

57th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE  
ACTIVITIES (D5)

Prediction, Testing, Measurement and Effects of space environment on space missions (3)

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SPACE WEATHER & CRITICAL INFRASTRUCTURES PROTECTION

**Abstract**

SPACE IT UP is a program aiming at enhancing the space technology of Italy to be used for space exploration and exploitation for the benefit of planet Earth and the entire humankind. SPACE IT UP has a relevant interdisciplinarity approach, involving different disciplines in renowned Italian Universities, Research centers, Industries and SME's. The holistic and problem-solving approach undertaken is structured in different lines of research, or "Spokes".

In particular, the Spoke "Protection of critical infrastructures and Space Weather" aims at expanding our knowledge of the Sun-Earth interaction to address Space Weather (SWE) phenomena. The goal is to improve our understanding of the SWE underlying physical processes, the effects of on ground and space-based infrastructures, and the ability to monitor and forecast them in a timely manner. The activity will focus on: i) expanding and improving theoretical models of the heliospheric environment and its dynamics; ii) studying innovative space architectures and developing payload breadboards for SWE monitoring missions; iii) developing software tools for SWE forecasting.

This presentation will describe how these goals will be addressed by the team from Italian Universities, Research centers, Industries and SME's involved in this project. Their expertise encompasses a wide variety of disciplinary areas, including Solar Physics, Space Plasma Physics, Geophysics, Astroparticle Physics as well as spacecraft operations and instrument development.