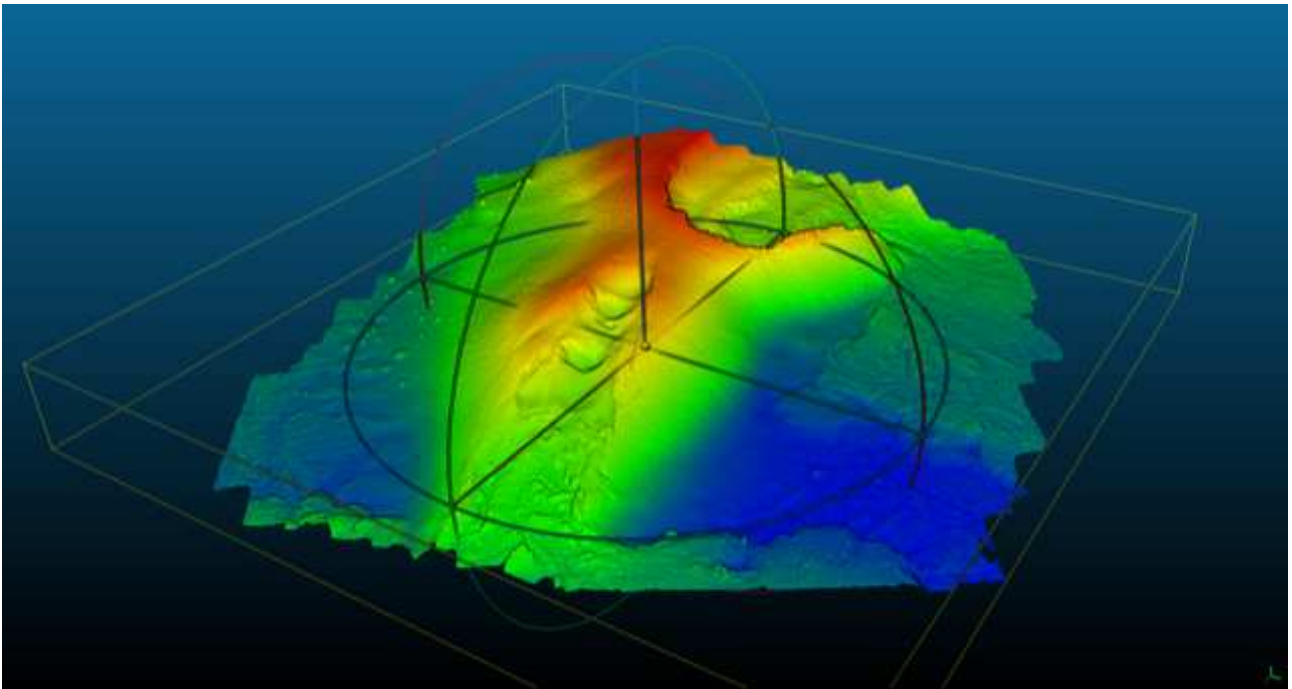


Close range remote sensing on volcanic fields

(Proposer: Matteo Massironi)

Close range remote sensing can be effectively applied on volcanic fields either using hyperspectral and photogrammetric acquisitions from UAV to characterize volcanic vents, lava flows and hydrothermal alterations or through LIDAR surveys for acquiring even hidden lava tubes. The HYPEREARTH consortium of the University of Padua has been recently acquired a hyperspectral spectrometer in the Visible and Short Wave Infrared wavelength ranges that can be applied on UAV or used as a laboratory device. The project aims at applying a combination of remote sensing techniques and geostructural analysis on Canarie Islands lava fields with the aim of characterizing one of the best volcanic analogue environments of Martian volcanic fields.



The PHD student should carry out his research in the field and in laboratory. In the field he/she will realize 3D digital outcrop characterization combining close-range photogrammetry, LIDAR and hyperspectral imaging on different environments. The laboratory activity will complement the field one and will be devoted to: 1) set up and calibrate a hyperspectral acquisition system using the field hyperspectral device, 2) characterize the geological materials sampled in the field through XRPD and Raman analysis, 3) acquire their spectral signatures in the VNIR, SWIR and TIR ranges, 4) provide geo-structural analysis to photogrammetry and LIDAR acquisitions even within lava tubes .

Collaboration: HYPEREARTH consortium members of the University of Padua; ESA-EAC staff involved at the PANGAEA-X field analogue activity

Funding: PANGAEA and contributions of HYPEREARTH consortium members.