Maps of wave energy period (wave_t0m1_maps.nc)

Wave energy period (T_e or T_{-10}) is the variance-weighted mean period of the one-dimensional period variance density spectrum. It is calculated according to the following equation:

$$T_e = T_{-10} = \frac{m_{-1}}{m_0}$$

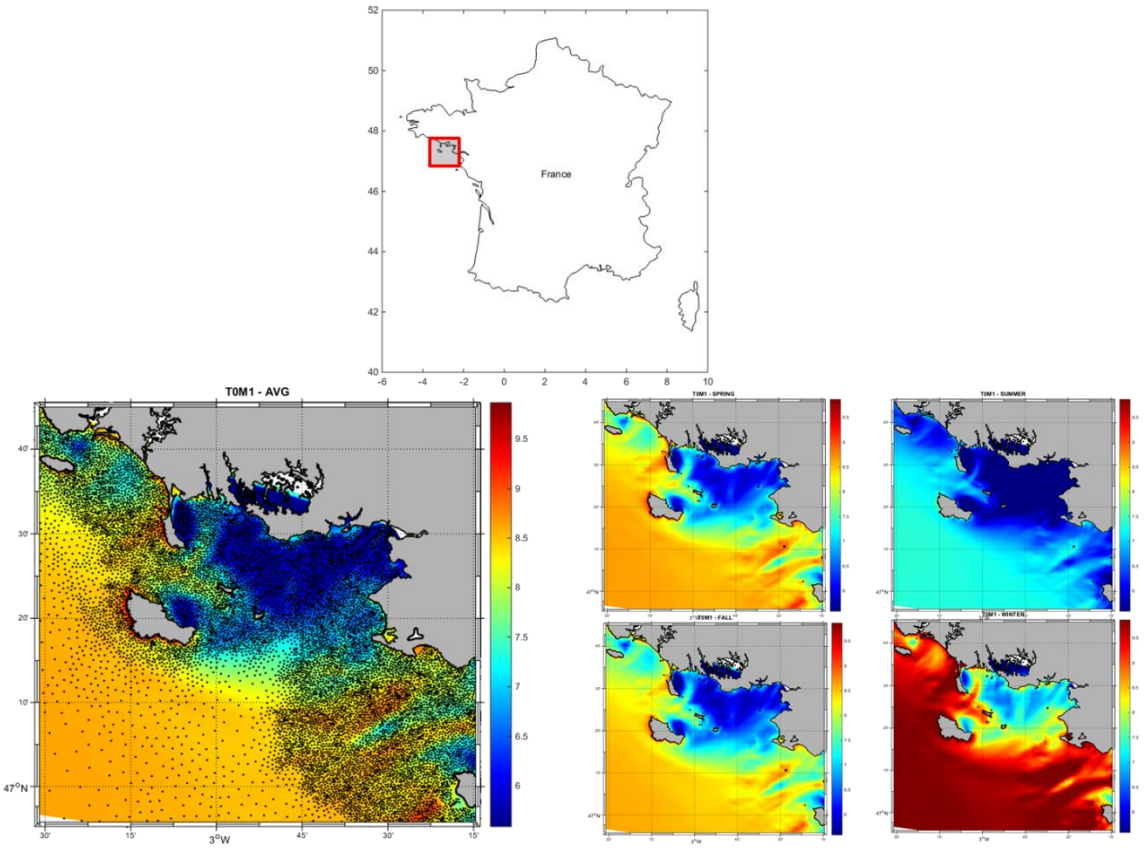
where m_n is the nth spectral moment that is defined as:

$$m_n = \sum_i f_i^n S_i \Delta f_i$$

and

$$S_i = \sum_j S_{ij} \Delta \theta_j$$

T_e: Wave energy period (s)
f_i: ith discrete frequency (Hz)
S_{ij}: Variance density over the ith discrete frequency and jth discrete direction (m^2/Hz.rad)
Δf_i: Frequency width of the variance density of the ith discrete frequency (Hz)
$\Delta \theta_j$: Angular width of the variance density jth discrete direction (rad)



Example of wave energy period maps produced using the data available from (website). Average values are in the left panel, with black dots representing the hindcast grid. Seasonal values are in the right panel.

Wave energy period maps are displaying the spatial distribution of annual/seasonal averages of wave energy period. Seasons are December-February (winter), March-May (spring), June-August (summer), September-November (fall). All averages are computed based on the hourly outputs of

the 19-year sea state hindcast Homere (Boudière et al. 2013). This hindcast 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).

Data download: Annual/seasonal averages of wave energy period can be downloaded here using standard protocols (OPENDAP, HTTP, etc.).

Targeted end-users: Decision makers from national to local scale, investors, utilities and scientists.

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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Contact

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