Land–sea correlations in the Australian region: 460 ka of changes recorded in a deep-sea core offshore Tasmania. Part 2: the marine compared with the terrestrial record

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SUPPLEMENTARY PAPERS

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Supplementary papers

Figure S1. Satellite image of part of southeastern Australia and Tasmania showing the plankton bloom occurring east of that island thought to be caused by the ubiquitous *Emiliania huxleyi*.

Figure S2. CTD profiles down to 3000 m for site 150° E, 44° 15' S adjacent to the GC3 core site and a bit deeper. (A): Mean annual temperature and salinity versus depth. (B): Plots of mean annual nitrate, phosphate and silicate versus depth.

Figure S3. CTD plots down to 500 m for site 150° E, 44° 15' S adjacent to the GC3 core site for temperature, salinity, nitrate and silicate for the four seasons.

Figure S4. Satellite image of a large portion of the southern hemisphere showing the typical frontal systems that pass over the southern portion of Australia and the associated cloud systems.

Figure S5. Plot of the percentages of selected dominant ostracod species recovered in the upper 200 cm [= 220 ka BP] of the GC3 core.

Figure S6. Plots of SST estimates for GC3 using radiolarians (black line and dots) for discrete intervals for which abundant radiolarian taxa were recovered. (A) for three horizons in the Holocene also compared against the instrumental record, and (B) for MIS 12 and its transition into MIS 10 for five samples.

Figure S1. Satellite image of part of southeastern Australia and Tasmania showing the plankton bloom occurring east of that island thought to be caused by the ubiquitous *Emiliania huxleyi*. These blooms are often associated with eddies generated by the East Australia Current when it extends far south in summer bringing warm, nutrient rich waters. Image downloaded from http://earthobservatory.nasa.gov/NaturalHazards, date unknown.

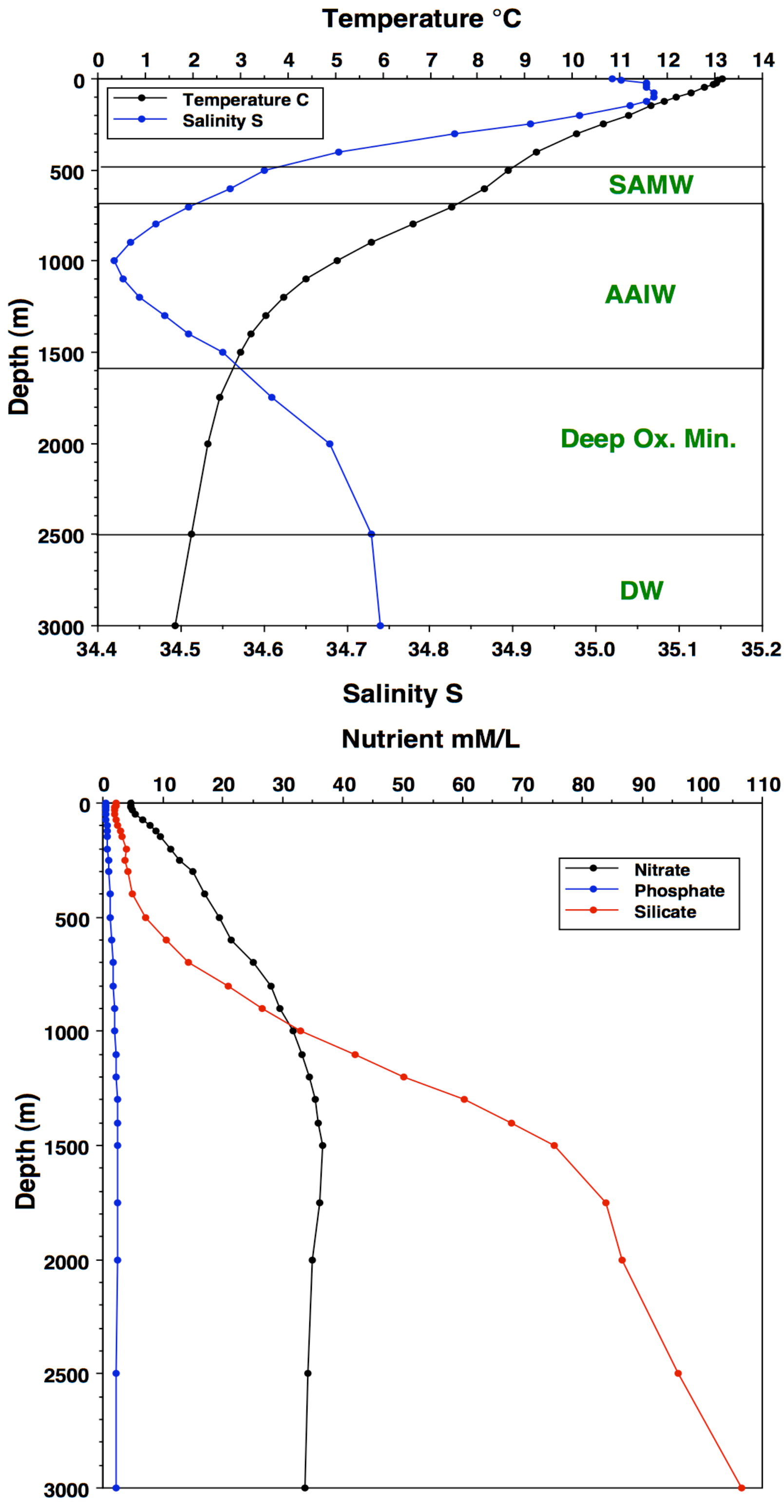

Figure S2. CTD profiles down to 3000 m for site 150° E, 44° 15' S adjacent to the GC3 core site and a bit deeper. Data obtained from the World Ocean Atlas 2009. (A) Mean annual temperature and salinity versus depth. Note the position of the various water masses are indicated. Upper water mass consists of a mixture of EAC water and water from the Southern Ocean that mix during various seasons depending on the position of the Subtropical Convergence (also called Subtropical Front) and the strength/ weakness of the EAC; SAMW, Subantarctic Mode Water; AAIW, Antarctic Intermediate Water. Deep Ox. Min., Deep Oxygen Minimum; DW, Deep Water [for further information, see text]. (B) Plots of mean annual nitrate, phosphate and silicate versus depth.

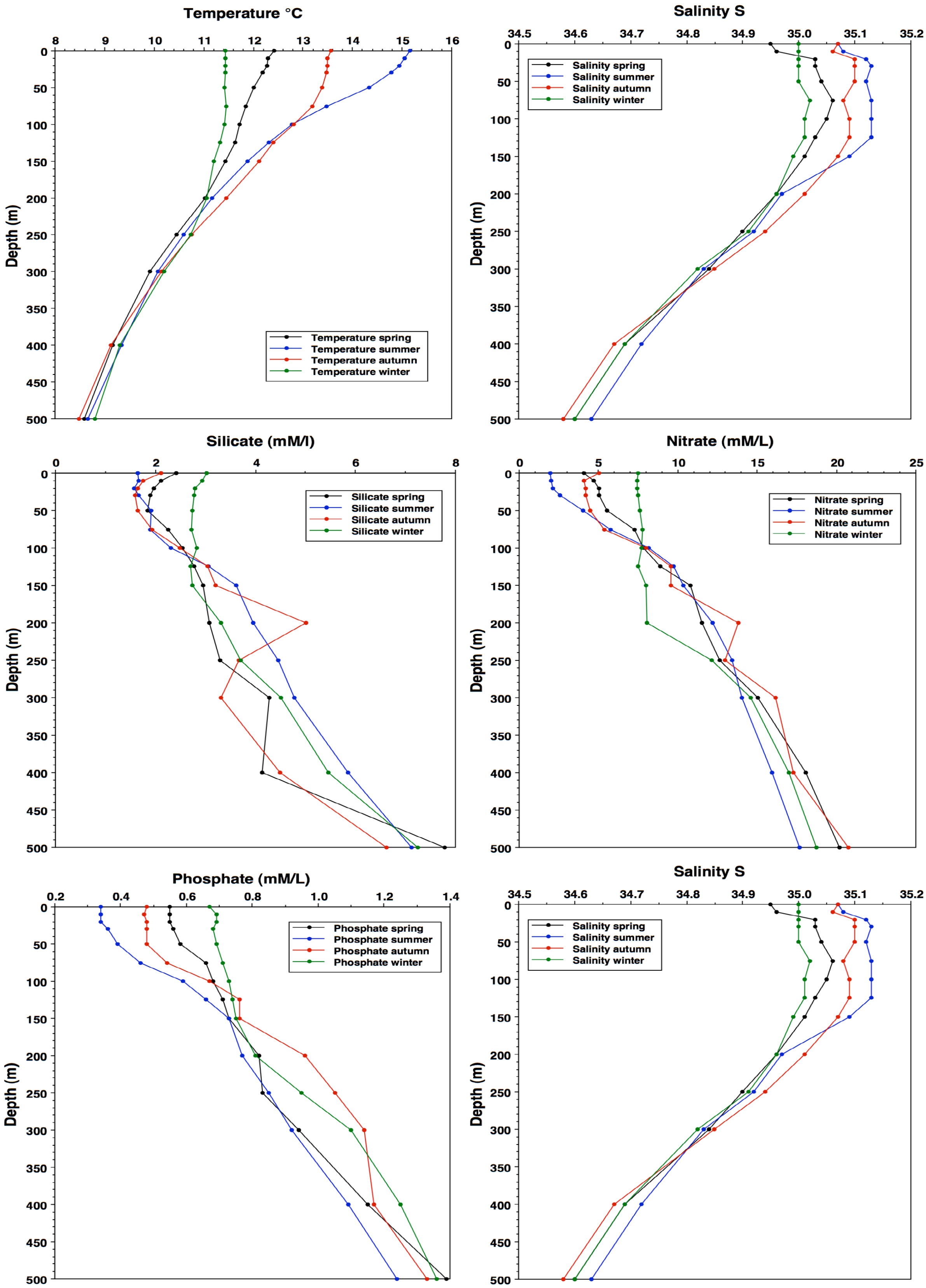

Figure S3. CTD plots down to 500 m for site 150° E, 44° 15’ S adjacent to the GC3 core site for temperature, salinity, nitrate and silicate for the four seasons. Today the thermocline occurs at ~200 m water depth and it is clear that the waters are depleted in silica and nitrate in the upper noticeable by the temperature and salinity increases in summer.

Figure S4. Satellite image of a large portion of the southern hemisphere showing the typical frontal systems that pass over the southern portion of Australia and the associated cloud systems. The fronts move from west to east and can help generate dust uplift that will travel over the Australian mainland and eventually extend over the Tasman Sea and Southern Ocean. For more details refer to text. Image downloaded on March 11, 2016 from http://earthobservatory.nasa.gov/IOTD/view.

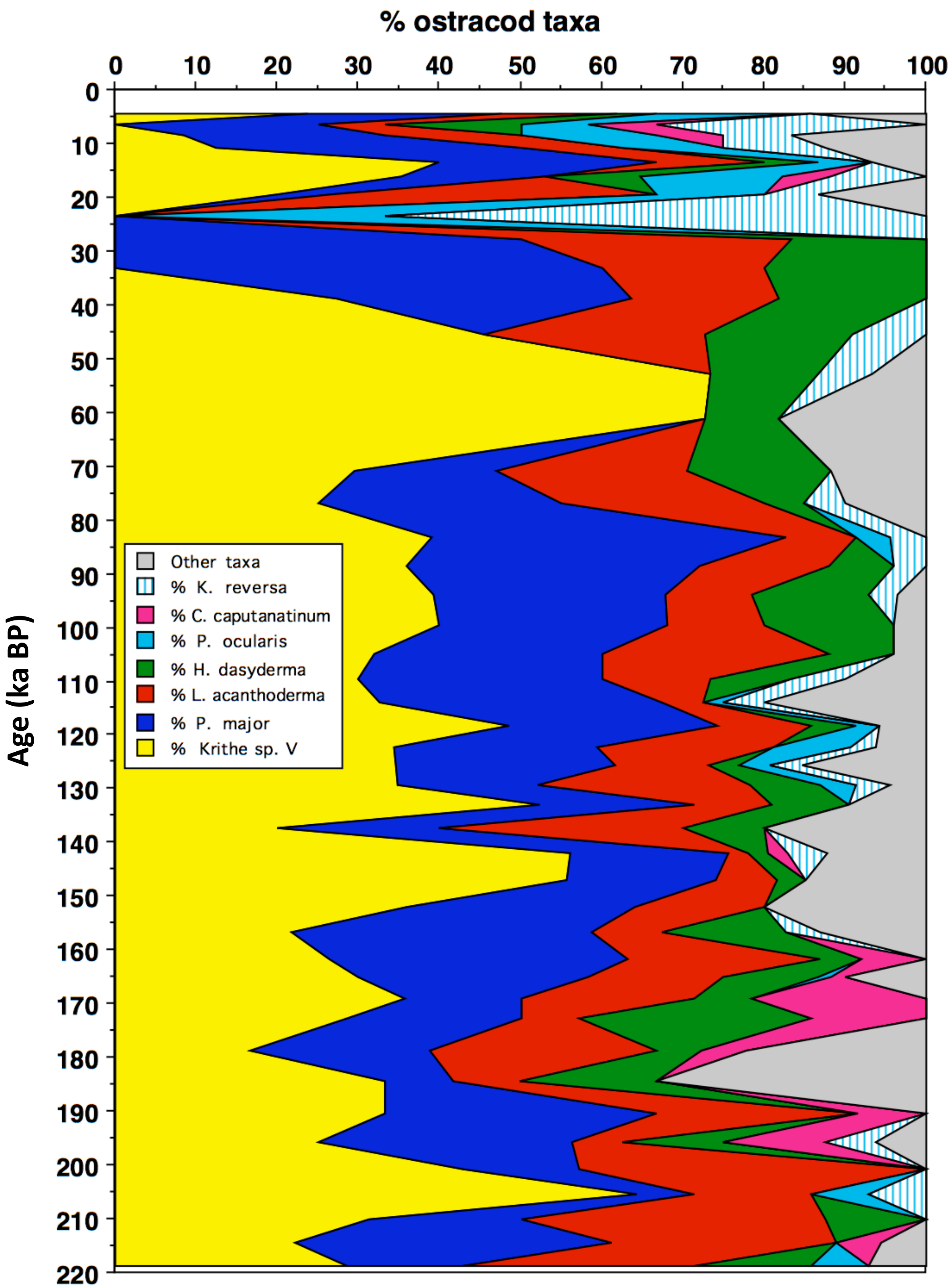

Figure S5. Plot of the percentages of selected dominant ostracod species recovered in the upper 200 cm [= 220 ka BP] of the GC3 core. All the species other than the dominant ones are represented together in the uncoloured group on the right of the diagram. Note that some of the percentages, even high, are represented by only a few specimens per gm of sediment.

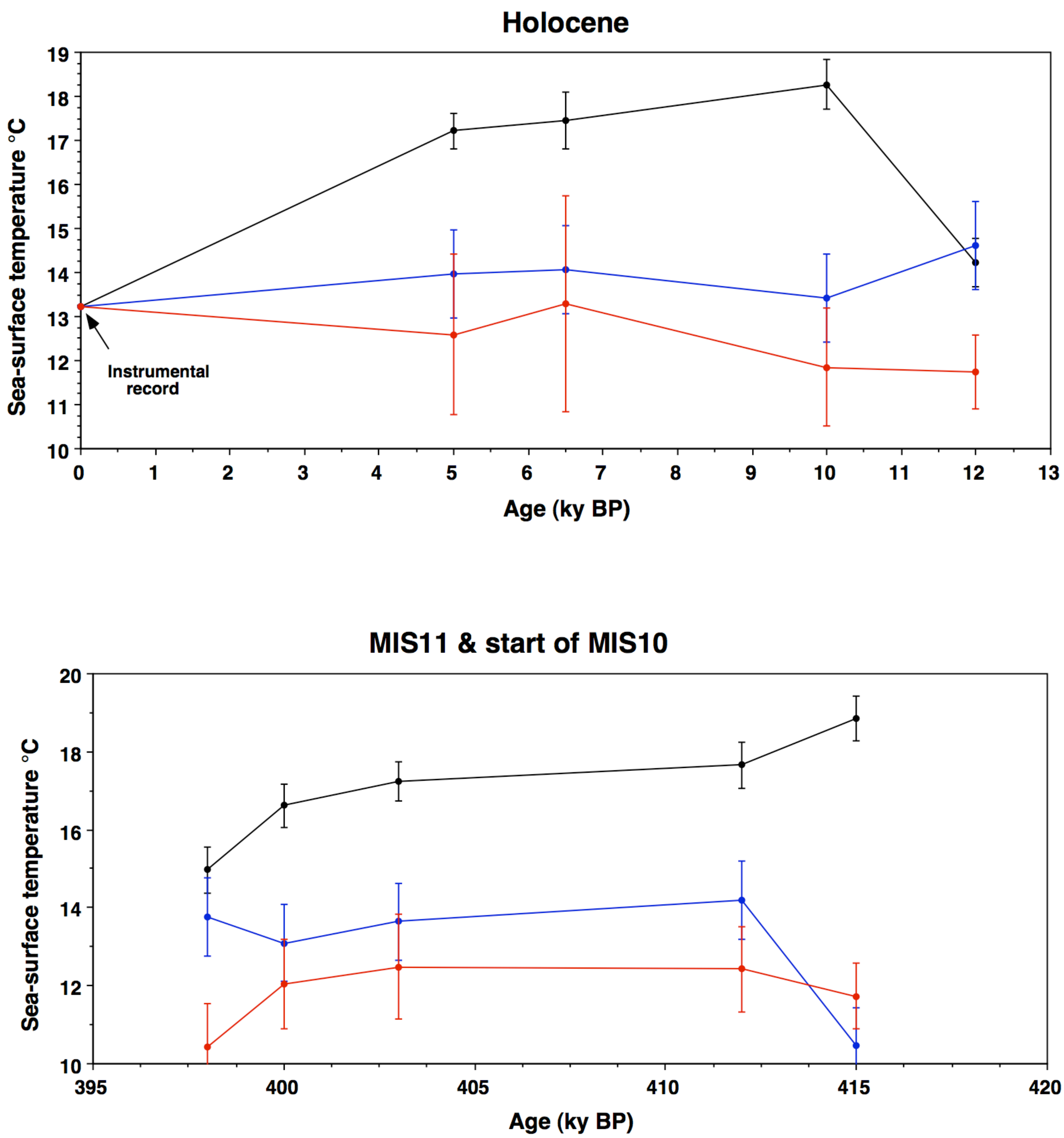

Figure S6. Plots of SST estimates for GC3 using radiolarians (black line and dots) for discrete intervals for which abundant radiolarian taxa were recovered. (A) for three horizons in the Holocene also compared against the instrumental record, and (B) for MIS 12 and its transition into MIS 10 for five samples. The SST plots are compared against SST reconstructions using foraminifera (blue line and dots) and alkenones produced by calcareous nannoplankton (red line and dots). Vertical bars for each sample show the standard deviation of errors.