



SALTGIANT ETN – Early Stage Researcher in Integrated Stratigraphy and Basin Connectivity during Lago-mare – ESR 5

Title	Reconstructing Mediterranean water level and hydrological fluxes during the final phase of the Messinian Salinity Crisis
Duration	48 months
Expected start date	October 2018
Host Institution	Department of Earth Sciences, Utrecht University, Utrecht (Netherlands) - https://www.uu.nl/en/research/department-of-earth-sciences
Primary Supervisor(s)	Wout Krijgsman, Rachel Flecker, Paul Meijer
Objectives	<p>The proposed project will revisit the enigmatic Lago-mare interval and study the key sections on-land and in the deep sea (DSDP cores) on an E-W transect across the Mediterranean with a multi-disciplinary approach combining integrated bio-cyclostratigraphic analyses with high-resolution Sr-isotope records. The transition from hypersaline evaporitic facies (gypsum and halite) to fresh-brackish Lago-mare facies implies a huge hydrological change in the region. The Mediterranean water level during the Lago-mare phase is still subject to major controversy and both a largely desiccated and a relatively full basin are envisaged. Astronomical tuning of the sedimentary successions together with hydrological reconstructions will help to understand the paleoenvironmental variations in the basin that shows a progressive sequence of climate induced gypsum-marl cycles (Upper Evaporites of Sicily) towards brackish water deposits with fauna (mollusks and ostracods) originating from the Black Sea region. Strontium results will be coupled with salinity reconstructions through numerical models to obtain quantitative constraints.</p>
Expected results	<p>Reconstruction of the Mediterranean water level during the final phase of the Messinian Salinity Crisis with estimations of the hydrological fluxes from African rivers, Paratethys, and Atlantic Ocean. Reconstruction in time and space of the evolution and migration patterns of both brackish and marine water fauna during the time when the Mediterranean was largely restricted from the open ocean.</p>
Planned secondments	<p>S1 (months 19-20): University of Salamanca (Salamanca, Spain) (F.-J. Sierro for foraminifera-based bio-cyclostratigraphy of Lago Mare deposits); S2 (months 27-28): University of Bristol (UK) (R. Flecker for the Sr-isotope stratigraphy of Lago-Mare deposits).</p>
Specific requirements	<p>Completed MSc or Diploma degree in Geology, Geophysics, Geochemistry, Earth Sciences, or related fields. Willing to spend a significant amount of time at the University of Bristol (UK). Broad interest, knowledge and experience with field geology, paleogeography, geochemical/geophysical proxies, numerical modelling, and biostratigraphy/paleontology are preferred. Good social skills are essential.</p>
Keywords	Integrated stratigraphy, isotope geochemistry, paleoenvironment, hydrology, sea level change, numerical modelling
Application	Send application via : www.ipgp.fr/saltgiant

**For further
information**

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