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| ***SST Proxy*** | ***Environment Reflected*** | ***Corrections Needed*** | ***Potential Biases*** |
| ***Alkenone*** *(Uk’37)* | Although alkenone-derived temperatures generally reflect annual mean SST temperature, in the North Pacific region they are representative of summer/early fall SST, coincident with coccolithophore blooms (Pagani et al., 2002; Haug et al., 2005; Caissie et al., 2010; Bae et al., 2014). | None | A) TemperatureUk’37 records are often warmer and less variable than Mg/Ca temperatures (Laepple and Huybers, 2013; Leduc et al., 2010; Nürnberg et al., 2000), some of which may be accounted for by depth corrections (see Mg/Ca); B) Anoxic sediments favor alkenone preservation, such that degradation in oxic environments may result in apparent temperature increase (Gong and Hollander, 1998; Hoefs et al., 1998). |
| ***δ18Op*** | The planktic foraminifera from which δ18O are derived are most abundant in late summer (Jonkers and Kučera, 2015), with species *G. bulloides* calcifying at 30-50 m, and *N. pachyderma* reflecting environments from 30 m to as deep as 200 m. | δ18Ocalcite reflects temperature, ice volume & salinity at calcification depth, all of which are variable in the region. Thus regional records of δ18Oseawater have been made using the nearest paired δ18Ocalcite and temperature (Uk’37 or Mg/Ca) record. This "correction" is applied to all neighboring un-paired δ18Op records, with the remaining δ18Ocalcite assumed to represent temperature, derived by the Shackleton (1974) equation. | A) specifies-specific calibrations have not been applied, despite demonstrations differences in species δ18Op (Bemis et al., 2002); B) Spatial homogeneity is assumed in δ18Oseawater for neighboring cores; C) No effect of carbonate ion, not accounted for by described corrections, has been accounted for. |
| ***Mg/Ca*** | Mg/Ca derived from planktic foraminifera represents late summer temperatures at 30-200 m. | Mg/Ca temperatures based on the shells of *N. pachyderma* have been corrected to alkenone SST, by a constant +5 C offset, based on findings in the Sea of Okhotsk (Alderman, 1996) | A) Mg/Ca may also reflect a salinity signal (Hönisch et al., 2013; Lea et al., 1999); B) No effect of [CO32-] has been accounted for (Lea et al., 1999; Russell et al., 2004). |