



## **KLIWAS – Project 1.03: Atmospheric and Oceanographic Reference Data and Climate Projections for Coastal and Open Sea Areas**

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KLIWAS is a research program of the German Federal Ministry of Transport, Building and Urban Development (BMVBS) to investigate the potential consequences of climate change for navigation on inland and coastal waterways and to formulate appropriate strategies for adaptation to the changed environmental conditions in the future. The objective of project 1.03 is the evaluation and assessment of climate model results by means of a comprehensive reference database and to make this data available for subsequent projects.

Like the ICOADS, the archive of the National Meteorological Service (DWD) is a regularly updated, quality controlled, world-wide data set of synoptic observations over the oceans, including VOS (Voluntary Observing ships), drifting and moored buoy, lightvessel, platform, and gts data. In addition to the automated set of programs applied for high quality control, erroneous data are also manually corrected. In the following, the corrected data are gridded to a resolution of 2.25 degree, so each grid box includes 4 ERA40 Reanalysis grid points, to assure reliable statistics. The temporal coverage of the grid boxes depends on shipping routes and the positions of automated systems, as well as on the resolution of the grid itself. Therefore, no area-wide climatology is possible.

Observations, covering a period of 40 years (1961-2000), show noticeable differences to the Reanalysis data in yearly mean air temperatures for all land influenced boxes, but also for two grid boxes in the open North Sea area. Differences of about 1°C in the 1981-2000 period's median value can be found in 3 boxes, while a spread in the percentile values is identifiable in the ERA40 temperatures compared to the observations for most of the North Sea and the English Channel boxes. Further investigations are necessary and under way to clarify these differences.

Nevertheless, both data sets show an increasing spread in the 1, 5, 95, and 99 percentile values for the 1981-2000 period compared to the 1961-1980 period in most boxes, as well as an increasing median.