

Effects of mid-Holocene river runoff on the Arctic ocean-sea ice system: a numerical study.

Shift in ENSO teleconnections recorded by a Red Sea coral.

Arctic Oscillation signature in a Red Sea coral.

Potential influence of astronomical and solar variations on decadal and centennial climate variability.

<http://www.palmod.uni-bremen.de/kihzm/modellierung/>

Assimilation of sea surface temperatures in coupled atmosphere/ocean models by flux correction optimization: Sea surface temperatures (SSTs) can only be reconstructed at locations where sedimentary cores have been obtained. Thus the data are sparse and not very suitable to be used as boundary conditions for atmosphere-only or ocean-only models. On the other hand, coupled models do not need SST data but exhibit the problem of unknown flux corrections for the paleoclimate. We are developing an inverse ocean surface model which enables the assimilation of sparse SST data to estimate the flux correction for coupled model runs. Atmosphere modelling with accelerated boundary conditions: For long transient model runs over several thousand years, only models with a simple coarse resolution atmosphere component can be used due to the high computation expense of state-of-the-art atmosphere models. The coarse resolution renders any comparison to small scale data more difficult, yielding the need for massive upscaling. We are planning to perform comparatively high resolution global atmospheric simulations under accelerated boundary conditions. The acceleration enables long model runs with acceptable computation expense, on the cost of the temporal resolution of the results. However, for many model data comparisons, the spatial resolution of the model is much more critical than the temporal.