

## PhD Position in Carbonate Sedimentology

### Summary of the project:

The open PhD-position frames within the SNF-funded (Swiss National Science Foundation) project 'Unconventional Carbonate Factories in the Eastern Mediterranean: cold-water coral ecosystems and seeps'. The open PhD-position will focus on the impact of dynamic fluxes of methane on (1) authigenic carbonate precipitation and (2) the diagenesis of cold-water coral build-ups. This study will characterize the imprint of microbial-mediated diagenesis (precipitation of secondary mineral phases and the formation of authigenic carbonates) steered through methane seepage in the eastern Mediterranean. The skeletons of coral fragments and sediments subject to continuous methane-mixed fluids will be monitored for several weeks in a bio-reactor to understand aragonite dissolution and authigenic carbonate precipitation mechanisms. Monitoring will be done in 4D by using X-ray computer tomographic techniques. Besides experimental lab set-ups, sediment cores from the Palmahim Disturbance Zone and Erathostenos Seamount will be characterized to understand the spatial variation of diagenesis (mineralogy, sedimentary petrography, stable isotopes, trace elements and lipid biomarkers). The sulfate-methane transition zone in sediment cores will be traced to explain the role of methane fluxes through the sediments by advanced pore-water analyses. Authigenic carbonate crusts will be characterized (mineralogy, sedimentary petrography, stable isotopes, trace elements and lipid biomarkers) and dated to understand the processes and timing of their formation.

**Duration:** 4 years

**Starting date:** As soon as possible (preferentially Summer 2018)

### Required qualifications:

- University degree (Master) in geosciences, biogeochemistry, or related technical fields
- Experience in experimental lab techniques and/or CT-scan techniques are of advantage
- Sedimentological knowledge is desirable
- Interest to develop and improve experimental lab set-ups and instrumentation
- Good English language skills
- Enthusiasm to work in an international and multidisciplinary team
- Interest and enthusiasm to participate in field expeditions at sea

### Tasks:

- Responsible for the follow-up of reactor experiments in the lab and data analyses such as foreseen within the PhD-study
- Publication of results in renowned international scientific journals
- Participation in group meetings
- Presentation of results at conferences and international congresses
- Contribution to teaching activities within the field of sedimentology

The deadline for applications is June 15<sup>th</sup> 2018. The call is open till the position is filled. Applications include (1) a cover letter outlining experience and expertise relevant to the project + motivation to start a PhD-study (2) a complete CV including a list of publications, (3) at least one letter of recommendation. Applications should be sent to Prof. Dr. Anneleen Foubert. Further information can be obtained by contacting directly Prof. Dr. Anneleen Foubert ([anneleen.foubert@unifr.ch](mailto:anneleen.foubert@unifr.ch)).

**FACULTY OF SCIENCES**  
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