

WorldWaves



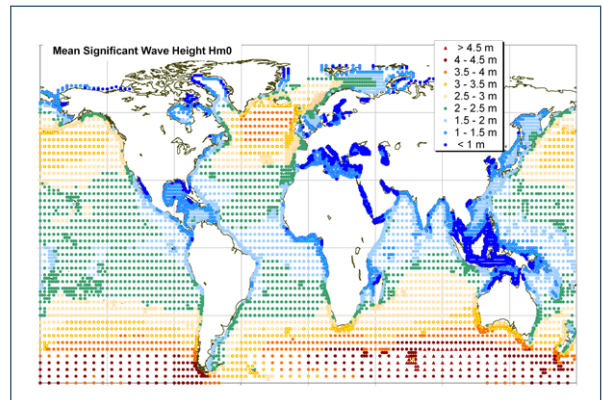
High quality, worldwide wind and wave statistical and time series data are essential for design criteria, mapping, planning and operations.

What is WorldWaves?

WorldWaves consists of three separate products:

- The WorldWaves global offshore wave model database
- The World Wave Atlas (WWA) satellite database and software package
- The WorldWaves software package

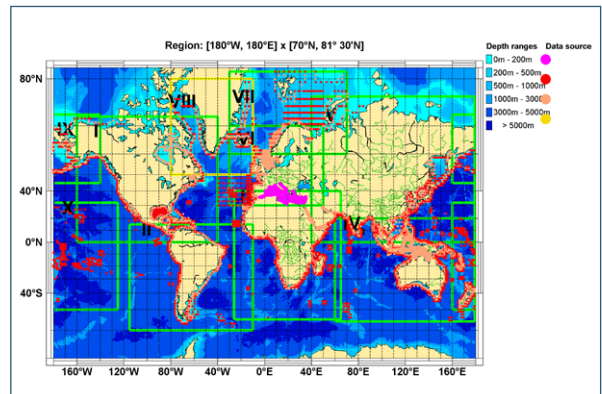
Combining these data and software tools allows us to supply high quality wave and wind parameter and directional spectra data anywhere worldwide in deep and shallow water at any time in the last 50 years.



WorldWaves offers global coverage: the mean significant wave height (m.) is shown for all grid points worldwide

Cost Effective Statistics

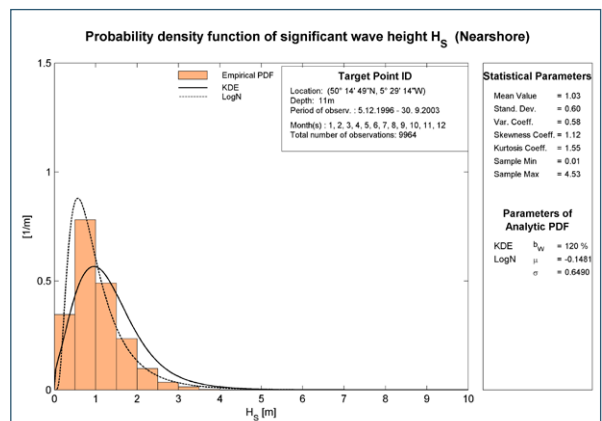
WorldWaves combines data from satellites, in-situ measurements and model data to provide cost-effective, high quality wave and wind time-series and statistical data for deep and shallow waters across the globe.



WorldWaves offers global coverage with rapid zooming to the area of interest

Satellite Data

Satellite altimetry data have similar quality to buoy measurements but with a coarser temporal resolution and are an ideal source of significant wave height and wind speed statistics that are suitable for quick-look operability or feasibility studies. The satellite data are also used in event reconstruction studies (our marine forensics product). In addition, they are used to calibrate the global WorldWaves model data and are also used in our Simple Coastal Wave Modelling methodology.



Probability density function shallow water significant wave height



WorldWaves

Based on almost 40-years of altimeter data from 6 different missions, statistics for significant wave heights and wind speeds can be delivered as a PDF report containing monthly, seasonal, annual and interannual percentage occurrence and exceedence tables, extreme estimates, spatial variability, full resolution along-track data for special studies.

Full resolution satellite data can also be provided for any country or region worldwide under the World Wave Atlas software package (a demo can be downloaded from http://www.oceanor.com/Services/wwa_info).

Hindcast Model Data

Calibrated Hindcast data overcome the restrictions inherent in satellite data by providing high-quality, high-resolution, validated data which are suitable for worldwide application.

WorldWaves data are based on over 50-years of directional spectra, wave and wind parameter time series from the European Centre for Medium-Range Weather Forecasts (ECMWF) WAVE Model (WAM). The model data are first validated and calibrated so that long-term statistics are consistent with those from precise satellite data. Validation of the model data proves they are high quality and calibration assures the statistics are as bias-free as possible.

The resolution of the offshore data is the highest possible with over 14,000 grid points available worldwide. Availability of time series data at each point gives complete flexibility in providing the full range of wave and wind climate products, allowing analysis in packages such as Weather Windows, which provide quantitative assessment of weather downtime, input to higher resolution coastal wave models such as SWAN under the WorldWaves package and for event reconstruction (in connection with marine accidents). Parameter and directional spectra time series are also often provided to clients operating their own models. See http://www.oceanor.com/Services/Worldwaves/WW_database.

A full range of operational statistics are available such as

- Monthly percentage occurrence tables of significant wave height against direction, peak or mean period and wind speed against direction
- Monthly percentage exceedence tables of significant wave height and wind speed
- Seasonality plots of significant wave height and wind speed (90%ile and 50%ile exceedence)

Extreme directional criteria at nominal return periods of 1, 10 and 100 years, suitable for operational planning, including mooring analysis and jack-up studies, are also available. Note that these hindcast data may not fully take into account tropical storms. For studies where these are important these data may not be suitable; alternatives are usually available.

Shallow Water Transformations

The data outlined above are installed within the WorldWaves software package and are easily employed as boundary conditions to the shallow water models embedded in the package. Rapid generation of a shallow water time series brings a number of advantages:

- The inshore data can be used to investigate persistence through application of software such as Weather Windows
- It is easy to validate the data against those from a parallel measurement campaign and ultimately to extend a short-term measurement series to the longer term

The cost for provision of inshore data is dependent on a number of factors including the complexity of the bathymetry and wave climate. The availability of global offshore wave, bathymetric and coastline data and tools allows us to offer very competitive prices without reducing the quality. A number of companies and institutes have also chosen to purchase the WorldWaves software package as their own in-house modelling package. It can be supplied both worldwide and for any country, region or time period required. http://www.oceanor.com/Services/Worldwaves/WW_software.

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