Process length of dinoflagellate cysts as salinity proxy

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In this presentation we will discuss the application of process length variation of dinoflagellate cysts to reconstruct salinity. Two species have been the focus of intensive morphological study: *Lingulodinium polyedrum* and *Protoceratium reticulatum*. Study of cysts from global surface sediment show a relation to both salinity and temperature, and distinct differences in the calibration of open ocean sites vs. marginal/landlocked sea sites. On the other hand size of cysts is not related to salinity/temperature variations, but rather to variations in productivity. Furthermore, molecular data shows differences between strains of *Protoceratium reticulatum*, whereas no differences are recorded for *Lingulodinium polyedrum*. We will show that despite these complications, process length variation can still be used to reliably reconstruct salinity, using examples from the Baltic Sea and Black Sea.