Spatio-temporal analysis of storm waves evolution in the North Sea and Bay of Biscay from 1990 to 2021

Manuel Corrales-Gonzalez [1]

Matías Alday-Gonzalez [2]

Emiliano Gorr-Pozzi [1]

George Lavidas [2]

Giuseppe Giorgi [1]

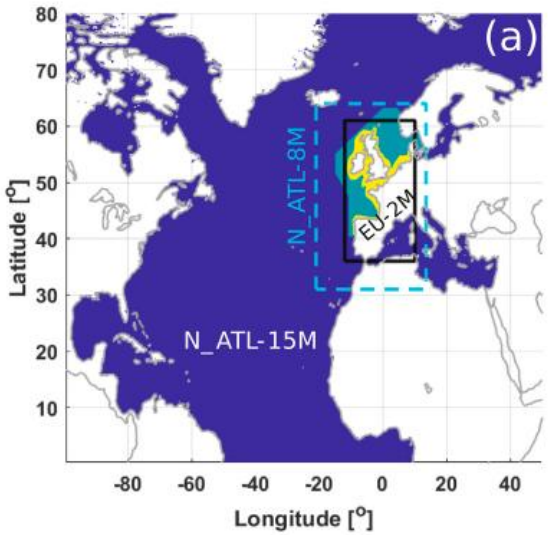
[1] MOREnergy Lab - Department of Mechanical and Aerospace Engineering (DIMEAS), Politecnico di Torino

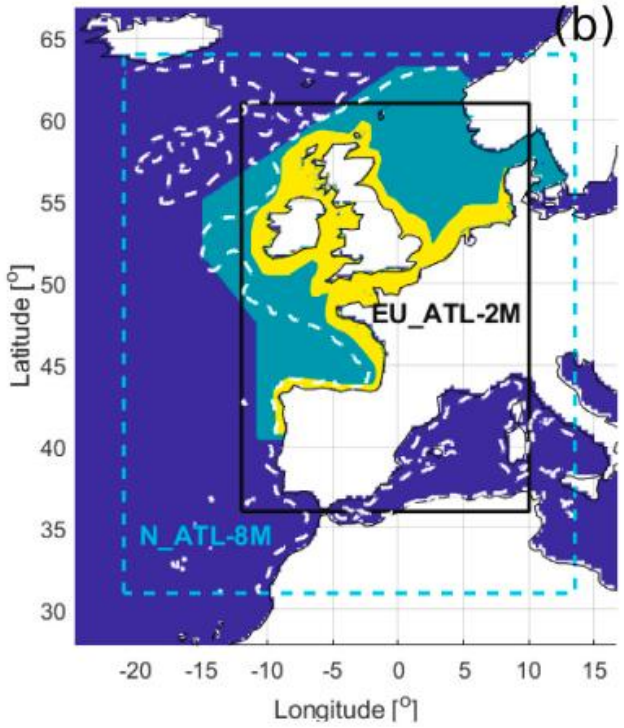
[2] Offshore Engineering, Delft University of Technology

4th International Workshop on Waves, Storm Surges and Coastal Hazards

Santander, Spain

Overview

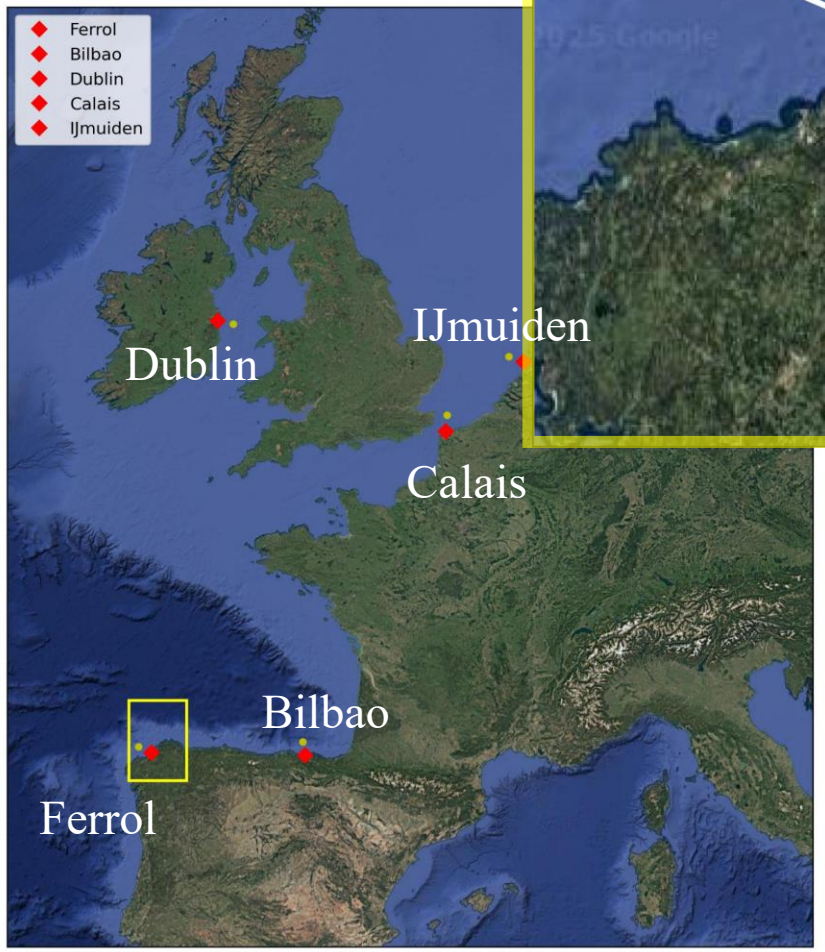




The **ECHOWAVE** Hindcast: : A 30-years high resolution database for wave energy applications in North Atlantic European waters [1]

[1] Alday, M. and Lavidas, G., 2024. The ECHOWAVE Hindcast: A 30-years high resolution database for wave energy applications in North Atlantic European waters. *Renewable Energy*, *236*, p.121391.

Five locations assessed nearby key ports



Methodology

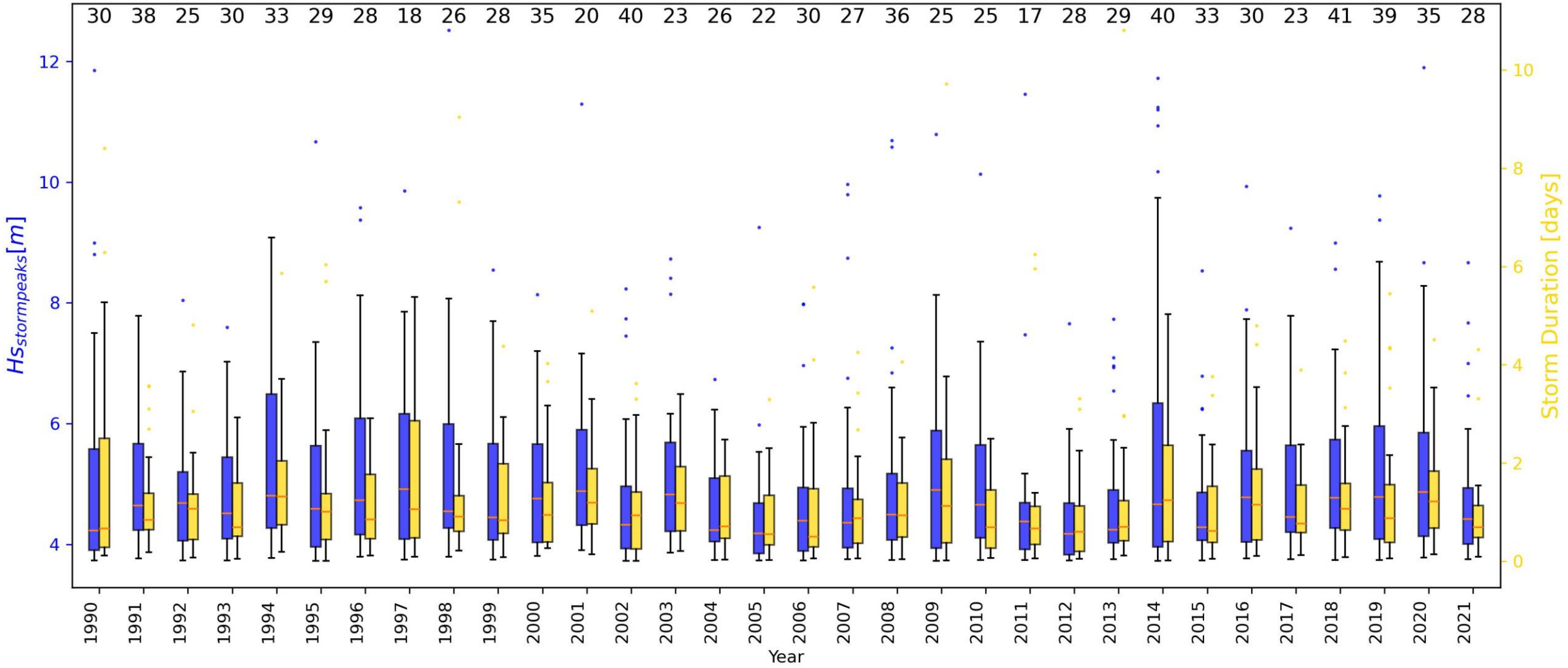
Over the five studied locations:

- Determination of storms: POT 90%
- Storm durations trends
- Seasonal distribution of storm durations and intensity
- Trends of offshore & inshore starting times of storm
- Mean and maxima trends of Hs and Tp of sea and swell partitions

* Unsupervised DL-based early warning system

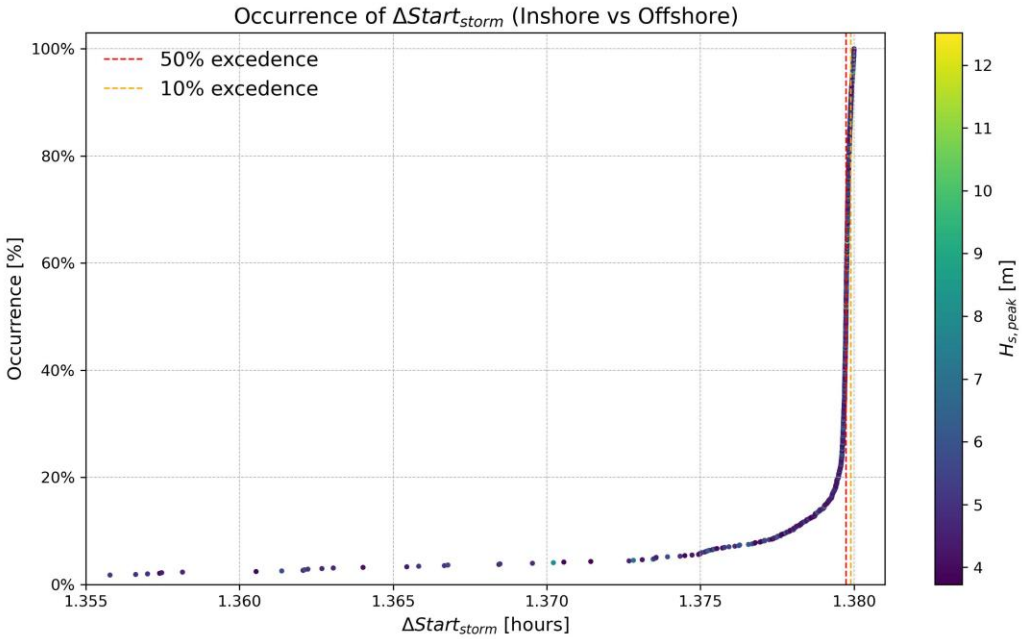
Highlighted results

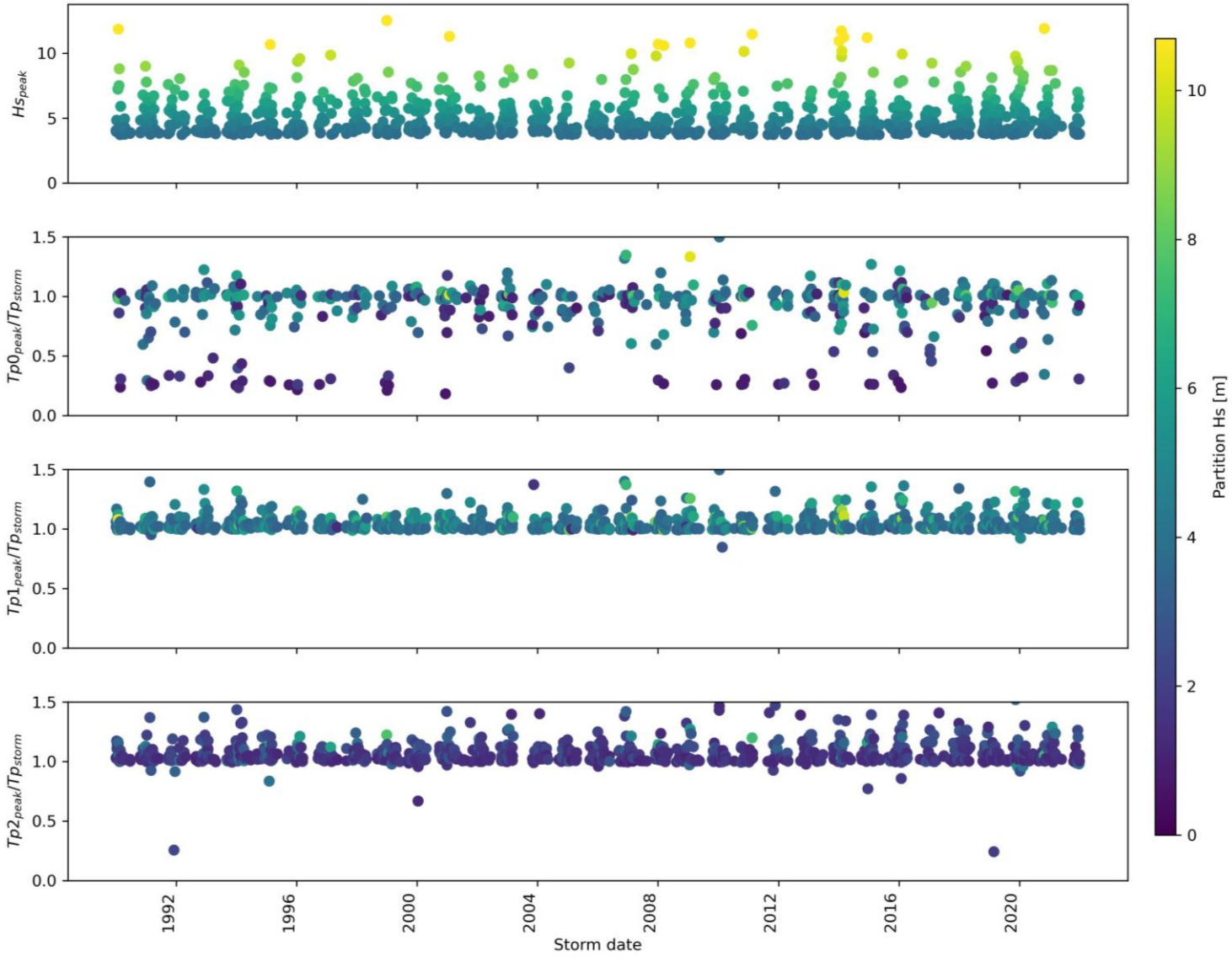
Ferrol, Spain

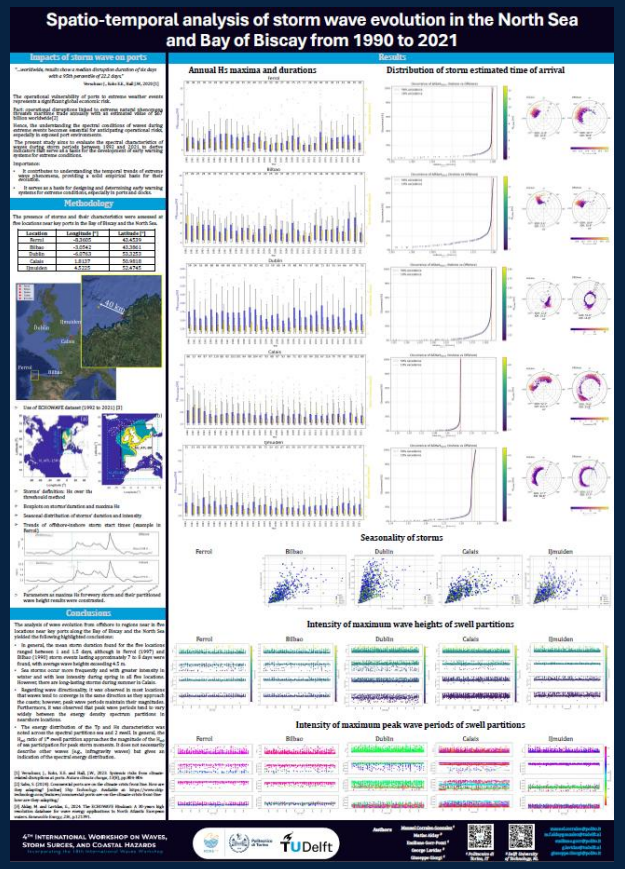


Highlighted results

Ferrol, Spain







Thank you for your attention!
Any questions?

MORE LAB

Politecnico di Torino

TU Delft

manuel.corrales@polito.it
m.f.aldaygonzalez@tudelft.nl
emiliano.gorr@polito.it
g.lavidas@tudelft.nl
giuseppe.Giorgi@polito.it