



# IREMARE Project

## Mapping and Characterizing Marine Renewable Energy Resource from National to Site Scale



### Centre O.I.E.

Observation, Impacts, Energie  
(Sophia Antipolis, France)

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### PARTNERS

ADEME



Agence de l'Environnement  
et de la Maîtrise de l'Energie



## The «WHAT?!?» Part

### Objective

- MRE resource characterization along the western coast of France

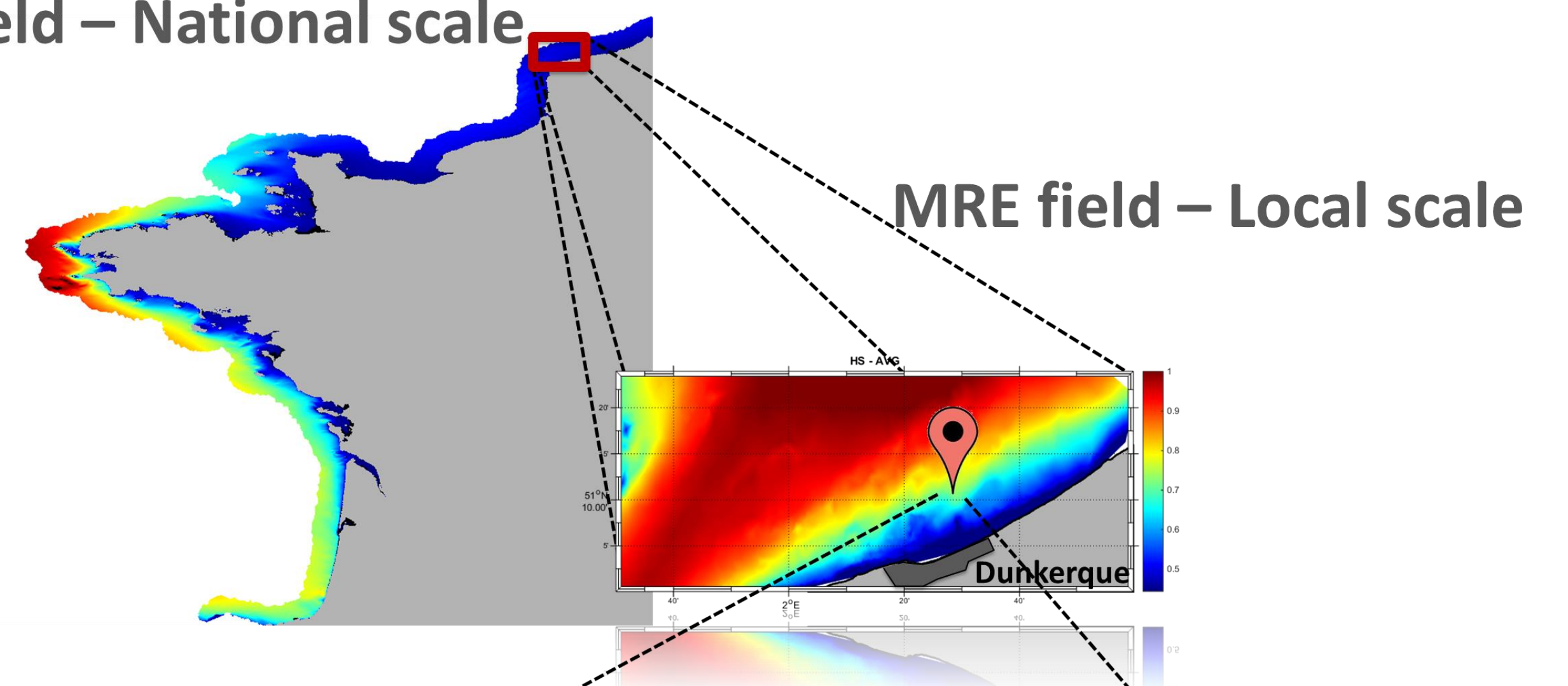
### Methodology

- Produce MRE resource characterization from HOMERE database (Boudière *et al.* 2013)
- Diffuse the results using OGC (Open Geospatial Consortium) interoperable standards
- Open data principle

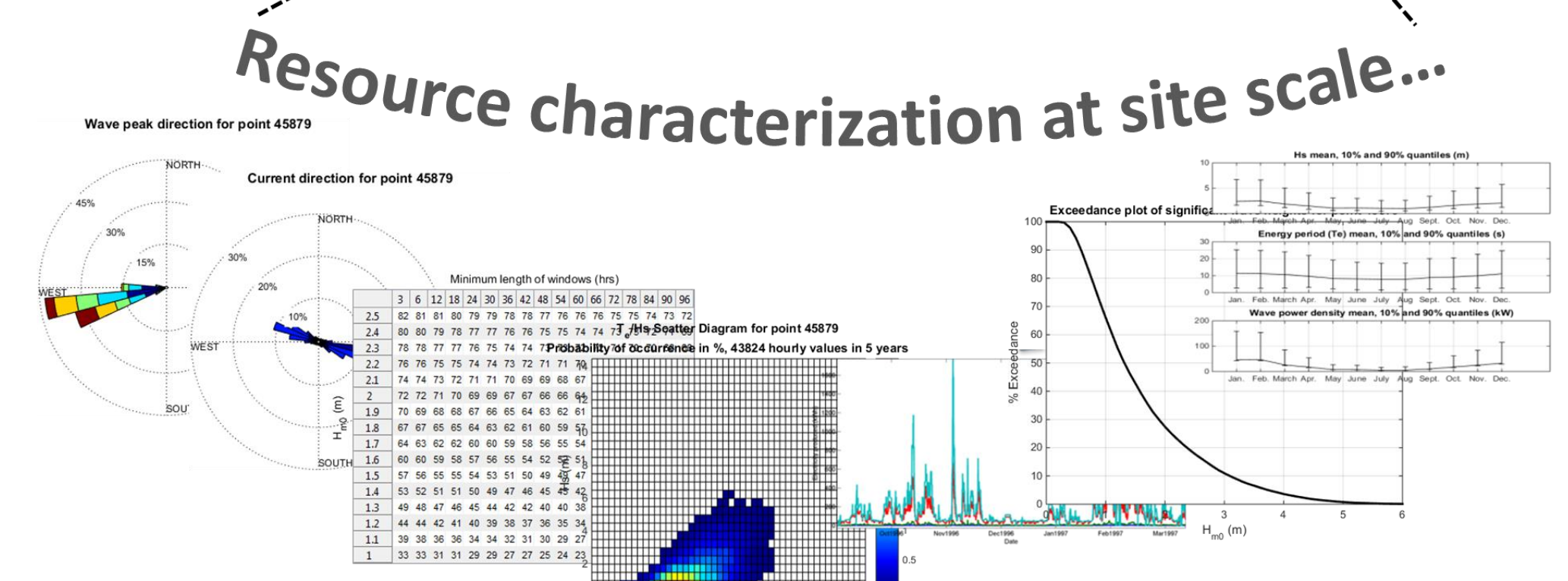
### End-users

- Any MRE stakeholder concerned with resource/meteorological characteristics

### MRE field – National scale

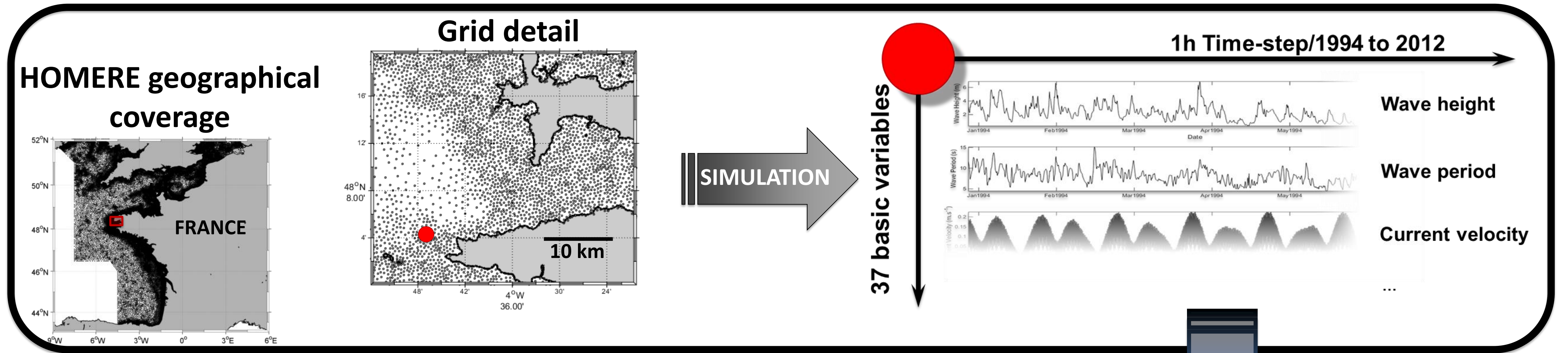


### MRE field – Local scale

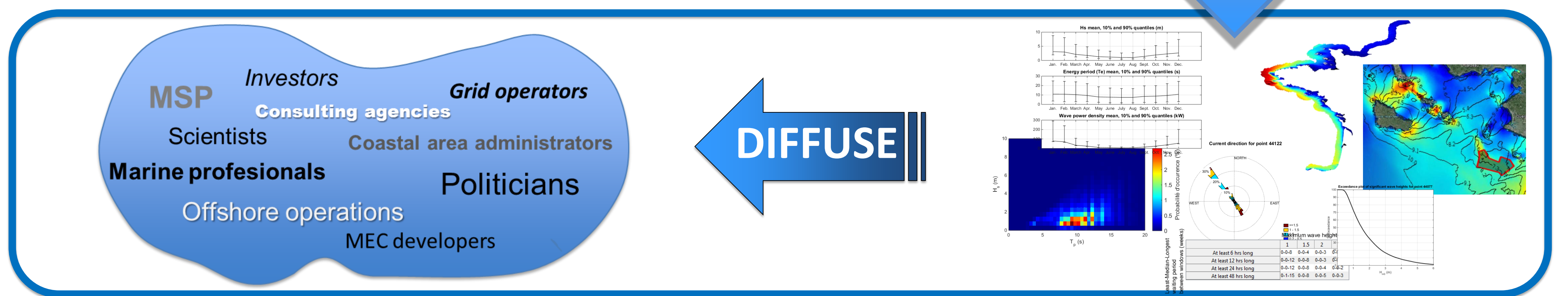


... anywhere from the shore to 50 km offshore!

## The «BOO!» Part: Translate HOMERE Database into MRE Stakeholders-friendly Information



## IREMARE



## The «WAHOU!» Part: get it FOR FREE at <http://tds.webservice-energy.org>

### CONTACT

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Dataset: Waveswave\_hs\_maps.nc

- Data format: netCDF
- Data size: 61.82 Mbytes
- Data type: GRID
- ID: waves/wave\_hs\_maps.nc

Documentation:

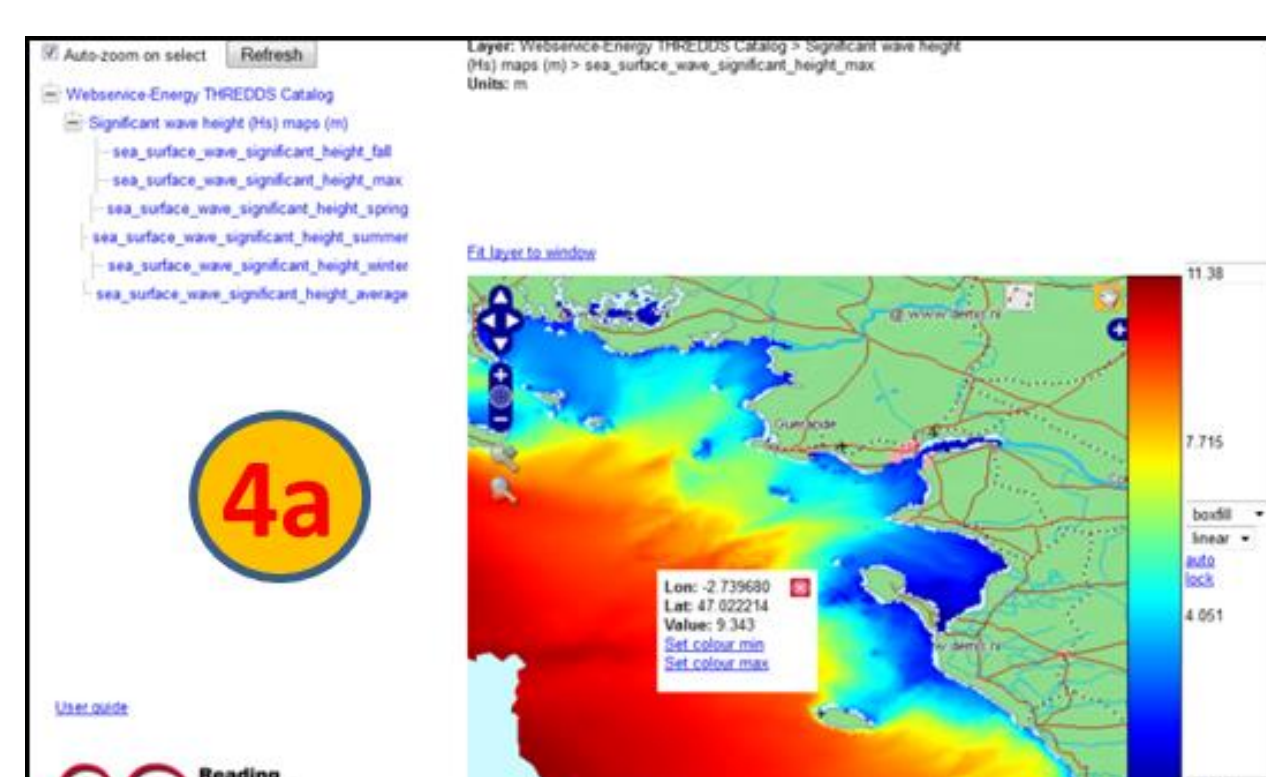
- Description of available information
- Summary: Maps of wave parameters relevant for marine energy applications from the shore to 50 km offshore, western coast of France. If the map title mentions a specific season (Spring (March to May), Summer (June to August), Fall (September to November) or Winter (December to January)) then the data are season-averaged. Otherwise, the averaging has been performed over the entire length of the time series. Available parameters will be added as the project continues: - wavepower: Wave power density, aka wave energy flux (W/m<sup>2</sup>) - hs: Significant wave height (m) - Tp: Peak period (s) - E: Energy period (s) - dp: Peak direction (°), from direction, from north, clockwise. Ex: dp = 45° means wave spectrum reaches its maximum for waves coming from the Northeast - waveelectricity: Annual energy yield from various technologies (W/m<sup>2</sup>W installed)
- History: All the information comes from the processing of Homere database (Boudière *et al.* 2013)

Access:

- OPENDAP: /thredds/dodsC/waves/wave\_hs\_maps.nc
- HTTPServer: /thredds/filesServer/waves/wave\_hs\_maps.nc
- WCS: /thredds/wcs/waves/wave\_hs\_maps.nc
- WMS: /thredds/wms/waves/wave\_hs\_maps.nc
- NetcdfSubset: /thredds/netcdf/waves/wave\_hs\_maps.nc

Viewers:

- Godiva2 (browser-based)
- NetCDF-Java ToolsUI (webstart)
- Integrated Data Viewer (IDV) (webstart)



Dataset: /thredds/netcdf/waves/wave\_hs\_maps.nc ( Dataset Description )

Base Time:

Select Variable(s):

- hs\_average = significant wave height, average
- hs\_fall = significant wave height, fall
- hs\_max = significant wave height, max
- hs\_spring = significant wave height, spring
- hs\_summer = significant wave height, summer
- hs\_winter = significant wave height, winter

Choose Spatial Subset:

Lat/ion subset Coordinate sub Bounding box, in decimal degree (initial extents are approximate)

west: -1.8 east: -1.25  
south: 45.40 north: 46.2

### References

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

Dubranna, J., L. Ménard, and T. Ranchin. 2016c. De l'échelle nationale à l'échelle du site, cartographie et description de la ressource en énergies marines renouvelables dans un format interopérable (en révisions). XIV<sup>èmes</sup> Journées Nationales du Génie Côtier - Génie Civil