

Provision of Space Weather bulletins in support to Spacecraft Operations

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Abstract: In the frame of its Space Situational Awareness (SSA) programme, the European Space Agency (ESA) is establishing a Space Weather Service Network to support end-users, in a wide range of affected sectors, in mitigating the effects of space weather on their systems, reducing costs and improving reliability. In building this network space weather products/tools are developed and federated in services, that are suitable for operational implementation and importantly that meet the end users' needs.

Within the network the SSA Space Weather Coordination Centre (SSCC) is the focal point for space weather user support and offers first line support to end-users. For key users (upon request) the SSCC also provides support in the form of tailored, regular dedicated space weather bulletins. During a campaign the SSCC works with the user in order to compile a proposed bulletin format, contents and delivery schedule. This involves combining and tailoring specific elements of a given SWE Service in order to address specific user needs, and providing this direct to the users contact point(s) on a pre-agreed schedule/basis. Tailored products are collected in a dashboard that is automatically updated and continuously available for the user. On basis of the dashboard and with the help of forecasters from the Expert Service Centres (ESCs), dedicated space weather forecast notifications are produced.

In this poster we highlight the Spacecraft Operation service for which a general SWE bulletin and dashboard has been created in support of (ESA and non-ESA) mission operations at various orbits.

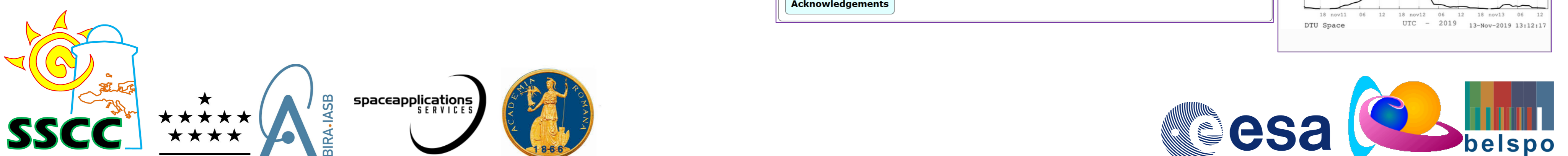
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SSA Space Weather Coordination Centre – SSCC

- Spacecraft operations is one of the service domains for which different Space Weather (SWE) products in the SSA network are grouped and contextualized. (See image on the right)
- By interacting with spacecraft operators in various ways a better understanding of their base requirements is developed.
- One way to provide customised SWE information is by creating tailored bulletins and dashboards for specific and general spacecraft missions. Services are then further tailored based on the users feedback.
- Below we show different parts of a general dashboard for spacecraft missions orbiting the Earth.
- The dashboard is divided into tabs: a general conditions tab gives a quick overview of the current SWE conditions and orbit specific tabs give more detailed information on the SWE impacts in that orbit
- This dashboard focuses on risks for satellite charging, single event upsets on board of the satellite and communication anomalies.

General dashboard for spacecraft operations



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