

Preparing for IHY in the UK

Geological Society Lecture Theatre
Burlington House, Piccadilly, London

Tuesday 1st November 2005

Notes by Richard Stamper

Structure of the Meeting

Chair: Richard Stamper

A series of presentations was given through the day, grouped into three broad sections. These were

- IHY : Status and general ideas
- IHY and IPY : ICESTAR/IHY proposal
- Supporting and Publicising IHY

with the second section predominating. This section consisted of presentations from each of the programmes forming part of the ICESTAR/IHY proposal to IPY which have significant UK involvement. Free discussion took place after each talk on the subject matter covered, then ranging more widely at the end of each section.

Attendees

Danielle Bewsher (RAL), Andy Breen (Aberystwyth), Barbara Bromage (UCLAN), Sylvia Dalla (Manchester), Chris Davis (RAL), Patrick Espy (BAS), Mervyn Freeman (BAS), Martin Fullekrug (Bath), Eoghan Griffin (UCL), Richard Harrison (RAL), Andrew Kavanagh (Lancaster), Ian McCrea (RAL), Cathryn Mitchell (Bath), Steve Schwartz (ICL), Richard Stamper (RAL), Jim Wild (Lancaster), David Willis (Warwick).

Others prevented from attending who sent their apologies were: Robin Clegg (PPARC), Sue Horne (PPARC), Sarah Matthews (MSSL).

Aim of Meeting

- Review present status of plans for IHY activities in the UK
- Plan the next steps over the coming 6-12 months.

Points of note

The presentations from the meeting are available on the IHY UK web site (ihy2007.org.uk). Points of note raised during presentations and discussions include the following, grouped by section.

Status and general ideas

1. The consensus was that there could usefully be many more than 20 CIPs, a number that had been floated as a good target.
2. It was felt that the UK community would need more encouragement and informatino about how to participate in IHY. The forthcoming joint MIST/UKSP meetings, to be held in Aberystwyth in April 2006, were considered the best opportunities, and Andy Breen is one of the organisers.
3. Trans-equatorial extensions of the polar coronal holes, which should be relatively common in 2007 at sunspot minimum, rotate quasi-rigidly so can be well predicted. A prediction service for these holes would be useful, with a link to, or extension of the Auro-ravatch service provided by the University of Lancaster being an option.
4. Andy Breen's experience in analysing an isolated sunspot, flare and CME event on May 13th 2005 highlighted several areas where improvements would be valuable for IHY:
 - Make it easier to find out *what* instrumentation was running.
 - Easier access to models, probably after the event.
 - Better visualisation support.

It was also clear that different types of instrument or experiment would have different priorities in terms of IHY coordination:

- Synoptic programmes would be concerned with getting data to relevant CIPs.
- Campaign-based programmes would need to get scheduling constraints from CIPs in a timely manner.

IHY and IPY

1. There are two spacecraft being launched in 2008 with instruments to be used for sprite detection. (Details unknown – is the Brazilian EQUARS mission one of them?)
2. A subset of the DEEVERT programme, called GEO-CADA, has been selected to fit the NERC Arctic-IPY call for proposals. A decision on the funding of this will be made by NERC in December 2005 after a presentation at the end of November. There are four campaign programmes in the proposal, all of which would be good candidates for CIPs.
3. In the context of MULTIPLEX, it was noted that active techniques such as ionospheric heating by SPEAR and the EISCAT heater at Tromsø lend themselves to co-ordinated CIP activities.
4. There is a commitment “on the table” from the Incoherent Scatter Radar community represented by the ISPAM proposal, to run radars continuously for 2007 so far as this is

possible. The ESR has been run for roughly 2 months continuously on one occasion and it is anticipated that continuous observations for 2007 are feasible.

5. The SuperDARN consortium has already given thought as to how to interface with IHY. Points to note that have arisen during their discussions are:
 - (a) There will be a single facility representative for the whole SuperDARN network, with Mervyn Freeman (BAS) the probable person in this role.
 - (b) It may be possible for SuperDARN to vary the strictures of the planning/operating schedule from the standard cycle that they operate on.
 - (c) A question that is still live within the consortium is how the use of SuperDARN data should be properly acknowledged when it is "embedded" within third-party data products.
6. The Ionospheric Tomography programme, certainly within the UK, would benefit from more support for data dissemination, and the simplicity of the receiver systems makes it a potential candidate for a UNBSSI instrument network.
7. Attention was drawn to a new facility providing access to Riometer data and generating new derived products – GAIA-VXO at <http://gaia-vxo.org/>. The IRIS riometer has been used to detect the injection of high-energy electrons into the magnetosphere, and there is the potential for coordination with the THEMIS 5-spacecraft mission due for launch in the autumn of 2006.
8. Martin Fullekrug highlighted the existence of the LOFAR network of radio antennas, which has a high profile in Europe but not in the UK. This system uses relatively cheap and simple antennas (currently funded for 15,000) distributed over a wide area, and gains its power from combining this data in software to emulate a conventional antenna. Although the original application was as a radio telescope, other applications have been appearing, and there might be opportunities for IHY science.
9. The UAMPY project is seeking opportunities to site (sophisticated) dual-frequency GPS receivers in locations not well covered by such receivers at present, to enable TEC to be calculated. The polar caps and the oceans are important such regions, and there was the potential to add receivers to the AGOs that are deployed by BAS.
10. There is a joint US/Taiwanese mission – COSMIC/FORMOSAT-3 – planned for launch in 2006 which will use GPS occultation from six small satellites to monitor atmospheric characteristics including TEC.

Supporting and Publicising IHY

1. Astrogrid is keen to develop and support applications that support the solar and solar-terrestrial communities, with Silvia Dalla being the principal contact in Astrogrid.
2. A decision on the bid for funding of the UK Solar System Virtual Visitor Centre will be made in December 2005, with a resubmission after modifications planned if not successful in this first instance.
3. The First European IHY General Assembly, to be held in Paris on 10-12 January 2006 was publicised and people were urged to register to attend.
4. The national network of Science Centres, gathered under the ec-Site umbrella organisation, was suggested as a fruitful route for public outreach activities. They have a separate

funding line in the PPARC Science and Society programme, with bids of up to £30K due in April 2006.

Actions

1. All UK groups will look to create CIPs, particularly in relation to programmes of work proposed in the context of the ICESTAR/IHY proposal for IPY.
2. Cathryn Mitchell and BAS to pursue the possibilities of including dual-frequency GPS receivers on AGOs.
3. All participants to consider attending the European IHY General Assembly in Paris in January 2006, with registration needed urgently.
4. All participants to explore possibilities for public outreach activities, particularly with a view to the PPARC Science and Society Small Awards and Science Centre schemes, for which bids are next due in April 2006.
5. Andy Breen to pursue the option of having the middle day of the MIST/UKSP meeting, Wednesday 12th, as a whole-day session on IHY covering both the science planned for CIPs and the mechanics of running individual CIPs.
6. Barbara Bromage to liaise with Lancaster to investigate whether predictions of the appearance of trans-equatorial coronal holes could feed into the Aurorawatch facility.
7. Silvia Dalla, representing Astrogrid, to work with community representatives to identify suitable applications that would facilitate IHY science and could be well-supported by Astrogrid, preferably with applicability across multiple projects.