



*Geochemistry, Geophysics, Geosystems*

Supporting Information for

**Evolution of the oceanic  $^{13}\text{C}$  Suess effect in the Southeastern Indian Ocean between 1994 and 2018**

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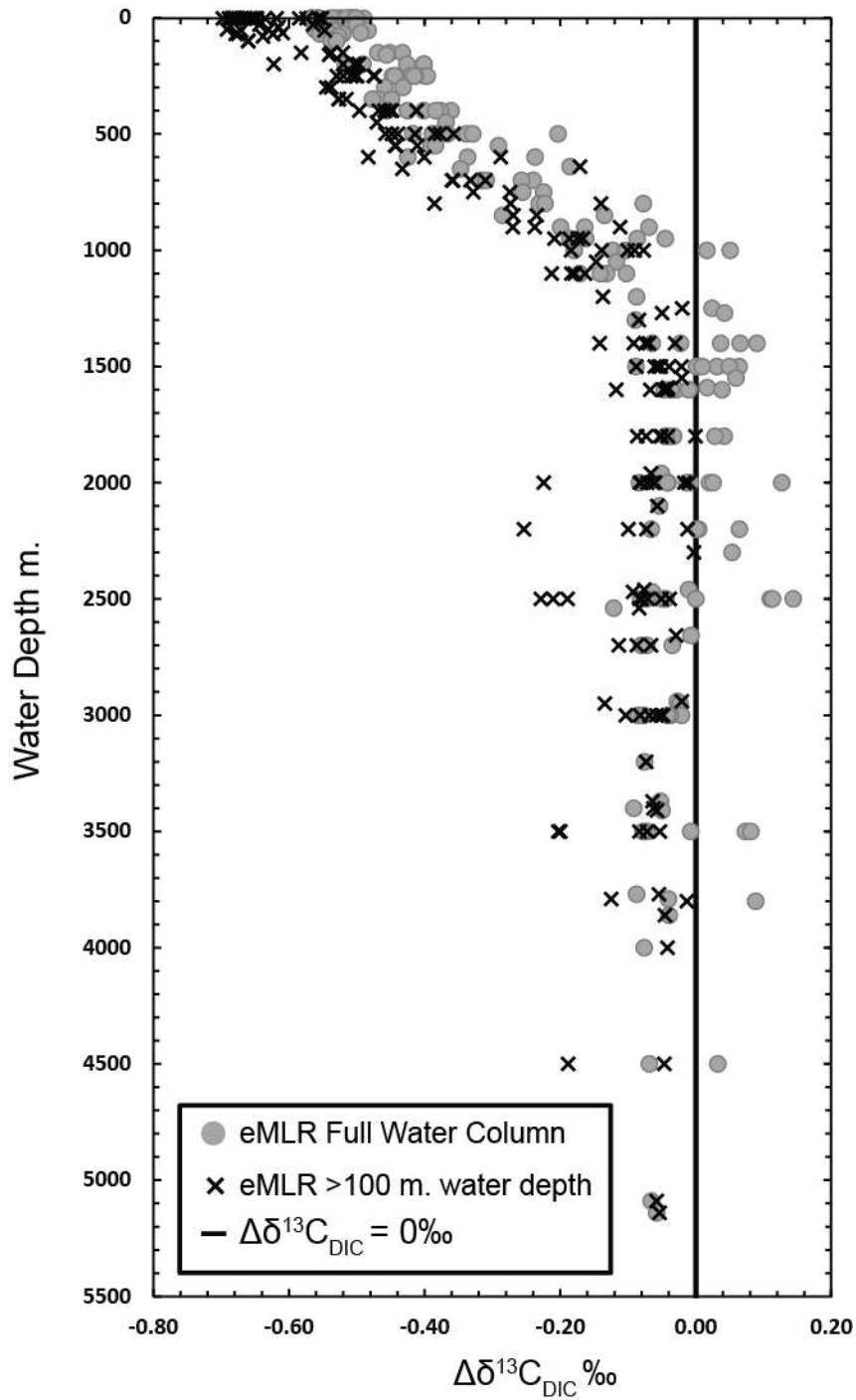
3 Department of Marine and Coastal Sciences, Rutgers University

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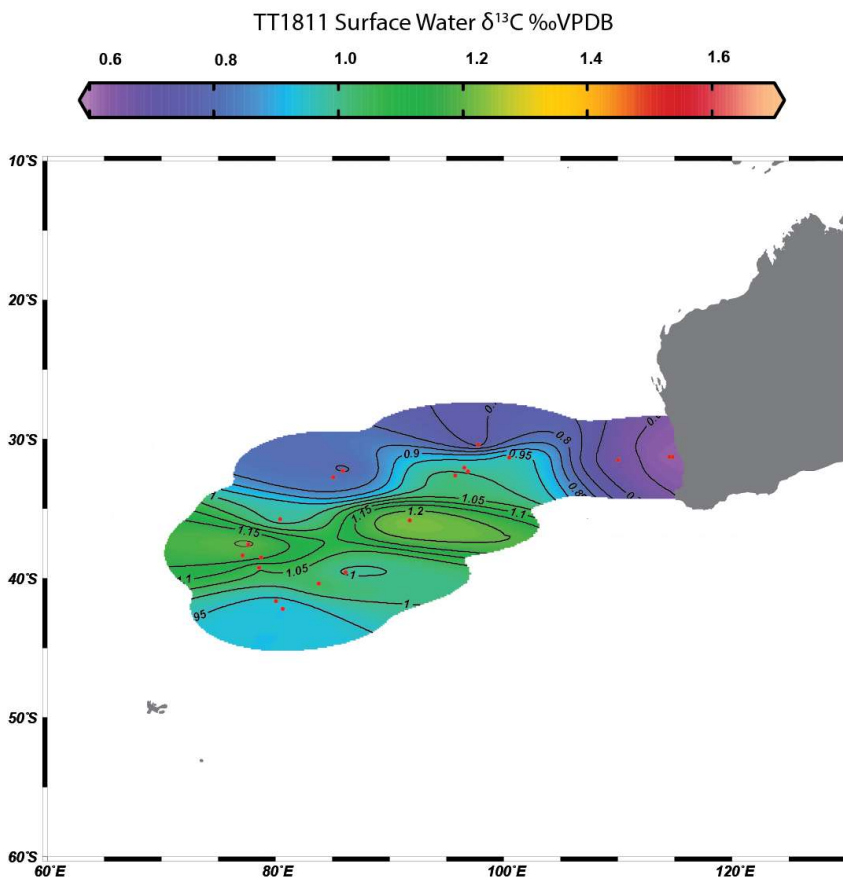
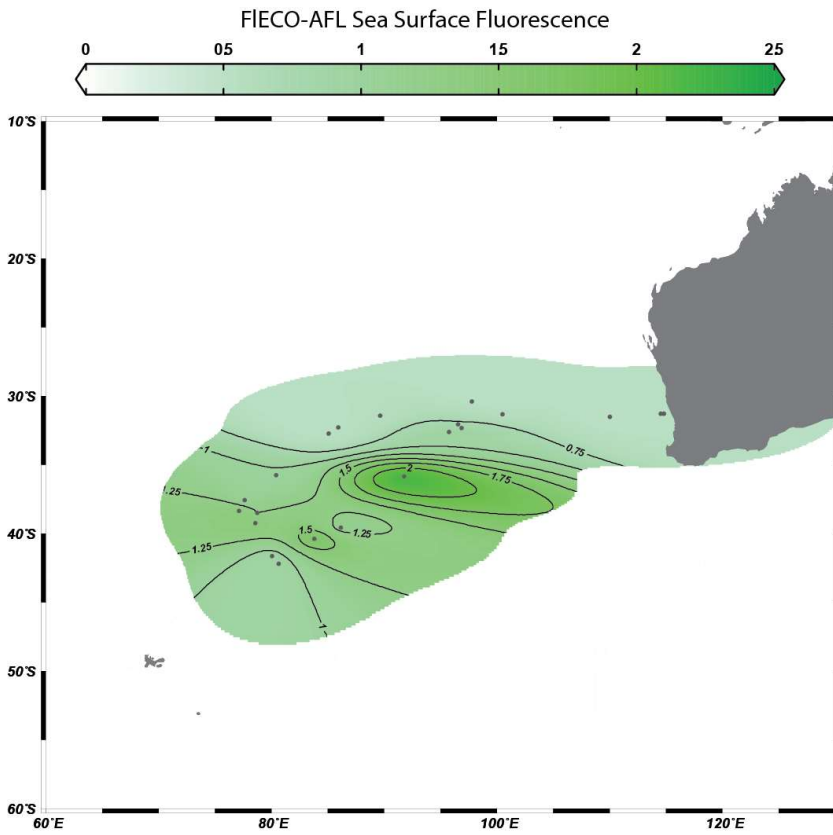
Figures S1 to S3

**Introduction**

Supplementary figures providing additional context, as discussed in main manuscript.

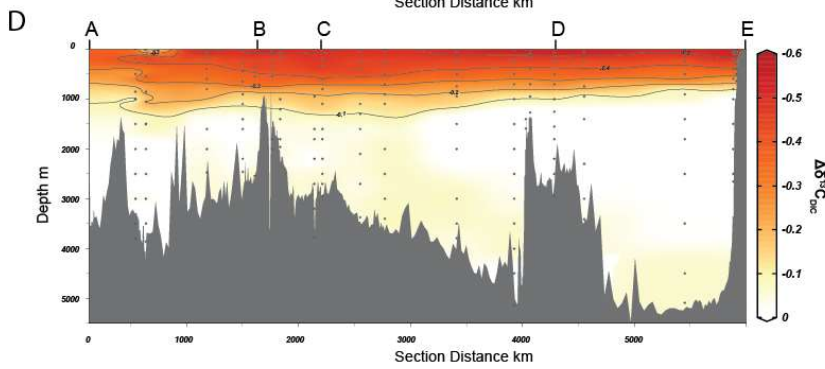
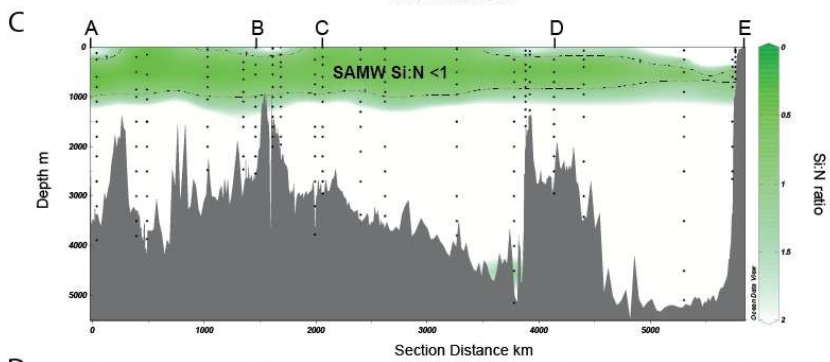
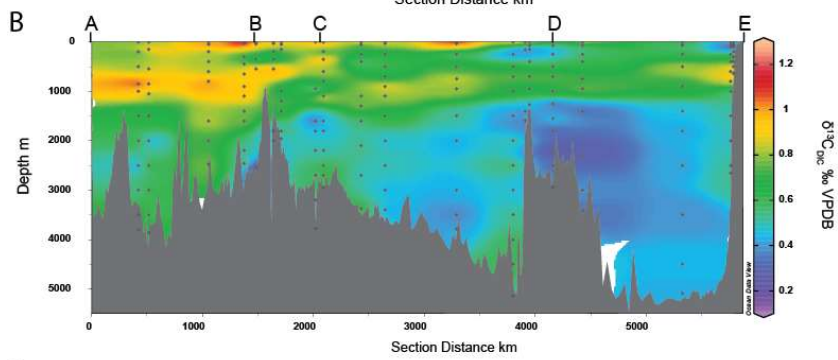
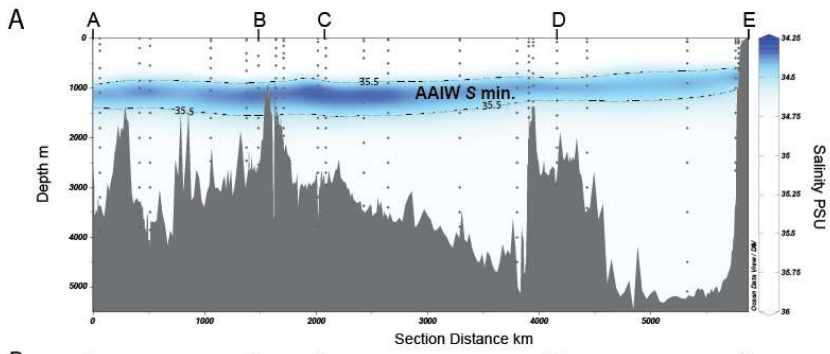
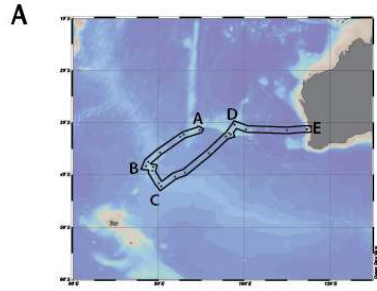


**Figure S1.** A comparison of CROCCA-2S  $\Delta\delta^{13}\text{C}_{\text{DIC}}$  modelled using an MLR technique which utilizes data from the full water column (grey circles) with an MLR technique which excludes data from the upper 100 m. of the water column. Excluding the upper 100 m. leads to a greater offset from zero at depth.



**Figure S2.** CROCCA-2S CTD probe surface water fluorescence data (upper panel) and  $\delta^{13}\text{C}_{\text{DIC}}$  data (lower panel). Fluorescence is an indicator of seawater chlorophyll content. Fluorescence

and  $\delta^{13}\text{C}_{\text{DIC}}$  maxima coincide, within the region of the Subtropical Front. Figure produced using Ocean Data View (Schlitzer, 2019).



**Figure S3.** Cross sections showing the depth of **(a)** the salinity minima used to identify the core of Antarctic Intermediate Water, **(b)** the distribution of  $\delta^{13}\text{C}_{\text{DIC}}$ , **(c)** the depth of the Si:N nutrient ratio  $\leq 1$ , an identifier for the core of SAMW, and **(d)** the distribution of  $\Delta\delta^{13}\text{C}_{\text{DIC}}$ . The subsurface maxima in  $\delta^{13}\text{C}_{\text{DIC}}$  values occurs within AAIW, while the  $\Delta\delta^{13}\text{C}_{\text{DIC}}$  maxima, and therefore the greatest oceanic  $^{13}\text{C}$  Suess effect, are found within SAMW. Location of cross section shown in map; figure produced using Ocean Data View (Schlitzer, 2019).