

# Space Weather Working Team Plenary Meeting 30 Report

Wednesday, 30 Nov. 2011, 14:00 to 16:00 @ ESWW8  
Palais des Congrès, Namur, Belgium

Prepared by Norma Crosby, 19 Dec. 2011

The SWWT Plenary 30 Meeting was held on Wednesday 30 Nov. 2011, 09:30-17:00 at the Palais des Congrès during ESWW8. It was convened by Norma Crosby (NC) with Alexi Glover (AG) as ESA contact and was attended by more than 62 people (see Annex for list of participants).

The meeting was divided into two main parts:

1. Welcome and Introduction (Norma Crosby)

## PART 1 – REVIEW OF GENERAL ITEMS

2. Review Main Events since SWWT Plenary Meeting 29 (Norma Crosby)
3. SWWT Topical Groups Updates (Norma Crosby)
4. SWWT Roadmaps (Norma Crosby)
5. Updated SWWT Terms of Reference (Norma Crosby and Alexi Glover)
6. SWWT Steering Board Input to SSA (Norma Crosby)
7. ESA SSA Space Weather Segment Update and Planning (Alexi Glover)
8. Action Item Review (Norma Crosby)

## PART 2 – OPEN DISCUSSIONS

9. Space weather in EU programmes: FP7 & FP8/Horizon 2020 (Mike Hapgood)
10. International Collaboration: Recent Meetings
  - Report on “Society and Space Weather” Workshop (Mike Hapgood)
  - Report on “EU Space Weather Awareness Dialogue” (Mike Hapgood + others)
11. WMO ICTSW Activities (Jerome Lafeuille)
12. Recent Activities on SSA in NATO SCI-229 RTG (Consuelo Cid)
13. Space Weather Activities in Ukraine. Winter 2011 Report (Aleksei Parnowski)
14. Nominees for next SWWT Chair and Vice-Chair (Norma Crosby)
15. Closing Words (Norma Crosby)

## **[1.] Welcome (Norma Crosby)**

NC welcomed the participants to the 30<sup>th</sup> SWWT Plenary Meeting and presented the above agenda. She acknowledged the ESWW8 for providing a room for this meeting, as well as the city of Namur.

NC gave a short introduction to the Space Weather Working Team for those participants not familiar with its background. It was mentioned that Mike Hapgood remains as contact person for new memberships to the SWWT [ email: mike.hapgood AT stfc.ac.uk ]. For more information about SWWT, including presentations from this Plenary, as well as minutes and presentations from previous SWWT Plenary meetings see:  
[ [http://www.esa-spaceweather.net/spweather/esa\\_initiatives/swwt/index.html](http://www.esa-spaceweather.net/spweather/esa_initiatives/swwt/index.html) ].

## **PART 1 – REVIEW OF GENERAL ITEMS**

### **[2.] Review Main Events since SWWT Plenary Meeting 29 (Norma Crosby)**

NC presented some of the main SWWT related events occurring since the SWWT Plenary Meeting 29 in June 2011.

#### **Meetings:**

- “Space Weather Working Team Plenary 29”, 28 June 2011, 09:30-17:00, Royal Observatory of Belgium, Brussels, Belgium.
- “Space Weather Working Team Steering Board meeting”, 29 June 2011, 09:00-16:00, Royal Observatory of Belgium, Brussels, Belgium.
- “IUGG” conference, Melbourne, Australia, 28 June - 7 July 2011, [IAGA Symposia: A12 Space Weather and Space Climate
  - A12.1 Quantitative prediction of space weather
  - A12.2 Geomagnetic networks, computation and definition of products for space weather and space climate
- “AOGS”, 8 - 12 August 2011, Taipei, Taiwan, [Space Weather and Space Climate: Coupling Processes from the Sun to the Earth]
- “Space Weather Risks and Society” Workshop at NASA’s Ames Research Center, Moffett Field, Calif., U.S.A., 15-16 Oct. 2011
- “United Nations/Nigeria Workshop” on the International Space Weather Initiative (ISWI) , Abuja, Nigeria, 17-21 October 2011
- “Space Weather Awareness Dialogue” Meeting in Brussels, Belgium, 25-26 Oct. 2011

#### **Schools:**

- University of Alabama in Huntsville co-hosted a “Joint Space Weather Summer School” with German Aerospace Center (DLR), and the University of Rostock. U.S.A. and Germany, 16 July - 14 August 2011.
- “1st Annual Los Alamos Space Weather”, 6 June - 29 July 2011, Los Alamos, New Mexico, U.S.A.

- Several schools/ workshops organised by ISWI (International Space Weather Initiative)

### **Project Proposals - Invitations to Tender:**

- *FP7 Space Funding (2007-2013)*, currently ~14 space weather related projects
- *FP7 Space Call 3 project proposals:*
  - SPA.2010.2.1-03 Exploitation of space science and exploration data
  - SPA.2010.2.3-01 Security of space assets from space weather events

[Selected Projects started in late 2010/ early 2011. ]
- *FP7 Space Call 4 project proposals:* [Deadline: Nov. 25, 2010; Selected Projects under Negotiations.]
- *FP7 Space Call 5 project proposals:* [Deadline: Nov. 23, 2011]
- *Next (last) FP7 Space Call 6* [July 2012; Possibility for space weather topic to be included]
- Next Framework Programme FP8: 2014-2020  
[“Space Hearing on Space Research in FP8”, 8 Dec. 2010]

### *ESA Invitation To Tender (ITT) project proposals:*

- o SN-I: Space Weather Services [Currently ongoing.]
- o SN-II: Weather Instruments [Currently ongoing.]
- o CO-I: Requirements and Evaluation [Ended in summer 2011]
- o CO-II Architectural Design [under evaluation]
- o DC-II: SSA Prototype Prototype Tasking & Data Centres [Started in Nov. 2011]
- o SN-IV: Space Weather Precursor Services Operations [Under evaluation.]
- o SN-VI: Space Weather additional Services [To be issued. ITT early in 2012]
- o GSTP-5 ITTs (e.g. next generation SPENVIS)

### **[3.] SWWT Topical Groups Updates (Norma Crosby)**

NC explained the objective of having the various SWWT topical groups. Below the topical groups with the name(s) of their current spokesperson(s) are listed:

- Spacecraft, Launcher and Aircraft Environments: Chair & Spokesperson Susan McKenna-Lawlor (Space Technology Ireland), Topical Group Co-Chairs: Federico di Marco (VEGA), Guenther Reitz (DLR)
- Ionospheric Effects: Spokesperson Juha-Pekka Luntama (ESA)
- Atmospheric Effects: Spokesperson Sean Bruinsma (CNES)
- Ground Effects: Spokesperson Larisa Trichtchenko (Natural Resources Canada), Co-chair: Magnus Wik (Neurospace)
- Fundamental Research: Spokesperson Henrik Lundstedt (Swedish Institute of Space Physics)
- Education, Outreach and Emerging Markets: Spokesperson Norma Crosby (BIRA-IASB)

It was noted that there will be changes in the some of the Topical Groups in the near future (e.g. new spokesperson). Specifically, the “Fundamental Research Group” will have a new name: “Drivers of Space Weather” and two sub-groups will be created:

[1.] Solar Magnetic Energy [Henrik Lundstedt]

[2.] Solar Storms (Solar Flares, CMEs, SEP Events) [Nicole Vilmer and co-spokesperson to be confirmed]

*AI M26/1:NC, AG, HL – Coordination of the Fundamental Research topical group with the ongoing Cost Action ES0803 in regard to science to applications. [DONE]*

Prior to the SWWT Plenary NC received the final input/ feedback from all the current SWWT Topical Group Chairs regarding their Topical Group concerning activities during the last year. The first version of the report is now ready and will be revisited in Jan. 2012, so that it can be submitted to the European Space Weather Space Climate Journal “ESWW8 special issue”.



*AI SB 2009-2/1: NC to coordinate the first SWWT topical group report next year. [DONE]*

Some of the main highlights of the SWWT Topical Groups are mentioned in the following, as well as their ESWW8 activities (e.g. splinter meetings):

### **Spacecraft, Launcher and Aircraft Environments:**

Thursday, Dec. 01, 16:30-18:30, ESWW8 splinter meeting

ESA's new MEREM models; calculation of the :

- Particle radiation environment on the Martian surface
  - Particle radiation environment en route to and at Mars.
- [Susan McKenna-Lawlor et al.]

New Topical Group Website @ ESWeP [ <http://spaceweather.eu/en/swwt> ]

It was agreed by the audience that the other SWWT Topical Groups follow this example (use the ESWeP as a hub for the Topical Groups websites thereby centralising them for easier access). Stijn Calders from BIRA-IASB agreed that this could be performed.

### **Ionospheric Effects:**

Thursday, Dec. 01, 14:00-16:00, ESWW8 splinter meeting

Multiple research and education projects:

- TRANSMIT (Training Research and Applications Network to Support the Mitigation of Ionospheric Threats)
- CIGALA (Concept for Ionospheric-Scintillation Mitigation for Professional GNSS in Latin America)
- ICARUS (Ionospheric threats and suitable Countermeasures Applicable to satellite Radio systems Under next Solar maximum)
- Etc.

### **Atmospheric Effects:**

Thursday, Dec. 01, 14:00-16:00, splinter meeting

Wednesday, Nov. 30, Space Weather Fair Stand

FP7 ATMOP (Advanced Thermosphere Model for Orbit Prediction):

Its primary objective is to develop a new thermosphere model that is sufficiently accurate to meet the requirements set by space agencies for orbit computation, and to initiate work on an operational near-real-time version.

### **Ground Effects:**

EURISGIC, A. Viljanen (FMI), Monday, Nov. 28, 11:00-12:30

Session 3A: Advances in GIC Research and Effects Mitigation, Wednesday, Nov. 30 morning session

User's Lunch

FP7 EURISGIC (European Risk for Geomagnetically Induced Currents): EURISGIC will produce the first European-wide real-time prototype forecast service of GIC in power systems, based on in-situ solar wind observations and comprehensive simulations of the Earth's magnetosphere.

### **Fundamental Research:**

Related Projects: FP7 SOTERIA, COST ES0803 Action

The Topical Group has been renamed to “Drivers of Space Weather” and restructured into two sub-groups:

[1.] Solar Magnetic Energy

[2.] Solar Storms (Solar Flares, CMEs, SEP Events)

### **Education, Outreach and Emerging Markets:**

Thursday, Dec. 01, 16:30-18:30, splinter meeting

Wednesday, Nov. 30, Space Weather Fair Stand

Pål Brekke’s book “Sola – vår livgivende stjerne” has been translated to English.

Peter Stauning has written the book “Harald Moltke – Painter of the Aurora”.

“I LOVE MY SUN” initiative <http://www.ilovemysun.org/>

### **[4.] SWWT Roadmaps (Norma Crosby)**

NC reminded the participants that she had initiated a long-term (next two to three decades) European space weather Roadmap Activity within the SWWT. Some days prior to the ESWW8 NC had sent out the first release of the draft Version 1 of the SWWT roadmaps to the SWWT Steering Board. It represents inputs that were received from people that were directly contacted by herself, as well as her own inputs. She decided to take this approach, as she knew people were very busy with the “SSA SWE System Requirements Document and Product Specification Review” that were performed this autumn.

The following items have been included in the first Version of the SWWT Roadmaps:

1. User Community (current and future)
  - 1.1 Who are the users ?
  - 1.2 What does society (the users) need ?
2. Major unanswered Questions
  - 2.1 Puzzles in solar physics
    - 2.1.1 The coronal heating problem
    - 2.1.2: The nature of solar flares and CMEs
    - 2.1.3: The origin of the sunspot cycle
3. Space-based Monitoring Facilities
4. European Ground-based Monitoring Facilities
  - 4.1 Rationale for the role of ground-based solar data
    - 4.1.1 Assets
    - 4.1.2 Handicaps
    - 4.1.3 Key developments: instruments and software
  - 4.2 Solar radio observations and space weather
5. Ionospheric Measurements

- 5.1. High-quality, sustained, global observations of the topside ionosphere
- 5.2. The real-time ionosphere/space weather (nowcast and forecast)
- 6. Access to Helio- and Solar Data through Virtual Observatory
- 7. Standards and Interoperability
- 8. COST Action ES0803 Metric Activity
- 9. International Collaboration and Cooperation
  - 9.1 Data exchange
  - 9.2 Specific case: the ionosphere
  - 9.3 Collaboration among communities
- 10. SWWT Topical Groups 2011 Annual Report
- 11. SWWT Resolutions

NC suggested that recommendations from the “Splinter - Forecaster Forum”, held on Monday, Nov 28, 09:00-12:30 (chaired by Larisa Trichtchenko) be included in the Roadmaps. The recommendations are:

- 1. Regular observational satellite at L1
- 2. Possible improvement of the quality of real-time data provided by scientific missions
- 3. Geomagnetic indices should be provided in the format (Kp) which is easier for incorporation in other models.
- 4. Making this into an annual event.

The community is welcome and encouraged to add more key items to the SWWT Roadmap list. Input is to be sent directly to NC [ norma.crosby AT oma.be ].

NC emphasised again that the SWWT Roadmap Activity document represents community input and is a live document, meaning that it will be updated as a function of developments in the community. Its overall objective is to take into account all expected key players and addressing the current and future critical elements and user community (/communities).

*AI SB 2009-2/5: NC to prepare a draft version of the SWWT Roadmap for the next SWWT meeting. [DONE]*

#### **[5.] Updated SWWT Terms of Reference (Norma Crosby and Alexi Glover)**

Newly acquired information has indicated that there have in total been four and not three updates to the SWWT Terms of reference including the current one. They coincide with:

- 1. Start of ESA Parallel Studies (1999).
- 2. When the SWWT became open to the wider European space weather community, during the Space Weather Pilot Project (2003).
- 3. Creation of SWWT Steering Board (2006).
- 4. Start of the ESA SSA Preparatory Programme (2009).

The fourth revised SWWT Terms of Reference was presented to the SWWT Steering Board later in the evening. The final version will be circulated by email to all members of

the SWWT Steering Board. After being approved by the SWWT Steering Board it will then be made available to the community on the SWWT website:  
 [ [http://www.esa-spaceweather.net/spweather/esa\\_initiatives/swwt/index.html](http://www.esa-spaceweather.net/spweather/esa_initiatives/swwt/index.html) ].

**[6.] SWWT Steering Board Input to SSA (Norma Crosby)**

The SWWT Steering Board contributed to the SSA SWE System Requirements Document and Product Specification Review. In total the space weather (SWE) community contributed with 357 RIDs (Review Item Disposition), where a RID is identified as “Major”, “Minor”, or “Editorial” (see below Table for final list of SWE RIDs and their current state). NC participated in the SA-SRR Collocation Meeting, 17-18 Nov. 2011 at ESAC/ ESA where the RIDs from the review were discussed.

It was agreed by ESA to rename some of the below terms for the RIDs, as there was some confusion in the audience concerning what the terms actually represented (the current state of the RID).

	Total number of Rids	Rids accepted	Major RIDs	Closed during collocation	Accepted with Action	Board	Open
SWE Panel	357	302	134	1	6	2	293

**[7.] ESA SSA Space Weather Segment Update and Planning (Alexi Glover)**

AG gave a presentation about the current status of the ESA Space Situational Awareness (SSA) Space Weather Segment and activities planned for 2012.

**[8.] Action Item Review**

AI M26/1:NC, AG, HL – Coordination of the Fundamental Research topical group with the ongoing Cost Action ES0803 in regard to science to applications. [DONE]

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

AI M29/2: Stijn Calders to create an archive for relevant documents of the SWWT Spacecraft, Launcher and Aircraft Environments Topical Group. [DONE]

AI M29/3: NC to investigate with Stijn Calders and Michel Kruglanski the possibility of having a joint calendar for example via the ESWeP. [DONE]



The screenshot shows the European Space Weather Portal website. The main content area is titled "Future Events" and contains a table with the following data:

Title	Start Date	End Date
AGU Fall Meeting	05-Dec-2011	09-Dec-2011
National Radio Science Meeting	04-Jan-2012	07-Jan-2012
2nd Nagoya Workshop on the Relationship between Solar Activity and Climate Changes	16-Jan-2012	17-Jan-2012
From the Heliosphere into the Sun in Physikzentrum Bad Honnef, Germany	31-Jan-2012	03-Feb-2012
SDO-4/IRIS/Itode Workshop: "Dynamics and energetics of the coupled solar atmosphere", in Monterey, CA.	12-Mar-2012	16-Mar-2012
Spectroscopy of the Dynamic Sun	18-Apr-2012	20-Apr-2012
EGU General Assembly in Vienna, Austria	22-Apr-2012	27-Apr-2012
26th NSO Workshop: "Solar Origins of Space Weather and Space Climate: Connecting the Interior to the Corona"	30-Apr-2012	04-May-2012
HELAS-5: The Modern Era of Helio- and Asteroseismology	20-May-2012	25-May-2012
Workshop on Coronal Magnetism at Boulder, Colorado (USA)	21-May-2012	23-May-2012

To the right of the table, there is a "Plasmasphere density" plot showing a cross-section of the Earth's plasmasphere with a color-coded density scale. Below the plot is a "SEP event forecast" section with a green box indicating "No SEP event".

<http://spaceweather.eu/en/event/future>

## PART 2 – OPEN DISCUSSION

### [9.] Space weather in EU programmes: FP7 & FP8/Horizon 2020 (Mike Hapgood (MH))

MH recalled the ongoing FP7 programme, as well as the importance of lobbying in respect to the next programme.

### [10.] International Collaboration: Recent Meetings

MH highlighted the recent European/ US meetings that had been held:

Report on “Society and Space Weather” Workshop (Mike Hapgood)

- <http://ipsc.jrc.ec.europa.eu/index.php/Space-Weather-Awareness-Dialogue/710/0/>

Report on “EU Space Weather Awareness Dialogue” (Mike Hapgood + others)

- <http://event.arc.nasa.gov/sws/agenda>

Both sides of the Atlantic welcome collaboration on space weather related issues. See presentation for details.

### [11.] WMO ICTSW Activities (Jerome Lafeuille (JL))

JL gave a presentation about the World Meteorological Organization (WMO) Inter-Programme Coordination Team on Space Weather (ICTSW) activities. He emphasised harmonisation of metadata across product providers and listed the expectations of the ICTSW activity (e.g. greater awareness of decision makers and general public on space weather information). See presentation for more details.

### [12.] Recent Activities on SSA in NATO SCI-229 RTG (Consuelo Cid (CC))

CC gave a presentation about the current status (recent activities) of the NATO SSA SCI-229 RTG initiative. See presentation for more details.

**[13.] National Space Weather Activities**

- Space Weather Activities in Ukraine. Winter 2011 Report (Aleksei Parnowski (AP))

AP gave a presentation about the space weather related activities/ projects that Ukraine is currently involved in, especially space missions, meetings and FP7 participation. See presentation for more details.

**[14.] Nominees for next SWWT Chair and Vice-Chair (Norma Crosby)**

Early next year there will be a call for people interested in nominating themselves as candidates for the next SWWT Chair. When the nominees have been approved there will be an election. The handing over of the Chair will take place at the next SWWT Plenary in early summer 2012.

**[15.] Closing Words (Norma Crosby)**

NC thanked the audience for their participation in the meeting.

# ANNEX

## SWWT Plenary 30 meeting

Wednesday 30 November 2011, 14:00 to 16:00, ESWW8, Belgium

NAME	INSTITUTE	COUNTRY	EMAIL
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Norbert Jakowshi	DLR	Germany	norbert.jakowshi@dlr.de

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Susanne Kernerstrom	DTU-space	Denmark	sv@space.dtu.dk

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NAME	INSTITUTE	COUNTRY	EMAIL
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**SWWT Plenary 30 meeting**  
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