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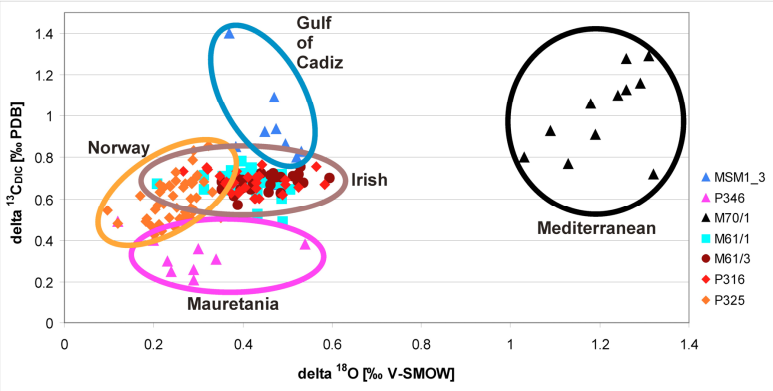
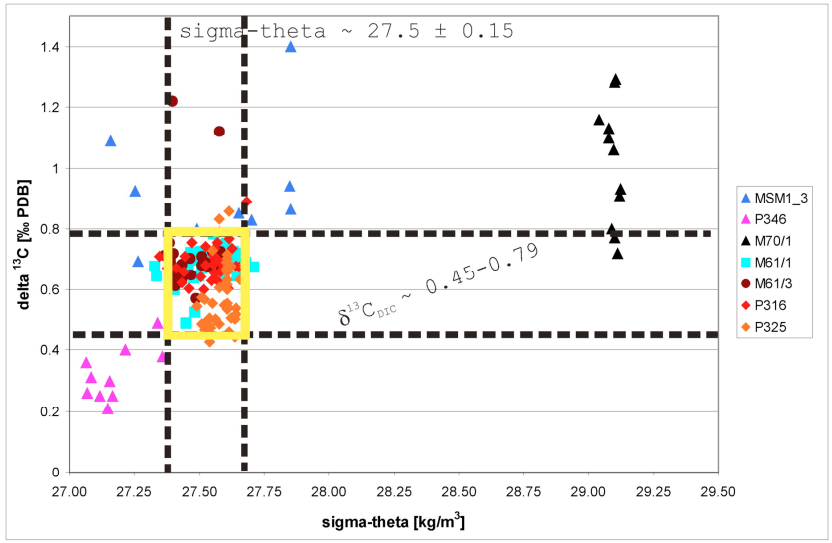
Start of project: 2011

OPOKA WATER
surface and intermediate water mass hydrography and chemistry in the Caribbean

Aim: Cold-water coral reefs show a global distribution in various depths of the oceans. This may indicate that the environmental boundary conditions for their distribution are almost unlimited. However, recent cold-water coral reefs thrive in very distinct water masses being characterized by a defined density envelope and obviously even by a distinct isotope signal of $\delta^{13}C$ and $\delta^{18}O$. This proposal focuses on the study of the stable isotopes of Carbon and Oxygen from the DIC as well as on trace elements in water samples from the Strait of Yucatan and the Gulf of Mexico.



$\delta^{13}C_{DIC}$ and $\delta^{18}O$ of bottom water masses from different Lophelia pertusa provinces.



$\delta^{13}C_{DIC}$ / sigma-theta data of measured bottom water samples clearly indicate a window of pristine cold-water coral reef communities highlighted by yellow rectangle.

Goals: characterize the geochemical water mass characteristics bathing the cold water coral reefs and to compare them with our data sets presently under research for the NE Atlantic.