

COMESSEP

Coronal Mass Ejections and Solar Energetic Particles: forecasting the space weather impact

INSIGHTS FOR BETTER SPACE WEATHER FORECASTS

Towards the maximum of the Sun's solar cycle, our nearest star commonly engages in explosive releases of mass, magnetic flux and energetic particles, characterising our local space weather. Events such as coronal mass ejections (CME) and solar energetic particles (SEP) are common during such periods.

The COMESSEP project will develop new tools for better forecasting of such events.

SEP and CME events are a well known risks for satellites and astronauts onboard the International Space Station (ISS). In extreme cases the effects of these events may even impact the effective functioning of pipelines and power-grids on Earth through the magnetic storms caused by Earth-bound CMEs.

The development of an operational European Space Weather Alert system would be a valuable means to mitigate the negative effects of such extreme space weather,

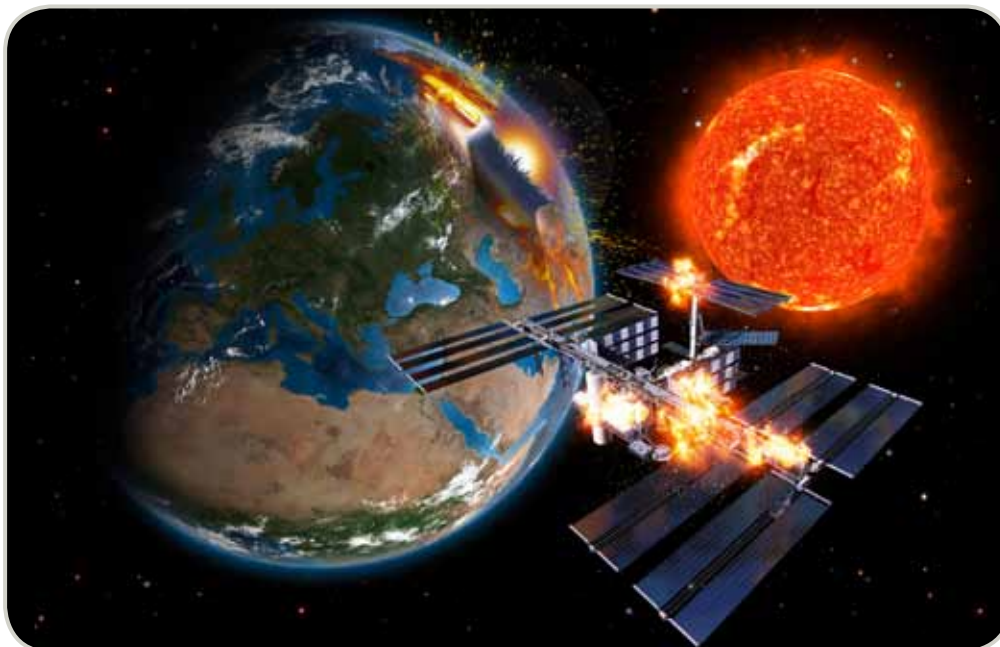
thereby safeguarding valuable space and terrestrial infrastructures, and the lives of our astronauts.

Responding to this challenge, the COMESSEP project is set to undertake extensive data analysis and modelling, aiming at developing forecasting tools for both SEP radiation storms and geomagnetic storms. By means of analysis of historical data, complemented by the extensive data coverage of solar cycle 23, the key factors that lead to such extreme space weather events will be identified, providing for more precise forecasting, and better countering of false alarms.

Moreover, COMESSEP is set to enhance our understanding of the 3D kinematics and interplanetary propagation of CMEs, which may provide valuable insights for the optimisation of future space weather forecasting tools. In parallel, the sources and propagation of SEPs will be examined and modelled.



NORMA B. CROSBY
IS PROJECT COORDINATOR



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COMESSEP will develop new tools to mitigate the negative impacts of geomagnetic storms and solar energetic particle events.

QUESTIONS & ANSWERS

What do you want to achieve with this project?

The development of an operational European Space Weather Alert system to forecast SEP radiation storms and magnetic storms, based on data analysis, modelling, and tool development.

Why is this project important for Europe?

Scientific results from COMESSEP will contribute to reducing the vulnerability of space assets to the dynamic space environment. Additionally they will provide more reliable scenarios for human space travel.

How does your work benefit European citizens?

Space weather is a global problem and affects everybody. We are all either directly or indirectly dependent on the reliable functioning of modern technology that relies on satellites that can tolerate the space weather.

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LIST OF PARTNERS

- Institut d'Aeronomie Spatiale de Belgique, Belgium
- Universitaet Graz, Austria
- Koninklijke Sterrenwacht van België, Belgium
- Hvar Observatory, Faculty of Geodesy, University of Zagreb, Croatia
- Technical University of Denmark, Denmark
- National Observatory of Athens, Greece
- University of Central Lancashire, U.K.

COORDINATOR

Institut d'Aeronomie Spatiale de Belgique, Belgium

CONTACT

Norma B. CROSBY
Tel: +(32) (2) (3730406)
E-mail: norma.crosby@oma.be

PROJECT INFORMATION

Coronal Mass Ejections and Solar Energetic Particles:
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