LeOPARDS
Leveraging Ocean Power Assessments for Research, Development, & Sustainability

Dr Jamie Mathews

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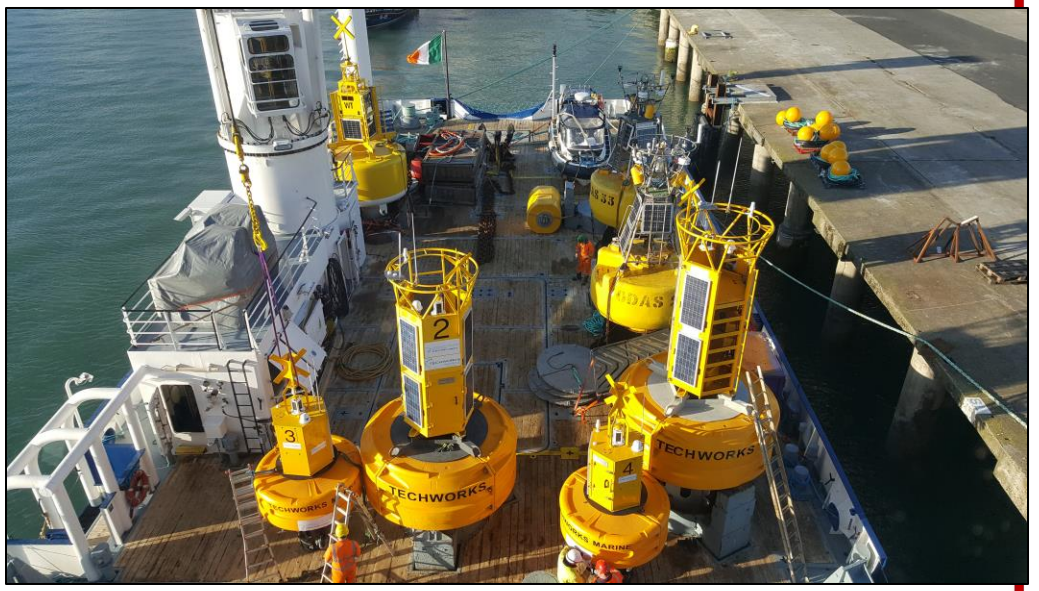
TECHWORKS MARINE

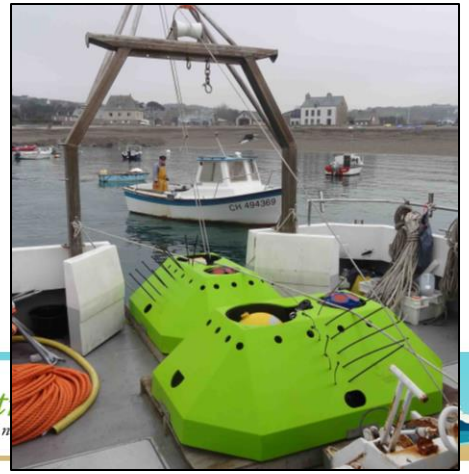
Marine Institute
Foras na Mara

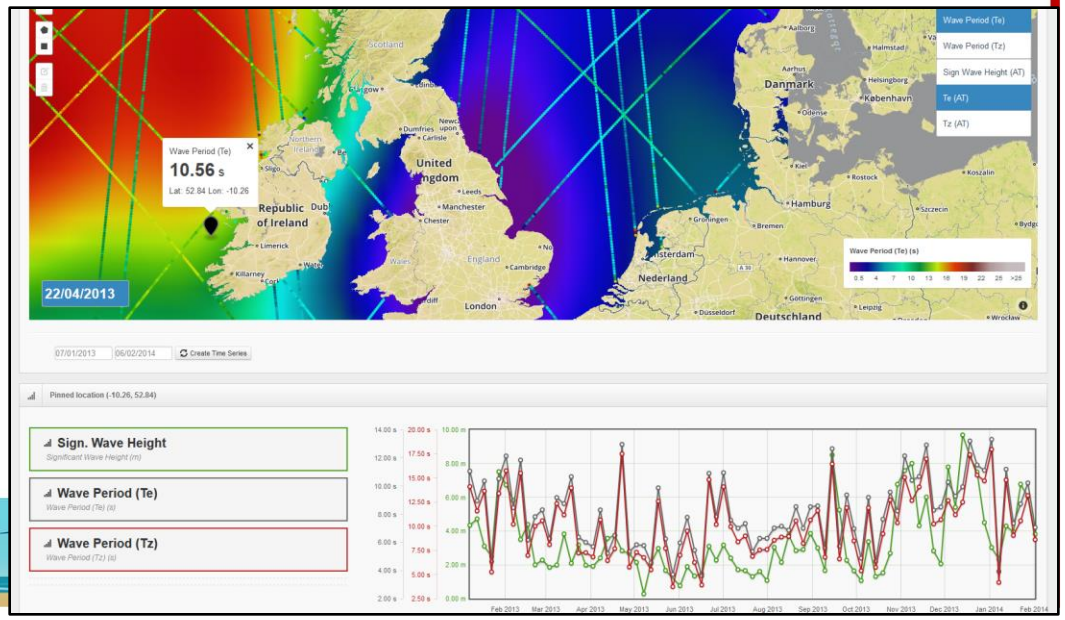
TECHWORKS MARINE



International Leaders in Robust, Reliable, Secure Marine Data

- Established in 2002
- Based in Dublin, Ireland
- Sectors: Coastal Engineering; Offshore Marine Energy; Ports and Marine Research.
- ISO and Achilles UVDB Certified
- Fully insured for Metocean surveys

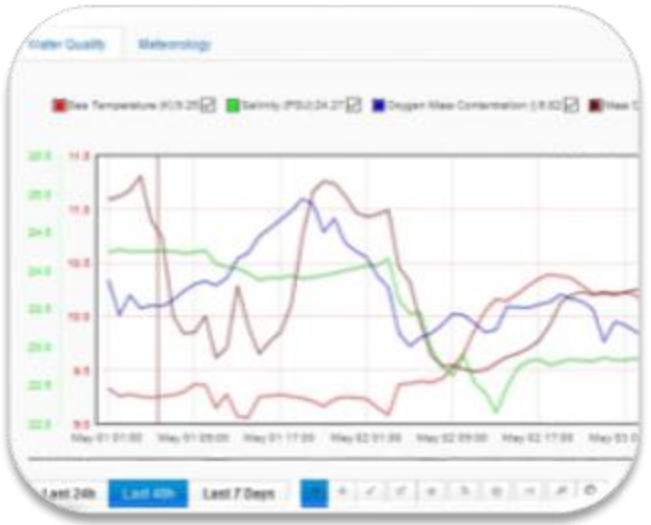




QUALITY I.S. EN ISO 9001:2015 NSAI Certified

ENVIRONMENT I.S. EN ISO 14001:2015 NSAI Certified

HEALTH & SAFETY I.S. ISO 45001:2018 NSAI Certified



Integrated Data Buoys

- Real-time enabled
- TMBB data acquisition technology
- Plug and play with a wide range of marine sensors
- 3G, VHF, and Iridium communications

Data Management and Delivery

- Regular field service
- Data telemetry
- Data management including: quality assurance, calibration
- **CoastEye** - live data portal

Value added Products & Services

- Using satellite EO data products (global coverage)
- Validating numerical models
- Hydrographic/Metocean survey provision
- Equipment sales/Rental

LeOPARDS aims to test the effect of platform and mooring type on the quality of the outputted wave data.

- Deploy a variety of buoy platforms for comparison
- Create a baseline climatology in the selected Designated Maritime Area Plan (DMAP) to **assist with future offshore renewable wind developments**
- Rebuild the TechWorks Marine in house wave model and extend its climatology to 30 years

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Leveraging **O**cean **P**ower **A**ssessments for **R**esearch, **D**evelopment, & **S**ustainability (**LeOPARDS**)

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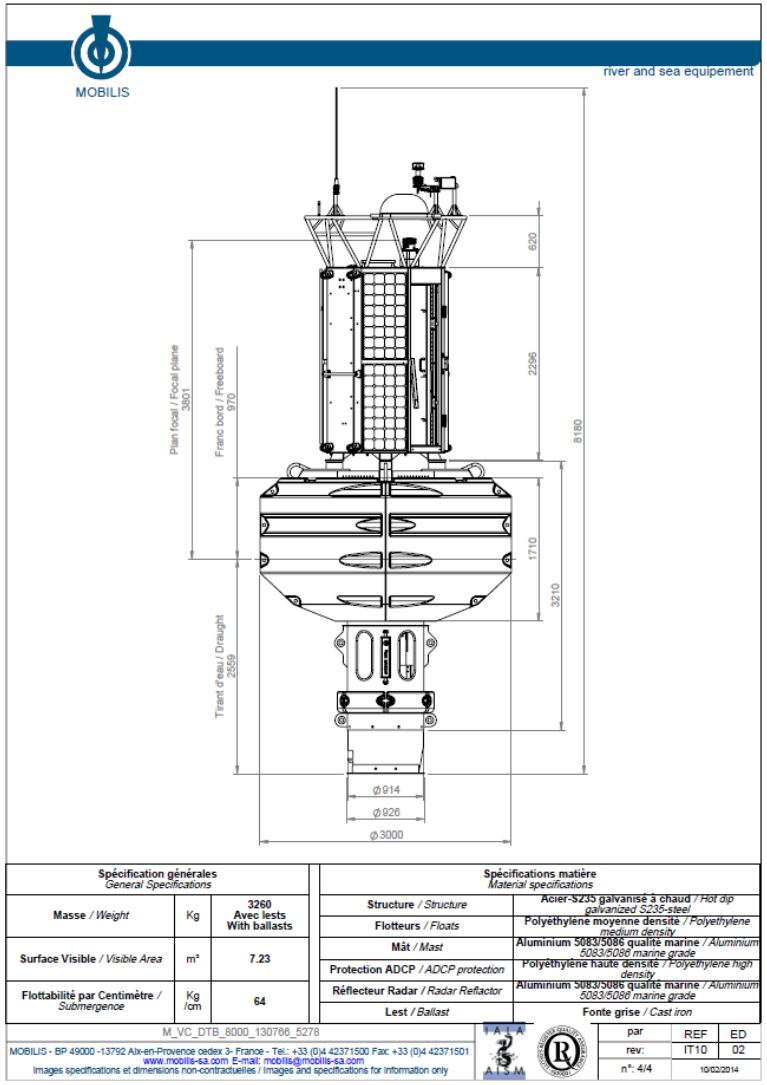
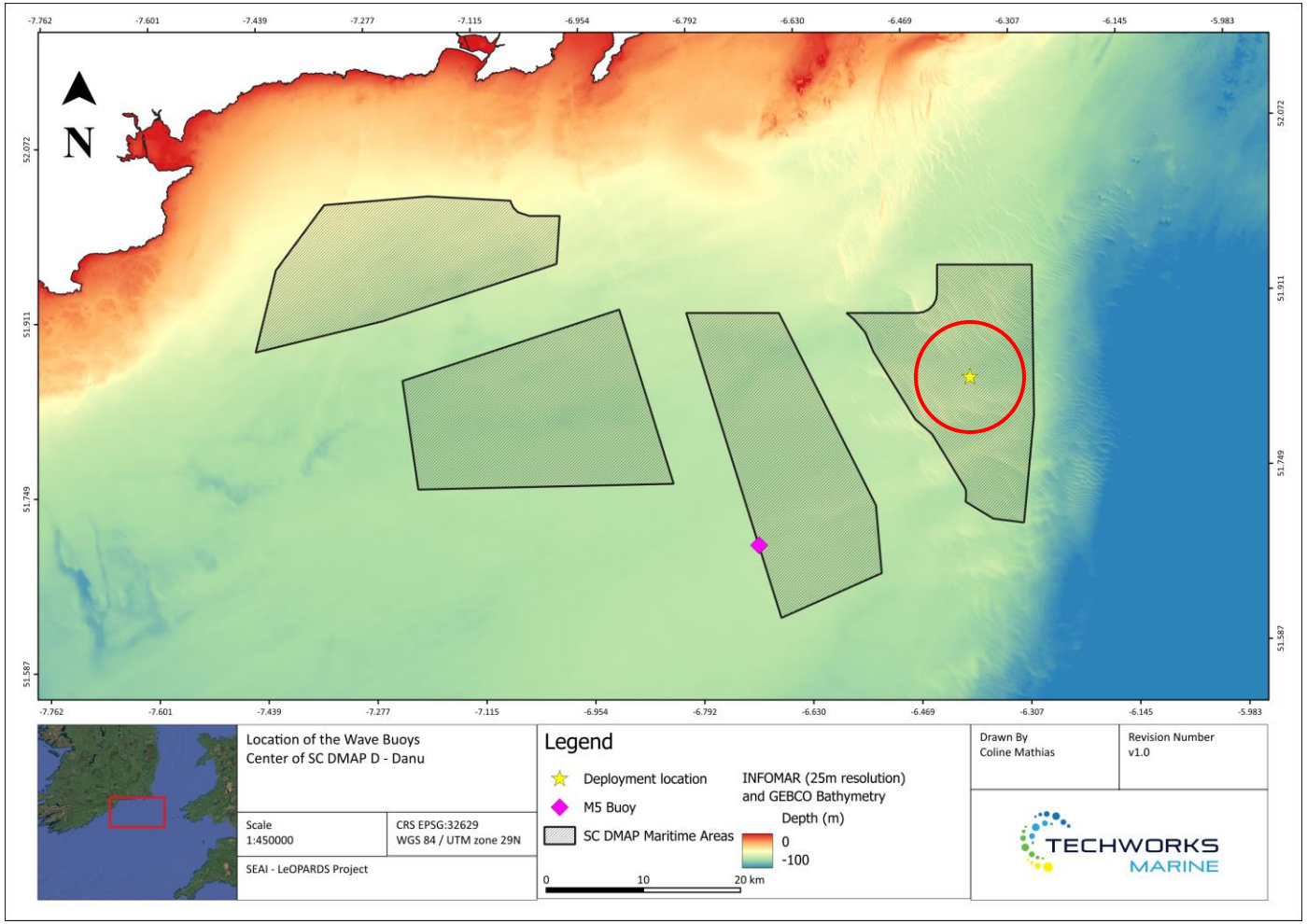
Deployment

Platform	Mooring	Sensor
DB8000 A	Rope and chain	Wave Sensor
DB8000 B	Flexible	Wave Sensor Met Station
Wave Rider	Elastomer	Wave Sensor
Seabed Frame	Anchored	ADCP



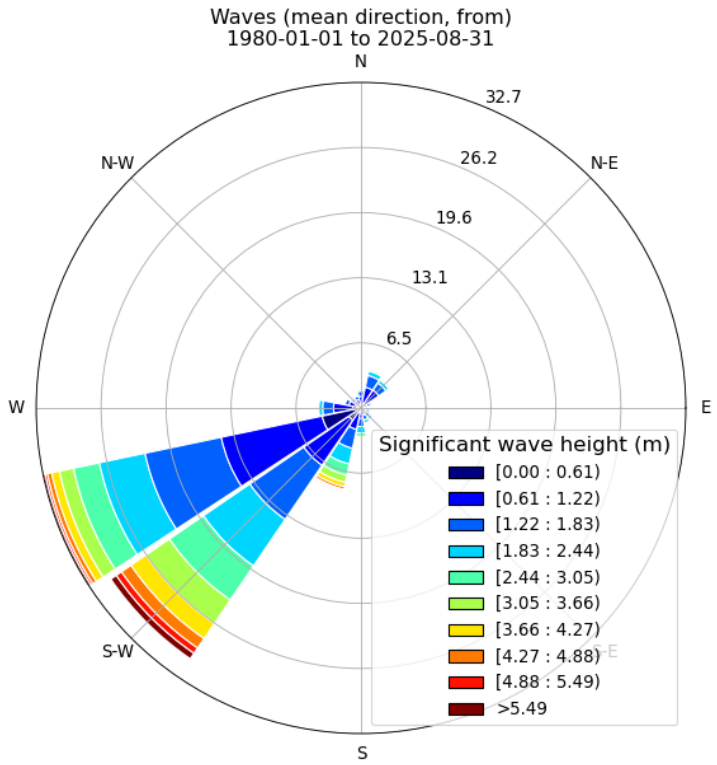
Deployment

- June 2026 – June 2027
- South East Coast DMAP: *Danu*
- 65m depth
- Very challenging conditions
- Expected to get the full spectrum of wave conditions possible

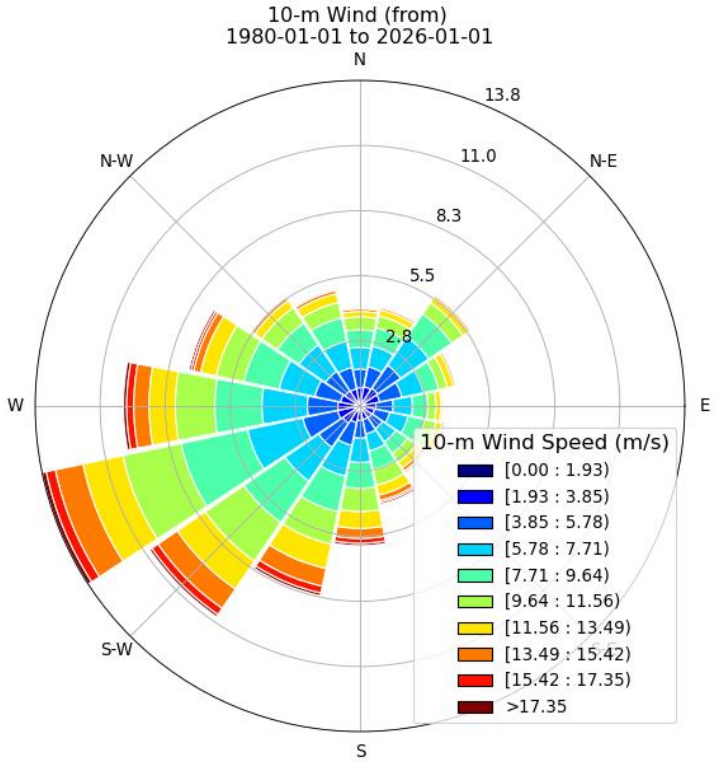


Site Statistics

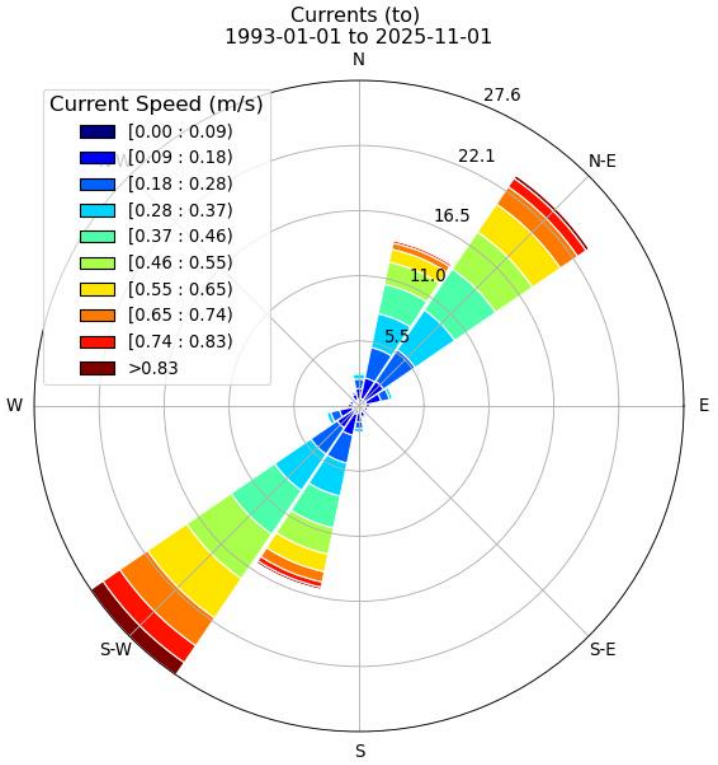
Waves



Wind



Current



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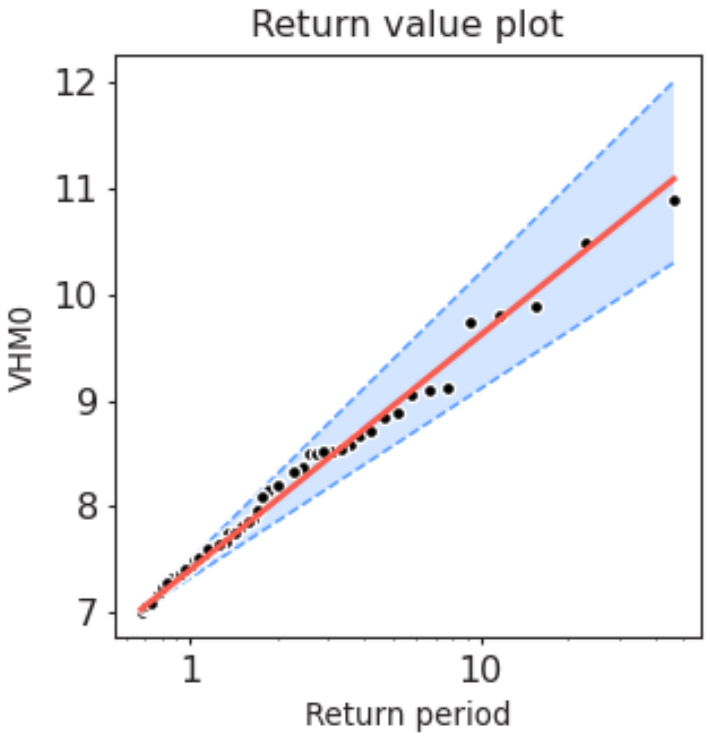

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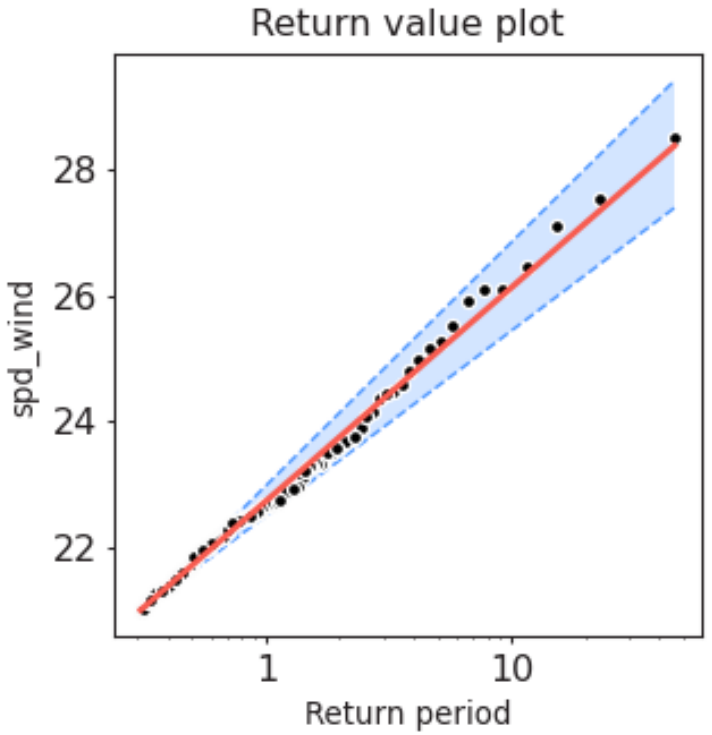

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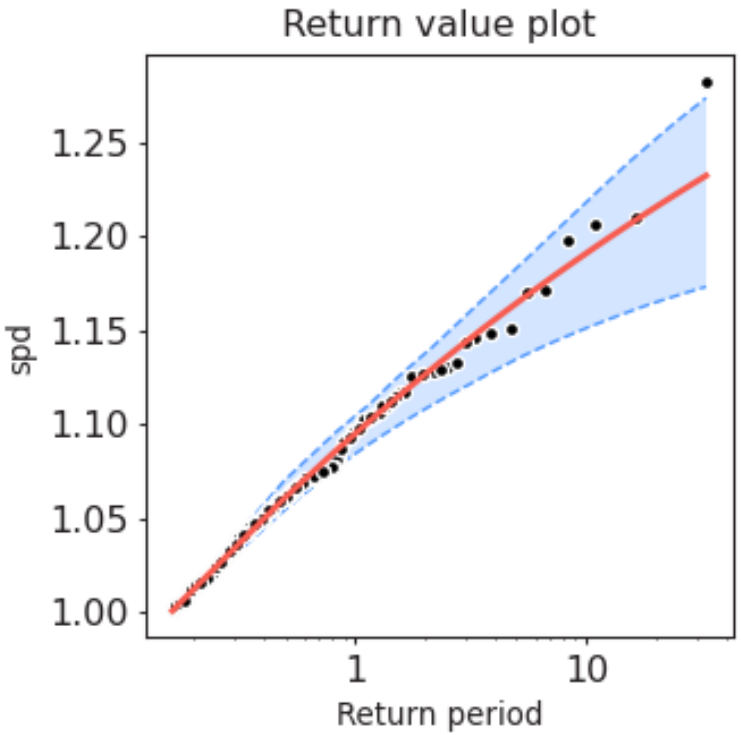
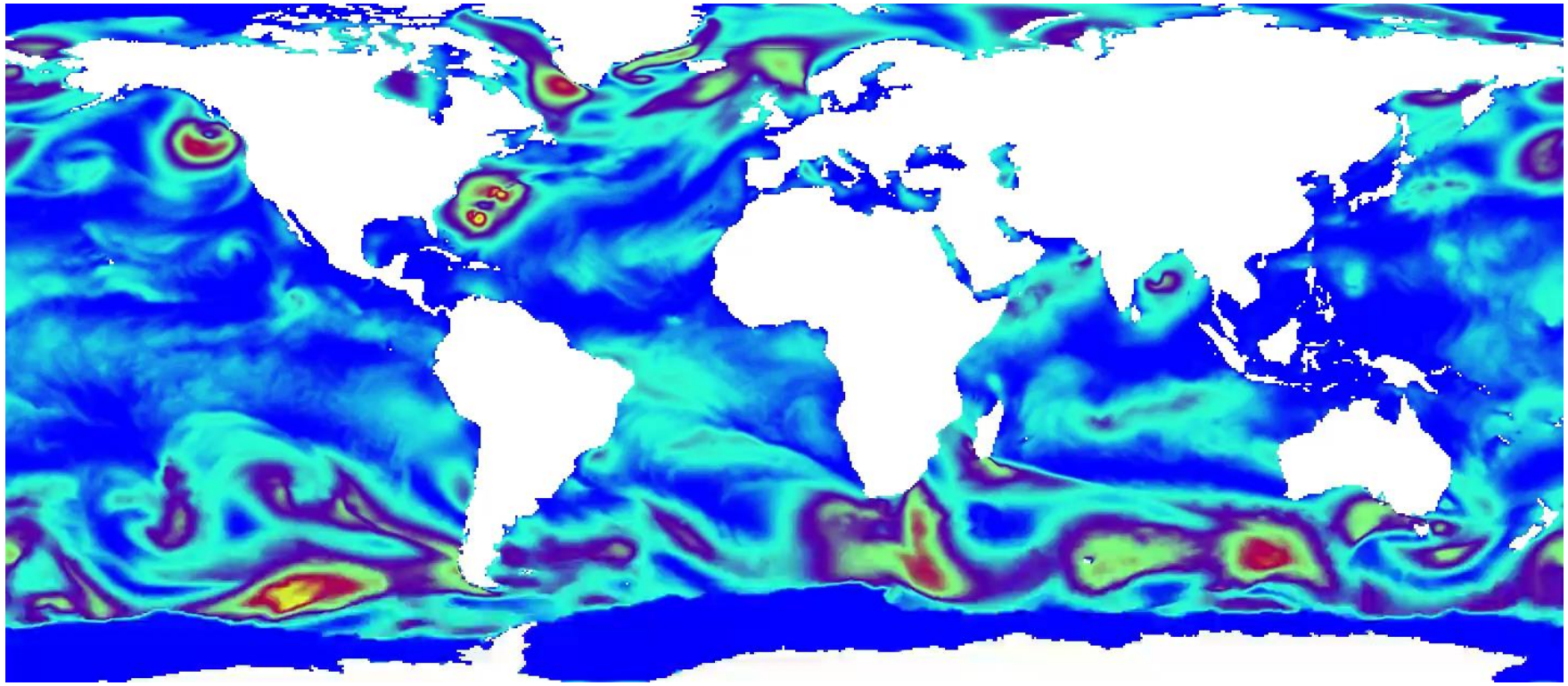


Wave Model

- Built on WAVEWATCH III V7.14 from Ifremer
- Forced by ERA5 winds, ice extent, currents and Sea Surface Heights
- Nested grids: Global, European and Irish-UK (55.5, 18.5, 3.7km resolution respectively)
- Validated model output against in-situ wave measurements



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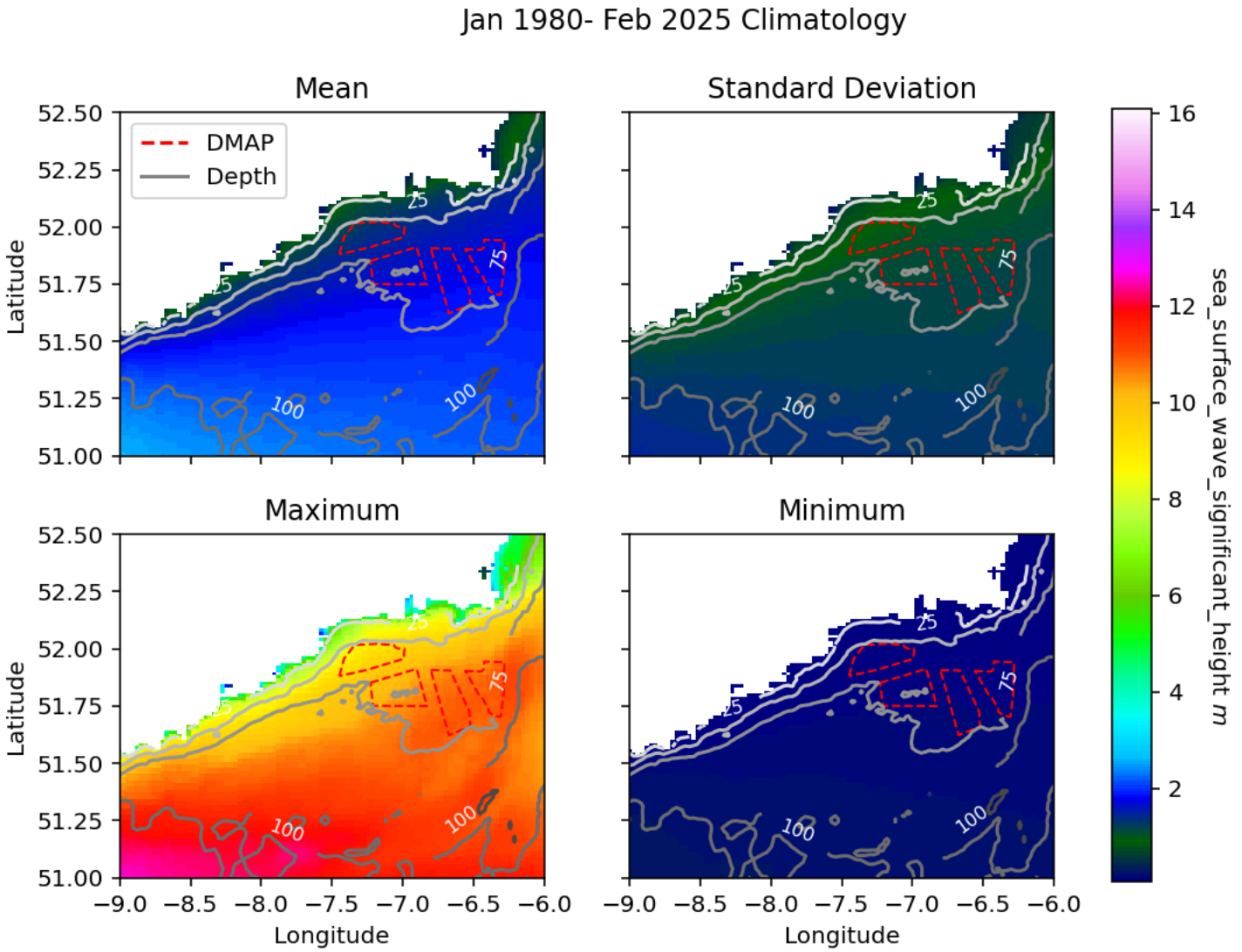
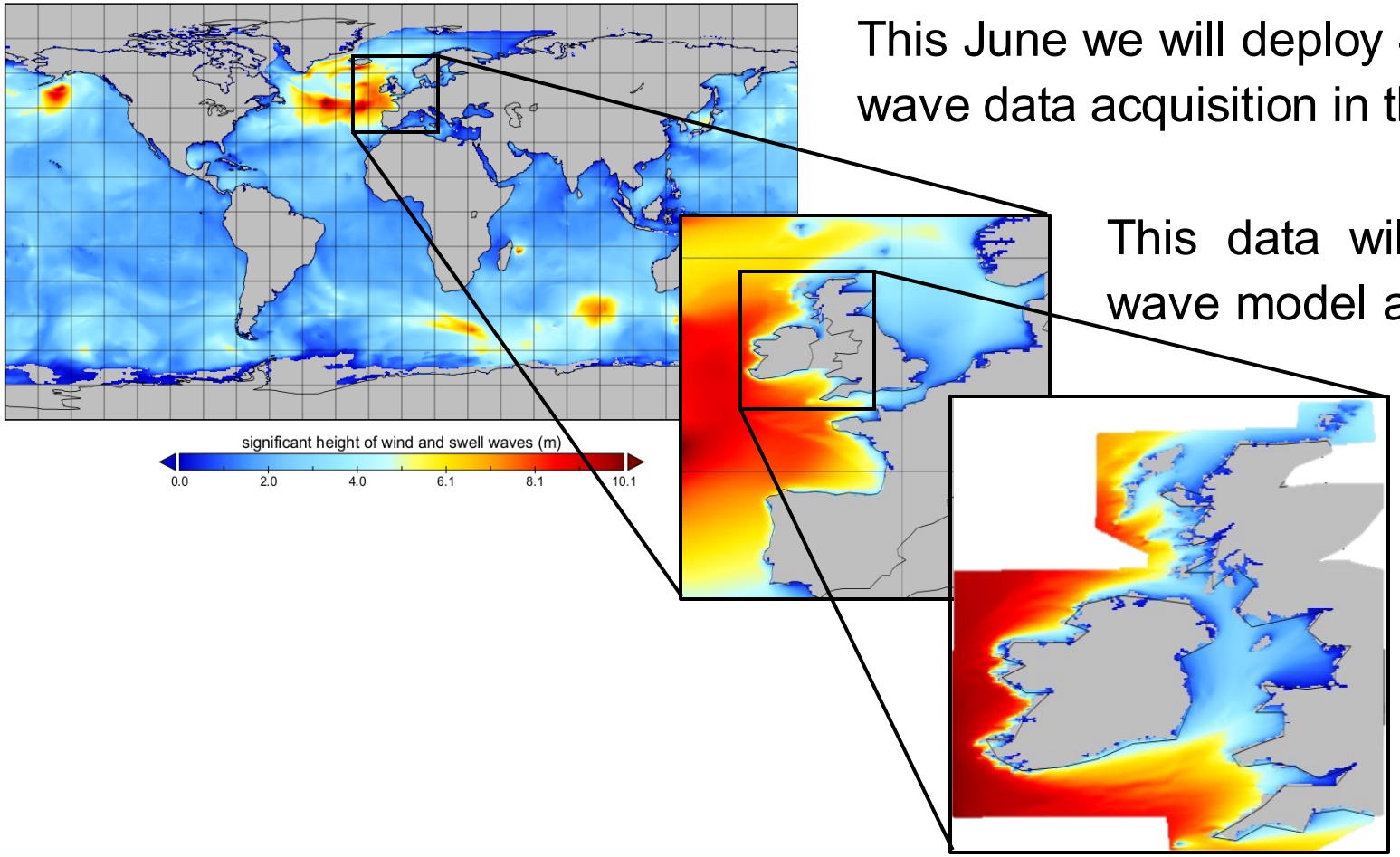


Conclusion



This June we will deploy 4 platforms to test the difference in wave data acquisition in the *Danu* South East Coast DMAP

This data will be used to tune our in-house wave model and create a robust wave statistics across the Irish coastline.

This project will set a new standard for state-of-the-art wave data acquisition, increasing confidence in surveying operations for the off-shore renewable energy industry.

TECHWORKS MARINE

Thank you for listening

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