
AWESDI Activity 2.1 – Output Maps

Spatially detailed maps of wave energy potential across the Atlantic Area coastline

This folder contains the map products delivered at Activity 2.1:

> Spatially detailed maps of wave energy potential across the AA coastline. Additionally, multi-energy potential maps combining wave, wind, and solar energy resources could be provided.

The output provides a structured collection of maps describing the spatial distribution of marine renewable energy resources across the Atlantic Area coastline, with emphasis on wave energy potential and complementary wind and solar energy indicators.

Inventory summary

The delivered map folder contains:

- **16 folders**
- **78 files**
- **Total size:** approximately **15.89 MB**

Folder structure and contents

The map products are organized into five main thematic blocks.

1. Raw variables

Folder: 1_Raw_variables

This section contains maps of the main atmospheric and oceanic variables used as inputs for the resource assessment.

1.1 Raw atmospheric variables

Folder: 1_Raw_variables/Raw_atmospheric_variables

Included variables:

- `RSDS\_1985\_2014.png` – surface downwelling shortwave radiation, relevant for solar resource assessment.
- `T2M\_1985\_2014.png` – 2 m air temperature.
- `WS10M\_1985\_2014.png` – 10 m wind speed.
- `WS100M\_1985\_2014.png` – 100 m wind speed, relevant for offshore wind-energy assessment.

1.2 Raw wave variables

Folder: 1_Raw_variables/Raw_wave_variables

Included variables:

- `HS\_1985\_2014.tif` – significant wave height.
- `TP\_1985\_2014.tif` – peak wave period.

These maps represent the historical reference period ****1985–2014****.

2. Marine energy resources

Folder: 2_Marine_energy_resources

This section contains maps of derived marine renewable energy resources for the historical reference period.

Included maps:

- `WP\_1985\_2014.tif` – wave power.
- `WPD\_1985\_2014.tif` – wind power density.
- `PV\_1985\_2014.png` – photovoltaic/solar energy potential indicator.

This folder directly addresses the multi-energy component of the output by combining wave, wind, and solar resource indicators.

3. Wave power change projections by country

Folder: 3_WP_change_projections_by_country

This section contains country-specific maps of projected changes in wave power.

Included countries:

- France
- Ireland
- Portugal
- Spain

Included files:

- `France\_change.tif`
- `Ireland\_change.tif`
- `Portugal\_change.tif`
- `Spain\_change.tif`

These maps support the assessment of how wave-energy potential may vary spatially under projected future climate conditions.

4. Wave resource classification

Folder: 4_Wave_resource_classification

This section contains spatial classification maps of wave-energy suitability and related indicators. Maps are provided for the full Atlantic Area and for individual country domains.

Included domains:

- `Atlantic\_Area`
- `France`
- `Ireland`
- `Portugal`
- `Spain`

Each domain contains the following nine maps:

- `I\_WP\_resource` – wave-power resource indicator.
- `I\_DWNT\_availability` – availability indicator.
- `I\_Cv\_variability` – variability indicator.
- `I\_Mv\_variability` – monthly/seasonal variability indicator.
- `I\_EWH\_risk` – extreme-wave-height risk indicator.
- `I\_WD\_cost\_depth` – depth-related cost indicator.
- `I\_DC\_cost\_distance` – distance-to-coast cost indicator.
- `Cwave\_final\_index` – final combined wave-resource index.
- `Class category` – final classification category map.

These maps provide a spatially explicit classification of wave-energy potential, integrating resource, variability, risk, and cost-related constraints.

5. Hotspots wave resource maps

Folder: 5_Hotspots_wave_resource_maps

This section contains country-level hotspot maps identifying the top-ranked areas for wave-energy potential under different prioritization criteria.

Included countries:

- France
- Ireland
- Portugal
- Spain

For each country, five hotspot maps are provided:

- `Hotspots\_only\_top5\_resource\_max.png` – prioritization of maximum wave resource.
- `Hotspots\_only\_top5\_cost\_min.png` – prioritization of minimum cost-related constraints.
- `Hotspots\_only\_top5\_risk\_min.png` – prioritization of minimum risk.
- `Hotspots\_only\_top5\_operational\_stability.png` – prioritization of operational stability.
- `Hotspots\_only\_top5\_balanced\_delphi.png` – balanced multi-criteria prioritization.

These hotspot maps are intended to support the identification of promising areas for further detailed analysis, rather than to define final deployment zones.

Geographic coverage

The output covers the Atlantic Area coastline considered in Activity 2.1. Spatial products are provided for:

- The full Atlantic Area domain.
- France.
- Ireland.
- Portugal.
- Spain.

Temporal coverage

Most historical baseline maps are labelled as covering the period: 1985–2014

Projected wave-power change maps are provided separately by country.

Recommended use

These maps can be used to:

- Illustrate the spatial distribution of wave-energy potential across the Atlantic Area coastline.
- Compare wave, wind, and solar energy resources.
- Identify areas with favourable wave-energy conditions.
- Support multi-criteria evaluation of wave-energy suitability.
- Communicate country-level hotspots for further investigation.
- Provide graphical material for the Activity 2.1 deliverable and related dissemination activities.

Notes

The maps are intended as a spatial screening and communication output. Detailed site selection would require additional local-scale analysis, including technical, environmental, regulatory, grid-connection, maritime-use, and stakeholder constraints



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