

SEARCHING FOR THE ZANCLEAN MEGAFLOOD IN THE CENTRAL MED

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Context

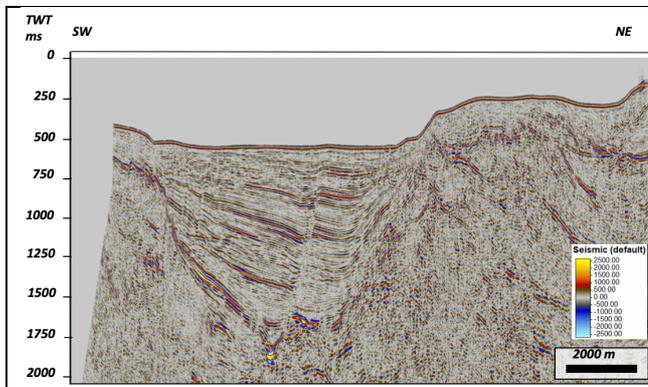
During the Upper Miocene, specifically during the Messinian time, from ca. 5.9 to 5.33 Ma ago, the entire Mediterranean region has been interested by a ca 1000-1500 m relative sea-level fall which triggered important erosional processes at the basin margin and a deposition of a thick layer of evaporites throughout the region. This period, known as the Messinian Salinity Crisis (MSC) has left some spectacular traces in the sedimentary record of the region characterized by deep incisions and in some places thick layer of salts and gypsums. These incisions were later filled with thick sequence of Pliocene deposits which were possibly associated, in the early stages with a megaflood processes associated with the devastating flood coming from the Atlantic waters entering the Mediterranean. Several authors, based on seismic data observed in SW Sicily, claim this megaflood passed in the Sicily and Tunisia channel but no clear evidence of this process have been yet found in the western part of Sicily.

Objectives and Methods

The objective of this MSC research is to reconstruct the evolution of this region during and immediately after the MSC event and specifically to search for evidence of the Zanclean megaflood in the Southern Sicily offshore. The research approach will include the generation of a 3D subsurface model of the erosional and infill signatures left by the MSC in the Sicily-Tunisian channel, through which the eastern and western Mediterranean basins are thought to communicate also at the time. To attain this objective, an integrated approach encompassing a large set of 2D seismic line interpretation and incorporation of well borehole data and onshore field geology data will be deployed.

Literature

Clauzon, G., 1982. Le canyon messinien du Rhone: une preuve decisive du "desiccated deep-basin model" (Hsu, Cita et Ryan, 1973). La Soc. Geol. Fr. 24, 597–610.
Micallef, A., Camerlenghi, A., Garcia-Castellanos, D. et al. Evidence of the Zanclean megaflood in the eastern Mediterranean Basin. Sci Rep 8, 1078 (2018). <https://doi.org/10.1038/s41598-018-19446-3>
Roveri M. and Manzi V. 2006 The Messinian salinity crisis: Looking for a new paradigm? Palaeogeography, Palaeoclimatology, Palaeoecology 238, 386–398



WEB sites

<http://unige.ch/ge-rgba>
<https://www.saltgiant-etn.com/>
<https://medsalt.eu/>

This MSC research project is part of two large European networks MedSalt and SaltGiant. The successful candidate will be therefore given the opportunity to attend seminars and conferences, possibly field trips organised in the context of this European Research project.

Choice of orientation :

1) Sedimentary, Environmental and Reservoir Geology