

# (Draft) Minutes of SWWT meeting # 19

**Date and time:** 29 June 2006, 09:30-16:30

**Location:** ESA HQ, Paris

**Attendees:** Mike Hapgood, Alexi Glover, Alain Hilgers, Eamonn Daly, Stanimir Stankov, Yannick Béniguel, Consuelo Cid, Francois Lefeuvre, Paul Gille , Pablo Beltrami, Anna Belehaki, Jean-Yves Prado, Pierre Lantos, Nicolas Fuller, Monique Pick, Stefaan Poedts and Mauro Messerotti.

## Agenda:

1. Introduction & statement from incoming SWWT Chair (MH)
2. Review actions from last SWWT meeting
3. Discuss updated SWWT Terms of Reference
4. Space weather activities in ESA
5. Highlights from national SW activities
6. Development of a space weather roadmap (MH)
7. SW discussions with the EU : short report (MH, PG)
8. Other European SW activities: news and key issues
9. Space Weather and Eumetsat
10. Plans for ESSW3 (AG)
11. News and key issues from the SWWT topical groups
12. Summarise actions
13. AOB

## 1 Welcome and introduction

MH welcomed everyone to the meeting and gave a short statement of his approach as the new Chair of SWWT - see slides 3 and 4 of MH's presentation (attachment 1).

## 2 Review of open actions

- M17/2** Investigate the possibility of submitting a proposal for a EUMETSAT SAF  
Closed - see EUMETSAT report from FMI.
- M17/3** Contact the Panel of experts on space and security  
Closed. PG has been in contact with ESA security group. Need to follow-up after meeting with EU on 30th June,
- M17/6** Submit the briefing pack to a journalist.  
Closed
- M17/8** Organise a meeting with the EC Space Policy and Space Application Units  
Closed - meeting is on 30th June.
- M17/9** Define the content of a SW-ERANET project

Open. FL reported that support of long-term monitoring is a problem. Most national agencies don't like to support this. So we need a very complete document in order to progress the issue. MH noted that there was a problem in space weather being regarded as like astronomy (which does not support long-term monitoring); space weather is more like the environmental sciences in its need for long-term monitoring. AH supported the idea of presenting space weather as an environmental science and noted the importance of inter-disciplinary work in this area. PG suggested that it might be better to seek support for space weather measurements as an Infrastructure project rather than as an ERA-NET. FL noted that, whatever route is chosen, the key problem is getting adequate information from the wider space weather community.

- M17/13** Examine the possibility of associating European outreach SW activities with SEC outreach activities  
Open. AG noted that this concerned links with the IHY outreach work at SEC Boulder. She was not sure who is the contact after the retirement of Barbara Poppe. AG to ask SEC for alternative contact.
- M18/1** Identify contacts with persons involved in the definition of the European Space Programme (P. Gille, F. Lefeuvre, next SWWT meeting).  
Closed, see next action.
- M18/2** Organise a meeting with the EC Space Policy and Space Application Units about SW activities which could be proposed to FP7 (P. Gille, next SWWT meeting).  
Closed. Meeting in Brussels on 30 June.
- M18/3** Define as soon as possible a date for a SDA community meeting (D. Heynderickx and M. Menvielle). AG pointed out that there is an SDA community meeting scheduled for the ESWW3. However it was also suggested that the SDAs be contacted to propose appropriate upcoming meetings where SDA communities could meet.  
Open .
- M18/4** Send to the SWWT members examples showing how to operate SWENET (D. Heynderickx, As soon as possible).  
Open. PB to take this action as DH will be unavailable until 2007.
- M18/5** Send comments and recommendations to A. Glover and A. Hilgers about the use of the SWENET services, the SDAs which will emerge, etc. (All SWWT members, As soon as possible)  
Keep open - linked to work on the Space Weather portal.
- M18/6** Propose contact with Meteo National Delegates to prepare presentations at the EUMETSAT Science Working Group (All SWWT members, by end of January 2005)  
Open
- M18/7** Finalise the Era-Net document (F. Lefeuvre, by the end of January 2006)  
Open - review this action after meeting with EU.
- M18/8** Volunteer to review the Era-Net documentation in preparation (All SWWT members, As soon as possible)  
Open
- M18/9** Approach national Agencies for the endorsement of the Era-Net document (All SWWT members, after Action M18/6).  
Open
- M18/10** Organize a meeting on the future of SWWT activities (E. Daly, A. Hilgers, F. Lefeuvre and H. Opgenoorth, by end of 2005 )  
Closed. See report from ED.
- M18/11** Take advantage of IHY to start new long term monitoring such as the monitoring of solar radio flux, signature of CMEs, shocks, SEP, ... from a network of multi-frequency radio telescopes (SW radioscientists, January 2006 European IHY meeting)

Open. FL stressed that this needs input from scientific community. MP noted that the current approach to coordination is a patchwork - the community is disorganised. MH commented that it was done much better 50 years ago by the organisers of IGY; FL agreed. This action will be taken forward into ESWW3.

**M18/12** Assuming that SWWT activities will be supported in the next two years, to candidate for the function of SWWT chairman (All SWWT members, by 20 January 2006)  
Closed - election completed.

**M18/13** Assuming that SWWT activities will be supported in the next two years, to make an e-mail election (by 20 February 2006)  
Closed - election completed.

**M18/14** A. Glover and H. Lundstedt to discuss with M. Messerotti the inclusion of his working group activity on solar monitoring and geomagnetic indices topic in the Fundamental Research Topical Group activity.  
Closed. There was strong support to retain the working group.

### 3 Updated SWWT Terms of Reference

AG circulated paper copies of the updated terms of reference (also shown on slides 7 to 9 of MH's presentation), which had been drafted at a meeting between AG, AH, ED, MH and FL in March 2006. In discussion it was agreed that some further changes were needed:

- a. Annex A, first bullet. MH noted that the term "private company" is too restrictive and that SWWT should include representatives of all types of companies.
- b. Annex A, second bullet. FL noted that there should be a more formal mechanism for nominating members of the new Steering Board, e.g. representatives of main funding agencies should be nominated by those agencies.
- c. Annex A, second bullet. MM noted the need to specify what is meant by main funding agencies; MH noted the need to encompass the different circumstances in different countries, e.g. in the UK there is no main funding agency, but rather a group of agencies with some coordination.
- d. Topical groups. It was agreed to add launchers to the scope of the spacecraft and aircraft environments group; this reflects the strong European interest in SpW effects on launchers with the advent of Vega and Soyuz at Kourou. The Chair will seek suitable persons to lead SpW activities for launchers.
- e. Topical groups. JYP proposed that the membership of the topical groups should be revisited at ESWW3.

*AI 1. AG and MH to revise terms of reference and circulate to members.*

*AI 2. MH to include launchers in the TG for spacecraft and aircraft environments and seek suitable members.*

*AI 3. MH to initiate review of TG membership.*

### 4 Space weather activities in ESA

ED presented the Space Environment Effects Network of Competence (SEENoC) through which ESA is working with Member State programmes to coordinate European expertise on space environment effects on spacecraft. ED reported strong interest from data and operations centre programmes in France, Belgium and Spain. He also confirmed that SEENoC interest covered European interest in space weather for planetary exploration as well as the usual applications in near-Earth space.

In discussion it was clear that other areas of space weather study in Europe would benefit from a similar approach. The SEENoC could not be extended to cover them but equivalent networks could be built, e.g. for ionospheric problems (where a Network of Experts in propagation could address them) and for drag.

MH asked how well the UK fitted into SEENoC. ED said that BNSC had expressed interest but noted that the UK has no public national technical focus following the privatisation of QinetiQ.

AG presented a summary of other ESA SpW activities. These include the Pilot Project cost benefit analysis by SEA and the space weather nanosat study led by RAL; these should both present final reports later this year. She also reported on several recently started and upcoming studies. These included a study of the Martian radiation environment, a study which will look at developing new engineering models for solar particle events and an upcoming study that will cover space weather hazards for space systems.

## **5 Highlights from national SW activities**

### **5.1 SW Activities at University of Alcalá, Spain**

CC reported on the development of a model for predicting Dst. This is quite successful at a scientific level and preliminary discussions have begun with INTA with regard to its implementation in an operational context. The Alcalá group would like to move this into an operational environment but they would need support to migrate the existing code to a robust application.

*AI 4. MH to raise awareness of the need for mechanisms to move space weather models into operations.*

### **5.2 Recent developments in space-weather research and services in Germany**

SS gave an extensive review of space weather developments in Germany (see attachment 2) and of the plans that have been developed for better national coordination, e.g. setting a national centre of competence for space weather. Key issues include:

- a. the importance of ACE as a data stream underpinning much space weather work in Germany
- b. the value of ground-based SpW monitoring (e.g. Germany has an extensive network for GPS monitoring of the ionosphere). The northern regions of the ground-based network are especially important as SpW-induced disturbances propagate south from the auroral zone.
- c. the need to promote user interest in ionospheric science as a way to build support for space weather. SS was concerned how we could advance SpW in Europe at a time when the US appears to be weakening its interest in this area.
- d. the exploitation of SWARM data for SpW. This requires the establishment of a European user group to handle the dissemination of solar-terrestrial data products from SWARM.
- e. definition and establishment of a SID/SW (Sudden Ionospheric Disturbances / Space Weather) Monitoring System in Germany for scientific and educational purposes. Current status: definition of user requirements, instrument/platform concept studies.
- f. negotiations for a future German Space Weather Satellite for SW effects analysis and prediction. Current status: definition of user requirements, scientific payload studies.

Other groups working on space weather in Germany will also form part of this centre of competence. These include groups working on radiation effects at aircraft altitudes and the University of Greifswald's Muon Space Weather Telescope (MuSTAnG).

It was noted that discussion is underway in Germany on the feasibility of a space weather focussed German small satellite. This has received interest from NASA/GSFC. Goals would include space weather effects analysis and prediction.

It was noted that the next meeting relating to the establishment of this network of competences would take place in July at Astrium, Friedrichshafen.

SS commented on the importance of SWENET. Kp etc forecast is required by SWIPPA from SWENET. In addition, if requested, SWIPPA volunteers to increase its contribution to SWENET.

*AI 5. TBD to explore how to set European user group for dissemination of ST data from SWARM.*

### **5.3 French SW activities (Jean-Yves Prado)**

JYP gave a short presentation on French space weather activities (see attachment 4). Key issues are:

a. The development of a national framework for coordinating SpW activities in France. This covers a range of scientific and operational activities and now has a clear contribution from the two communities.

b. JYP endorsed the need to consider SpW effects on launchers. This was important for Vega and for the new Soyuz series. Both would include modern miniaturised electronics that could be vulnerable to single event effects.

It was also noted that an operational version of the Salamambo code is being developed and that the FROMAGE solar magnetic field modelling tool is available to run online.

### **5.4 Italian SW activities + eGY (Mauro Messerotti)**

MM gave a short presentation on Italian space weather activities (see attachment 5). He outlined the development of a national network to coordinate those activities and support the smaller activities. He noted that, like other countries, some space weather activities were hosted in astronomy-led organisations (e.g. INAF) and the senior leadership was not necessarily supportive of space weather.

He noted that SWITNET will be able to handle real time data ingestion. Collaboration will take place in the context of EGSO. Some developments have already been tested.

The aim of this activity is to use the Virtual Observatory concept as stimulation to coordinate & Standardise data resources. This does not imply that all data has to have the same format. Ingestion of older data should also be possible.

MM proposed that the SWWT investigate how to make recommendations to authorities with respect to the usage of scientific data for space weather purposes. Coordination in the collection of this data is needed. Data handling importance was also stressed.

MM also noted that he is responsible for coordinating European group for eGy and will chair a session at the next meeting of the international council for science committee on data for science and technology [www.codataweb.org/](http://www.codataweb.org/) in October 2006.

### **5.5 Belgian SW activities (Stefaan Poedts)**

SP gave a summary of Belgium space weather activities (see attachment 3). He delighted the meeting with news of the strong Belgian push to build up a solar-terrestrial centre of excellence. It is hoped that there will be a positive announcement on funding for this during ESWW3. Belgium aims to be a major European SpW centre and a central node in future European SpW activities.

### **5.6 UK SW activities (Mike Hapgood)**

MH gave a short presentation on UK space weather activities (see slides 12 and 13 of his presentation, attachment 1). He reported that (a) the Government was consulting on proposals to reorganise the UK science funding agencies (in particular PPARC and CCLRC), and (b) another agency (NERC) was considering space weather as part of a new research theme on natural hazards. It was hoped that the Government's agenda of knowledge transfer and discussions on the position of space research may help the profile of SpW activities in the UK.

MH also reported on developments concerning the future funding of the UK ionosonde programme, UK interest in the China-Europe KuaFu magnetospheric mission, UK instruments on ISS and STEREO.

It was also noted that there is strong interest in space weather applications activities in the UK including several SDAs and involvement in GIOVE/Galileo.

## **6 Development of a space weather roadmap (MH)**

MH deferred this due to lack of time.

## **7 SW discussions with the EU: short report (MH, PG)**

MH reported that PG had arranged a meeting with the EU Space Policy on the following day (30 June). A small group from SWWT (MH, FL, PG, AG, MM + Ronald van der Linden) will meet with EU officials (see slide 16 of MH's presentation). MH would report back to SWWT on the outcome of this meeting.

*AI 6. MH to report on 30 June meeting at EU.*

## **8 Other European SW activities: news and key issues**

AB gave short reports on the status of COST 724 and DIAS.

It was noted that the final report from COST 724 will be supported by ISSI and will form a reference book containing science publications technical papers on catalogues, scales etc.

AB also reported that the e-Content-funded phase of DIAS had ended and that there was a business plan to guide its future development. It was noted that INTA (ES) has invested in a new digisonde and is collaborating with this project. It was also noted that the defence sector is a major user for DIAS.

AB stated that DIAS would be ready to collaborate with SWENET. AG/AB agreed to take an action to look at closer collaboration between DIAS and SWENET.

## **9 Space Weather and Eumetsat**

MH presented a short and positive report from Juha-Pekka Luntama at FMI. While space weather is formally outside the current EUMETSAT mandate, it is being discussed in the framework of the Post-EPS mission planning and user requirement definition. Wolfgang Benesch, the Chair of the Scientific and Technical Group (STG), has asked FMI to take a lead in preparing a short report for the STG about the space weather applications, user community, and the potential use of the data already provided by EUMETSAT. This will be provided to the STG as at its next meeting in September.

Several members of the SWWT would like to see the report for STG. MH will contact Dr Luntama to ask if SWWT members can comment on the report. MH will also ask if it would be useful for SWWT members to contact STG members to support the report.

*AI 7. MH - contact Juha-Pekka Luntama at FMI to see if their report to EUMETSAT can be made available to SWWT members - and also to ask if SWWT member should lobby STG members.*

## **10 Plans for ESWW3 (AG)**

AG presented a report on the status of ESWW3 preparations.

## **11 News and key issues from the SWWT topical groups**

Education, Outreach and Emerging Markets. MH presented a short report from Norma Crosby, who was unable to attend the meeting due to travel commitments. She reported that the EGU session "Education and Outreach in the Earth- and Space Sciences" had been well-supported in general but had lacked contributions for the European space weather community. She wondered whether there was there is interest from Europeans for this type of activity? MH commented that that there was much interest in the UK but the issue was how to link this to the SWWT topical group.

It was agreed that a review of the topical groups should be undertaken. MH will contact each of the TG spokespersons individually to establish whether they wish to continue their activities. In parallel a review of the TG membership will take place.

## **12 Summarise actions**

In view of shortage of time, MH agreed to summarise these after the meeting and circulate for comment. It was also agreed that it would be useful for SWWT to develop and agree formal

resolutions on policy issues relating to space weather. The SWWT Chair could then formally deliver these to appropriate national and European bodies. Alain Hilgers agreed to produce draft resolutions.

*AI 8. AH to draft resolutions for consideration by SWWT*

*AI 9. MH to draft and circulate action item list.*

## **13 AOB**

MH reported that the SWEN newsletters were being blocked by the SPAM filter at RAL. There was some invalid feature in the SWEN mail headers that triggered the filter software in the same way as many SPAM emails. AH explained that SWEN was distributed using a Perl script running on a Linux system. He agreed to send MH a copy of the script.

*AI 10. AH to send distribution script to MH.*

V5, 17 September 2006

DRAFT