

Calcium carbonate was measured by weight loss after acidification by 2.5 N HCl (Gross, 1971). Organic carbon was analyzed by a wet-oxidation technique with a back-titration of the excess oxidizing agent (Gaudette et al., 1974). Biogenic silica was measured by dissolution in a hot 1% Na<sub>2</sub>CO<sub>3</sub> leaching solution (DeMaster, 1981).

The techniques for measuring calcium carbonate and organic matter have been improved since the Quinault Canyon days, whereas the analytical technique for measuring biogenic silica is essentially the same (DeMaster, 1981). The best way to measure organic matter in a sediment is to take dried sediment (100 degrees C) and leach/soak it with 0.5M HCl overnight (at room temperature). Rinse it with DI water a few times and dry the sediment again at 100 degrees C. If you are not too concerned about the absolute amount of calcium carbonate in your sample, you can assume that the entire weight loss following acidification is due to CaCO<sub>3</sub> dissolution. If you want more accurate calcium carbonate abundances, you can acidify a known weight of bulk sediment and collect the CO<sub>2</sub> given off on a LECO carbon analyzer (and convert it to weight of CaCO<sub>3</sub>). To measure the organic carbon content of the sediment, take 100 mg of the acid leached dried sediment and burn it in a CN analyzer, which will measure the carbon dioxide given off during combustion. It will also give you the ratio of C<sub>org</sub> to N<sub>org</sub> in your organic matter, which is useful in understanding the source of the organic matter (i.e., terrestrial versus marine origin). Here at NCSU I would routinely capture the CO<sub>2</sub> from the CN analyzer (from the sediment burn) and trap the CO<sub>2</sub> in a glass ampule and send it to the Woods Hole Accelerator for C-14 analysis. This was the approach that I used on all of our Mekong Delta work.