Tropical Climate Variability & Coral Reefs

Ishi-B SPP2299: *PORITES* CORAL SOLUTION REFERENCE MATERIAL

For non-commercial research purposes only

Production

The solution was made in the GEOMAR clean lab facility by dissolving >30 micron grains of a *Porites* coral collected from Ishigaki Island, Japan (Okai et al., 2002), step wise in weak double distilled boron free HNO_3. Solutions were centrifuged and the supernatant added to an acid cleaned 2L PFA bottle, diluted with weak double distilled boron free HNO_3 and stirred for a few weeks with a PFA coated magnetic stir bar. The solution was sampled with an acid cleaned syringe through cleaned PFA tubing and around 120 aliquots were bottled in one day into acid cleaned 15mL LDPE bottles.

Use Guidelines

The solution is approx. 19000 ppm (µg/g) Ca in HNO_3 with a pH of 1

Dilute the stock to a working solution closer to or at the usual Ca content that is routinely measured in your lab and run the solution like samples.

Run multiple times with other coral reference materials when possible (JCp-1, e.g. Hathorne et al., 2013, and NIST RM 8301coral, Stewart et al., 2021).

Report the element/Ca data as the mean and standard deviation of the (n = x) measurements of Ishi-B and the same for the other coral reference materials if available.

Over the course of different analysis days this is considered the *external* or more correctly the *intermediate precision* (Magnusson and Örnemark, 2014) of your analyses. Reporting the mean value will allow those using your published data to account for any inter laboratory offsets.

For Sr/Ca and Mg/Ca just report the values associated with the particular data in a paper and data set, i.e., give the mean and SD of the Ishi-B SPP2299 obtained during these measurements.

For more novel element ratios like Li/Mg, B/Ca, Mn/Ca, Cd/Ca, Ba/Ca, the Rare Earths, Pb/Ca and U/Ca please measure 5 separate dilutions on different days and report these results with the template provided available here (https://www.spp2299.tropicalclimatecorals.de/ishi-b-spp2299/). These data will be used to prepare a publication with all contributors as co-authors.

The Ishi-B SPP2299 *Porites* coral solution reference material has been prepared for use within the DFG (German Research Foundation) Priority Programme “Tropical Climate Variability & Coral Reefs” (SPP 2299) as well as by the wider international scientific community. The SPP 2299 programme aims to improve our understanding of tropical marine climate variability and its impacts on coral reef ecosystems in a warming world by using novel geochemical and isotopic tools applied to coral skeletons, along with advanced statistical methods and earth system modelling (https://www.spp2299.tropicalclimatecorals.de/).

If you have questions or results to share please contact Dr. Ed Hathorne (**ehathorne@geomar.de**)

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