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Trace elements in pore water of Wagner and Consag basins, Northern Part of Gulf of California, México.

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TRACE ELEMENTS IN PORE WATER OF WAGNER AND CONSAG BASINS, NORTHERN PART OF GULF OF CALIFORNIA, MÉXICO.
Previous work reported a massive seepage with sediments rich in pyrite and barite in the study area. The study area is characterized by pockmarks, possible mud volcanoes and gas vents at depths around 65 to 150 m approximately. In this work we present the preliminary results of the chemistry of pore water collected during an oceanographic cruise (WAG-02)that was done at the ending of july 2010 on the Wagner and Consag basins of the Northern part of Gulf of California. Pore water plays an important role in aquatic system as mediator between the superficial sediment and bottom water. Pore waters were extracted by centrifuging the superficial sediments collected using a Smith McIntyre grab. The samples were filtered and acidified with nitric acid. The concentrations of trace elements (Ba, Si, Mn and Fe) were analyzed by ICP-MS. Additional organic and inorganic carbon content and grain size of the sediment were measured. pH values were around the neutrality ($\sim$7.5) and the samples presented electrical conductivity ($\sim$38 mS/cm) similar to seawater. Barium, silica, manganese and iron concentrations in the pore water (0.12-0.41 μmol/L, 0.42-0.97 mmol/L, 0.009-0.197 mmol/L and 0.8-89.6 μmol/L respectively) are slightly enriched respect to seawater but their concentrations are relatively low compared with those reported to hydrothermal vent fluids. The stations with highest concentrations of trace metals are located closely the Wagner and Consag Fault. The non natural presence of Mn and Fe in pore water should be attributed to terrigenous material transport as previous work reported in the Northern part of Gulf of California. The presence of barium and silica could be for several reasons such as highly productivity waters in the zone or dissolution of minerals. The geology and oceanographic characteristics in the region of the Wagner and Consag basin facilitated the accumulation of Ba, Si, Mn, and Fe elements. These studies could be complementary with the chemistry of sediment that is also part of this research project.