SWWT Plenary meeting 32 report

Wednesday, 07 November 2012, 14:00 to 16:15

Belgian Royal Academy, Brussels, Belgium

Prepared by Stefaan Poedts, 07 November 2012

Room Albert II

This SWWT Plenary Meeting was attended by 84 people.

Agenda SWWT plenary meeting

1) Welcome and Introduction (Stefaan)
2) SSA Precursor Service Review SWE Panel, final report summary (Alexi)
3) Short SWWT Topical Working Groups reports (TWP leaders):
    a. Drivers of Space Weather - Solar Magnetic *Topology* (H. Lundstedt)
    b. Drivers of Space Weather - Solar Storms (N. Vilmer)
    c. Ground Effects (M. Wik)
    d. Atmospheric Effects (S. Bruinsma)
    e. Ionospheric Effects (M. Angling)
    f. Spacecraft, Launcher and Aircraft Environments (S. McKenna-Lawlor)
    g. Education, Outreach and Emerging Markets (N. Crosby)
4) Short overview of the upcoming R&D programme (GSP, TRP, GSTP...) activities (Alain)
5) Suggestion for new TWG on SW Forecast (Stefaan and Larisa)
6) Action Item Review (Stefaan)
7) Any other business

Minutes

1. Welcome and Introduction (Stefaan Poedts (SP))

Stefaan Poedts (SP) welcomed everybody to the SWWT Plenary meeting and presented the agenda. He acknowledged the Royal Observatory of Belgium for arranging the room for this meeting.

2. SSA Precursor Service Review SWE Panel, final report summary (AG)

AG first reviewed the three main objectives of the precursor service review, viz. i) to review and assess the implementation status of the Precursor Services with respect to their availability and added value provided; ii) to review and assess the quality of the provided Precursor Services with respect to their access and utilization; and iii) to verify the quality and correctness of the documentation associated to each Precursor Service. Then she discussed the scope of the SWE Panel which was responsible for the review of the SSA SWE segment Precursor Services. The Panel examined the following areas for comment and analysis:

- The potential added value of the implemented precursor services,
- The accessibility of the services,
- The access to information related to SSA matters and events,
- Accessibility and quality of the user support through the SWE Helpdesk,
- Accessibility and quality of the documentation supporting the services,
- Quality of the provided services.

AG then mentioned what the technical review comprised. The review process took place over a long period and involved a lot of services which were listed (see slides in Annex 1). RIDs were generated by the panel members. There were 28 major RIDs, 42 minor and 27 editorial RIDs, i.e. 97 in total. There were also 14 tickets raised by users during the Precursor Service Review period through the SSCC Helpdesk. Then AG discussed the five main findings from the review report in some detail and also the recommendations these findings gave rise to (again, see the slides in Annex 1). These findings will now be taken into account in upcoming precursor service updates and actions to improve the portal look and feel are already underway. The next SSA period will consider further actions in the area of metrics and validation in consultation with Expert Service Centres.

AG ended with a statement on “SN-1 Roadmap Consultation”. A set of roadmaps have been produced as part of the SN-1 activity with the aim to provide a bottom-up assessment of the current capabilities, organised according to the 37 SWE services. They provide a proposed way forward to meet CRD objectives based on existing assets. The SWWT SB is invited to provide comments and feedback on the assessment provided. The schedule is as follows: the documents

will be provided by 1st December. The consultation period is foreseen till January 31st. The comments are to be provided in a similar manner to the Precursor service review (excel sheet with RIDs). The overall results will be presented during the summer SWWT meeting.

AG ended with thanking the SWWT SB for the important feedback it provided and announced that the SSA/SWE segment will continue to consult the SWWT.

3. Short SWWT Topical Working Groups reports

a. Drivers of Space Weather - Solar Magnetic Topology (H. Lundstedt)

Henrik could not attend this Plenary meeting but suggested by email to rename this TWG to "Solar Magnetic Topology" (instead of "Solar Magnetic Energy"), which was decided by the SB last Monday. Henrik also announced a workshop on "Solar magnetic activity and topology" in Lund in 2014 the planning of which is on-going.

b. Drivers of Space Weather - Solar Storms (N. Vilmer)

Nicole showed the updated web pages for this TWG which has two subgroups: one on CMEs and one on SEPs, which are interlinked of course. Nicole also mentioned the agenda of the splinter organised by this TWG on Thursday afternoon. She hopes to be able to organise two splinters next year, one for each of the subgroups.

See also Appendix 3b.

c. Ground Effects (M. Wik)

Magnus reported on the outcomes of the splinter he organised. Input Magnus?

Volker Bothmer suggested to be also involved in the Electric Infrastructure Security World Summit Meetings.

d. Atmospheric Effects (S. Bruinsma)

Sean reported on four items.

- He first referred to the updated webpages which contain an evaluation report and many density maps and profiles with comparisons with DTM (semi-empirical thermosphere model) and other models for validation of these models.
- GOCE mission data have been processed.
- A standard model for satellite drag coefficients has been presented last month in Boulder, Colorado, to the ISO Working Group 4 (on space weather).
- MURI/NADIR finished in August 2012. At least two new proposals have been submitted for FP7 to continue the efforts.

See also Appendix 3d.

e. Ionospheric Effects (M. Angling)

The past year was a transitional one since Matthew Angling has taken over as chair. He thanked J-P Luntama for his efforts previously. The email list has been re-established (one can sign up at http://www.jiscmail.ac.uk/SWWT-IONO-EFFECTS). Matthew also reported on the splinter meeting (1400 to 1600, Thursday, Nov 8, Roi Baudouin Room) the agenda of which contained an update of issues from full SWWT meeting; a review of the existing terms of reference; a discussion on the possible future roles of group (incl. an outline of the options, a discussion on contribution to the ESA propagation network of experts led by Roberto Prieto Cerdeira (ESA), a presenation on extreme space weather events by Paul Cannon (QinetiQ)); a technical presentation by Estefania Blanch (Observatori de l'Ebre). During the splinter Matthew also solicited volunteers for co-chair.

See also Appendix 3e.

f. Spacecraft, Launcher and Aircraft Environments (S. McKenna-Lawlor)

Susan first repeated the mission statement of the TWG which was formed to act as a conduit between the space weather community and ESA providing, in particular, inputs on matters concerning space weather effects on spacecraft, aircraft and launchers and accounts of related services. The space environments considered include: plasma, particle radiation, electromagnetic radiation and micro-particles. Consequent effects taken into account include electrostatic discharges (ESD); electromagnetic compatibility (EMC) issues; single event upsets (SEUs) in electronic components and subsystems; dose effects on living cells.

A Splinter Meeting of SALE will take place during ESWW on 8 November, 16.30-18.30. The SALE Executive, through an initiative of G. Reitz, has arranged, in addition to short presentations from SMcKL (STIL), G.Reitz (DLR) and Alain Hilgers (ESA), for the presentation at the Splinter of a set of five specialist talks concerning the energetic particle radiation hazard posed to aircraft personnel. Susan presented the synopsis of the latter 5 Splinter talks. Moreover, Susan reported that a technical paper is being prepared by the Executive, by members of ESA and by members of the Aerospace Division of QuientiQ for the ESA Bulletin which will provide a state of the art overview of *Space Weather user requirements for Launch Service Personnel, for Trans-polar Flight and Human Space Flight Providers and for Spacecraft Operators*. Also, arrangements have been made with U.S. scientists to mount solar shock arrival predictions on the SALE website at the European Space Weather Portal, in effective continuation during Solar Cycle 24 of the Fearless Forecasts that were available during Solar Cycle 23. These data will be analyzed statistically during the rise, maximum and decay phases of the new cycle and the results combined with those obtained during Solar Cycle 23.

The TG spokesperson (SMcKL) has recently been appointed by the International Academy of Astronautics / IAA to be part of a Group that will provide a focal point in coordinating topics relevant to Human Spaceflight activities that will ultimately be presented at the next Heads of Space Agencies Summit in November 2013. In view of the benefits involved in the Human Space Flight program for industry/science, and in order to promote what Europe can offer to support this endeavour, efforts will be initiated within our Topical Group to involve agency, industry and academic SALE members in cooperatively building structures within Europe that will support international robotic, and ultimately human, exploration, of outer space. *Inputs can be provided by TG Members via the SALE Website.*

See also Appendix 3f.

g. Education, Outreach and Emerging Markets (N. Crosby)

EOEM covers education (primary to university), both formally (schooling, textbooks, etc. and informally (e.g. museums, webcasts, etc.), as well as public outreach activities (TV/radio programmes, popular books, etc.). Furthermore it considers potential future space weather markets acting as an umbrella in this context. The EOEM webpage has been revised and is now located on the ESWeP: http://spaceweather.eu/swwt/eoem

As an emerging space weather market, the possible effects of space weather on the health of humans on Earth is being considered in connection with space weather induced health effects on humans in space. The "Space Weather Effects on Humans: in Space and on Earth" conference was held at the Space Research Institute of Russian Academy of Sciences in Moscow, Russia, 4-8 June 2012. Presentations from the conference are available on the conference website [http://swh2012.cosmos.ru/]. Main topics of the conference included: 1. Space Weather and its role in defining the local environment, 2. Space weather and human health on Earth, 3. Assessment and paths of risks reduction of diseases caused by the impact of weather and climatic and environmental factors in a changing climate, 4. Space weather and human health in Space.

The Chapter "Potential effects of solar and geomagnetic variability on terrestrial biological systems", In Advances in Solar and Solar-Terrestrial Physics, Maris G. and Demetrescu C. (Eds), Research Signpost (in press, 2012) by Babayev E.S., Crosby N.B., Obridko V.N., Rycroft M.J., reviews the numerous works that have been performed in this field during the last decades.

EOEM also raises and maintains awareness of space weather effects on systems affected by space weather and how space weather impacts modern society. The target group includes engineers and managers, policy makers, and the general public (e.g. educational institutions at all levels).

The “I Love My Sun” initiative has continued under the COST Action ES0803. Specifically, the article “The COST Example for International Collaborative Outreach to the General Public: I Love My Sun” by Yurdanur Tulunay, Norma B. Crosby, Ersin Tulunay, Stijn Calders, Aleksei Parnowski, Desanka Sulic, was submitted to the Journal of Space Weather and Space Climate (Special Issue on “Results from COST Action ES0803”). The “I Love My Sun” website is continuously updated, especially when “I Love My Sun” events have been held: http://www.ilovemysun.org/

The article “Five Centuries of Exploration: From Distant Shores to Distant Planets” by Crosby N.B., I. Van den Bergh, R. Bollen, J. Brabants, J. Cops, Y. Dillen, C. Doomen, J. Lambrechts, T. Stulens, T. Aäron, L. Vanlaer, and S. Vinkesteijn (Space Weather: The International Journal of Research and Applications, Vol. 10, S03007, 7 pp., 2012) was a result of a high-school class brain-storming session where students were asked to compare European explorers who traversed the oceans over 500 years ago to the men and women who pioneered and continue to advance the exploration of space.

The EOEM topical working group splinter meeting was held on Tuesday, 06 Nov. 2012, 16:30-18:30. It was attended by more than 25 people indicating that each year more people are interested in this splinter meeting. The following presentations were given:

PART 1: Potential Future Space Weather Markets

1. “Space Weather Effects on Humans: in Space and on Earth conference” by Tamara Breus
2. “Effect of zero magnetic field on cardiovascular system of healthy volunteers ” by Yury Gurfinkel

PART 2: Education and Outreach

1. “SANSA Space Science” by Lee-Anne McKinnell
2. “Space Weather in the Space Physics class in UPV/EHU Space Science and Technology Master” by Teresa del Río Gaztelurrutia
3. “Space Challenges: Bulgarian Leap in Space” by Kamen Kozarev
4. “Space Environment Information System: Short Introduction to SPENVIS” by Norma Crosby

Daniël Heynderickx remarks that young people nowadays use other media than we are used to and it might be necessary for to adapt in order to reach them. He suggests to set up a survey in order to find out what media they preferably use to find information. Do they still surf on the web with notebooks, or more with smartphones or tablets? He offers to take this action up with Norma to set up the survey.

See also Appendix 3g.

AI M32/1: *Daniël Heynderickx and Norma Crosby to compile and set up a survey to find out what media the new generations preferably use to find information*.

4. Short overview of the upcoming R&D programme (GSP, TRP, GSTP...) activities (AH)

See slides Alain. There are a lot of R&D programs at ESA. Alain presented a non-exhaustive list of 20 of them, incl. general programs (like ACT and GSP), domain specific programmes, strategic programs and two generic technology programs (TRP and GSTP).

5. Suggestion for new TWG on SW Forecast (SP and LT)

On the last SB meeting, Larisa argued that forecast is not the same as modelling and different kinds of forecasting need different models, procedures, data, etc. She suggested to create a new TWG on SW Forecast provided the idea is welcomed by the SW forecasters on the Forecaster Forum which was held yesterday. Larisa reported that xxx

6. SWWT Action Item Review (SP)

SP brings up the ongoing actions from previous SWWT Plenary meeting (June 2012). In fact only one action is on-going:

> **AI M29/1:** *Following discussion, the SWWT recommends to ESA to make available to the community the SN-I list of assets document.* [ONGOING]

and another action was created to be able close this one:

> **AI M31/1:** *SWWT community to contact their national delegates in regard to lobbying for the on-line SN-I database*. [ONGOING]

Alexi reports that there is in principle no problem to put the database online. However, she mentioned that there are some confidentiality issues and, in fact, every 'owner' of entries in the database should give his/her permission to put the information online for everybody. So one first has to get these permissions. It was decided that the ESA team will compile and email to ask for the permission to put the information online and to send it to a mailing list of the entry 'owners' that Daniël Heynderickx will extract from the database.

The actions AI M29/1 and AI M31/1 can be closed.

AI M32/2: *Daniël Heynderickx to provide the mailing list of the database entry 'owners'*.

AI M32/3: *The ESA team to compile an email to ask for the permission to put the information online and to send it to a mailing list of the entry 'owners' provided by Daniël Heynderickx*.

7. Any Other Business

None.

The meeting ended at 16:15.

Action list

AI M32/1: *Daniël Heynderickx and Norma Crosby to compile and set up a survey to find out what media the new generations preferably use to find information*.

AI M32/2: *Daniël Heynderickx to provide the mailing list of the database entry 'owners'*.

AI M32/3: *The ESA team to compile an email to ask for the permission to put the information online and to send it to a mailing list of the entry 'owners' provided by Daniël Heynderickx*.