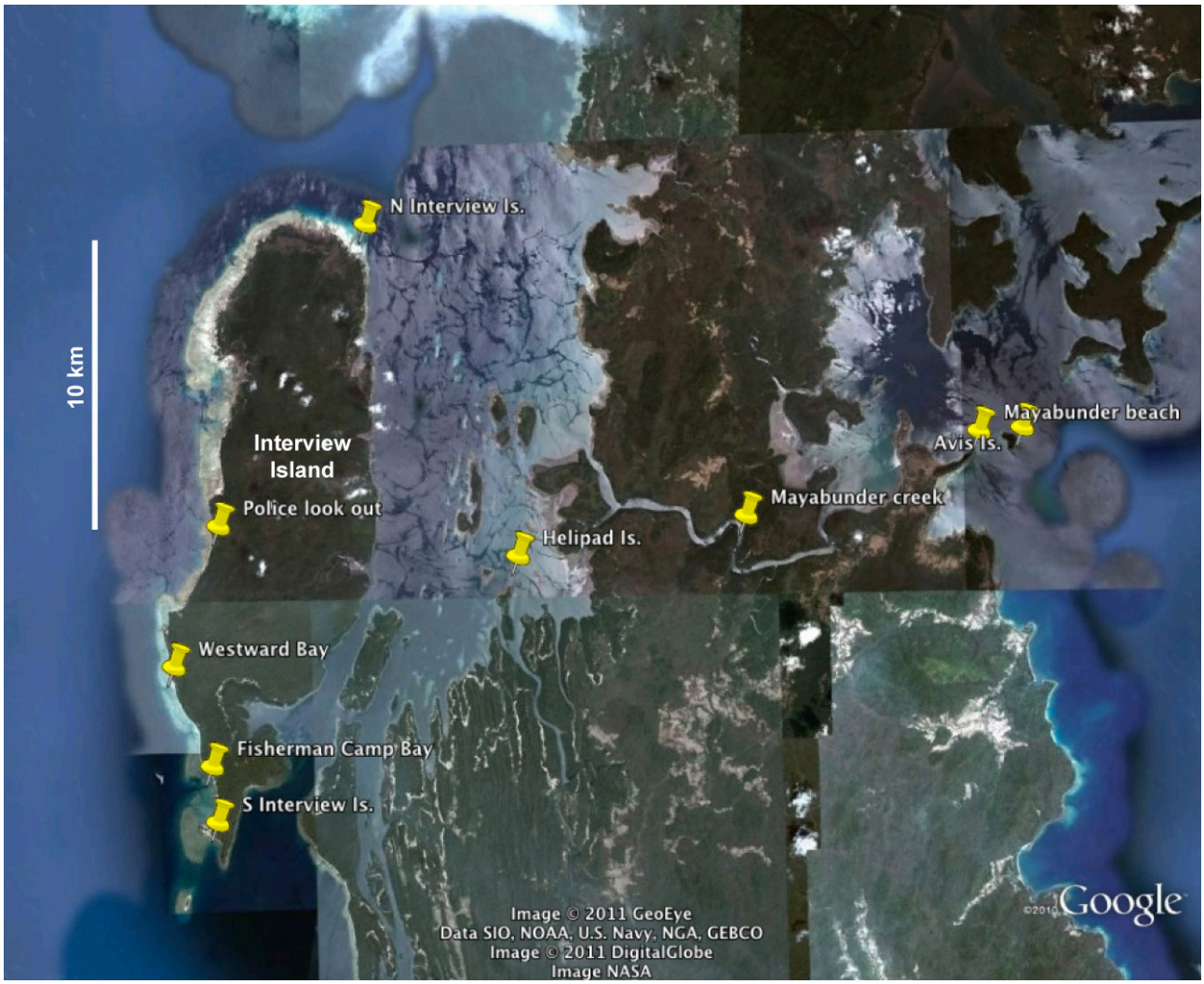
Supplementary Information

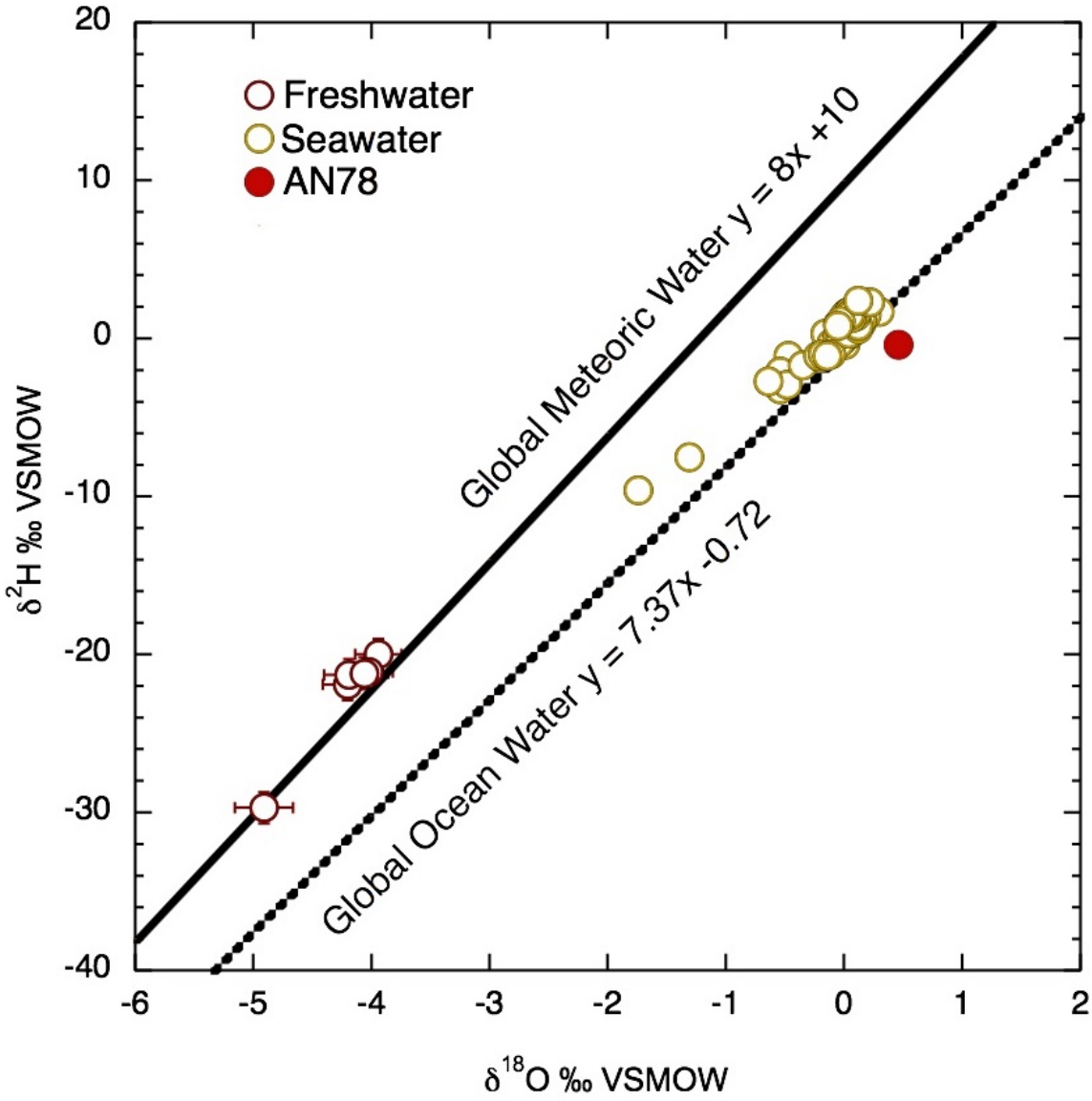
Hathorne E.C., Frank M. and Mohan P.M. (2019)

Rare Earth Elements in Andaman Island Surface Seawater: Geochemical Tracers for the Monsoon?

Front. Mar. Sci. 6:767. doi: 10.3389/fmars.2019.00767



Supplementary Figure 1. The location of samples from the Mayabunder region shown on satellite images from Google Earth



Supplementary Figure 2. The hydrogen and oxygen isotope composition of fresh and salty waters from the Andaman Islands measured by isotope ratio infrared spectroscopy (IRIS) at the University of Erlangen, Germany. Error bars (±2 sigma) are plotted for the freshwater samples and are based on repeated measurements of an in-house standard over approx 6 months. The Global Meteoric Water line is after Craig (1961) and the Global Ocean Water line is from Rohling (2007) using data compiled in Schmidt (1999).

The IRIS analyser used was a L 1102-i WS-CRDS (Picarro Inc., Santa Clara, CA, USA). All values are reported in the standard δ-notation in per mil
(‰) vs. VSMOW according to

$$\delta = (R_{sample}/R_{reference} - 1)$$

where R is the ratio of the numbers (n) of the heavy and light isotope of an element (e.g. n(18O)/ n(16O)) in the sample and the reference (Coplen, 2011). Twenty (20) sequential injections of each sample were measured and raw data were corrected for sample-to-sample memory. The reported value is the mean value. The data sets were corrected for instrumental drift during the run and normalised to the VSMOW/SLAP scale by assigning a value of 0 ‰ and –55.5 ‰ (δ18O) / 0 ‰

and -427.5 ‰ (δ2H) to VSMOW2 and SLAP2, respectively (Brand et al., 2014). For normalisation two USGS reference materials (Unites States Geological Survey Stable Isotope Laboratory, Reston, VA, USA), which were calibrated directly against VSMOW2 and SLAP2, were measured in the run. External reproducibility based on repeated analyses of a control sample was better than 0.1‰ and 0.5‰ (±1 sigma) for δ18O and δ2H. A detailed description of the analytical procedure is given in van Geldern and Barth (2012).

References

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