

Poster Session : All Disciplines (Abstracts P1-P32)  
Tuesday, April 16, 2013 8:50 AM - 10:30 AM, SSC Ballroom

**Contrasting Biogenic Silica Concentrations in the  
North and South Atlantic**

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Diatoms, one of the most important bloom-forming phytoplankton groups in the ocean, depend on silica for growth and formation of their skeletal material. We measured the concentrations of biogenic silica (<51 $\mu$ m size fraction collected by in-situ filtration) from the U.S. North Atlantic Geotraces cruise, and the Great Calcite Belt (GCB) cruise in the South Atlantic. Biogenic silica concentrations were estimated using a mild alkaline leach procedure followed by standard spectrophotometric detection. Shallow samples (<1000m) were leached for 1 hr; deep samples (>1000m) were leached in a 3-hr time-series to correct for contributions of lithogenic silica. We analyzed the biogenic silica of <51 $\mu$ m suspended particles from the shallow (<1000m) casts of 11 Geotraces stations, and from the deep (>1000m) casts of six of those stations. Samples from all GCB stations analyzed (n=4) were from depths less than 1000m. The results from this study were used to aid in obtaining the full description of particle composition in the North Atlantic (Geotraces) and aid in understanding the role of ballast minerals in controlling the biological pump in the South Atlantic (GCB). The data obtained confirmed that biogenic silica in the North Atlantic in October is extremely low as compared to the South Atlantic. We also tested a weak acid (0.1N HCl) pre-leach of particle samples to test whether the removal of oxyhydroxides prior to the alkaline leach increased its effectiveness, as has been shown for some sediments. We found that the acid pre-leach did not increase the effectiveness of the alkaline leach.

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