



PRediction Of Geospace Radiation Environment and Solar wind parameterS 637302

3rd Project Meeting
May 30-31, 2016

Finnish Meteorological Institute, Helsinki, Finland

Minutes

Attendees

Robertus von Fay-Siebenburgen (Coordinator, USFD), Simon Walker (Project Manager USFD), Michael Balikhin (Chair Scientific Steering Committee USFD), Natalia Ganushkina (FMI), Ilkka Sillanpaa (FMI), Stepan Dubyagin (FMI), Vitaliy Yatsenko (NASU), Peter Wintoft (IRF), Vitalii Shastun (CNRS/LPC2E), Yuri Shprits (GFZ via Skype).



Summary of Meeting

WP 1 - Management (Simon Walker)

The current status of the project was presented. The current situation regarding the financial statement from SkolTech was discussed. Further information from the Project Officer is required to determine how to resolve this issue and how it affects the rest of the consortium.

Action: AI-PM3-1 SW: Formulate a letter to the Project Officer requesting information on these points. Circulated to the other participants for updates/modifications before sending to our Project Officer

To try and identify mistakes such as this at an earlier state it was proposed to adopt a modification to the way financial statements are submitted. Currently, the beneficiary completes the form online. This form is then locked for review by the beneficiary before being forwarded to the Coordinator. At this stage, the Coordinator can only see the total spending, and not the PM spent on the project.

Action: AI-PM3-2 All: Implementation of Project review procedure for future Form C submissions.

In future the Management Team would like the beneficiaries to email the Coordinator before the form is locked for review to allow the Coordinator to see not only the costs but the time (number of PM) also.

An overview of the upcoming deliverables and milestones was presented. No problems were reported that would delay any of the deliverables. There were some questions regarding Milestone M3.1. Whilst work on models for Kp and Dst have been ongoing for several months, work on AE models has only just begun. It was decided that the set of models available at the date of the milestone would be made available to the consortium, so fulfilling the milestone criteria.

The meeting participants were reminded

- Copies of PROGRESS related presentations and papers should acknowledge funding from EC and be sent to Simon for inclusion on the project web site.



- Travel to conferences in non-EU destinations and not already mentioned in the GA requires permission from the Project Officer.
- Records should be kept of the time the beneficiaries devoted to the project.
- The next telecon is currently scheduled for July 7.

WP 2 - Propagation of the solar wind from the Sun to L1

No report. Unfortunately, no-one from WP2 was in attendance at the meeting or available by Skype.

Next deliverable due month 20 (Aug 2016).

WP 3 - Forecast of geomagnetic indices

Peter Wintoft reported that deliverable D3.3 was submitted in the time frame defined at the previous Project Review Meeting. A brief overview of its contents was given.

Kp and Dst models continue to be refined. A model for AE is currently being developed.

The webpage at IRF describing this WP and its progress has been changed into a WIKI page (the same login is required).

Peter then presented work by Juri Katkalov regarding a new data access system for the data stored at IRF has been implemented based on the REST (Representational State Transfer) architectural technology (<http://lund.irf.se/progress/wiki/>). A demonstration was given on accessing this system and its documentation.

Peter then presented the AE models currently being developed by Magnus Wik. The AE index, calculated from ground-based measurements, has a time resolution of 1 minute and is based on the AU and AL indices. It also shows seasonal and UT dependences which may result from the measurements available rather than being a real effect. For modelling purposes this data should be resampled with a much lower resolution to incorporate the measured/forecast data of the solar wind at L1.

Natalia Ganushkina pointed out that her IMP TAM model required the onset time of AE activity. Ilkka Sillanpaa presented a short report of work at FMI to identify onsets of AE activity.



Vitaliy Yatsenko presented the current state of algorithms and software developed at SRI for the forecast of Dst and Kp. Using input data from the new REST service at IRF it will be possible to test these models and compare their forecasts with external models of Dst and Kp as well as those developed by other groups within the project.

No problems are foreseen to the project schedule.

Next deliverable due month 24 (Dec 2016).

WP 4 - Statistical wave models

Vitalii Shastun outlined the current status of work on the statistical wave models at CNRS/LPC2E.

Development of wave models will also use RBSP data since Cluster does not provide good coverage in the range L=5 to L=7.

New diffusion coefficients will be based on extended models for wave distribution. and compared with previously published results.

Since the submission of D4.3, CNRS/LPC2E have provided USFD with sets of wave data (LBC, Hiss, EMW) for all four Cluster satellites covering a 15 year period. The ERR analysis is currently being re-run to see if the inclusion of the new data sets makes a difference to the output. Simon Walker showed some preliminary results of this new analysis.

A meeting between USFD (Michael Balikhin, Richard Boynton), CNRS/LPC2E (Vladimir Krasnoselskikh, Vitalii Shastun), and GFZ (Yuri Shprits) is required in order to define methodology to be used to construct the statistical wave models.

Action: AI-PM3-3 MB,VK,YS: Organise a joint meeting to discuss generation of statistical wave models.

No problems are foreseen in this WP.

Next deliverable due month 24 (Dec 2016).

WP 5 - Low energy electron models

Illka Sillanpaa presented results regarding the determination of substorm onset times, a parameter required by the IMPTAM low energy electron model. Results have been compared with



those from SUPERMAG. The new results predict substorm onsets using a 12 minute lead time compared with 30 minutes for SUPERMAG.

The IMPTAM web page shows online forecasts of the electron environment and their comparison with measurements from GOES 13. These plots will also be added to the PROGRESS web site.

Action: AI-PM3-4 SW: add links to IMPTAM results pages to PROGRESS web site.

The next deliverable will report on the inclusion of the VERB diffusion coefficients within IMPTAM. Electron life times have from VERB have already been incorporated. It is hoped to introduce improved values before the deliverable is due. The latest model for Hiss (2016), a substantial improvement on the 2014 model has already been included. There are plans to update the model for Chorus waves. Currently, a new formulation of this model is being verified using the latest data from RBSP.

Natalia Ganushkina will contact Yuri Shprits regarding the inclusion of these new wave models and sets of diffusion coefficients.

Action: AI-PM3-5 NG,YS: Natalia Ganushkina will contact Yuri Shprits regarding the inclusion of these new wave models and sets of diffusion coefficients.

Next deliverable due month 24 (Dec 2016).

WP 6 - Forecast of the radiation belt environment

Simon Walker briefly presented current forecasts of the electron fluxes at geosynchronous orbit based on the NARMAX methodology. The models have been running continuously now for a number of months and still perform well. The main discrepancies occur at the onset of storms. Further work is being undertaken to try to improve the models during these periods.

Simon then discussed the methodology used to couple these flux forecasts with the VERB model of electron fluxes within the radiation belts. The current input to VERB is based on the NARMAX electron flux forecasts to estimate the boundary electron fluxes together with Kp.

Next deliverable due month 30 (June 2017).



AOB

Dissemination

The project agreed that more should be done for dissemination to publicise project.

Action: AI-PM3-6 RvFS: Look into the costs for pens, lanyards, bookmarks, etc printed with the project name and web address.

Summer school

The proposal and Grant Agreement state that the project will run a summer school to present its results to PhD level students. Since there is another H2020 project (FLARECAST) which is related to space weather it was proposed that we organise a two part joint school, to cover solar aspects as well as solar wind/magnetosphere aspects.

Action: AI-PM3-7 RVFS: Contact FLARECAST coordinator about a joint summer school.

Next Meeting

The next Project Meeting should be combined with the Technical Review Meeting. It was suggested to hold this meeting at AGU, San Francisco in December since most participants would be attending independently of PROGRESS funding. This suggestion should be forwarded on to Andrej to confirm that this is possible.

In the event that Andrej inform the project that this is not possible we would propose to hold the meeting in Potsdam, Germany, organised by Yuri Shprits (GFZ). The tentative date would be 2017, week 2 or 3 (January 9-13 or 16-20).

Action: AI-PM3-8 SW: Confirm with Andrej the possible dates and venue of the combined Review and Project meeting.

Presentations

The following presentations are available on the Project Only section of the web site.



- WP_1_management.pdf
- WP_3_index_forecast_wintoft.pdf
- WP_3_index_forecast_wik.pdf
- WP_3_index_forecast_yatsenko.pdf
- WP_4_wave_models_boynton.pdf
- WP_6_forecast_RB_walker.pdf