



## **Inter-decadal sea level variations in 1950-2002**

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Inter-decadal sea level variations are analysed in the interval 1950-2002 using 117 tide gauge stations globally distributed. The analysis is done globally and regionally around Europe. Monthly de-seasoned sea level heights are low-pass filtered to focus on signals with a period of more than 5 years. Dominant spatial and temporal variations are estimated by decomposition of the tide gauge data time-series by Principal Component Analysis on both global and regional areas. Coherent regional signals are identified and used to characterise regionally the inter-decadal sea level variability.

An empirical model of inter-decadal sea level variations for the North Atlantic and the adjacent European Seas based on two hydrodynamical models and Topex/Poseidon altimetry is compared to thermo-steric height variation and improved to better fit selected tide gauges data. In the Mediterranean Sea a model of interdecadal variability is constructed based on thermo-steric heights and tide gauge data.