



TECTONICS AND MUD VOLCANISM AT THE WESTERN MEDITERRANEAN RIDGE - BACKSTOP CONTACT

A. Rabaute, N. Chamot-Rooke and the DOTMED Team

Laboratoire de Géologie, Ecole Normale Supérieure - CNRS, Paris, France

Extensive long-range sidescan sonar coverage was carried out on the French research vessel l'Atalante during the MEDEE campaign in 1995. The survey covers the western Mediterranean Ridge offshore Peloponnesus and Crete, where accurate and detailed images of the backscatter intensity (reflectivity) of the seafloor were obtained as a set of 19 1:150,000 reflectivity maps. We analyze these maps in terms of high reflectivity patches, interpreted as argilo-kinetic manifestations, commonly known as "mud volcanoes", with the help of the high resolution morpho-bathymetric interpretation performed in this area. This high resolution survey allows to precise the location of previously recognized mud volcanism provinces, such as the Cobblestone area, offshore Peloponnesus, and the Pan di Zucchero area, forming the shallowest point of the Mediterranean ridge, halfway between Libya and Crete. This new exhaustive coverage reveals the existence of a major narrow mud volcanic belt extending for more than five hundred kilometres from Pan di Zucchero in the southeast, to the seaward extension of the Kephallonia fault in the northwest. The mapping further shows that the majority of the mud volcanoes are along active faults (mainly strike-slip) located right at the wedge-backstop contact. This tectonic contact is also the place of a major dextral shearing in relation with partitioning of the obliquity of the african subduction.