COronal Mass Ejections and Solar Energetic Particles

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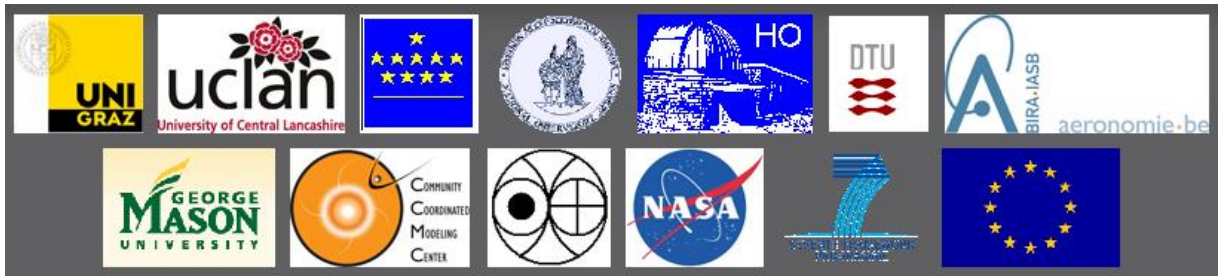
on behalf of the COMESEP Consortium



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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.

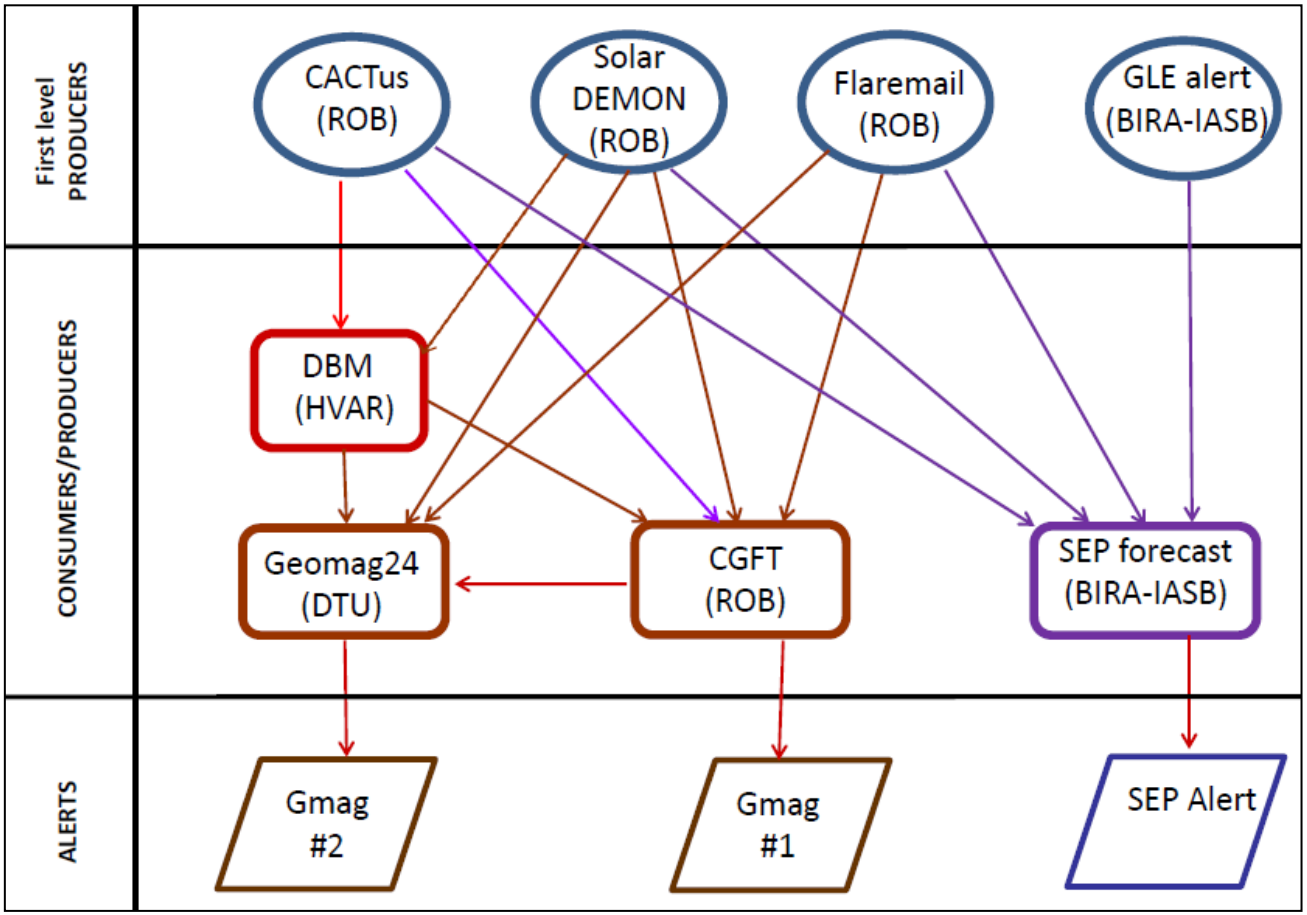
Overall Project Objectives

- 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.

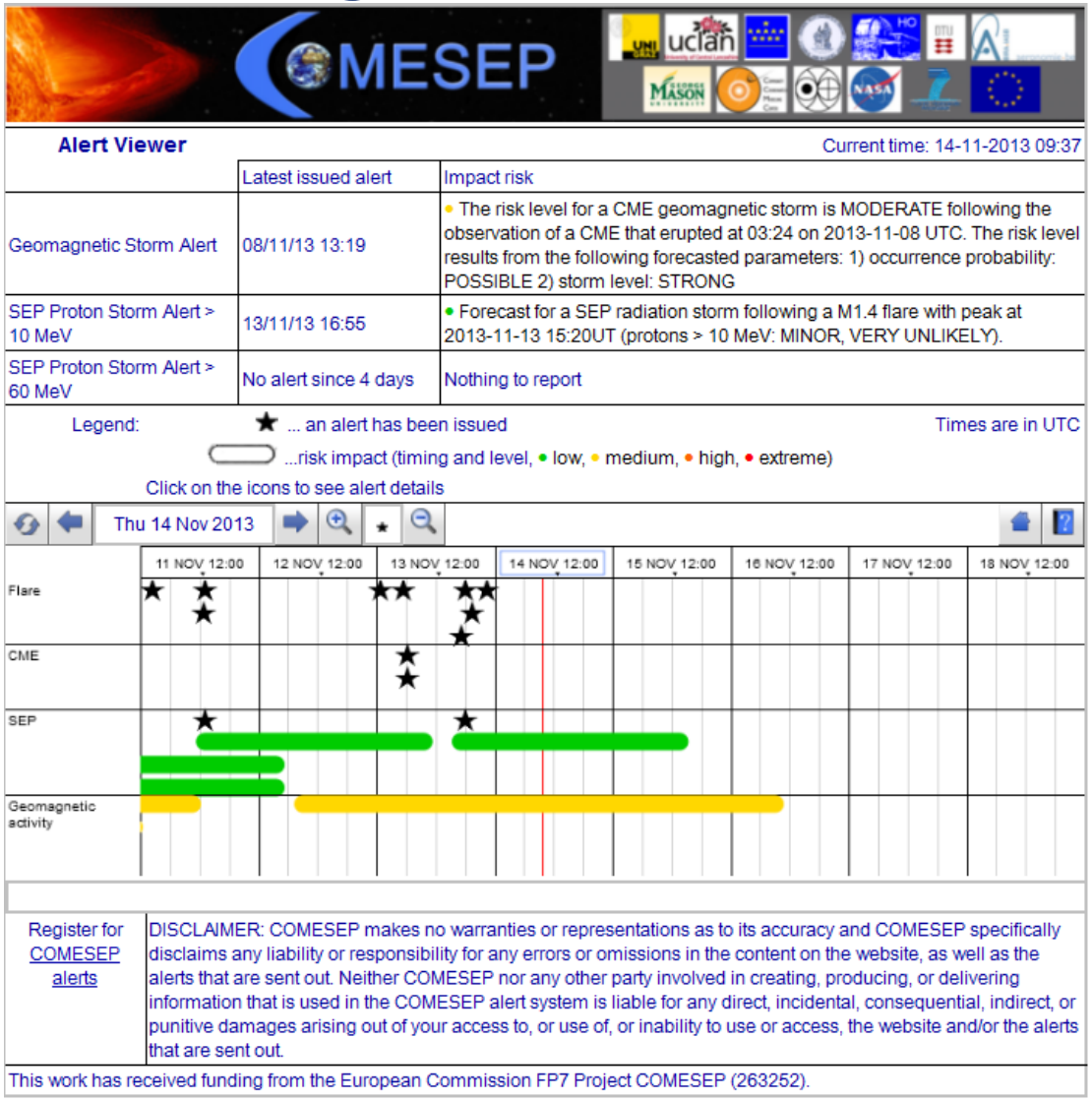


Gmag #1: Triggered by the CME Geomagnetic Forecast Tool (CGFT) tool when a CME is estimated to be geoeffective.

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.



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