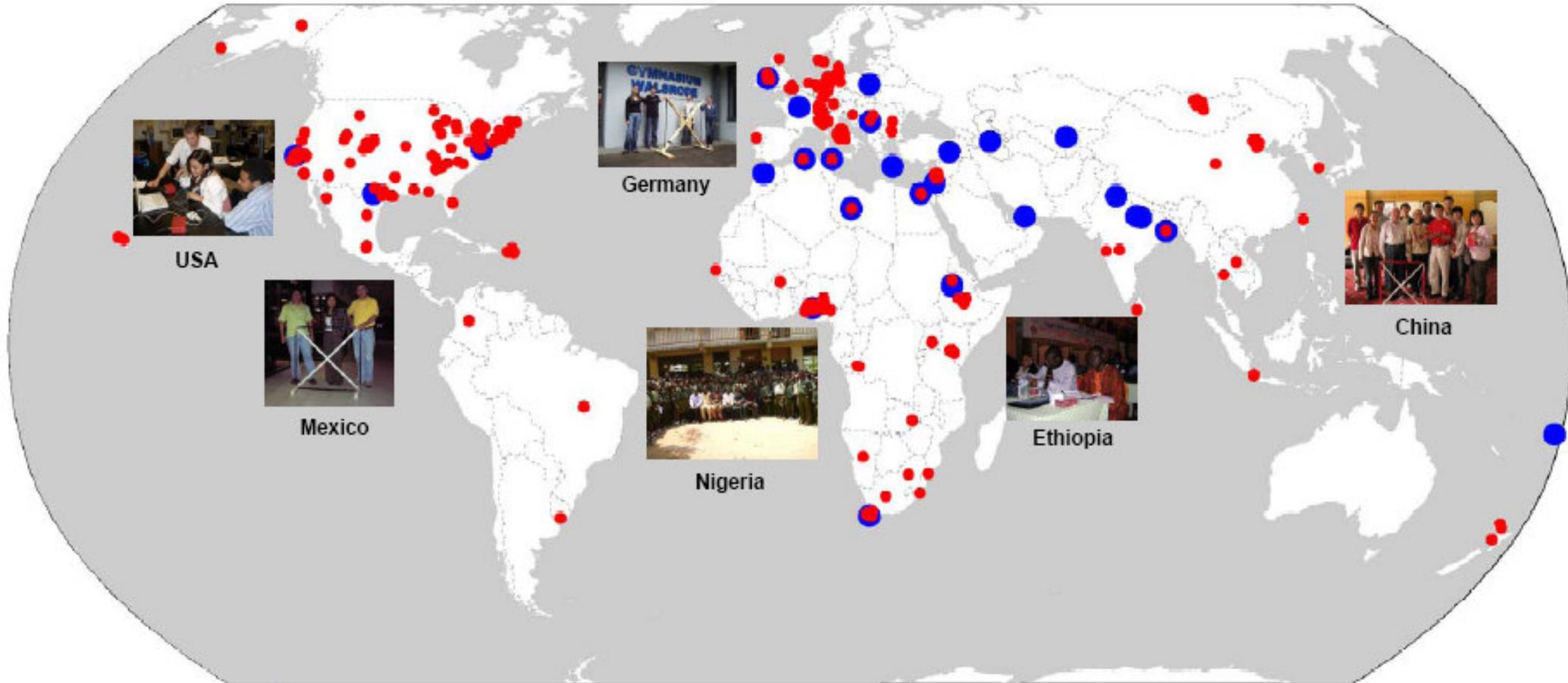




Space Weather Monitor Sites



IHY Distribution 2007-2009



● AWESOME research monitors (26)

● SID student monitors (300) Larger dots indicate multiple sites



USA



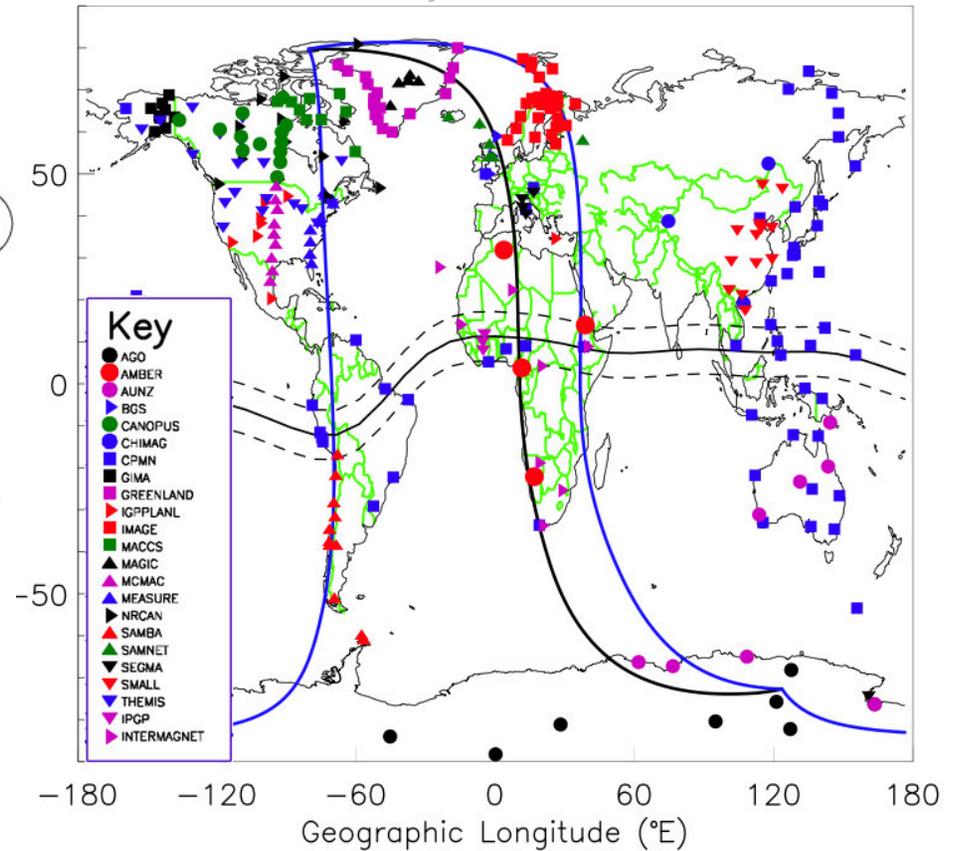
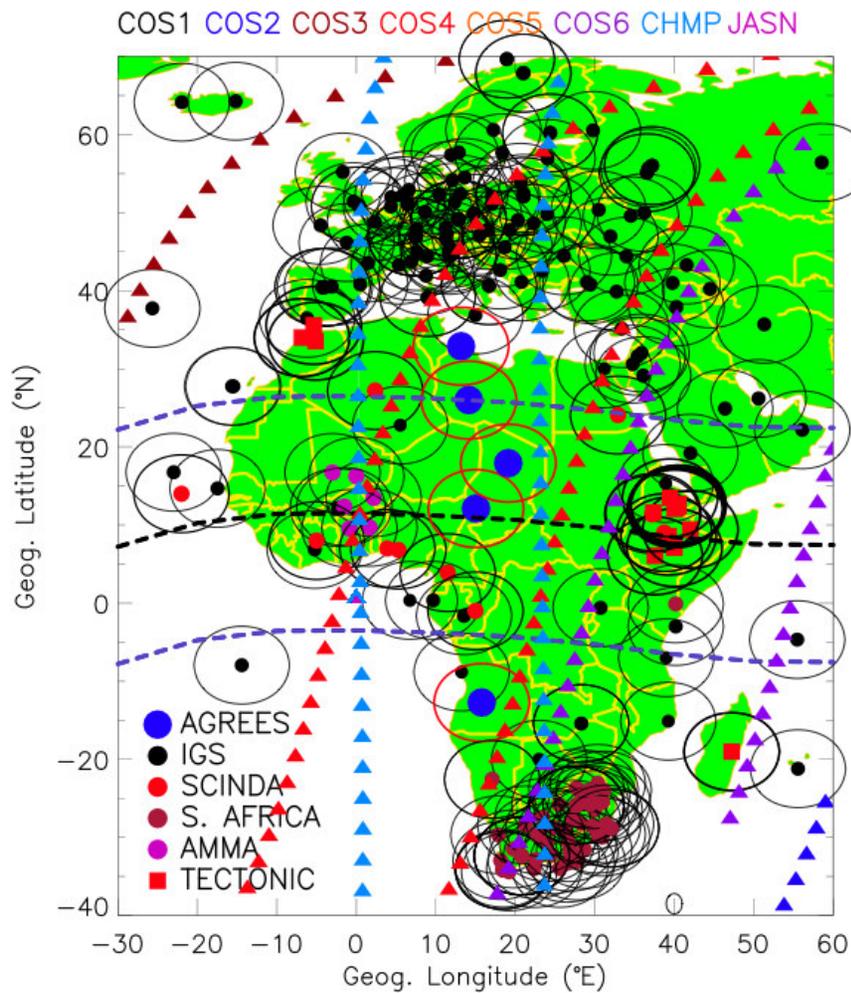
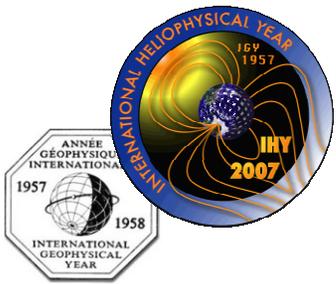
Romania

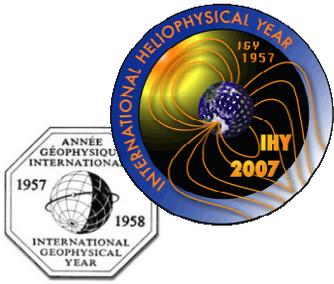


Lebanon

Thailand





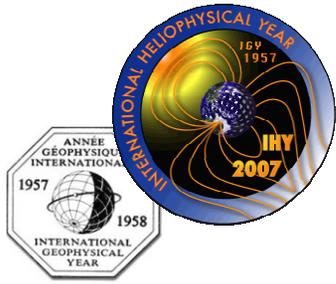


UN-NASA Workshop Series

- **First Workshop**
 - *UN, ESA, NASA, and UAE sponsored*
- **Second Workshop**
 - *UN, NASA and India sponsored*
- **Third Workshop**
 - *UN, JAXA, NASA and Japan*
- **Fourth Workshop**
 - *UN, ESA, NASA, JAXA, and Bulgaria*
- **Fifth Workshop (Final in the Series)**
 - *UN, ESA, NASA, and South Korea*

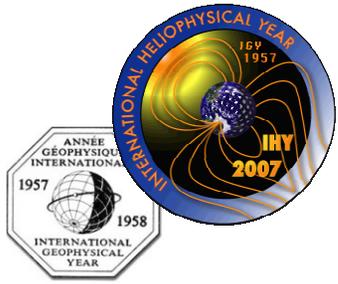


These Workshops have been highly successful at establishing new collaborations between instrument providers and hosts

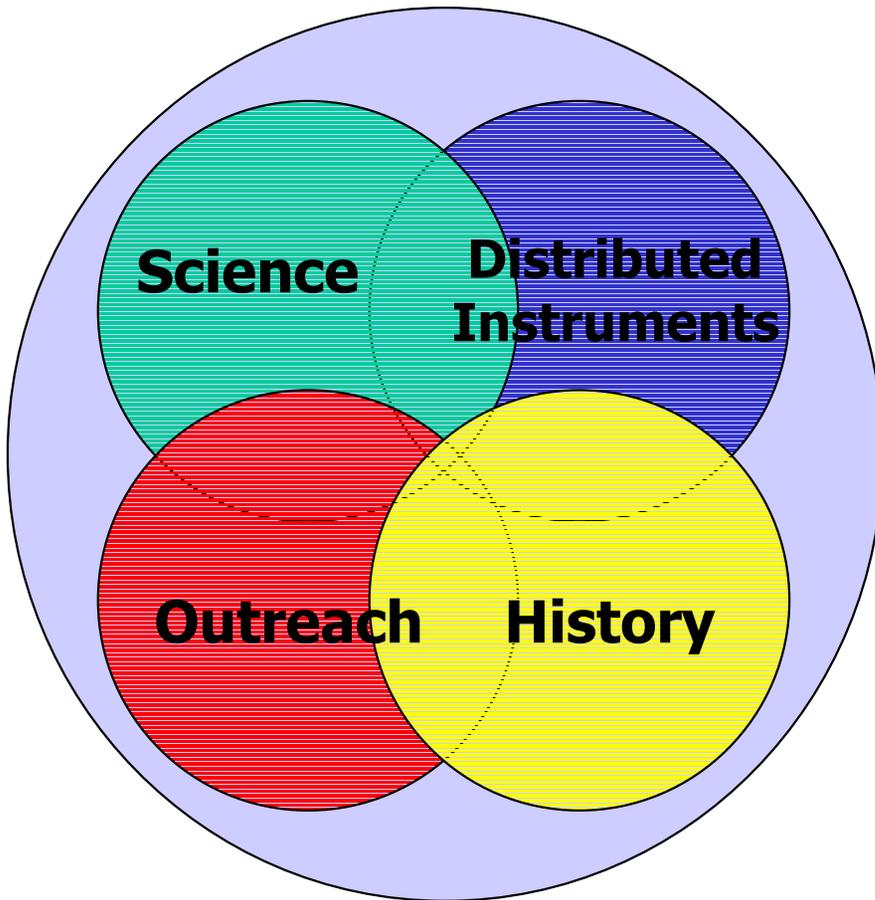


Instrument Contributors

	INSTRUMENT	CONTACT
1	CALLISTO	C. Monstein (Switzerland)
2	H-alpha Telescope	K. Shibata, S. Ueno (Japan)
3	MAGDAS Magnetometers	K. Yumoto (Japan)
4	GPS Scintillations	C. Amory-Mazaudier (France), and T. Rowell (USA)
5	SCINDA GPS	K. Groves (USA)
6	CIDR	T. Garner (USA)
7	VLF Radio	U. Inan (USA)
8	RENOIR	J. Makela (USA)
9	SEVAN Particle Detectors	A. Chillingarian (Armenia)
10	AMBER-AGREES	E. Yizengaw (USA)
11	SAVNET	J.-P. Raulin (Brazil)
12	Low-cost Ionosonde	J. Bradford (UK)
13	IHY Mag	I. Mann (Canada)
14	Low-frequency Radio Array	J. Kasper (USA)
15	Muon Network	K. Munakata (Japan)

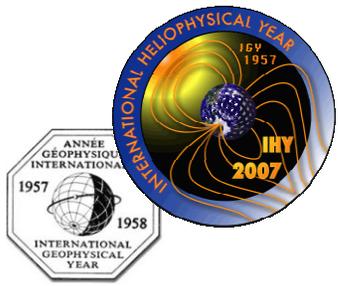


Four Elements of the IHY Program



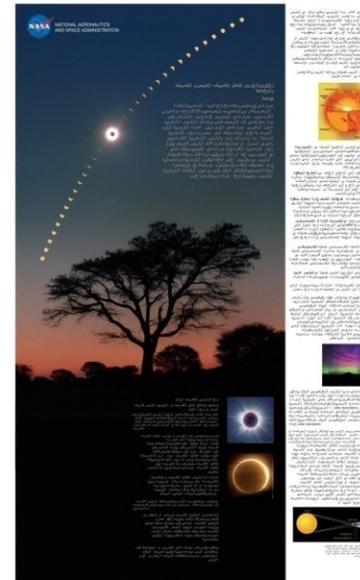
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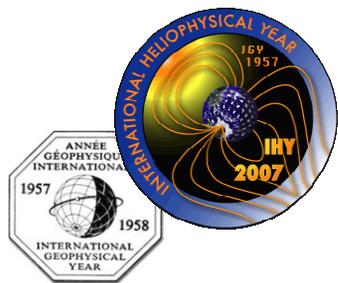
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IHY Outreach

- Professional development
- Strengthening space science research in universities
- Education
- **Activities**
 - *Yuri's night*
 - *Summer schools in US, Europe Asia, South America*
 - *World-wide observatory open house June 10, 2007*
 - *Science outreach to youth*

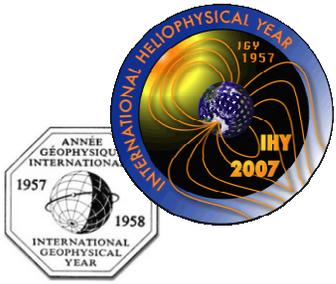




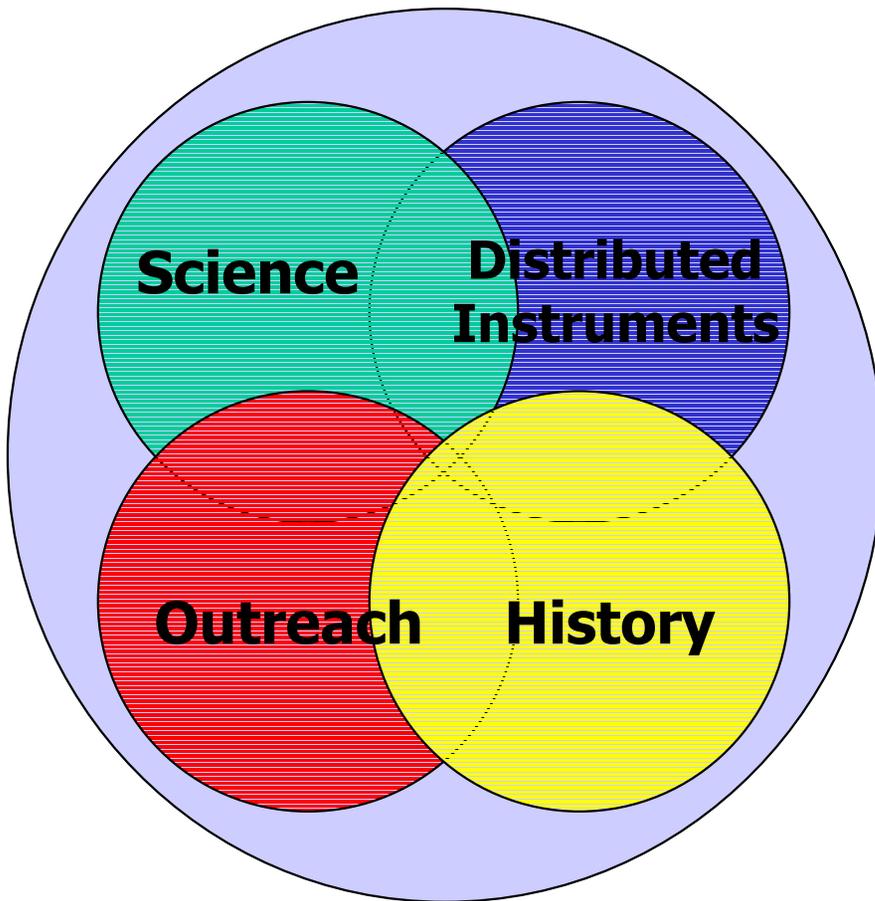
Outreach

- Documentary released on historic US-Libya eclipse collaboration
- “Science Eclipses Politics” (EOS) and other articles published
- Open Doors day
- Traveling exhibits in Germany and France
- Summer schools in US, Europe, Asia, South America



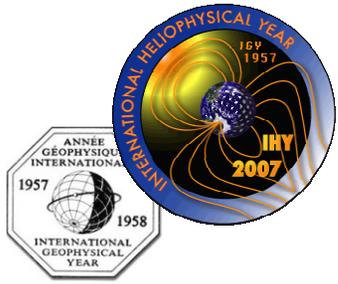


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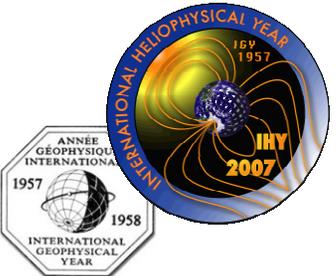


IHY Gold

Preserving the history of the IGY

- 197 IHY Gold Certificates have been handed out to IGY participants
- Recipients include Alan Shapley, James Van Allen
- And Prince Philip in the UK
- Special meeting organized in India

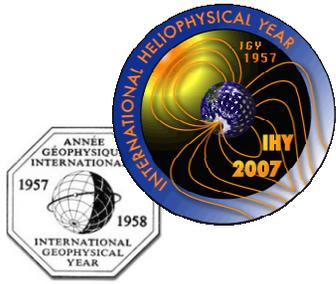




Activities and Future Plans

- **IHY officially ends Feb 2009**
- **A brief closing ceremony will be held today 4:30 pm in Rotunda**
- **Coordinate follow-on activities for the study of space weather**

***On behalf of the Secretariat,
Thanks to the Distinguished Chairman
and Delegates of this Committee for their
support during the IHY***



Summary

“... science is the most powerful means we have for the unification of knowledge, and a main obligation of its future must be to deal with problems which cut across boundaries, whether boundaries between the sciences, boundaries between nations, or boundaries between man’s scientific and his humane concern.”

-- John F. Kennedy

In: A Century of Scientific Conquest by John F. Kennedy, in The Scientific Endeavor, Centennial Celebration of the U.S. National Academy of Sciences, 1963.