Titre : Regional mapping and characterisation of shallow submarine hydrothermal system (Milos)

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Active volcanic Islands in the Eastern Mediterranean are potentially hazardous. These volcanic systems host hydrothermal activity with associated bacterial mats and hydrothermal edifices. Among the numerous known shallow water, near-shore hydrothermal systems, Milos one of the most extensive and accessible, and therefore an ideal laboratory to quantify submarine hydrothermal activity at a regional scale.
In this study we characterize the Milos hydrothermal field combining satellite imagery (WV2 images from the DigitalGlobe foundation), seafloor images from a light autonomous underwater vehicle (Sparus II University of Girona) and aerial takes from a drone. These images are correlated with field observation during dives (seafloor T°C measurements and geochemical sampling) for groundtruthing.
Satellite imagery constrains regional outflow geometry and the temporal stability of the Milos systems, that are visible owing to reflective mineral precipitates and/or bacterial mats at the seafloor, which are stable over years (Martelat et al., 2020). These outflows define a complex networks, organized locally as polygonal patterns likely associated with hydrothermal convection in porous media. Drone surveys are an affordable tool to monitor regularly the area, and document local variations at short time-scales (days to months), such as the destruction and recovery of bacterial mats (e.g., storms). While AUV mapping requires a more operation, it provides high resolution images (<1 cm resolution) over large areas. Integrating data at these different scales (Puzenat et al., 2020), we evaluate the diversity of hydrothemal seafloor features at the Milos fields (mineral precipitates, bacterial mats, bubbling pockmarks, hummocky structure), their geometry and relationships, and their evolution through time.

Martelat JE et al, 2020 Terrestrial shallow water hydrothermal outflow characterized from out of space https://doi.org/10.1016/j.margeo.2020.106119
Puzenat V et al, 2020 Integrated regional scale view of Milos submarine hydrothermalism https://doi.org/10.5194/egusphere-egu2020-11612

Mots-Clés : volcanic island, shallow water, seaflor mapping, hydrothermal activity

Merci de ne rien inscrire dans cette zone et ne pas modifier les marges des pieds de page et entêtes.