GIMS¹³
13th International Conference on
GAS IN MARINE SEDIMENTS
19th to 22nd September 2016 in Tromsø, Norway

ABSTRACTS
PART 2
Mapping seafloor features and benthic habitats in mud volcanoes of the Moroccan margin of the Gulf of Cádiz using ROV underwater images

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In March 2014, the Spanish R/V Sarmiento de Gamboa equipped with the Portuguese multi-operational Remotely Operated Vehicle (ROV) 6000 "Luso" explored eight mud volcanoes of the Gulf of Cádiz during the SUBVENT-2 expedition. The surveyed mud volcanoes were the known Mercator, Yuma, Bonjardim, and the unexplored Algacel, El Cid, Mysis, Las Negras and Madrid located on the Moroccan Atlantic margin at water depths between 350 and 1650 meters. In addition, bathymetric data were acquired using the Atlas Hydrosweep DS multibeam echo sounder and were processed with CARIS HIPS & SIPS yielding a bathymetric grid resolution of 15 m. The characterization of habitats and associated biota was based on high-resolution videos and captured photographic material with MAGIX software as well as samples collected with the ROV. The observation was done during scanning the sea floor by TV camera at the altitude of 1-5 meters above the seafloor at low velocity of approximately 0.2-0.5m/s.

Underwater images allowed characterizing the occurrence of cold seeps with different seafloor micro-features, habitats and associated biota. Chemosynthetic bacterial communities, mainly occurring as bacterial mats (e.g., sulfate-oxidizing cf. Beggiatoa sp.), were detected, sampled and related to active bubbling seeps in pochmark-like depressions of different sizes. Sediment mounds and methane-derived authigenic carbonates of different sizes (0.1-5 m length) were also detected in vent sites. Six different species of chemosymbiotic bivalves, including Lucinoma asaphus, Acharax gadirae, Solemya elarraichensis, Thyasira vulcolutre, Isorropodon megademasus and the deep water mussel Bathymodiolus mauritanicus displayed populations in the studied mud volcanoes. Hard bottoms with exhumated carbonate slabs seem to display a wider biodiversity and complexity, including large size sponges (e.g. Geodia, Phakellia), scleractinians (e.g. Caryophyllia, Corallium, Madrepora), gorgonians (e.g. Bebryce, Chelidonisis) and antipatharians (e.g. Stichopathes) as well as different mobile associated species. Habitat types of these mud volcanoes may be influenced by different oceanographic, sedimentation and venting processes resulting then in a broad biodiversity.

Acknowledgements: This research is a contribution to SUBVENT project (CGL2012-39524-C02, MINECO, Spain) and ATLAS project (EU, Horizon 2020). We thank the EMEPC Team for their professional work operating ROV-6000 "Luso".