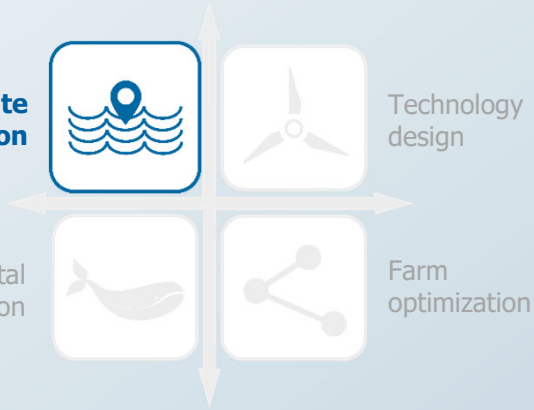
DIME

Dimensioning and met ocean: modeling and observations of extreme sea states for MRE



DIME aims to improve the characterization of extreme sea states in order to reduce uncertainties in the calculation of induced loads. These uncertainties, in particular when taking into account breaking waves, affect the safety coefficients which determine the size of MRE systems.

By solving this challenge, **DIME** will allow engineers to dimension MRE converters and their peripherals as close to reality as possible.

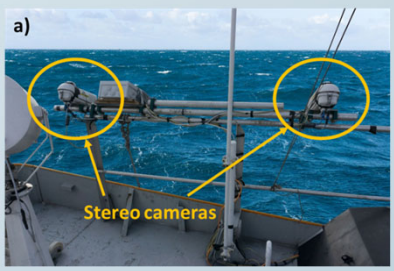
Progress will be made in the modeling of spectral and deterministic waves for the parameterization of extreme sea state surges.

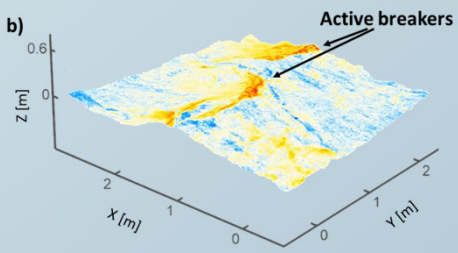
A large data set (PROTEVS) collected in coastal and near-shore zones during the winter of 2013-14, a period marked by a succession of storms remarkable for their intensity, will be exploited to complete the validation.

Deterministic simulations will be used to capture the non-linearity and precise kinematics (i.e. loads) of extreme sea states in the zone of breaking waves.

The role of interactions between wind and waves in storm and cyclonic conditions will be explored through the implementation of a model coupling the ocean and the atmosphere. These studies will be supplemented by wave flume trials.

The benefits of **DIME** will impact all MRE technologies.





Source: Sutherland & Melville, 2013

Objectives:

- Improve the characterization of extreme (breaking) sea states for MRE systems,
- Contribute to standardizing the dimensioning of MRE systems.

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