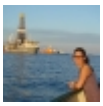
Serpentinization... Microbial life in high pH fluids [1]

Enviado por Melitza Crespo-Medina [2] el 10 octubre 2013 - 8:11am

 [2]

After an hour long hike through rocky trails we arrived at GOR, one of our study sites in Northern Italy and sampled the high pH fluids for chemistry and microbiology.

Serpentinization is the process in which the mineral olivine reacts with water and gets transformed to serpentinite. The process creates a high pH fluid enriched in electron donors and acceptors that can be used by microorganisms for food and energy source, although living in these serpentinizing fluids represent challenges to the cell.

The mineral olivine is abundant in ultramafic rocks, rocks that are representative of the uper mantle. At Ophiolites these ultramafic rocks are uplifted and are exposed obove sea level in continents. Thus, serpentinization can ocurr at the sea floor, but also at these continental ophiolites.

Our lab studies serpentinization processes at seafloor and at continents. The most common example of seafloor serpentinization is that that occurs at the Lost City Hydrothermal Field in the Mid Atlantic Ride. On continents, we have different sites. I recently visited our study site in Northern Italy. It was an amazing experience. I frequently visit our main study site in the Coast Range Ophiolite, were we have a microbial observatory and a series of wells that we drilled to have access to the more pristine serpentinizing fluid.
