



Radiation Belt Environmental Indicators for the Safety of Space Assets



Press Release

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National and Kapodistrian University of Athens (NKUA), Athens, Greece

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SafeSpace - Radiation Belt Environmental Indicators for the Safety of Space Assets

PROJECT LAUNCH AND KICK OFF MEETING

On the 21st of January, the Kick-Off Meeting of the SafeSpace project was held at the “Kostis Palamas” Cultural Centre of the National and Kapodistrian University of Athens (NKUA). The Rector of NKUA, Prof. Meletios-Athanasios Dimopoulos opened the meeting and welcomed the participants.

SafeSpace is a European Union funded Horizon2020 LET (Leadership in Enabling and Industrial Technology) three-year research project, which aims at advancing our space weather nowcasting and forecasting capabilities. SafeSpace will contribute to the safety of space assets through sophisticated modelling of the major energetic particle population in geospace, namely the Van Allen radiation belts. Space weather refers to severe disturbances of near-Earth space environment and of the upper atmosphere, which can damage modern technology in space and on the ground. These disruptions are driven by eruptive phenomena on the Sun and their interaction with the Earth’s magnetic field. The ultimate goal of SafeSpace is the development of a new space weather service, in consultation with European space industry, which will be oriented towards space operator requirements.

During the Kick-Off Meeting, scientists from leading European space weather groups presented the current capabilities of the top five well-established space weather models and discussed ways to achieve their synergy within SafeSpace. The five models refer to distinct parts of the Sun-Earth connection, cover the whole Sun – interplanetary space – Earth’s magnetosphere chain and their effective coupling is the pre-requisite of a successful radiation belt forecasting service: the CNRS/CDPP solar disturbance propagation tool, the KULeuven EUHFORIA CME evolution model, the ONERA Neural Network tool, the IASB plasmasphere model and the ONERA Salammbô radiation belts code. In addition, the consortium will develop advanced models of plasma wave diffusion coefficients, which will also be incorporated in the Salammbô radiation belts code.

The synergistic use of these models will enable the delivery of a sophisticated model of the Van Allen electron belt and of a prototype space weather service of tailored particle radiation indicators. The service will have forecast capabilities with a target **lead time of 2 to 4 days**, which is a tremendous advance from current forecasts that are limited to lead times of a few hours.

The project is implemented by eight institutions across Europe:

- National and Kapodistrian University of Athens (NKUA), Coordinator, Greece
- Office National d'Etudes et de Recherches Aérospatiales (ONERA), France
- Katholieke Universiteit Leuven (KULeuven), Belgium
- Institute for Atmospheric Physics (IAP), Czech Republic
- Institut royal d'Aéronomie Spatiale de Belgique (IASB), Belgium
- Thales Alenia Space España (TAS-E), Spain
- Centre National de la Recherche Scientifique (CNRS), France
- Sandberg & Co (SPARC), Greece

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