

References

Below meta data is shared on the datasets included in BlueEarth Data including further reading and information about the dataset validity and quality, where available.

Dataset	Description	More information
Currents, Water level, Storm Surge, Tide	<p>Water level, storm surge, tide and current forecasts from the operational Global Storm Surge Information System (GLOSSIS) using Deltares' Global Tide and Surge Model (GTSM).</p> <p>This includes 10 day forecasts at hundreds of nearshore locations across the world. Click here for more information about GLOSSIS.</p>	<p>For further information, see:</p> <ul style="list-style-type: none"> Muis, S., Verlaan, M., Winsemius, H. C., Aerts, J. C., & Ward, P. J. (2016). "A global reanalysis of storm surges and extreme sea levels". <i>Nature Communications</i>, 7. link here: click Verlaan, M., De Kleermaeker, S., & Buckman, L. (2015). "GLOSSIS: Global storm surge forecasting and information system. In <i>Australasian Coasts & Ports Conference 2015: 22nd Australasian Coastal and Ocean Engineering Conference and the 15th Australasian Port and Harbour Conference</i> (p. 229)". Engineers Australia and IPENZ. link here: click De Kleermaeker, Simone; Verlaan, Martin; Mortlock, Thomas; Rego, Joao Lima; Apecechea, Maialen Irazoqui; Yan, Kun and Twigt, Daniel (2017). "Global-to-local scale storm surge modelling on tropical cyclone affected coasts". In: <i>Australasian Coasts & Ports 2017: Working with Nature</i>. Barton, ACT: Engineers Australia, PIANC Australia and Institute of Professional Engineers New Zealand, 2017: 358-364. ISBN: 9781922107916. link here click Apecechea, M. I., Verlaan, M., Zijl, F., Le Coz, C., & Kernkamp, H. (2017). Effects of self-attraction and loading at a regional scale: a test case for the Northwest European Shelf. <i>Ocean Dynamics</i>, 67(6), 729-749
Maximum water levels	Maximum water levels for return periods of 2 years, 5 years, 10 years, 25 years, 50 years, 75 years and 100 years, based on a reanalysis with Deltares' Global Tide and Surge Model (GTSM).	The return periods are derived from a 38 year reanalysis with the GTSM, using ERA5 meteorology as input and with a Gumbel model fitted to the data. See the Wiki for further information about the GTSM, this reanalysis and further climate change scenarios carried out using this model.
Tidal indicators	Tidal indicators as calculated using Deltares' Global Tide and Surge Model (GTSM).	Included are the Highest Astronomical Tide (HAT), the Lowest Astronomical Tide (LAT), the Mean Higher High Water (MHHW), the Mean Lower Low Water (MLLW), the tidal range (Range) and the Mean Sea Level (MSL).
Shoreline Monitor	Satellite-derived shoreline change rates based on linear fit on annual shorelines between 1984 and 2017 presented for every 500 m alongshore with global coverage.	<p>For further information, see:</p> <ul style="list-style-type: none"> Luijendijk, A., Hagenaars, G., Ranasinghe, R., Baart, F., Donchyts, G., Aarninkhof, S.G.J. The State of the World's Beaches. <i>Sci Rep</i> 8, 6641 (2018). click here Vousdoukas, M.I., Ranasinghe, R., Mentaschi, L. Plomaritis, T.A., Athanasiou, P., Luijendijk, A. Feyen, L. Sandy coastlines under threat of erosion. <i>Nat. Clim. Chang.</i> 10, 260–263 (2020). click here
Wind	Surface wind forecasts from NOAA's Global Forecasting System (GFS).	See https://www.ncdc.noaa.gov/data-access/model-data/model-datasets/global-forcast-system-gfs for more information about NOAA's GFS model.
Waves	Significant wave height forecasts NOAA's WaveWatch III model.	See https://polar.ncep.noaa.gov/waves/ for more information about NOAA's WaveWatch III model.
Precipitation	Precipitation forecasts by NOAA's Global Forecasting System (GFS).	See https://www.ncdc.noaa.gov/data-access/model-data/model-datasets/global-forcast-system-gfs for more information about NOAA's GFS model.
Air temperature	Air temperature forecasts by NOAA's Global Forecasting System (GFS).	See https://www.ncdc.noaa.gov/data-access/model-data/model-datasets/global-forcast-system-gfs for more information about NOAA's GFS model.
Discharge	Discharge forecasts by the Global Fluvial Forecasting System (GLOFFIS) run by Deltares, which runs global WFLOW models. This includes real-time forecasts at hundreds of locations across the world.	See the Wiki for further information about GLOFFIS, and to find out more about the validity and quality of this dataset.
Wave and wind climate	Analysed wind and wave data from the raw data of ECMWF (ERA5) and NCEP between 1979 until present. The following information are presented with global coverage: Wind roses (wind speed and direction) and wave roses (wave height, period and direction) and 90th percentiles and extreme values (wind speed and wave height).	See the Wiki for further information about the MetOcean Database, and to find out more about the validity and quality of this dataset.

Bathymetry	Topographic and bathymetric data from the General Bathymetric Chart of the Oceans (GEBCO). GEBCO's gridded bathymetric data set, the GEBCO 2019 grid, is a global terrain model for ocean and land at 15 arc-second intervals, obtained from the GEBCO Compilation Group (2019) GEBCO 2019 Grid.	(doi:10.5285/836f016a-33be-6ddc-e053-6c86abc0788e).
Elevation	Merged open source topographic and bathymetric data from multiple sources.	Topographic data includes: ALOS DSM, AHN Netherlands, Greenland DEM, USGS NED, Canadian DEM, Australian DEM, and REMA Mosaic. Bathymetric data from: GEBCO and EMODnet.
CHASM data for wind farms at North Sea	Wind and wave hindcast data for two Dutch (future) offshore wind farms (Ten Noorden van de Wadden and Hollandse Kust West) from the TKI Coupled High-resolution Atmosphere-Sea Modelling (CHASM) project (Whiffle and Deltares).	This dataset includes 9 year of high-resolution (spatial and temporal) field and point data. See this link for more information. For instructions on how to obtain the data, see the Deltares Data Portal. Wave heights, wave directions, wave period, turbulence, wind speed, wind direction