



Model-based clustering of sea-level

M. Scotto (1), S. Barbosa (2), and A. Alonso (3)

(1) Departamento de Matemática, Universidade de Aveiro, Portugal (mscotto@ua.pt), (2) Faculdade de Ciências, Universidade do Porto, Portugal, (susanabarb@gmail.com), (3) Departamento de Estadística, Universidad Carlos III, Spain, (andres.alonso@uc3m.es)

Time series clustering based on forecast densities is applied to the analysis of the regional variability of Baltic sea-level in terms of future relative heights. Time series of relative sea-level heights from long tide gauge records are clustered on the basis of forecasts at 3-months and 6-months horizons. For 3-months horizons, the results of the cluster analysis show a fairly spatial coherency in terms of grouping together locations from the same sub-basin, with the northern records in the Bothnian Sea and Gulf of Finland clustering together, followed by the tide gauges in the Baltic proper and lastly the southernmost stations in the western Baltic. For 6-months horizons, the results show a higher degree of homogeneity between different locations, but a clear separation between the stations at the Baltic entrance and the tide gauges inside the Baltic basin.