

SEABED DYNAMICS

How to reduce the costs necessary for the characterisation of the seabed and adapt structures to the specific nature of the soil?

ORE structures deployed on the seabed can encounter hostile conditions. Thus, tidal turbines are installed in sites subject to extreme currents that can induce intense sediment transport. In the same vein, hydraulic dunes, formed by the combined action of marine currents and swell, are frequent in the future areas where offshore wind farms will be located in the Channel and North Sea. To better understand these phenomena, in-situ measurement and sampling campaigns are essential. Illustrations with feedback from the PHYSIC project and the approach adopted for the DUNES project.

The nature of the seabed can also be a crucial aspect in the development of ORE projects. Carbonated soils are

thus very present at the sites of future French offshore wind farms. The lack of knowledge of their mechanical characteristics requires studies carried out within the framework of SOLCYP+ aimed at optimising the dimensioning of wind turbine foundations in order to reduce their cost and disrupt projects. Echoing this problem is the broader issue of the geophysical and geotechnical characterisation of the seabed. With GEOSISMEM, a geophysical approach coupling multi-channel seismic and marine resistivity could allow rapid and inexpensive preliminary exploration. The heavier geotechnical studies would then be reserved for well-targeted areas of interest.

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- Challenges of rocky substratum
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