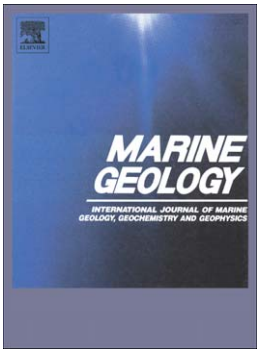

The Zannone Giant Pockmark: first evidence of a giant complex seeping structure in shallow-water, central Mediterranean Sea, Italy

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The Zannone Giant Pockmark: first evidence of a giant complex seeping structure in shallow-water, central Mediterranean Sea, Italy

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Abstract

An active giant pockmark located offshore Zannone Island (central Tyrrhenian Sea, Italy), is analyzed by very high resolution multibeam bathymetry, high resolution seismic profiles, ROV video observations, sediment and water sampling. The active fluid emission area is located on the outer shelf, between 110 and 130 m water depth, and affects the Late Quaternary lowstand and highstand deposits resting on rocky bedrock. A variety of fluid-escape features characterizes the area, including the Zannone giant pockmark, several smaller pockmarks, hummocky terrains and areas of positive relief. Ground-truth video data show active seepages, bacterial communities, widespread lithified pavements, mounds, and cone-shaped structures. Evidence of active seepage includes both continuous and intermittent bubble release from the seafloor and a well-defined plume rising 70 m above the seafloor.