United Nations A/AC.105/C.1/L.294

General Assembly

Distr.: Limited
22 December 2007
English
Original: Arabic/English

Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
Forty-fifth session
Vienna, 11-22 February 2008
Item 13 of the provisional agenda*
International Heliophysical Year 2007

Reports on national and regional activities related to the International Heliophysical Year 2007

Note by the Secretariat

Contents

		Page
I.	Introduction	2
II.	Reports received from Member States	2
	Brazil	2
	Germany	3
	India	4
	Japan	7
	Poland	9
	Saudi Arabia	9
	Thailand	10

* A/AC.105/C.1/L.293.

V.07-88642 (E)

I. Introduction

1. In its resolution 62/217 of 22 December 2007, the General Assembly endorsed the recommendation of the Committee on the Peaceful Uses of Outer Space that the Scientific and Technical Subcommittee, at its forty-fifth session, continue to consider the item "International Heliophysical Year 2007" in accordance with the workplan adopted by the Subcommittee at its forty-second session (A/AC.105/848, annex I, para. 22).

2. According to that workplan, the Subcommittee would consider reports by interested Member States, scientific organizations and the International Heliophysical Year secretariat on progress made with regard to the organization of scientific campaigns and the establishment of International Heliophysical Year 2007 databases. Plans for the continued deployment of instrument arrays and future activities would be made available.

3. At its forty-fourth, the Scientific and Technical Subcommittee took note that there had been calls for further deepening of international collaboration within the framework of the International Heliophysical Year and that Member States would continue to report to the Subcommitte at its forty-fifth session on their activities related to the International Heliophysical Year (A/AC.105/890, para. 158).

4. The present document contains reports received by the Secretariat from the following Member States: Brazil, Germany, India, Japan, Poland, Saudi Arabia and Thailand.

II. Reports received from Member States

Brazil

[Original: English]

The main activities for the International Heliophysical Year 2007 in Brazil are as follows:

(a) The National Institute for Space Research of Brazil has participated in the organization of the International Heliophysical Year School 2008, which will be held in February 2008;

(b) In October 2006, the Institute hosted the first Brazilian symposium on space geophysics and aeronomy;

(c) Very low frequency (VLF) receiving antennas for the South Atlantic VLF Network (SAVNET) have been installed;

(d) The following five coordinated investigation programmes, which serve as a framework for conducting International Heliophysical Year research activities, have been proposed by scientists from Brazilian institutions:

(i) "High energy processes and dynamics of the low solar atmosphere during explosive events" by Jean-Pierre Raulin;

(ii) “Ionospheric effects of the solar activity variations, solar flares lightnings and energetic particle precipitations”, by Jean-Pierre Raulin, Emilia Correia and V. S. Makhmutov;

(iii) “Investigation of the cosmic ray modulation of the cloud properties and net radiative flux in the Southern Hemisphere Magnetic Anomaly (SHMA)” by Luis Eduardo Antunes Vieira;

(iv) “Spatial and temporal TEC characterization of the ionosphere in the South Atlantic Magnetic Anomaly” by Emilia Correia;

(v) “Interplanetary causes of intense magnetic storms” by Walter D. Gonzalez.

Germany

[Original: English]

1. The activities for the International Heliophysical Year in Germany have been led by a small committee that was formed in early 2006. Since then, a number of meetings have been organized and supported by a wider interest group. The committee focuses on reaching out to the public, promoting educational topics and planning science activities.

2. The opening ceremony for the International Heliophysical Year in Germany took place during a meeting of the Deutsche Physikalische Gesellschaft in Regensburg, Germany, on 25 April 2007. During the ceremony, Karl Rawer was honoured with the International Geophysical Year gold medal for his substantial contribution to the International Geophysical Year in 1957. Alongside the ceremony, ongoing and planned activities related to the International Heliophysical Year 2007 were presented. Several presentations and interviews were also given in many places throughout Germany. For more information on activities related to the International Heliophysical Year in Germany, see http://www.ihy2007.de.

3. Scientific activities related to the International Heliophysical Year 2007 resulted in an international conference entitled “The Sun, the Heliosphere and the Earth” that was held in Bad Honnef, Germany, from 14 to 18 May 2007. Alongside the conference, a coordinated investigation programme meeting on cosmic ray and the heliosphere was organized.

4. The German scientific community has contributed significantly to several coordinated investigation programme meetings, which have been supported by a series of public lectures. Several institutions have participated in International Heliophysical Year activities at the international level, including the Max Planck Institute for Solar System Research (in collaboration with the Institute for Astrophysics of the University of Göttingen and the Max Planck Institute for Extraterrestrial Physics), the Astrophysical Institute of Potsdam, the planetarium at Nuremberg, the planetarium at Hamburg, the Ruhr-Universität Bochum and the Christian-Albrechts-Universität of Kiel.

5. On 23 April 2007 the planetarium at Hamburg, in cooperation with the National Aeronautics and Space Administration (NASA) of the United States of

America, showed the first three-dimensional images of the Sun captured by the Solar Terrestrial Relations Observatory (STEREO).

6. At the exhibition entitled “The Empire of the Sun: Home of Mankind”, which was organized in cooperation with the Council of German Planetariums, several German-made instruments flown on board satellites were displayed together for the first time. The instruments ranged from Azur (used in 1969) to the most recent instrumentation on board the Solar and Heliospheric Observatory (SOHO).

7. With generous support of the European Space Agency (ESA), the Wilhelm and Else Heraeus foundation and the European Geosciences Union, those items, together with spacecraft models and a set of explanatory posters, have been displayed at venues throughout Germany.

8. The exhibition was first shown at the CeBIT computer fair in Hannover and officially started its public tour at the Carl Zeiss planetarium in Bochum, where 300 local school children visited the exhibition. The exhibition was also shown in Mannheim, Berlin and Kiel. In 2008, the exhibition will travel from Nuremberg to Berlin via Halle and Cottbus.

9. Another exhibition, organized by the Max Planck Institute for Solar System Research, was entitled “Our Sun, the Fire of Life: History and Contemporary Research”. The exhibition was successfully accompanied by a series of public lectures in the period from April to June 2007. The same concept has been applied by the Mediendom planetarium in Kiel in cooperation with the Christian-Albrechts-Universität of Kiel. More information about the exhibition and most of the exhibited material can be found at http://www.ihy2007.de.

10. Germany has also participated in the Space Weather Monitor programme, led by the University of Stanford, which is an educational project aimed at building and distributing ionospheric monitors to students around the world. The monitors detect effects of solar storms on telecommunication signals as well as local ionospheric disturbances, such as the ones caused by thunderstorms.

11. In Germany, the Space Weather Monitor programme is run by the Institute for Astrophysics of the University of Göttingen, in collaboration with the German Aerospace Center and with financial support from the European Aeronautic Defence and Space Company (EADS) Astrium. Monitors have been installed at six secondary schools in northern Germany. More information is available at http://www.ihy2007.de/aktivitaeten.

India

[Original: English]

1. Several institutions in India have been working on various aspects of solar and solar-terrestrial physics. Many instruments are in operation as part of those studies. The programme for the International Heliophysical Year of India provides an opportunity for carrying out national and international collaborative studies of the Sun-Earth system and the heliosphere. The International Heliophysical Year programme for India (see http://www.prl.res.in/~ihyindia/) is brought forward by:

(a) The Indian representatives in the International Steering Committee of the International Heliophysical Year, S. S. Hasan, S. M. Chitre and A. R. Choudhuri;

(b) The chair of the National Advisory Committee of the International Heliophysical Year, G. Madhavan Nair;

(c) The national coordinator of the International Heliophysical Year, P. K. Manoharan;

(d) Working groups on the Sun; space weather; heliosphere and solar wind; climate and Earth atmosphere; instrumentation; and education and public outreach.

1. International Heliophysical Year/United Nations Basic Space Science Initiative programme

2. The International Heliophysical Year and the United Nations Basic Space Science Initiative programme is aimed at the wide distribution of small instrument arrays such as magnetometers, radio spectrometers, Global Positioning System (GPS) receivers and all-sky cameras. The instruments are then located at different longitudes in order to obtain continuous data. More details can be found at http://ihy2007.org/observatory/observatory.shtml.

3. The following instruments, all of which are operational and regularly provide data, were acquired through the above programme:

(a) Compound Astronomical Low-cost Low-frequency Instrument for Spectroscopy and Transportable Observatory (CALLISTO), a radio spectrograph, provided by the Institute of Astronomy of the Swiss Federal Institute of Technology in Zurich, Switzerland. Two such instruments have been installed, one at the Radio Astronomy Centre of the Tata Institute of Fundamental Research at Udhagamandalam, Ooty, and one at the Gauribidanur Radio Observatory of the Indian Institute of Astrophysics;

(b) Atmospheric Weather Educational System for Observation and Modelling of Effects (AWESOME), a receiver for very low frequency remote sensing of the lower atmosphere, provided by Stanford University. The receiver was installed at Nainital under the aegis of the Indian Institute of Geomagnetism at Mumbai.

2. International Heliophysical Year/Climate and Weather of the Sun-Earth System programme

4. The International Heliophysical Year and the Climate and Weather of the Sun-Earth System (CAWSES) programme have provided an opportunity for international collaboration between the interplanetary scintillation facilities operated at different frequencies and the Solar Mass Ejection Imager (SMEI) space mission. Together, SMEI and the interplanetary scintillation facilities provide a complete three-dimensional view of the Sun-Earth space. The network of interplanetary scintillation facilities includes the Ooty Radio Telescope and other international facilities.

3. International Heliophysical Year education and public outreach activities

5. A one-day meeting was held at the Indian Institute of Astrophysics in Bangalore on 13 January 2007 to discuss various public outreach activities. Several scientists from various national centres attended the meeting.

6. Scientists from the Indian Institute of Astrophysics came up with a concept for carrying out simple experiments to study the Sun in visible and radio wavelengths. The experiments use:

(a) A box spectroscope to view the spectrum of the Sun and common terrestrial light sources;

(b) A simple two-element radio interferometer to observe solar and other strong cosmic radio sources.

7. The Indian Institute of Astrophysics has also arranged for an adequate number of such instruments to be produced and distributed in schools and colleges throughout India.

8. Prototypes of the instruments were on display during the Indian Institute of Astrophysics open house days held on 9 and 10 August 2007.

9. Posters on the Sun, space weather and solar-terrestrial relations were put on display at an exhibition celebrating the International Heliophysical Year 2007. The exhibition also included a demonstration by Navnirmiti, an organization located in Mumbai that promotes science and activity-based learning, that showed participants how to use low-cost and no-cost tools to understand the Sun. More information can be found in the June and September issues of the newsletter of the Indian Institute of Astrophysics (see http://www.iiap.res.in/newsletter.htm).

10. The Inter-University Centre for Astronomy and Astrophysics in Pune has also been actively involved in public outreach activities, which have included producing small telescopes (such as refractor telescopes with 40-millimeter lenses) and demonstrating to children how to observe the Sun by projecting the solar image. An important part of public outreach activities are also public lectures at schools and colleges on themes related to the International Heliophysical Year.

11. Public debates and training programmes related to the International Heliophysical Year were conducted by the Radio Astronomy Centre in Ooty from mid-2006 to mid-2007 in various schools and colleges. Students were provided with training on how to use the radio telescope and how to carry out data analysis.

4. International Heliophysical Year-related meetings and events

12. The following meetings and events related to the International Heliophysical Year took place:

(a) The first planning meeting for the International Heliophysical Year programme of India was held at the Radio Astronomy Centre in Ooty from 10 to 12 July 2004. About 30 participants from various research organizations and universities across the country attended the meeting;

(b) A conference on the International Living with a Star programme was organized by the Indian Institute of Geomagnetism and held in Goa in February 2006;

(c) The Second United Nations/National Aeronautics and Space Administration Workshop on the International Heliophysical Year 2007 and Basic Space Science was held at the Indian Institute of Astrophysics in Bangalore from 27 November to 1 December 2006. Approximately 150 participants from 30 Member States attended the Workshop (A/AC.105/882);

(d) The International Heliophysical Year Science and International Geophysical Year Gold meeting was held at the Aryabhatta Research Institute of Observational Sciences in Nainital from 7 to 10 May 2007;

(e) The first Asia-Pacific School on the International Heliophysical Year was held at the Kodaikanal Observatory of the Indian Institute of Astrophysics from 10 to 22 December 2007. The school was co-sponsored by the Asian Office of Aerospace Research and Development of the Air Force Office of Scientific Research of the United States.

Japan

[Original: English]

1. International Heliophysical Year 2007 opening ceremony

1. The International Heliophysical Year 2007 was officially launched at a ceremony held at the United Nations Office at Vienna on 19 February 2007. Although the Japanese International Heliophysical Year team members were not able to attend the ceremony due to pre-scheduled obligations, a poster introducing International Heliophysical Year activities in Japan was presented.

2. United Nations/European Space Agency/National Aeronautics and Space Administration Workshop on Basic Space Science and the International Heliophysical Year 2007

2. The third United Nations/European Space Agency/National Aeronautics and Space Administration Workshop on Basic Space Science and the International Heliophysical Year 2007 was held at the National Astronomical Observatory of Japan (NAOJ) from 18 to 22 June 2007 (A/AC.105/902).

3. A series of basic space science workshops has been organized by the United Nations and the European Space Agency since 1991. Each workshop focused on a different topic and was hosted by a different country. Like the Second United Nations/European Space Agency/National Aeronautics and Space Administration of the United States of America Workshop on the International Heliophysical Year 2007, which was held in Abu Dhabi and Al-Ain, United Arab Emirates, from 20 to 23 November 2005 (A/AC.105/856), the third Workshop was also dedicated to the International Heliophysical Year.

4. The third Workshop was hosted by NAOJ under the auspices of the Government of Japan (the Ministry of Foreign Affairs and the Ministry of Education, Culture, Sports, Science and Technology). The Workshop was attended by 67 participants, 47 of whom represented the following 27 countries: Algeria, Brazil, Bulgaria, China, Egypt, India, Indonesia, Japan, Kenya, Malaysia, Mongolia, Morocco, Nigeria, Paraguay, Peru, Republic of Korea, Spain, Sri Lanka,

Syrian Arab Republic, Thailand, Netherlands, Philippines, Russian Federation, United Arab Emirates, Ukraine, United States and Uzbekistan. Representatives of the United Nations also attended the workshop.

5. In the opening ceremony, representatives of the United Nations expressed their appreciation to those who provided significant contributions to the series of Workshops: N. Kaifu (NAOJ), Japan, M. Kitamura (University of Tokyo, Japan), T. Kogure (Kyoto University, Japan), Y. Kozai (Gunma Astronomical Observatory, Japan), H.M.K. Al-Naimiy (University of Sharjah, United Arab Emirates), A. M. Mathai (Centre for Mathematical Sciences, India), P. Okeke (Centre for Basic Space Science, Nigeria) and C. Tsallis (Centro Brasileiro de Pesquisas Físicas, Brazil).

6. The International Heliophysical Year secretariat presented the International Geophysical Year Gold Club member award to those who actively participated in the International Geophysical Year in the years 1957 and 1958. To date, the following Japanese researchers have been presented with that award: K. Maeda (NASA), M. Sugiura (Tokai University, deceased in August 2007), N. Wakai (Tokai University), H. Maeda (Kyoto University), and Y. Kitamura (Kyushu University). The following new members were announced at the Workshop: E. Hiei (NAOJ), M. Ishitsuka (Geophysical Institute of Peru), I. Kondo (University of Tokyo), K. Nishi (University of Tokyo), H. Tanabe (University of Tokyo), and M. Wada (RIKEN). At the Workshop, an award was presented by N. Gopalswamy on behalf of the International Heliophysical Year secretariat to K. Nishi and M. Wada.

7. The Workshop consisted of five sessions, each are devoted to one of the following themes:

(a) International Heliophysical Year;

(b) Astronomy with small telescopes;

(c) Japanese space programmes;

(d) Statistical mechanics and astrophysics;

(e) Virtual observatories, database and software.

8. The proceedings of the Workshop will be published in the following journals: *Earth, Moon, and Planets* (topics (a) and (e)) and *Astrophysics and Space Science* (topics (b), (c) and (d)).

3. Other activities

9. Reports about the International Heliophysical Year activities in Japan were also presented at the following national and international meetings:

(a) The Climate and Weather of the Sun-Earth System (CAWSES)/International Heliophysical Year Symposium, Nagoya University, Japan, 13 March 2007;

(b) The Japan Geoscience Union meeting, Makuhari Messe, Japan, 19-24 May 2007;

(c) The Fourth Annual Meeting of the Asia-Oceania Geosciences Society, Bangkok, 30 July-4 August 2007.

Poland

[Original: English]

1. The Alfvén 2007 Workshop on Space Environment Turbulence was held at the Cardinal Stefan Wyszyński University in Warsaw from 17 to 21 September 2007. The Workshop was organized by the Space Research Centre of the Polish Academy of Sciences and the World Institute for Space Environment Research.

2. The Seventeenth International Conference on Electromagnetic Disturbance was held at Białystok Technical University from 19 to 21 September 2007. The conference was organized by Białystok Technical University, the Kaunas University of Technology and the Polish Electrical Engineers Branch.

3. Another significant event was the conference entitled "Space for Humans: the Past 50 Years and beyond", which took place on 2 and 3 October 2007 and was dedicated to the fiftieth anniversary of the space age. The conference was organized by the Committee on Space and Satellite Research and the Space Research Centre of the Polish Academy of Sciences and the Warsaw University of Technology, with significant support from the Embassy of the United States in Warsaw, NASA and ESA.

4. Over 300 people attended the conference. Among them, as special guests, were astronauts from NASA, ESA and Poland, as well as representatives of the Russian Federation, NASA, ESA and of the countries that partake in the ESA Plan for European Cooperating States.

5. A special session was dedicated to children and youth, some of whom presented their vision for the next 50 years of space exploration. The conference captured a great deal of media interest and is featured on the ESA website.

Saudi Arabia

[Original: Arabic]

1. Activities for the International Heliophysical Year 2007 in Saudi Arabia include preliminary studies on atmospheric electromagnetic interference and the development of mathematical, physical and geometric formulas.

2. Scientific research in space physics is also being promoted in cooperation with scientists from Saudi Arabian universities.

Thailand

[Original: English]

1. In Thailand, two Government agencies, the National Astronomical Research Institute of Thailand (NARIT) and the Geo-Informatics and Space Technology Development Agency (GISTDA), both under the Ministry of Science and Technology, have actively organized activities to promote the International Heliophysical Year 2007.

2. The activities related to the International Heliophysical Year 2007 held in Thailand are summarized as follows:

(a) International Heliophysical Year Education Subcommittee Meeting: Representatives of NARIT attended the International Heliophysical Year Education Subcommittee Meeting, held in Vienna on 19 February 2007;

(b) Public announcement of International Heliophysical Year 2007: NARIT and the Ministry of Science and Technology issued a press release entitled “Eclipse in Thailand and IHY 2007” to announce the International Heliophysical Year 2007 to the Thai public, in conjunction with activities carried out on occasion of the solar and lunar eclipses which occurred in March 2007;

(c) Thai kite/sport/music festival: GISTDA and NARIT participated in the festival. The “Helio kite” was displayed and flown during the event to promote and celebrate the International Heliophysical Year 2007;

(d) Press conference: The Ministry of Science and Technology held a press conference on 24 May 2007 to increase awareness among the Thai public of the International Heliophysical Year 2007. The main theme was “IHY 2007: A Star Story”;

(e) National Science and Technology Fair: A large exhibition entitled the “Heliophysical Pavilion” was held at the National Science and Technology Fair from 8 to 19 August 2007. The Fair is a large annual event organized by the Ministry of Science and Technology. The Fair is open to the public and more then 50,000 people visit the Fair each year;

(f) Exhibitions: Various exhibitions and events on the International Heliophysical Year 2007 were held on many occasions to increase awareness among the general public of the International Heliophysical Year. Among them, “THEOS Family in the Park” was held in April and World Space Week was celebrated in October;

(g) Website information: A Thai website on the International Heliophysical Year (http://www.thaispaceweather.com) has been launched to provide scientific information on heliophysics. Additional information about events related to the International Heliophysical Year 2007 in Thailand can be found at http://funscience.gistda.or.th.