

The European Space Weather Portal and SPENVIS

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Abstract

Apart from the problems caused to spacecraft by the ultra-high vacuum and extremes of hot and cold in space, spacecraft also have to survive very hostile environments which can severely limit space missions as well as pose threats to humans. Missions need to consider phenomena such as electromagnetic radiation, energetic charged particles, plasmas and neutrals (space debris and meteoroids). This lecture introduces two European projects that provide the community various tools to better understand our local dynamic space environment.

The European Space Weather Portal (ESWeP) [<http://www.spaceweather.eu/>] is an integrated website providing a centralised access point to the space weather community to share their knowledge and results. Initiated under the COST 724 Action and hosted by the Belgian Institute for Space Aeronomy, the ESWeP is being further developed in the framework of various European space weather projects (currently the COST ES0803 Action). Part one of this lecture will give a short introduction to what the Portal offers the space weather community as well as the general public.

The second part of this lecture will present the ESA SPace ENVironment Information System (SPENVIS), a WWW interface to models of the space environment and its effects, including the cosmic rays, natural radiation belts, solar energetic particles, plasmas, gases, and “micro-particles” [<http://www.spennis.oma.be/>]. SPENVIS has just celebrated its 12 year birthday and has developed into a multi-purpose tool that is used by a world-wide user community, including spacecraft designers, component designers, educational programmes and scientists (e.g. model developers). To get a feeling of what SPENVIS offers the space weather community, both the scientific and technical issues related to SPENVIS will be introduced in this lecture. This will be followed by several case studies during which the participants will have the opportunity to use the SPENVIS system interactively.

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Norma B. Crosby

Norma B. Crosby is a Research Scientist at the Belgian Institute for Space Aeronomy. She received a Master of Science in Chemical Engineering from the Technical University of Denmark in 1988 and a Doctoral Degree in Astrophysics and Space Technology from the University of Paris 7 in 1996. In 1992 she attended the International Space University summer session programme. During her career she has acquired extensive experience in science, engineering and administration, and has collaborated with and worked at various international academic and space agency organisations. With twenty years of experience in space environment analysis she has contributed to several space weather related projects (e.g. INTAS, ESA, EU) either as Team Member or Project Manager. Currently, she is Chair of the ESA Space Weather Working Team. Her research interests, as well as education and public outreach activities, include space weather related topics, solar energetic particles, extreme events, statistical studies, and transient luminous events.