



## **Combined Assimilation of GEOSAT, TOPEX/Poseidon and tide gauge reconstruction data into a global OGCM**

M.Wenzel, J.Schröter

Alfred-Wegener-Institute for Polar and Marine Research (Manfred.Wenzel@awi.de)

The global sea level is exceedingly reacting on variations of the climate. A warming of the world ocean or the melting of large continental icesheets for example would lead to a sea level rise that would affect directly a large part of mankind. These effects are reasonable well understood on the global scale but they are still uncertain on regional or even local scale. For the period of the TOPEX/Poseidon altimetric measurements Wenzel and Schröter (2006, 2007) showed that the sea level trends vary substantially in space and time and that they are closely associated to heat and salt anomalies in the ocean. But longer time-series of the global distribution of sea level variability are needed to confirm these results because the climate-induced decadal and secular sea level changes may be concealed by seasonal, annual and interannual variations, which may act as noise masking long-term trends. One step in this direction is to utilize data from the GEOSAT altimetric mission (1987-1989) in combination with the TOPEX/Poseidon data (1993-2000). Both datasets will be assimilated into the global ocean circulation model. Additionally informations from a global sea level reconstruction from tide gauges are employed to overcome the problem with the unknown reference for the GEOSAT data. By doing this the data gap between GEOSAT and TOPEX/Poseidon can be filled in a dynamically consistent manner.