CONGRESSO NAZIONALE DI SCIENZE PLANETARIE
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Descrizione Sessioni Focus

Lo Space Weathering di corpi senza atmosfera, Convener M. Angrisani (INAF-IAPS/Università La Sapienza).

This session includes small bodies in the Solar System. Through observational and experimental studies, the Space Weathering effects (SpWe) are explored. Remote sensing is an essential approach to derive information on the nature of atmosphereless bodies. However, SpWe can confuse the interpretations of remote data, introducing a bias in their interpretation. Several experimental efforts have been made. Pulsed-laser irradiation has been employed to simulate micrometeoroid bombardment while ion irradiation with H^+ and He^+ has been used to simulate the major constituents of the solar wind. Irradiation induced spectral changes also in the profile and peak position for the 2.7–2.8 μm phyllosilicate feature. In addition, SpWe causes the development of microstructural and chemical characteristics in lunar soil particles including vapor and melt deposits, amorphous rims, and iron nanoparticles. Asteroidal SpWe studies can provide clues to understand the match and mismatch between asteroid taxonomical classes and meteorite classes. Interesting results were obtained by the Hayabusa mission (JAXA), that visited and returned samples from S-type asteroid Itokawa confirming the SpWe reddening and darkening of asteroids. The analysis of returned samples from asteroids Bennu (OSIRIS-REX mission) and Ryugu (Hayabusa2 mission) will improve our understanding of remote sensing data. Also, the proposed CALICO ESA mission that will perform in-situ investigation on Ceres, and the NASA Artemis mission for the MOON exploration will allow to understand how the SpWe operates across the solar system.

This session aims to highlight recent laboratory and remote data analysis that covers SpWe on bodies such as meteorites, asteroids, dwarf planets and Moon.