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Dear Colleague,

I am writing to announce an effort to establish a set of reference seawaters for Si isotope analysis of silicic acid. The goal is for all laboratories to use the reference waters in quality control as a means to evaluate sample preparation biases.

Currently all laboratories are standardizing Si isotope measurements to NBS-28 and many use Big Batch and Diatomite as secondary standards to evaluate machine performance. However, all of these materials are solids and the methods used to prepare them for analysis differs from those used for seawater. Hence we currently have no way of controlling for sample preparations biases for seawater samples that arise within a laboratory or among laboratories over time. Reference seawaters of known isotopic composition would allow us to account for these effects. This effort has been endorsed by the International GEOTRACES Standards and Intercalibration Committee.

The need for reference water has been discussed among several investigators (Damien Cardinal, Kate Hendry, Martin Franck, Patricia Grasse, Per Andersson) and their universal support inspired a move forward. In collaboration with the HOT time series program I have collected two large volumes (40L each) of seawater from station ALOHA located in the north Pacific subtropical gyre. Sample depths were chosen so that the samples contain 10  $\mu\text{M}$  and 100  $\mu\text{M}$   $\text{Si}(\text{OH})_4$ . The low concentration water would be amenable to pre-concentration using MAGIC or other means, while the high concentration sample would not need pre-concentration. In this way we can capture the full range of variation in sample preparation protocols. The water has been filtered, the  $[\text{Si}(\text{OH})_4]$  measured and we have dispensed it as 50 mL aliquots in polypropylene screw cap tubes. The tubes came with racks that make it easy to ship tubes in groups of 25. We have over 500 tubes of each sample so this material will last awhile.

To use these waters the marine Si isotope community needs to establish a consensus  $\delta^{30}\text{Si}(\text{OH})_4$  value for each sample. I am hoping that you will be willing to participate in analyzing these samples and sharing your results. Once we establish a consensus value, we would seek to publish our results thereafter we can all use these samples as reference waters in our future work. I anticipate that we would publish a paper on our collective results with all participants as co-authors.

To establish a consensus value for each sample it is recommended that each laboratory make 3 preparations of each sample and analyze each preparation in at least triplicate. This is a minimum recommendation and additional preparations and replicates are welcome. Each laboratory should use their own best practices for sample preparation. A target date for returning result to me at UCSB would be eight months from the time you receive subsamples samples.

I propose sending a rack of 25 tubes of the high and of the low concentration waters to all participants. More would be available in the future upon request. There is no charge for the samples per se. They are free upon request, but unfortunately I cannot cover the cost of shipping for everyone. This is completely unfunded effort and I am hoping that you will be willing to share in the cost. Please contact me at the email below and we can arrange shipment.

Thank you for considering this request. Success will benefit our collective efforts well into the future.

Best regards,

Mark Brzezinski



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