Progress Report for Award OCE-99819147

Work utilizing the funds from this award were initiated with the start of a new student at RSMAS, Brad Rosenheim

1. Field Work: During August 1999 Dr. Swart, Brad Rosenheim, and Philippe Willenz spent 14 days at the Discovery Bay Marine Laboratory. During this period we stained specimens of sclerosponges, deployed temperature recorders, and collected specimens of sponges for geochemical analyses. We also arranged for water samples to be collected at monthly intervals for determination of oxygen isotopic composition and trace and minor element chemistry.

2. Sampling: Sampling has started on sclerosponges collected from numerous different depths in the Bahamas. These samples will be analyzed for the carbon and oxygen isotopic composition. The goal of this work will be to ascertain whether (1) there is a detected signal which can be used to reconstruct depth profiles, (2) the reproducibility of isotopic signature in skeletons of sclerosponges.

3. Samples collected from Jamaica and from the Bahamas have been sent to Jim Rubenstone for dating. An adequate chronology is essential for all aspects of this work. Dr. Rubenstone is being supported by a sub-contract from the University of Miami grant.

4. We have sent a sample of a sclerosponge from the Bahamas to a colleague for the analysis of the trace and minor element composition using the laser ICP-MS probe. This sample has been analyzed at a resolution of 1 sample every 30 μm. Preliminary correlations look very promising.

5. We have upgraded our device which is designed to measure fluorescence in coral skeletons. This will be used to analyze the pattern of banding in the skeletons of sclerosponge.

Future Planned Work

1. Stable isotopic analysis of water samples collected from Discovery Bay

2. Continued isotopic analysis of samples described above.

3. Continued work on the origin of banding in sclerosponge skeletons.

4. During the year 2001 we will revisit Discovery Bay to collect sample which were stained as well a temperature recorders. These samples will be analyzed for the isotopic composition in order to ascertain the ability of the sclerosponges to record the isotopic signatures in the sclerosponges.