

Overview of user needs and challenges – Focus on Marine Renewable Energy

Copernicus User Forum Industry Workshop
COPERNICUS 4ENERGY
Oct 12 2017

Author: F. Jeliarovski, NOVELTIS, France
Project Manager

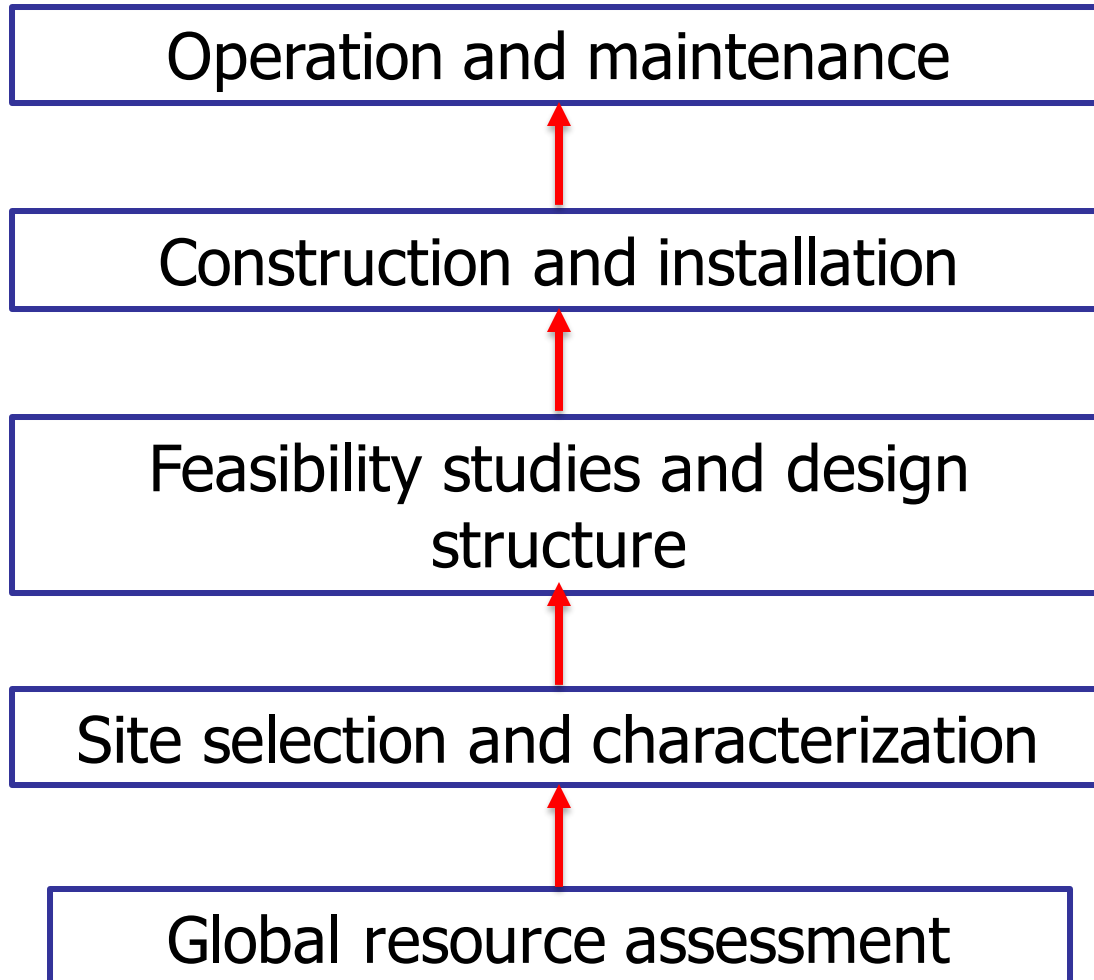
Office: +33 562 88 11 00 | florian.jeliarovski@noveltis.fr

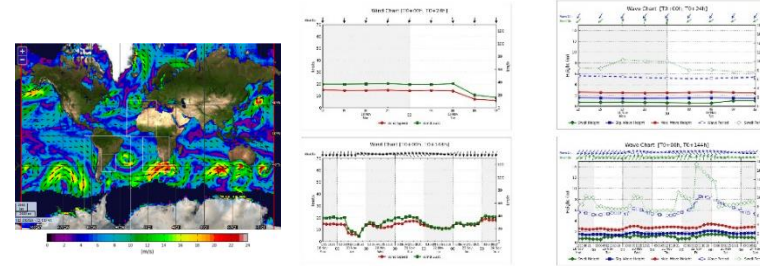
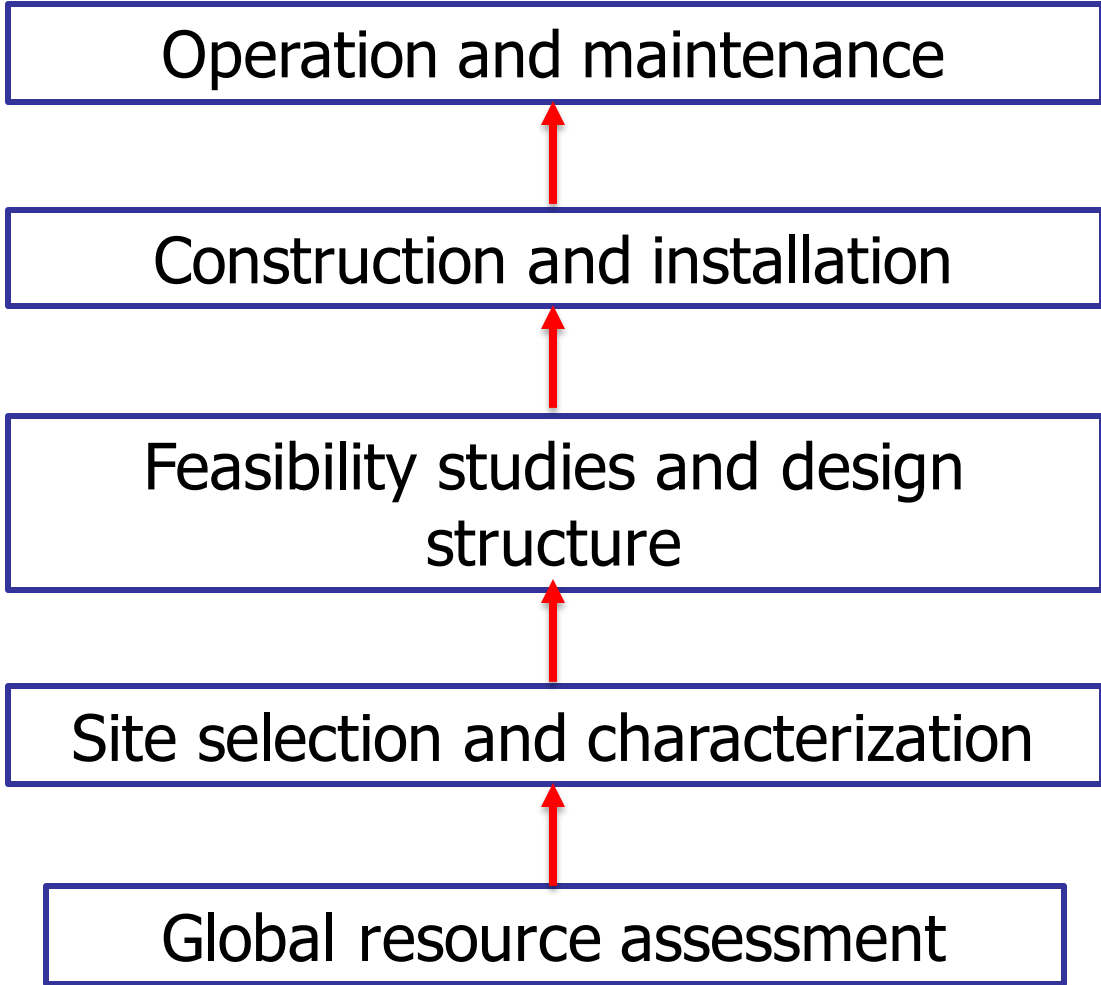


- An independent private company created in 1998
 - **40** employees, including **30 PhDs** and **engineers**
 - We perform **innovative scientific engineering studies and implements customized end-user solutions in the fields of Space, Environment and Sustainable Development.**
 - Involved as coordinator or partner in various large-scale **European** and **international projects**
- NOVELTIS understands, analyses and represents our Environment to supply its customers with innovative solutions and services.**

- NOVELTIS has developed innovative services for the maritime value chain :
 - ▶ Offshore operators
 - ▶ Maritime transport
 - ▶ Oil&Gas Industry
 - ▶ Marine Renewable Energy
 - ▶ Etc..

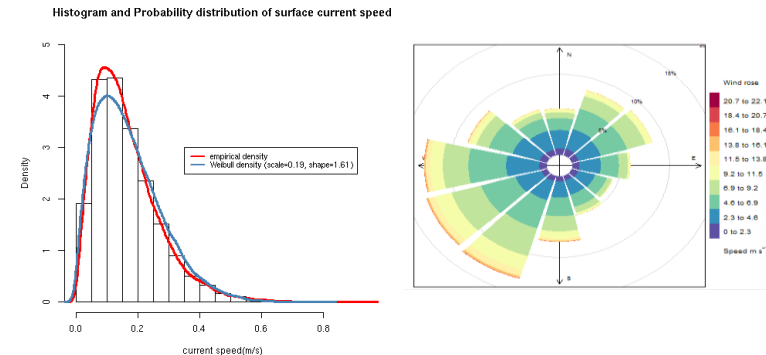
- Today focus on the Marine Renewable Energy Sector





Metocean forecasts (Web interface, maps & report sample)

| Wind speed (m/s) | Wind direction (°) | | | | | | | | | | | | | |
|------------------|--------------------|-------|-------|--------|---------|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | 345-15 | 15-45 | 45-75 | 75-105 | 105-135 | 135-165 | 165-195 | 195-225 | 225-255 | 255-285 | 285-315 | 315-345 | 0mm | |
| <2 | 0.92 | 0.99 | 1.04 | 0.86 | 0.76 | 0.6 | 0.61 | 0.52 | 0.54 | 0.51 | 0.51 | 0.71 | 8.72 | |
| <4 | 3.77 | 2.93 | 3.54 | 3.48 | 2.8 | 2.06 | 1.98 | 1.46 | 1.51 | 1.36 | 1.83 | 3 | 29.73 | |
| <6 | 5.49 | 3.73 | 4.55 | 4.84 | 4.76 | 3.24 | 3.14 | 1.99 | 1.87 | 1.86 | 3.51 | 5.97 | 41.88 | |
| <8 | 6.11 | 4.13 | 5.02 | 5.23 | 6.36 | 4.31 | 3.68 | 2.04 | 1.92 | 2.01 | 6.71 | 9.71 | 57.23 | |
| <10 | 6.3 | 4.26 | 5.21 | 5.37 | 7.38 | 5.42 | 3.91 | 2.08 | | 2.06 | 11.98 | 13.42 | 69.32 | |
| <12 | 6.33 | 4.31 | 5.27 | 5.46 | 7.77 | 6.2 | 4.16 | 2.11 | | 2.08 | 18.35 | 16.33 | 80.3 | |
| <14 | | 4.32 | 5.29 | | 7.91 | 6.59 | 4.41 | 2.12 | | 2.09 | 24.28 | 18.41 | 86.13 | |
| <16 | | | | 5.54 | 7.86 | 6.7 | 4.6 | 2.13 | | | 25.27 | 19.64 | 94.5 | |
| <18 | | | | | | 6.71 | 4.71 | 2.14 | | | 30.33 | 20.42 | 97.71 | |
| <20 | | | | | | | 4.73 | | | | 31.39 | 20.78 | 99.23 | |
| <22 | | | | | | | | | | | 31.81 | 20.94 | 99.81 | |
| <24 | | | | | | | | | | | 31.92 | 20.99 | 99.97 | |
| <26 | | | | | | | | | | | 31.95 | 21 | 100 | |
| Total | 6.33 | 4.32 | 5.29 | 5.54 | 7.86 | 6.71 | 4.73 | 2.14 | 1.92 | 2.09 | 31.95 | 21 | 100 | |
| Mean | 3.796 | 3.534 | 3.635 | 3.883 | 5.485 | 6.492 | 5.79 | 3.5 | 2.881 | 3.479 | 11.11 | 8.726 | 7.531 | |
| Maximum | 16.5 | 16.6 | 13.7 | 17.5 | 21.2 | 18.2 | 22.1 | 19.4 | 12.3 | 16.4 | 25.8 | 25.1 | 35.8 | |



Modelling and/or multi-criteria hindcast database for statistical analysis

MARKET SECTOR

NOVELTIS develops services for Coastal and Marine Environment.

INTERMEDIATE USER

NOVELTIS is an intermediate user that uses the Copernicus Marine Service to develop innovative solutions and business for end users.

END USERS

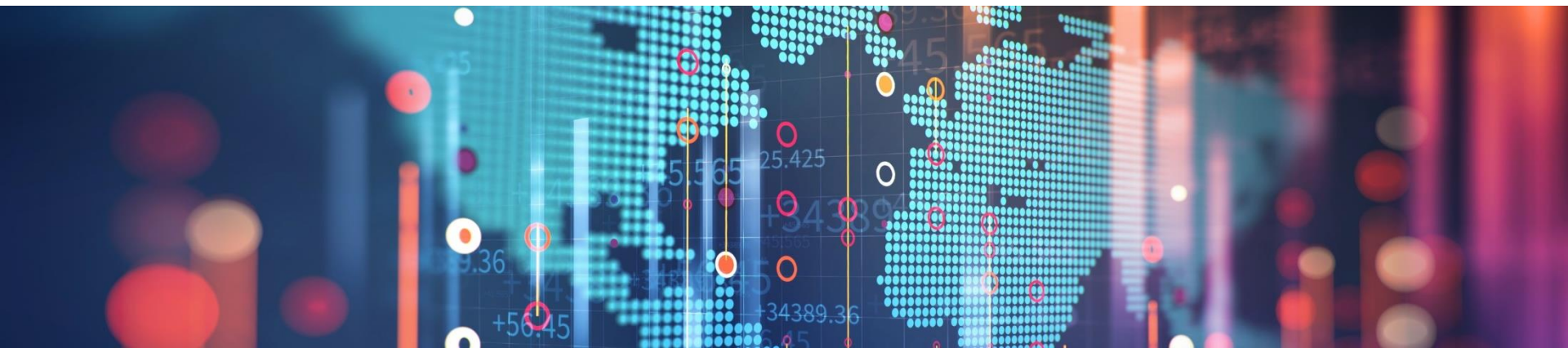
We target end users such as developers for marine renewable energy: offshore wind, tidal and wave energy, ...



- NOVELTIS use the CMEMS products to provide innovative solutions with our clients in the MRE sector (wind, wave, tidal energy).
- CMEMS products allow us :
 - ▶ To save time and money in order to provide our clients with the best solutions for their MRE projects;
 - ▶ To improve the quality of our solutions (models validation)
 - ▶ To propose a wide range of high value-added services based on our data analysis expertise.
- But we need some improvements :
 - ▶ An easy access to in-situ data allowing for the selection of a period, an area and a parameter.
 - ▶ We need Bathymetry products.
 - ▶ We need tides to be included into ocean currents outputs.

- They want to have operational and mature solutions:
 - ▶ Multi criteria information and analysis (wind, wave, ocean current...)
 - ▶ Long-term time series products :
 - To characterize the energy potential and identify the most famous places for their projects;
 - To design their structures;
 - To complete the in-situ monitoring (very expensive)
 - ▶ Forecast products to help them during their offshore operations:
 - Installation
 - Operation and maintenance
 - Etc..

- Some major challenges for Copernicus and in particular the CMEMS catalogue because the MRE sector needs will continue to increase:
 - ▶ Continue to provide this first level of information about ocean;
 - ▶ Improve the quantity (new models, new in situ data, new altimetry products etc...) and the quality of the provided data (with performance indicators);
 - ▶ Continue to rely on the intermediate users which develop innovative solutions and promote the CMEMS products.



**THANK YOU FOR YOUR
ATTENTION**

