

## **The ERA-40 wind and wave data**

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The European Centre for Medium-Range Weather Forecasts (ECMWF) has recently conducted ERA-40, a reanalysis of global atmospheric conditions for the period from 1957 to 2001. The reanalysis uses ECMWF's Integrated Forecasting System, a coupled atmosphere-wave model with variational data assimilation. This is the first reanalysis in which a wave model is coupled with the system used, and it produced a global wave data set on a 1.5° by 1.5° latitude/longitude grid. We will present results of extensive validations of the ERA-40 ocean wind and wave data and show how, using some modern statistical techniques, the data can be used reliably to estimate parameters pertaining to both short and long time scales, such as percentiles and return values. We will additionally show how climate variability has been influencing ocean waves.