



Is Baltic Sea level rise accelerating?

Birgit Hünicke and Eduardo Zorita

GKSS Research Centre, Department of Paleoclimate, Geesthacht, Germany (eduardo.zorita@gkss.de)

Several studies have attempted to identify a possible acceleration of the global sea-level rise in the 20th century. The impacts of sea-level rise on the coast in the future will, however, occur at regional scales. Coastal engineers and planning authorities require projections of future sea-level rise at these local and regional scales. The Baltic Sea is a region strongly influenced by isostatic rebound from the last deglaciation, with the Earth crust in the Northern Baltic rising at roughly 10 mm/year and in the Southern Baltic sinking at about 1 mm/year. Time series of sea-level measured by coastal gauges thus display strong linear trends due mostly to isostasy. The values of these trends form the basis for sea-level rise projections related to coastal protection, with a rough estimate of possible sea-level rise of caused by climate change added to the isostatic trends.

In this contribution we analyse long sea-level timeseries from four coastal tide gauges in the Baltic Sea with the aim to identify accelerations indicative of a climatic contribution to Baltic Sea-level rise and thus help refine the estimations of Baltic Sea level rise in the future. The analysis is based on the estimation of gliding linear trends through the records and its comparison with simultaneous trends derived from reconstructions of global sea-level (Holgate, 2007; Jevrejeva et al, 2006) for the 19th and 20th century and with satellite data for the last few decades.