Content

1. Hot News

DLR: Dr. Claudia Borries, who is managing the AFFECTS work packages at DLR, will go into maternity leave from September 2012 to May 2013. During this time Dr. Jens Berdermann will continue her work. Jens Berdermann is working at the DLR since 2011. His main task in the DLR team is the work on physical modelling of the ionosphere. In AFFECTS he is involved in the establishment of the ACE module and the early warning message for GNSS users. Jens Berdermann can be reached under the following telephone number and email address: jens.berdermann@dlr.de, phone: +49 (0)3981-480 106.

SRI NASU-NSAU: A member of the AFFECTS team, Aleksei Parnowski was appointed a national representative of Ukraine in the International Living With a Star Programme Working Group.

2. News from the European Commission

The Unit Space Research and Development of DG Enterprise and Industry of the European Commission is organising the second **FP7 Space Conference in Larnaca, Cyprus on 15-16 November 2012**. The registration for the event has now been opened and you can register by clicking on the following link: http://ec.europa.eu/enterprise/newsroom/cf/itemdetail.cfm?item_id=5903&lang=en&title=Scientific-conference-presenting-the-results-of-the-FP7-Space-Research-Programme. We are happy that Dr. Terrance Onsager from NOAA SWPC will represent AFFECTS at the conference.

Recently, the European Commission published a new version of **Guidance Notes on Project Reporting**, covering the topics reporting requirements during and at the end of the

project. Please take a special look at the parts dealing with publications. The guide is available on the AFFECTS project website and here:
ftp://ftp.cordis.europa.eu/pub/fp7/docs/project-reporting_en.pdf

3. Status of Deliverables

All deliverable reports from the first project year have been recently uploaded to the website at http://www.affects-fp7.eu/project/deliverables/.

The following nine deliverables are due during project year 2 (March 2012 – February 2013):
D3.3: Provision of final version of Early Warning System (Lead: ROB)
D4.1: Provision of software tool for forecasting indices (Lead: SRI NASU-NSAU)
D4.2: Report on solar EUV characteristics (Lead: FHG)
D4.3: Online provision of auroral alert and tracking system (Lead: UoT)
D4.4: Provision of software tool for forecasting perturbed TEC (Lead: DLR)
D2.2: Online provision of solar activity proxies and solar activity data base
(Lead: ROB)
D2.7: SPIS model (Lead: ASTRIUM)
D3.4: Report on quality control and user feedback (Lead: ROB)
D6.2: International user workshop documentation (Lead: ROB)
All deliverables are progressing. The first 5 were due at the end of August and have been submitted to the Coordinator in time. The 4 remaining deliverables are due in February 2013.

5. Status of Work Packages

5.1 WP1: Management

In the last months the project management was mainly concentrated on the coordination and completion of the first periodic reporting. Besides this, the next project year was planned including the dates for forthcoming project meetings, deliverable reports were reviewed and revised in respect to the comments of the technical reviewer and the project homepage was updated. Additionally, a project poster was released in June, to push the dissemination of the project. Furthermore, we had an AFFECTS stand at this year's ESWW9 fair where we showed the project trailer and the project poster and distributed a project flyer, stickers with the AFFECTS logo and an announcement of the AFFECTS international user workshop on Feb. 28th 2013.

5.2 WP2: Data, Calibration, Maintenance and Instrumentation

Work package 2 is currently on schedule with all its obligations. On May 15, ROB welcomed Vincent Malisse as a new colleague, who has started the design and development of the new version of the Solar Timelines viewer for AFFects (STAFF). In close collaboration with a few ROB colleagues, solid design and technology choices were made. Vincent has implemented and tested the main brunt of the UI, set up the database and has importing GOES X ray flux, the four Lyra channels and the International Sunspot Number as first datasets. STAFF has been presented at the 9th European Space Weather Week in Brussels, both with a demo and

a poster. After the European Space Weather Week, the focus will be on the near real time import of timelines, and the import of several additional timelines.
Otherwise, resources have been directed to data quality from instruments in the field, particularly the magnetometer network. Much effort has gone into securing the reliability and quality of the high latitude (polar cap) stations, these being the most demanding to maintain.

5.3 WP3: Early Warning System

AFFECTS deliverable D3.3 "Provision of final version of Early Warning System" has been submitted in August. A website presenting the Early Warning Message for GNSS users has been implemented on the SWACI-AFFECTS website (http://swaciwebdevelop.dlr.de/early-warning-gnss/). It shows a short description of the service, the current warning status, the latest early warning issue, the information on subscription to the e-mail service, the archive (which is currently empty, because the operation has just started) and contact details for user feedback. A dedicated product description will be added soon. During the commissioning phase, the early warning messages will only be distributed internally and to a small group of pilot users. Currently the group of pilot users contains three members and can be complemented during the commissioning phase. The commissioning phase has started after the dissemination of the final Early Warning System (deliverable D3.3) in August 2012 and will cover about six months.
In the context of the Early Warning System, ROB and DLR have defined a new AFFECTS product, which is under development at ROB: the machine readable CME arrival alert. It will be sent as an XML file, whose content can be processed right away by DLR's SWACI system in order to take this information into account in the Early Warning System.
Further progress has been made in the statistical quality control of the Regional Warning Center Belgium at ROB. A full-blown comparative report on the accuracy of ROB's F10.7 forecasts was presented at the ISES meeting on July 13-14, preceding the COSPAR conference in Mysore, India. A similar analysis for ROB's K forecast has been undertaken, and the highlights of both studies have been presented as a poster at the 9th European Space Weather Week in Brussels.
There have been several advances at ROB in the development of NEMO, the dimming and EIT wave detector on quicklook SDO/AIA data. First EIT wave detections have been presented on a poster at the Solar Information Processing Workshop 6 on August 13-16 in Bozeman, Montana. In the meantime, a first near real time test version has been built which ingests a new image every 3 minutes. In the last few months, the detection and rejection criteria have become a lot more sophisticated.
At UGOE, progress has been made in the analysis of CME parameters and towards a better estimation of CME arrival time and impact at Earth.

5.4 WP4: Forecasting Tools and Modelling

The main activities in WP4 were related to the preparation, reviewing and submission of the deliverable reports. The geomagnetic forecast tool developed by SRI NASU-NSAU in this work package has been demonstrated at the ESWW9 Space Weather Fair on Nov. 7.

5.5 WP5: Forecast System Ionosphere, User Interfaces

The Forecast System Ionosphere (FSI) input data management got an extension with the successful integration of the ACE-Module in SWACI. The ACE-Module obtains essential solar wind data from the ACE satellite provided by NOAA/SWPC in near real time and generates input files needed in succeeding modules. The input files will be used, for example, in the geomagnetic activity forecast provided by SRI NASU-NSAU (Deliverable D4.1) and the ACE real time analysis module (DLR). The integration of the geomagnetic activity forecast into the FSI and its proper coupling to the ACE input module will be the next task within WP5.

5.6 WP6: Data and Product Dissemination, Product Sustainability

First preparations have been made for the AFFECTS International User Workshop, which will take place at ROB on February 28, 2013. More information and publicity (including a flyer) about this workshop have been presented at the 9th European Space Weather Week and are available on the project website at http://www.affects-fp7.eu/news-events/user-ws/.

6. Featured Beneficiary

In each newsletter we will introduce one beneficiary, starting with the coordinator, the Georg-August-University Göttingen, and followed by ROB, SRI NASU-NSAU, FHG, UoT, DLR and ASTRIUM ST. The National Oceanic and Atmospheric Administration (NOAA in Boulder, USA) and the Planetarium Hamburg (Germany) as external collaborators will also have the opportunity to present themselves. This issue's featured beneficiary is the **Geophysical Observatory** at the **University of Tromsø (UoT)** in Norway.

6.1 Tromsø Geophysical Observatory, at the University of Tromsø (66.66oN, 18.94oE)

Tromsø Geophysical Observatory (TGO) was created in 2000 as a unit under the Faculty of Science and Technology at the University of Tromsø. Although, being a young institution TGO continues the heritage of the Auroral Observatory in Tromsø that goes 100 years back in time. TGO's main purpose is to maintain long-term observations of geophysical processes in the ionosphere/upper atmosphere above Tromsø and in general in Norway.

Pic. 1: The Auroral Observatory in Tromsø in 1955. The left building was the observatory building, while the right building was the living quarters for the staff.

Permanent geophysical observations were started in Northern Norway in 1912 by the establishment of a permanent auroral observatory on the Haldde Mountain close to Alta some 150 km East of Tromsø. In 1928 the Norwegian Institute of Cosmic Physics (NIKF) was established in order to take responsibility of observations and research in subjects related to the Aurora Borealis in Norway. To improve the observational conditions the activity on Haldde was closed down and a new and modern observatory, the

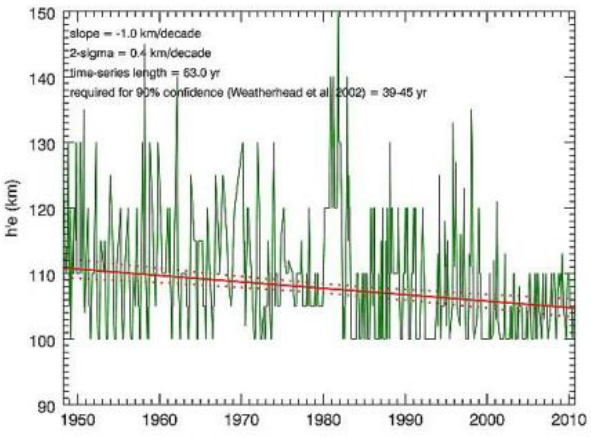
Auroral Observatory, was finished the same year. With the establishment of the University of Tromsø in 1972 NIKF was discontinued and the University took over the observatory commitments which are now being performed by TGO.

Through history the main focus at the Auroral Observatory has been related to auroral processes. From the beginning measurements of the geomagnetic field has been performed as well as photographic and spectrographic work related to the altitude and emissions of the aurora. In these fields, famous names like Leiv Harang, Lars Vegard, Carl Størmer and Willy Stoffregen are closely connected to the Auroral Observatory in Tromsø. In 1932 Sir E. V. Appelton started vertical electron density soundings in Tromsø, and since then an ionosonde has been in operation. These electron density measurements represent one of the longest time series of their kind in the world.

Pic. 2: Leiv M. Harang performing absolute measurements of the geomagnetic field in Tromsø. His name is immortalized in the "Harang discontinuity" which is observed when a magnetic observatory transits from the evening to the morning ionospheric convection cell in the high latitude nightside ionsohere.

Today the main focus areas of TGO are monitoring of the geomagnetic field and vertical electron density soundings. TGO currently have 14 magnetometers, of which 3 are magnetic observatories, distributed across mainland Norway and the Arctic Ocean. The ionosonde currently being operated in Tromsø is a collaboration between TGO and QinetiQ. TGO is involved in collaborations running several meteor radars, an MF radar and the SOUSY MST radar in Svalbard. TGO is also responsible for the Ramfjordmoen Research Station outside Tromsø, where a wide range of guest instruments such as all-sky cameras, spectrographs and a lidar system are hosted.

Today TGO has 6 employees and is involved in the supervision of two PhD students. In addition of being an AFFECTS partner, TGO is also involved with other space weather related projects such as the SP-7 project ESPAS and the ESA space weather initiative. TGO's web-pages may be found at http://www.tgo.uit.no/.



Pic. 3: Monthly medians of the E-region virtual altitude maximum as measured by the Tromsø ionosonde. The red line indicates the declining latitude owing to mesospheric cooling (Hall, C. M., K. Rypdal, and M. Rypdal (2011), The E region at 69°N, 19°E: Trends, significances, and detectability, J. Geophys. Res., 116, A05309, doi:10.1029/2011JA016431).

7. Press & Media

See AFFECTS website for updates
The latest version of the AFFECTS video trailer is available at the following link: http://www.astro.physik.uni-goettingen.de/~bothmer/AFFECTS/.

8. Collaborations

Collaboration with **infoNetwork GmbH**, documented through an official letter of agreement, has been successfully established. In this context a prototype space weather report for television is in progress.
Collaborations with other EU projects, such as **eHeroes, HELIO and COMESEP**, are progressing.
Collaboration with **D. Odstrcil at NASA/GSFC** is established to develop CME modelling within the **ENLIL code**.

9. Upcoming Events

February 26-27: **2nd AFFECTS General Meeting** at ROB, Brussels, Belgium
February 28: **AFFECTS International User Workshop** at ROB, Brussels, Belgium
June 24-29: The 2013 **ILWS Workshop** on Space Weather Research with Space and Ground-based Observations will be held during 24-29 June 2013 in Irkutsk, Russia. The workshop will be hosted by the Institute of Solar-Terrestrial Physics of the Russian Academy of Sciences (http://en.iszf.irk.ru/). The workshop is open to the international space weather research community. It will include invited, contributed oral and poster presentations. Additional information about the workshop will be available at the workshop web site: http://en.iszf.irk.ru/ILWS_2013.

For more meetings see http://sohowww.nascom.nasa.gov/community/