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BIOLOGICAL ASSEMBLAGES OF THREE NEW MUD VOLCANOES ALONG DEEP-REACHING TRANSFORM FAULTS IN THE HORSESHOE ABYSSAL PLAIN (NE ATLANTIC)

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Previous work on the Gulf of Cadiz (S. Iberian Margin) has revealed several mud volcanoes sitting on the accretionary wedge and aligned along west-east trending transform faults. The source of fluids in these mud volcanoes is several kilometres below the seafloor and their geochemical composition indicates that they are affected, in different degrees, by oceanic crust alteration, implying that there is active flow connecting the oceanic basement and the seafloor. To date, such kind of hydrothermal circulation is only known for relatively young oceanic crust (< 60 Ma) and therefore the existence of a hydrological connection between old, sedimented oceanic crust and the seafloor is a phenomenon that may represent a (missing) link between hydrothermal vents at mid-ocean ridges and cold seeps at continental margins.

During the cruise M86/5 onboard RV Meteor, within the research program of SWIMGLO (PTDC/MAR/100522/2008), selected sites along the westward trending transform faults of the adjacent Horseshoe Abyssal Plain were investigated and three new mud volcanoes, Michael Ivanov, Abzu and Tiamat were discovered at ca. 4500 m depths on the lower continental rise. Initial findings showed the occurrence of chemosymbiotic metazoan hosts (*Acharax gadirae* and several *Frenulata* species) and a high diversity in meiofauna and macrofauna. Nematodes were particularly abundant but tanaids, amphipods, polychaetes and bivalves (Nuculanidae) were also well represented. An AUV survey further enabled mapping the distribution of *Frenulata* fields, bivalve shells and disturbed sediment patches on MV *Michael Ivanov*. The results are discussed in relation to previous knowledge on the Gulf of Cadiz seeps.