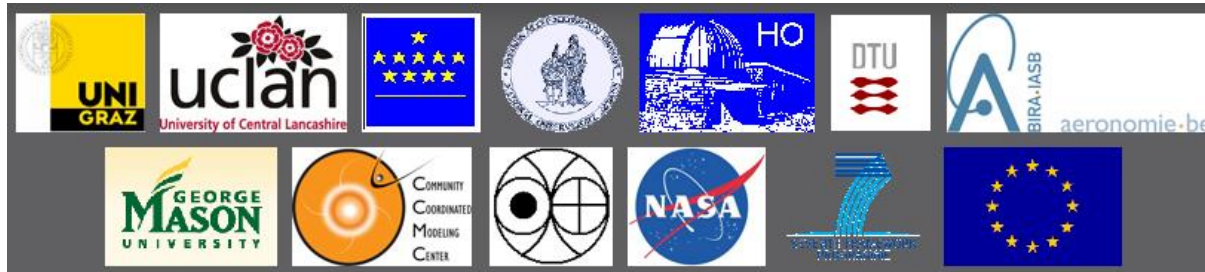




COronal Mass Ejections and Solar Energetic Particles

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on behalf of the COMESSEP Consortium



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“Space Weather Research and Operations: The Added Value of FP7 Projects” Splinter
ESWW10, 19 Nov. 2013, Antwerp, Belgium

Main Project Objective

Build an alert system that will provide space weather stakeholders with the following services:

- Geomagnetic and Solar Energetic Particle (SEP) radiation storm forecasts based on the automated detection of solar activity and modelling of the evolution of interplanetary Coronal Mass Ejections (CMEs) and energetic particles.
- Geomagnetic and SEP radiation storm alerts based on the COMESEP definition of risk.
 - Forecasting tools estimate the storm probability and impact, both of which are combined to obtain an estimated risk.

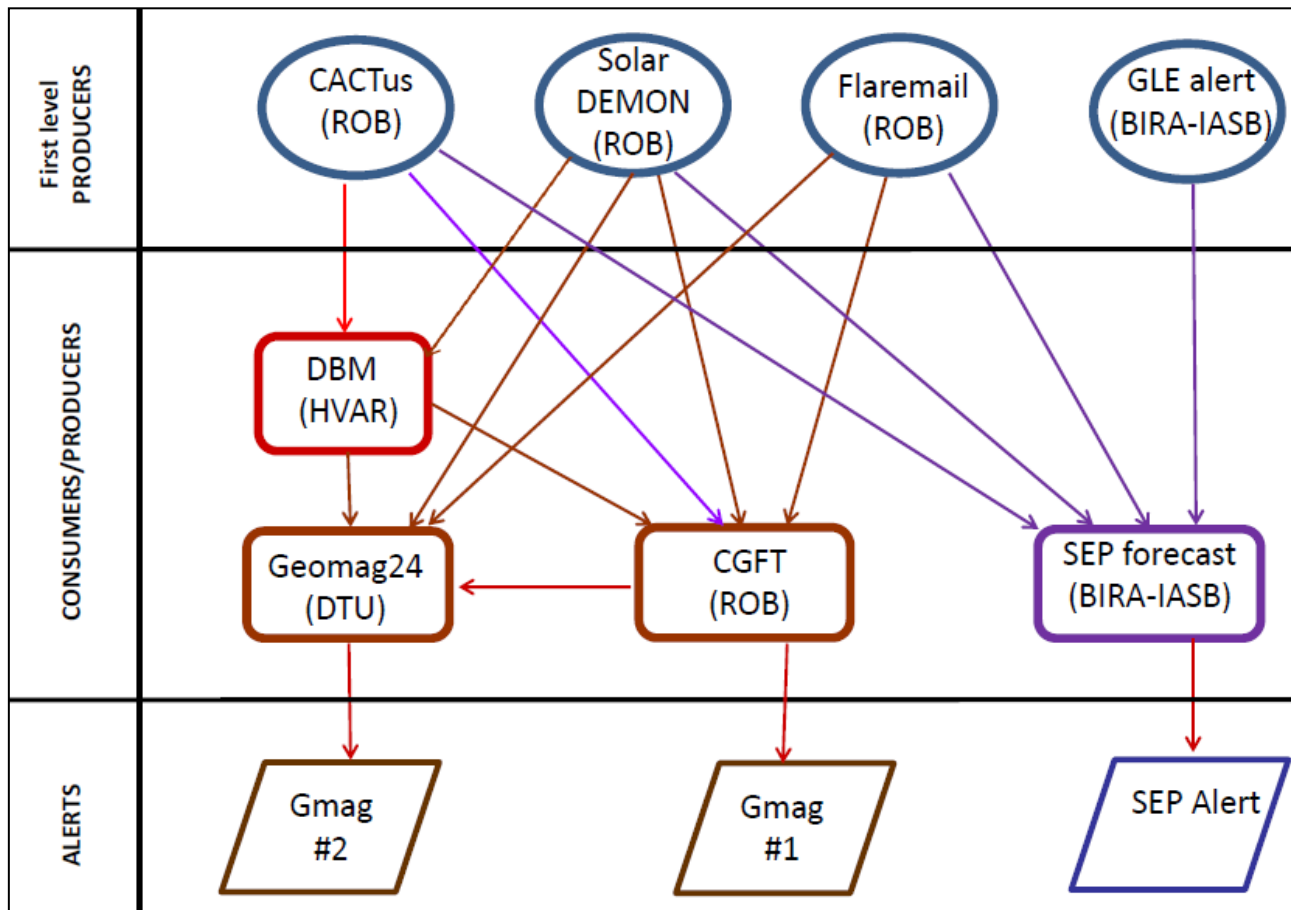
Overall Project Objectives

- 3D kinematics and interplanetary propagation of CMEs, the structure, propagation and evolution of CMEs have been investigated.
- Sources and propagation of SEPs have been examined and modeled.
- Scientific results obtained in the COMESEP Project have been used for optimising detection and forecasting methods.
- Tools for forecasting geomagnetic storms and SEP radiation storms have been developed.
- The developed tools have been validated and implemented into an operational space weather alert system.

COMESEP Alert System

The COMESEP alert system provides notifications for the space weather community. To achieve this, the system relies on both models and data, the latter including near real-time data as well as historical data.

The system consists of several tools that work together to automatically issue alerts of detected solar eruptive events as well as expected geomagnetic and SEP radiation storms.




Gmag #1: Triggered by the CME Geomagnetic Forecast Tool (CGFT) tool when a CME is estimated to be geoeffective.

Gmag #2: Will provide the geomagnetic storm risk for the next 24h; Output of Geomag24 (to be released in Jan. 2014).

SEP alert: Triggered by the SEP forecast tool; provides an estimation for a radiation storm with proton energies >10 MeV and >60 MeV.

Launch of the COMESEP alert system during the Fair on Wed.



Alert Viewer Current time: 14-11-2013 09:37

	Latest issued alert	Impact risk
Geomagnetic Storm Alert	08/11/13 13:19	<ul style="list-style-type: none"> The risk level for a CME geomagnetic storm is MODERATE following the observation of a CME that erupted at 03:24 on 2013-11-08 UTC. The risk level results from the following forecasted parameters: 1) occurrence probability: POSSIBLE 2) storm level: STRONG
SEP Proton Storm Alert > 10 MeV	13/11/13 16:55	<ul style="list-style-type: none"> Forecast for a SEP radiation storm following a M1.4 flare with peak at 2013-11-13 15:20UT (protons > 10 MeV: MINOR, VERY UNLIKELY).
SEP Proton Storm Alert > 60 MeV	No alert since 4 days	Nothing to report

Legend: ★ ... an alert has been issued Times are in UTC
 ○ ...risk impact (timing and level, ● low, ● medium, ● high, ● extreme)
 Click on the icons to see alert details

Thu 14 Nov 2013

	11 NOV 12:00	12 NOV 12:00	13 NOV 12:00	14 NOV 12:00	15 NOV 12:00	16 NOV 12:00	17 NOV 12:00	18 NOV 12:00
Flare	★ ★		★ ★ ★	★ ★				
CME			★ ★	★				
SEP	★			★				
Geomagnetic activity	●							

[Register for COMESEP alerts](#)

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<http://www.comesep.eu/alert/>