(H_s,Dir_p) cumulated occurrence tables (wave_hs_dirp_tables.nc)

The directional characteristics of significant wave heights have been computed at the grid points of the sea state hindcast HOMERE (Boudière et al. 2013), located between the shore and 50 km off-shore, along the western coast of France. This hindcast is 19-year long (1994-2012), delivers hourly outputs of spectral-based sea state parameters with a resolution down to 200 m at the coast. It was identified as the most appropriate single source of sea state variables for precise characterization of marine resources for marine energy purposes along the western coast of France (Dubranna et al. 2015).
The directional characteristics of significant wave height are provided by a series of tables representing the cumulated occurrences of (significant wave height, peak direction) combinations. In our specific case, the bin EDGES of significant wave height (Hs) values are 0, Q10, Q25, Q50, Q75, Q90, Q99 and maximum Hs, with QX representing the X^{th} percentile of the Hs time series at the location considered. The bin CENTERS of the peak direction (Dir_p) are defined in 10° intervals between 0° and 350°. Note that Dir_p is the "from" direction, rotating anti-clockwise and East is 0°. For instance, if Dir_p = 225°, then the waves are coming from the southwest, propagating to the northeast.

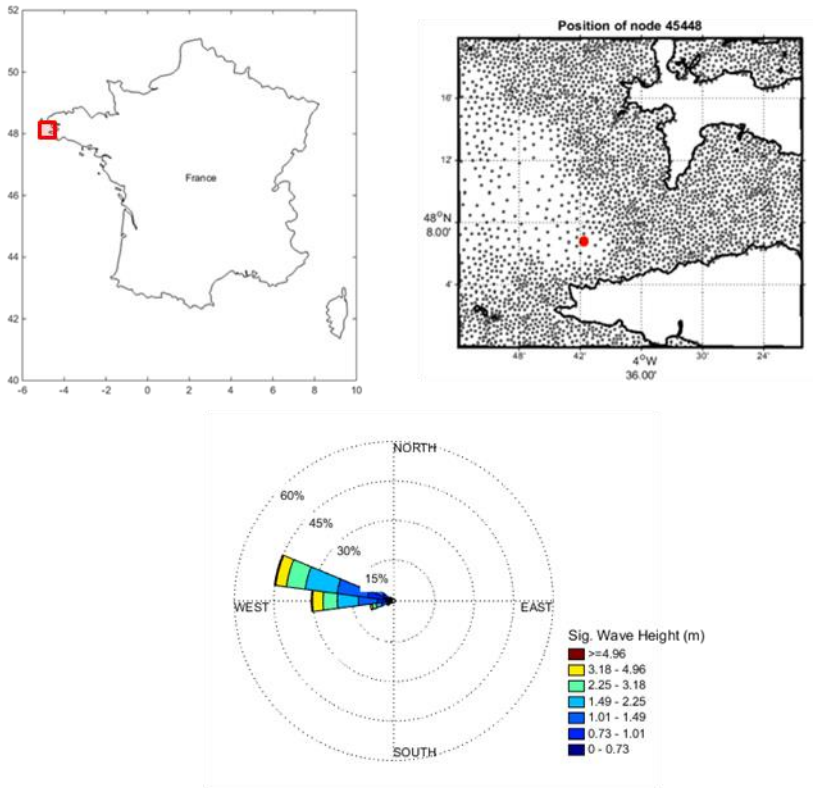

Figure: Example of (H_s, Dir_p) occurrence table represented as a directional rose (c) at a specific geographic position (a and b, red dot) using data available from (here).

Data download: (H_s, Dir_p) occurrence tables can be downloaded here using standard protocols (OPENDAP, HTTP, etc.). Note that for OPENDAP access, the "Hs_Dir_Occurence" variable has 3 dimensions, the first of which is related to the grid node number. It is therefore recommended that you collect the grid node number(s) of the area you are interested in before you make use of the OPENDAP protocol. Step by step tutorial about how to access the grid node numbers is presented here.

Targeted end-users: Device developers, scientists, farm designers, grid operators, consulting agencies.

References

Boudière, E., C. Maisondieu, F. Ardhuin, M. Accensi, L. Pineau-Guillou, and J. Lepesqueur. 2013. A suitable metocean hindcast database for the design of Marine energy converters. International Journal of Marine Energy **3-4**: e40–e52.

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