

**MINUTES OF THE 18th SWWT MEETING**  
**ESA-ESTEC – 18<sup>th</sup> November 2005**

**PRESENT:**

R. Leitinger, Graz Univ.  
J. Watermann, DMI  
N. Jakowski, DLR  
K. Stegen, BIRA  
P. Beck, ARC Seibersdorf  
M. Candidi, IFSI/INAF  
P. Gille, CNRS, LPCE  
J. Lemaire, CSR,LLM  
F. Clette ORB/SIDC  
W. Verschueren, BELSPO  
T. Woodward, SEA  
M. Keil, Met Office, UK  
A. Bushell, Met Office, UK  
M. Hapgood, RAL  
F. Jansen, Greifswal, Univ.  
D. Boteler, Nat. Res. Canada  
A. Viljanen, FMI  
N. Crosby, BIRA-IASB  
D. Heynderickx, BIRA-IASB  
C. Grimani, Univ. Urbino  
E. Arajärvi, FMI  
A. Pulkkinen, NASA/GSFC  
L. Eliasson, IRF  
H. Lundstedt, IRF  
T. Barlyaeva, Univ. St. Petersburg.  
H. Opgenoorth, ESA  
M. Menvielle, CETP  
J.-Y. Prado, CNES  
Y. Beniguel, IEEA  
E. Flückiger, Univ. Bern  
A. Glover, ESA  
A. Hilgers, ESA  
E. Daly, ESA

## AGENDA

1. Welcome and Adoption of the agenda
2. Action reviews from previous meetings
3. Meteorological Organisations (M. Kiel, A. Hilgers)
4. Long term monitoring and ERA-NET structure (F. Lefeuvre)
5. Evolution in the ESA support (A. Hilgers)
6. Evolution in National Space Weather services (J. Y. Prado, N. Jakowski...)
7. Actions conducted (or to be conducted) by a space weather coordination structure
  - COST 724 (J. Lilensten)
  - COST 296 (Lj. Cander)
  - Scientific Unions and interdisciplinary bodies
  - SWWT (F. Lefeuvre, A. Glover, TG Spokespersons)
8. IHY
- 10 AOB

Participants: cf Annex 1.

### 1. WELCOME ADOPTION OF THE AGENDA

F. Lefeuvre welcomed the participants and noted that D. Heynderickx would make a short presentation on SWENET functionality following point (2) on the agenda. Item 8 (IHY) was moved to an earlier slot to allow C. Briand to participate.

### 2.A REVIEW OF ACTION ITEMS (F. LEFEUVRE)

The status of these actions was reviewed and updated.

#### ***M17/1 organize with E-STAR a meeting on SW & long term phenomena***

Long term observations were included in session 2b of ESWW2 and are the subject of the action in progress on an ERANET structure.

Action status: closed.

#### ***M17/2 Investigate the possibility of submitting a proposal for a EUMETSAT SAF***

see point 4 of the agenda

Action status: in progress.

#### ***M17/3 Contact the Panel of experts on space and security***

The SPACESEC report formulated recommendations for the elaboration of a future European space programme to be presented to the European space council. Actions in progress to identify contacts with persons involved in the definition of the European Space Programme must be pursued taking into account possible reorientations of the SWWT (Action M18/1, P. Gille, F. Lefeuvre).

Action status: in progress.

#### ***M17/4 Examine the interest at ESA of a SW expertise for debris and Near Earth Objects***

A. Hilgers reported on European activities of space surveillance for tracking objects in the sky. He mentioned trajectory computation activity at ESOC making use as input of a prediction model for F10.7 developed by BGS and a recent feasibility study of debris tracking based on radars. The

SW effects on the latter type of activity is well known, i.e., increased drag may lead to loss of tracking, and require complete re-identification of tracked objects. However, this level of operational details were apparently not addressed in the study. M. Hapgood mentioned the existence of a well established WG on that subject (Space Debris Working Group, see [http://www.esa.int/SPECIALS/ESOC/SEMU2CW4QWD\\_0.html](http://www.esa.int/SPECIALS/ESOC/SEMU2CW4QWD_0.html), linked with the Inter-Agency Space Debris Coordination Committee, see <http://www.iadc-online.org/>).

Action status: closed.

***M17/5 Circulate draft briefing pack***

Action status: closed.

***M17/6 Submit the briefing pack to a journalist***

Not done

Action status: open.

***M17/7 Investigate ways to make membership information available to the community***

Action status: closed.

***M17/8 Organise a meeting with the EC Space Policy and Space Application Units***

The objective of that action was to prepare FP7. According to the invitation sent to A. Cooper (Space Policy Unit) for the Agency session the action has been postponed. The action must be resumed taking into account of possible reorientations of the SWWT (Action M18/2, P. Gille).

Action status: open.

***M17/9 Define the content of a SW-ERANET project***

see point 5 in the Agenda

Action status: in progress.

***M17/10 Send to the SWWT members a call for participation to a SW-ERANET proposal***

Action status: closed.

***M17/11 Review upcoming and open calls for FP6 where a IHY related space weather application proposal could be relevant***

Action status: closed.

***M17/12 Circulate request for expression of interest in a space weather application related IHY activity***

The presentation made by A. Glover at The 17th SWWT meeting was made available on the SWENET web site

Action status: closed.

***M17/13 Examine the possibility of associating European outreach SW activities with SEC outreach activities***

Not done

Action status: open.

### **M17/14 Organize new elections for the nomination of the SWWT chairman**

See point 8 in the Agenda

Action status: in progress.

### **2-B SWENET FUNCTIONALITY (D. HEYNDERICKX)**

Ideas and suggestions for SWENET extension and upgrades was presented by D. Heynderickx. They include : limited ingestion of new data sets, data set outside maintenance contract, adjustments for SDAs which will survive after the end of the Pilot Projects, ...(see copies of D. Heynderickx transparencies). D. Heynderickx noted a concern regarding the necessity of SWENET to run applications locally in the future. It was also suggested that index providers provide their indices in a standardised format where possible in future. The possibilities of carrying out virtual data queries was also discussed.

As noted during the ESWW2 there is considerable interest from the SDAs to review overall functionality of the SWENET system. Consequently a community meeting is proposed in order to identify what existing functionality is important and what should be changed and/or added in the future. D. Heynderickx and M. Menvielle will defined a date by the end of December for that SDA community meeting (Action M18/3).

In order to promote SWENET it is suggested:

- ? to send to the SWWT members examples showing how to operate SWENET (D. Heynderickx, Action M18/4)
- ? to 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, Action M18/5).

### **3. METEOROLOGICAL ORGANISATIONS (M. KIEL, A. HILGERS)**

M. Kiel reviewed his presentation given during Session 2 of the ESWW2.

The following references were given:

[www.cosmic.ucar.edu](http://www.cosmic.ucar.edu)

[www.badc.nerc.ac.uk](http://www.badc.nerc.ac.uk)

It was noted that operational capacity already exists in the UK in the context of Oceanography. This presently includes the use of supercomputing facilities and 24/7 services. A meeting is forecast on coupling between weather and space weather modes

A. Hilgers made a presentation summarising the possible relationships between ESA and a possible space weather programme. He emphasized the full relevance of METOP/SEM data and the potential relevance of GPS receivers onboard the next generation of polar meteorological spacecraft for space weather applications. He suggested that a SAF could be set-up to address one or more of these prospective services.

It was also noted that SAF's are not limited to use data from Eumetsat satellites

J-P. Luntama noted that Eumetsat programmes are now fixed until 2020. There are also optional programmes. In this case, from the perspective of Eumetsat, the user community would need to fund any space weather satellite. For this to take place, the user community must approach Eumetsat either via the Council or via the national delegates.

F. Lefeuvre recalled the exchange letters with the EUMESAT Director-General (Dr. Lars Prahm) and the agreement to present the results of the Pilot Projects to the EumetSAT Science Working Group (SWG). Arguments must be tested with national delegates. SWWT members are invited to contact National Delegates for preliminary tests (Action M18/ 6, by end of January 2005)

#### **4. LONG TERM MONITORING AND AN ERA-NET STRUCTURE**

F. Lefeuvre reported on his on-going activities to maintain the coordination of European SW activities during the time (~2 years) require: (i) to promote the results of the Pilot Projects and (ii) to set up a European structure which could take in charge the long term monitoring of Solar-Earth interactions.

The need of a European structure between national and international agencies involved (or to be involved) in the long term monitoring of Solar - Earth interactions was discussed in three splinter meetings (Paris, Toulouse, RAL). Provisional conclusions were presented in the ESWW2 F. Lefeuvre review paper on SWWT initiatives (cf, <http://esa-spaceweather.net/spweather/workshops/eswwII/esww2-proceedings.html>). A structure of the ERA-NET type could be a solution. A document on that subject must be finalized (Action M18/7, F. Lefeuvre, end of January). It will have to be discussed with all potential partners, including ASTRONET (new ERA-NET devoted to Astronomy), then submitted to European national scientific agencies.

The coordination role of the SWWT was recalled. It is a forum gathering users, SW services and scientists, and whose the main mission is to promote SW activities and advise ESA (cf [http://esa-spaceweather.net/spweather/esa\\_initiatives/swwt/index.html](http://esa-spaceweather.net/spweather/esa_initiatives/swwt/index.html)). It has coordinated activities with other SW structures like COST 724 and 296 Actions. Topical teams have been set up to be ready for answering AOs and taking advantage of any opportunities.

Presently, the point is to know how to support SWWT activities (SWENET included) at the end of the Pilot Projects, i.e. after April 2006. As it is not a mission of the ESA General Study Programme to support studies beyond the feasibility phase, F. Lefeuvre contacted the ESA Technical (Tec) and Science (Sci) Departments to get support for the two following years. The present status is discussed in point 5. During the discussion of point 4 to Actions were taken:

- ? Volunteers are asked to review Era-Net documentation (Action M18/8, All SWWT members, As soon as possible). It was noted that this will also be reviewed by the existing Coordination Committee.
- ? M Candidi recommended that the project be written and then the authors approach national agencies for endorsement (Action M18/9, All SWWT members, after actions M18/7 and M18/8).

## **5. EVOLUTION IN ESA SUPPORT (A. HILGERS)**

See presentation material by A. Hilgers

A. Hilgers recalled the main points of his morning's presentation of the ESA situation (cf, <http://esa-spaceweather.net/spweather/workshops/esww1/esww2-proceedings.html>).. He stressed that exploitation of the Space Weather Pilot Project results is still ongoing. The analysis of cost-benefit is planned to end beginning of April 2006. However, it appears from various indicators (e.g., level of additional funding raised, level of participation) and from feedback received that the coordination function of the temporary structures set-up for the pilot project study (SWWT, SWENET, etc...) seems to have met a need within the space weather community for which continuation would be appreciated and is currently under investigation.

H. Opgenoorth and E. Daly gave their feeling about the support asked to Science and Technical Departments.

H Opgenoorth confirmed the interest of SWENET and more generally of Space Weather applications activities for scientific perspectives. He emphasized on the need to have the opinion of the General Study Programme on the outcomes of the Pilot Projects.

E. Daly presented the D/TEC perspective. D/TEC is interested in the approach. However, it was pointed out that the General Studies Programme cannot give a final appraisal until the conclusion of the pilot project's cost and benefit analysis and so that a bridging solution has to be looked for.

A meeting on the future of SWWT will be organized with representatives of the General Study Programme, D/Sci and D/TEC (Action M18/10, E. Daly, A. Hilgers, F. Lefevre and H. Opgenoorth, by end of 2005 ). Formal coordination between D/Sci, D/TEC, HME and EO should be discussed.

## **6. EVOLUTION IN NATIONAL SPACE WEATHER SERVICES.**

N Jakowski discussed new developments in German space weather services including the new service (SWACI): <http://www.kn.nz.dlr.de/swaci> and his interest to work as an EUMETSAT SAF.

It was noted that a national meeting had taken place earlier in the year. The meeting was attended by 57 participants including 8 or 9 interested industry representatives.

Main topics included Space Weather and Galileo, a Space Weather prediction centre and also national interest to build a small satellite related to space weather.

## **7. International Heliophysical Year (C. Briand)**

C. Briand presented the main goals of the IHY and some of the key elements. She stressed the interdisciplinary nature of the initiatives.

M. Candidi noted that funding is available for small instruments only and the priority would be given to developing countries.

H. Opgenoorth stated that no exchange of funds would take place in this case. No instruments will be bought. These instruments will be received by developing countries and in return will provide the infrastructure.

F. Lefeuvre recalled the suggestion made in his review paper on SWWT initiatives to 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 (Action M18/11, SW radioscientists, January 2006 European IHY meeting)

## **8. ACTIONS CONDUCTED (OR TO BE CONDUCTED) BY SPACE WEATHER COORDINATION STRUCTURE**

### **8a. COST 724 Status Report (J. Liliensten)**

It was noted that the Action is considering proposing a European Space Weather Journal. M. Hapgood indicated that the EGU could be approached about this.

### **8b. SWWT Existing Structure (F. Lefeuvre, A. Glover, TG Spokespersons)**

SWWT structures were discussed under the hypothesis of a support of the SWWT activities by ESA Departments (see points 4 and 5 above, and Action M18/10). F. Lefeuvre referred to the terms of reference, pointing out that several of the items listed, and in particular the promotion of the Pilot Projects and the exploitation of the SWENET results have not yet been completed.

Assuming that SWWT activities will be funded in the next two years it was agreed:

- ? to maintain the SWWT structure (SWWT chairman, SWWT board, Topical groups, two SWWT meetings per year to exchange information) in its present state.
- ? to call for the candidacy of a SWWT chairman (Action M18/12, call for the candidacy of a SWWT chairman, by the end of 2005; having accepted commitments in other domains, F. Lefeuvre is not candidate), then to make an e-mail election (Action M18/13, by the end of January 2006).

A request was made to have candidacy programmes before election.

A. Glover pointed out that the participation of the SWWT topical groups during the ESWW2 had been extremely helpful in addressing the progress made in the relevant topical areas over the course of the pilot project and identifying next steps to be taken.

It was noted that the contact list is currently being updated with the help of ETA-MAX and will be made available via the SWWT website in the next weeks.

H. Lundstedt indicated that the solar monitoring and geomagnetic indices topic reported on by M. Messerotti during the Space Weather Pilot Project Session of ESWW2 could

form part of the Fundamental Research Topical Group. M. Messerotti was not present at the meeting so A. Glover agreed to contact him with this suggestion (Action M18/14).

Several of the Topical Group Spokespersons gave a short overview of their activities. Regarding the activities of the Education, Outreach and Emerging Markets, N. Crosby (see joined material) regretted that during the ESWW2, a single paper was devoted to outreach activities.

The meeting closed at 16:30. Next meeting date and location to be announced via email.

## **SUMMARY OF THE ACTIONS**

**Action M18/1** Identify contacts with persons involved in the definition of the European Space Programme (P. Gille, F. Lefevre, next SWWT meeting).

**Action M18/2** Organise a meeting with the EC Space Policy and Space Application Units about SW weather activities which could be proposed to FP7 (P. Gille, next SWWT meeting).

**Action M18/3** Define as soon as possible a date for a SDA community meeting (D. Heynderickx and M. Menvielle).

**Action M18/4** Send to the SWWT members examples showing how to operate SWENET (D. Heynderickx, As soon as possible)

**Action 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)

**Action 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)

**Action M18/7** Finalize the Era-Net document (F. Lefevre, by the end of January 2006)

**Action M18/8** Volunteer to review the Era-Net documentation in preparation (All SWWT members, As soon as possible)

**Action M18/9** Approach national Agencies for the endorsement of the Era-Net document (All SWWT members, after Action M18/6).

**Action M18/10** Organize a meeting on the future of SWWT activities (E. Daly, A. Hilgers, F. Lefevre and H. Opgenoorth, by end of 2005 )

**Action 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)



**Action 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)

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

**Action 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.

## Annex 1: Participants

### **Present:**

R. Leitinger, Graz Univ.  
J. Watermann, DMI  
N. Jakowski, DLR  
K. Stegen, BIRA  
P. Beck, ARC Seibersdorf  
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