DIME

MODELLING AND OBSERVING EXTREME SEA-STATE WAVE SWELL FOR MRE

During storms or hurricanes, sea state models may significantly over- or underestimate the height of waves. An error in excess of 3 m relating to a wave buoy moored in the Iroise Sea was observed during the winter of 2013-2014.

Such errors have a direct impact on extreme statistics (e.g. 100-year wave height) used for dimensioning MRE systems. In addition, certification standards for dimensioning do not always make reference to state-of-the-art knowledge of the sea state. Poor knowledge and understanding of the physical environment creates uncertainty over the safety coefficients of dimensioning, which in turn leads to uncertainty over investment costs (CAPEX) and thus over energy costs (LCOE).

The DiMe project therefore proposes to identify needs relating to extreme sea state knowledge for MRE dimensioning standards, in order to validate models for extreme sea-state conditions as far as the cable landfall zone and to develop methodologies for more reliable (land-based and satellite) observation of extreme waves and their swell.

The tools developed as part of the DiMe project will be tested at the Fromveur tidal turbine site, the cable landfall zone of Raz Blanchard, the Groix Island floating wind turbine site, a wave turbine site in Aquitaine (Bayonne, Anglet and Biarritz) and on the Island of Reunion.

Partners

Companies

Bureau Véritas, Nantes
EDF R&D, Laboratoire National d'Hydraulique et Environnement (LNHE), Chatou
Naval Group, Brest
Ocean Data Lab, Brest
Open Ocean, Brest
SABELLA SAS, Quimper,
Suez Eau France, Courbevoie

Research centers

France Energies Marines, Plouzané (29) et Marseille [Project Developer]
Cerema, Brest
EC Marseille, Marseille
ENPC, Champs-sur-Marne
Ifremer, Brest
Institut National de Recherche en Informatique et en Automatique (INRIA), EPI BIOCORE, Sophia Antipolis
MERIC, Chili
Météo France, Brest
SHOM, Brest
Tohoku University, Japon
Université de la Réunion, Saint-Pierre

Funders

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