Variation of silica and diatoms in Wagner and Consag Basins in the North part of California Gulf, Mexico

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In this work we present preliminary results about the abundance and species richness of diatom in sediments related with the chemistry of pore water. The oceanographic cruise (WAG-02) was done at the end of July 2010 in the Wagner and Consag basins of the Northern part of Gulf of California. The study area is characterized by pockmarks, mud volcanoes and gas vents at depths of 65 to 150 m approximately [1].

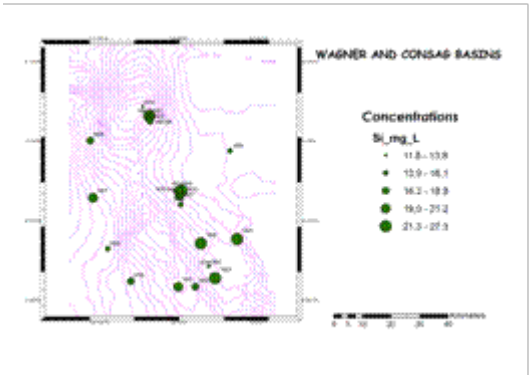

Figure 1: Spatial distribution of silica concentrations in pore water.

Discussion of Results

The presence of silica in the Wagner Fault could be high productivity waters in the zone, dissolution of minerals and the hydrothermal activity.

[1] Canet, C. *et al*. (2010) *Sedimentary Geology* **228**, 292–303. [2] Battarbee, R.W. (1986) 527–570.

Os isotopes in sulfides from xenoliths of the Campos de Calatrava Volcanic Field, Central Spain

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The Campos de Calatrava Volcanic Field (CCVF) comprises more than 200 volcanic centers with ultra-potassic to more Na-rich alkaline magmas that intruded the easternmost branch of the Hercynian Iberian Massif, in central-south Spain, ca. 8.7-0.7 Ma ago. Small lherzolite-wherlite xenoliths are embedded in pyroclastic deposits of volcanic centers. These xenoliths are spinel-bearing varieties; garnet is absent in the lherzolite suite. The presence of interstitial volatile-rich minerals (i.e. amphibole and phlogopite) and the distribution of trace elements in them suggest mantle metasomatism by subduction-related melts [1].

Fe-rich monosulphide solid solution (Fe-rich Mss) (<16.67 at% Ni) is the only sulphide present in the xenoliths. *In situ* LA-MC-ICPMS analyses reveal that sulfides included in primary silicates are Os-poor (<15 p. p. m.), making it difficult to obtain precise Re-Os isotope data. In contrast, sulfides sitting in open fractures or included in metasomatic silicates have higher Os contents (up to 89 p. p. m.). The Re-Os data show large variations in $^{187}Os/^{188}Os$ (0.1142-0.1241) and $^{187}Re/^{188}Os$ (0.02-0.12). T_{MA} and T_{RD} (Re depletion) model ages, compared with PUM at the present day, range from 1.0 to 2.3 Ga and from 0.75 to 2.1 Ga respectively. One grain has $^{187}Os/^{188}Os$ = 0.1270 and $^{187}Re/^{188}Os$ = 0.05; T_{MA} and T_{RD} are 0.4 and 0.35 Ga.

The differences in Re-Os systematics of sulfides reflect a probable metasomatism at 1 Ga ago. This metasomatic event is also recognised in Nd T_{DM} ages from spatially associated gabbros of the Hercynian orogen in central Spain (Fernández-Suárez *et al*. 2011).

[1] Villaseca, C. *et al*. (2010) *Geol. Soc. London Special Publ*. **337**, 125–152. [2] Fernandez-Suárez *et al*. (2011) *Lithos* doi: 10.1016/j.lithos.2010.09.010.