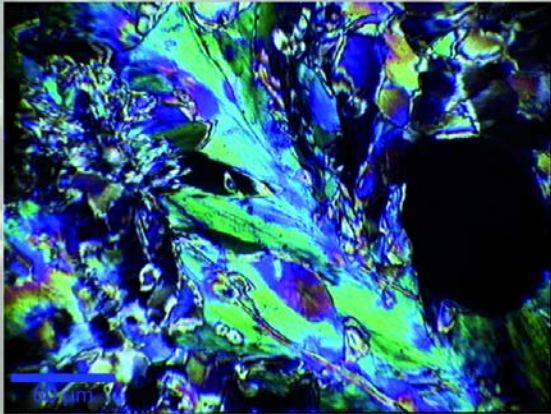
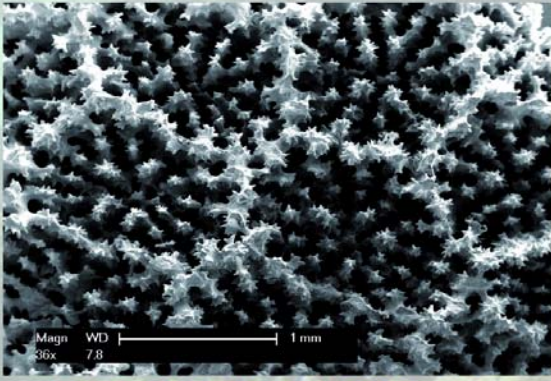


Coral reefs from colony level to the microstructure - Art forms of nature



Photos: Scanning electron microscope image of coral polyps (upper image), the microstructural features of the skeleton viewed under cross-polarized light microscope (lower image). (©M.Wall)

Coral reefs are famous for their analogy to tropical rain forests with regard to their diversity and productivity. Coral calcification – the basic process of reef framework production - is highly dependent on a constantly stable environment (e.g. temperature, aragonite saturation state) but in such regions build beautiful complex ecosystems. However, reports accumulate showing that reefs are highly threatened by direct impacts (e.g. overfishing, changed land-use, eutrophication). Besides they are increasingly confronted with global-scale stressors due to climate change - ocean warming and acidification. These factors are responsible for a decrease in coral survival, growth and framework development in particular when certain thresholds are exceeded.

Within my PhD thesis I study the potential of corals to develop a carbonate reef framework under the impact of natural short-term disturbances, which decrease both temperature and pH. Beside the overall reef framework I am looking at coral skeletons, which are known to record environmental conditions. The focus of my investigations are structural properties such as density examined in the light of natural disturbances. Additionally, I am studying the arrangement of microstructural skeletal elements to get a better understanding of their three-dimensional growth pattern.

Marlene Wall, *Glomar PhD student*