

International Heliophysical Year: European Activities

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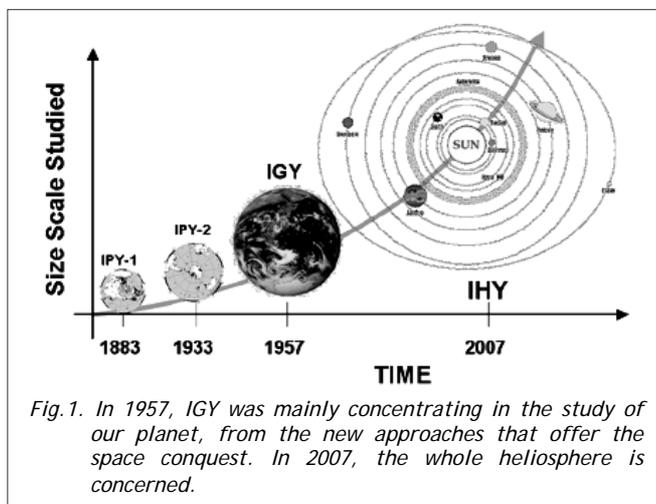
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The First European General Assembly of the "International Heliophysical Year" (IHY) took place at the headquarters of the Centre National de la Recherche Scientifique (CNRS) in Paris, France, 10-13 January 2006. There were 113 participants representing 27 nations. The science concerned with the International Heliophysical Year programme was first illustrated. Then, the status of current instruments as well as practical information on the campaign management policy was given. Twenty European National Coordinators described the progress of their IHY activities. Representatives from Egypt, Angola and the coordinator of the Balkan, Black and Caspian Sea Region also reported on the progress of IHY activities in their respective regions. People from the IHY Secretariat provided a summary of the global IHY efforts including the United Nations Basic Space Sciences Program. In the education and public outreach front, a variety of activities have been planned: TV and radio shows, board games on space weather, specific programmes for schools and universities, workshops for teachers are some of the actions that were presented by the delegates. Beyond of these national and individual initiatives, specific activities requiring European coordination were discussed. This paper provides an extended summary of the main talks and discussions that held during the meeting.

Introduction

During 2007-2008, the International Heliophysical Year (IHY) will celebrate the 50th anniversary of the International Geophysical Year (IGY) (Fig.1). IHY is one of the four Earth-related activities that will participate to this anniversary together with International Polar Year (IPY), Electronic Geophysical Year, and International Year of Planet Earth.



The main goals of IHY program are:

1. Understanding the processes and drivers which affect the terrestrial environment and climate;
2. Perform global studies of the Sun-heliosphere system outward to the heliopause;
3. Foster international cooperation;
4. Communicate results to general public.

To reach these goals, a specific set of activities are planned. These are: (i) Coordinated Investigation Programmes (CIPs), which will involve all the existing ground and space-based instruments; (ii) Instrument deployment programmes, involving the United Nations, under which small instruments will be deployed in developing countries to promote space science and education in those countries; (iii) IGY Gold programme is

to identify the scientists who forked for IGY and honor them; (iv) Public Outreach programmes to convey to the public the beauty and relevance of our science. All these activities will be performed with international cooperation and data sharing.

The scientific activities will cover five main themes:

- Evolution and Generation of Magnetic Structures and Transients;
- Energy Transfer and Coupling Processes;
- Flows and Circulations;
- Boundaries and Interfaces;
- Synoptic Studies of the 3-D Coupled Solar-Planetary-Heliospheric System.

IHY is fundamentally a grass-roots programme, which means that anyone can propose new research directions. Also, investigations involving other international years are encouraged. The best example is the ICSTAR (Interhemispheric Conjugacy Effects in Solar-Terrestrial and Aeronomy Research) programme that concerns both IHY and IPY.

International Organization

An international structure ensures the implementation of the planned activities. IHY secretariat consists of J.Davila (Executive Director), N.Gopalswamy (International Coordinator) and B. Thompson (Operations Director). The International Steering Committee chaired by J.Davila. The International Advisory Committee chaired by R.M. Bonnet chart the course of IHY (Fig.2).

The global activities are organized under seven regions, each having its own regional coordinator and steering committee. Europe is one of them, which is described here.

European IHY organizational structure

The European steering committee is chaired by J.L.Bougeret (Paris observatory, France – also member of the International Steering Committee). It is composed of ten other members: C.Briand (co-chair, France), J.A.Bonet Navarro (Spain), A.Breen (United Kingdom), M.Candidi (Italy), K.Georgieva (Bulgaria, on behalf of the Balkan, Black and Caspian Sea Region coordination), R.Harrison (United Kingdom, also member of the international steering committee and UK national

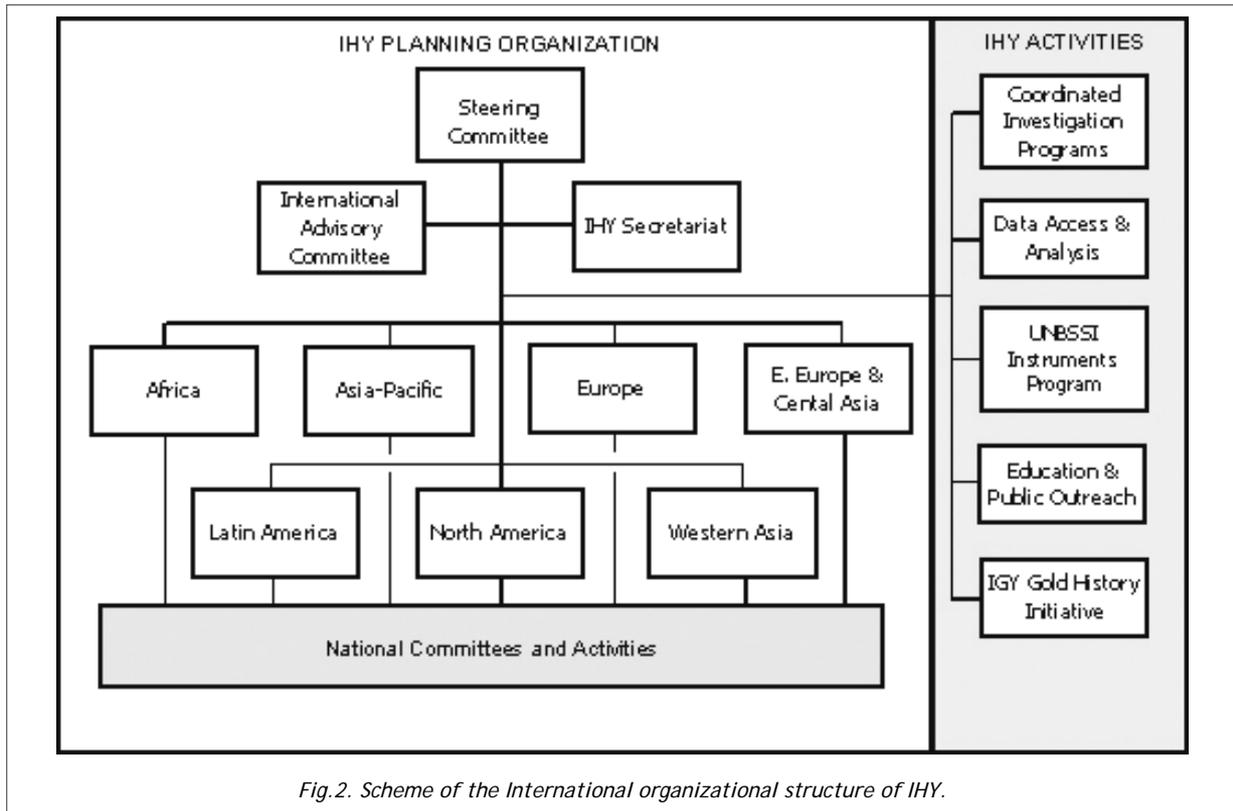


Fig.2. Scheme of the International organizational structure of IHY.

coordinator), R.Marsden (European Space Agency), B.Schmieder (France, also coordinator of the French activities), Y.Tulunay (Turkey, on behalf of COST) and R.von Steiger (Switzerland). The role of the steering committee is to:

1. Inform the researchers as well as funding agencies and other international programmes about the IHY activities;
2. Bring out the common scientific interests of all national/regional working teams;
3. Help isolated groups/scientists;
4. Coordinate specific activities.



Fig.3. Map of the countries belonging to the European steering committee (non light grey ones).

Twenty-four countries belong to the European coordination (Fig. 3). Each of them has its own national coordinator.

Her/his fundamental role is to ensure the link between the national researchers and the steering committee to facilitate the communication bottom-up and vice-versa.

She/he is also in charge of:

1. Promoting the activities her/his country:
 - Scientific (encourage the participation of researchers and institutes, stimulate development of specific activities, etc.)
 - Outreach (exhibitions, summer schools etc.)
2. Enhancing visibility to their activities (e.g., webpage);
3. Identifying the local funding agencies;
4. Coordinating the proposal activities for funding if necessary.

The list and contact address of the coordinators and members of the steering committee can be found on the IHY European web page (see below the contact list).

European Activities

Outreach activities

One of the first actions of the European steering committee was to organize the First European General Assembly of IHY. This meeting took place at the CNRS headquarters in Paris in January 2006 [1]. Fourteen national coordinators were present as well as a large representation of the international organization committees: J.Davila, N.Gopalswamy and B.J.Thompson.

A specific session was dedicated to discuss the activities requiring an international coordination. Among them, the organization of an open-doors day all over Europe received a large interest. A small project group was formed to coordinate the activity. It is composed by C.Briand (France, Chair), S.Poedts (Belgium), G.Poletto

(Italy), R.Stamper (United Kingdom), D.Carlson (United Kingdom on behalf of IPY). The International Polar Year is a partner in this activity. The goal of this activity is to open the doors of as many laboratories/observatories/institutes related to IHY and IPY as possible, all over Europe on 10 June 2007. Several common activities between institutes participating as well as video links between them are now under study. Each institute willing to participate in this open-doors day is invited to contact their national and European coordinators.

The large geographical extent of Europe offers the challenge of the linguistic diversity (particularly for activities aimed at the general public). But more importantly, it gives rise to large differences in cultural perspective and thus to multiple approaches and expressions. Here are some examples of the activities presented by some countries.

The educational activities are directed towards students (high schools and university level) including specific lecture packages in the normal curriculum or organizing summer schools and competitions (France, Czech Republic, Belgium, Germany). Also summer schools and events dedicated to science teachers have been proposed. In Ireland, "Sudden Ionospheric Disturbance Monitors" will be deployed in five secondary schools.

All countries also prepare exhibitions for the general public. In particular, France, Switzerland and Belgium work together to develop a common itinerant exhibition that will be set up not only in laboratories but also in shopping centers.

Many other ideas were also exposed including artistic expressions (in Ireland an art exhibition, in Germany a dance show) and games for children (in Belgium a board-game on space weather).

Many countries already have also contacted TV stations and/or newspaper journalists to work with them and develop some specific programmes. In particular, the Czech Republic has included some representatives of the communication media in their coordination.

Research activities

The European scientific community and observatories will actively participate in the scientific campaigns under the CIP program. At the time of this writing, there are 40 CIPs listed on the CIP web site and 13 of them are led by European researchers.

Another activity has recently gained interest: the recovery of old data, especially old photographic plates. This need was mentioned in France and Italy (where such a work is already in progress) but also in Slovakia (for coronal observations), Germany, Ireland, and others. This interest is also shared by Indian groups. So, during the IHY meeting in Antalya in 2006, the decision was taken to manage the activities of data rescue at the international level.

Coordinated Investigation Programmes

The primary goal of the CIP activity is international cooperation in scientific investigation. It promotes coordination of observations and facilitates exchange of information between scientists working on a common problem [2].

The CIP is a three steps procedure (Fig.4):

1. **Propose:**
A researcher proposes activities with specific science goals, requiring multiple resources not necessarily under his control (see below for the web link).
2. **Coordinate:**
IHY Discipline Planners review the proposal to coordinate with other CIPs and to link the proposer with representatives for instruments, observatories, and models. The Proposer and facility representatives arrange the details of observation modes, schedules etc. and do the work.
3. **Review:**
IHY Universal Process Workshop Planners identify relevant CIPs to start planning summary workshops. These will happen towards the end of 2007 and into 2008, and provide forums for drawing together and reviewing the results from IHY campaigns.

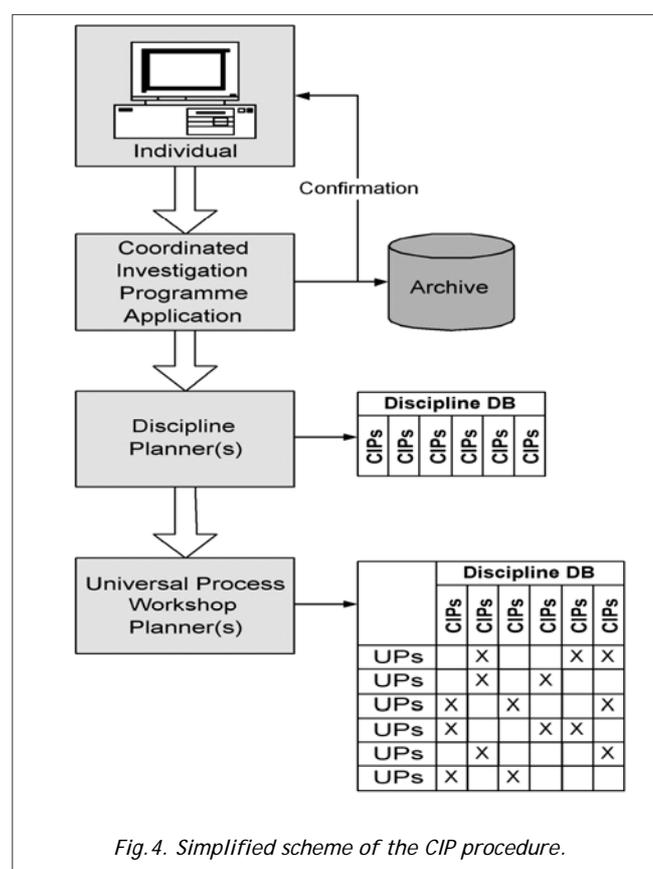


Fig. 4. Simplified scheme of the CIP procedure.

Conclusions

The IHY 2007 will greatly benefit from the large armada of spacecraft already flying (SOHO, TRACE, RHESSI, CLUSTER etc.) or flying very soon (like STEREO). We can also use the ground-based telescopes for solar observations (like the largest complex in the world located in the Canary Islands) as well as radars and radio-telescopes. European countries have a specific role to play since a lot of large infrastructures are in the region. Through coordinated observations from these different instruments, we have the opportunity to study the global behavior of our Sun and develop detailed investigations on Sun-Earth relationships.

IHY is also a good opportunity to develop specific events for the public. Through the multiple approaches of each country we should be able to advise people about the importance of knowing more about our closest space environment. Only from a detailed knowledge of the fundamental physics that regulates the equilibrium of our planet we can expect to develop some solutions to preserve our environment and life quality.

Contacts

- International Web Page:
<http://ihy2007.org>
- European Web Page:
<http://www.lesia.obspm.fr/IHY/>
- CIP:
http://www.ihy.rl.ac.uk/CIP_form.shtml

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- [1] International Heliophysical Year. Proceedings of the First European General Assembly, 10-13 January 2006, Paris, France, Ed. C. Briand, 2006.
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