Developing measurement opportunities through knowledge exchange

EIMR – 2014

Ian Ashton, Lars Johanning - University of Exeter

Richard Argall, Rachel Nicholls-Lee - Mojo Maritime

NERC SCIENCE OF THE ENVIRONMENT

UNIVERSITY OF EXETER

mojomaritime wind · tide · wave

University of Exeter

- Applied oceanographic measurements
- Waves and currents
- Ecological conditions
- Engineering assessments

Support testing and proliferation of MRE in the region

FaB Test

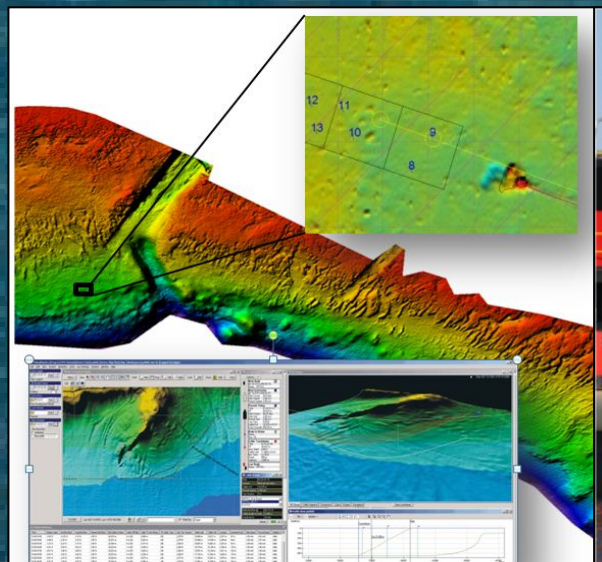
Wave Hub

Supported by the Regional Growth Func

PRIMaRE

Mojo Maritime

- Project Management, Engineering and Consultancy services for MRE
- Collaborations with the University of Exeter support R&D
- Particular experience in areas of high tidal flow
- Innovative R&D in instrumentation for tidal flows



Mojo Maritime Current buoy

NERC SCIENCE OF THE ENVIRONMENT

mojomaritime wind • tide • wave

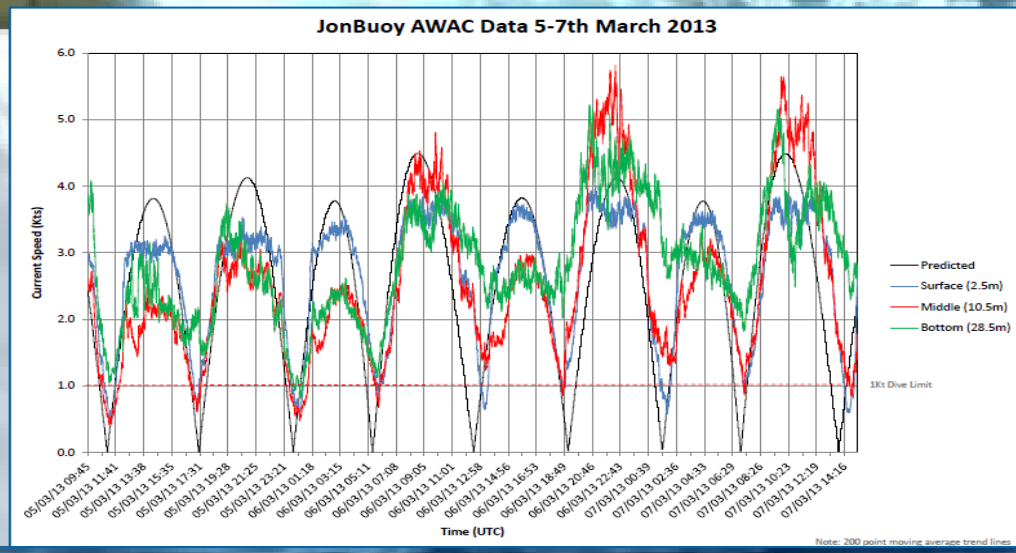
UNIVERSITY OF EXETER

Mojo current buoy

- Unique design prevents submersion
- Wi-fi provides real-time transmission of large data sets
- Linked to vessels to support marine operations

Mark II

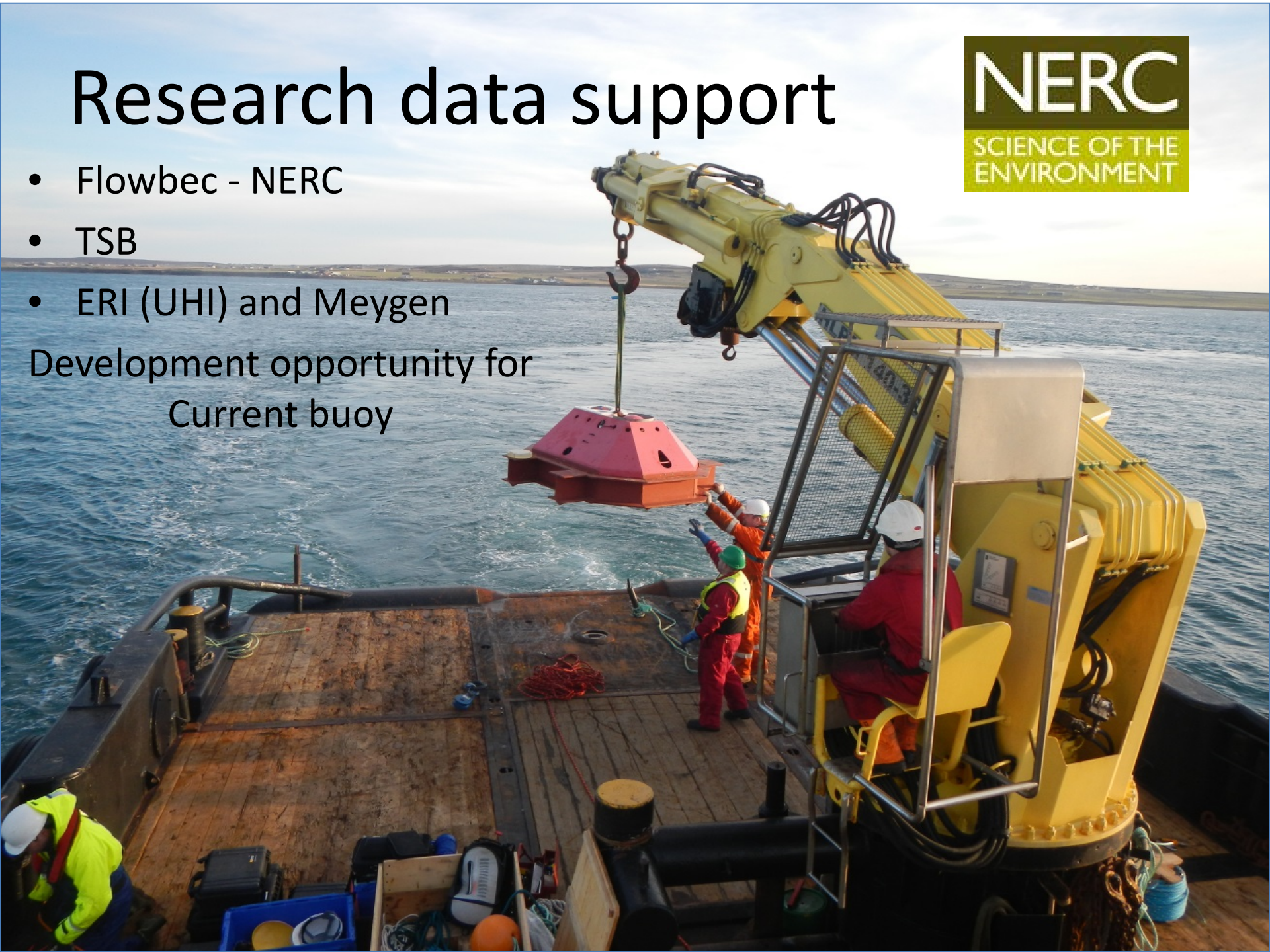
- Wave measurement capability
- Possibility of sediment and acoustic noise
- Proven design offers potential for monitoring MRE sites



Research data support

- Flowbec - NERC
- TSB
- ERI (UHI) and Meygen

Development opportunity for
Current buoy



Ongoing Collaboration

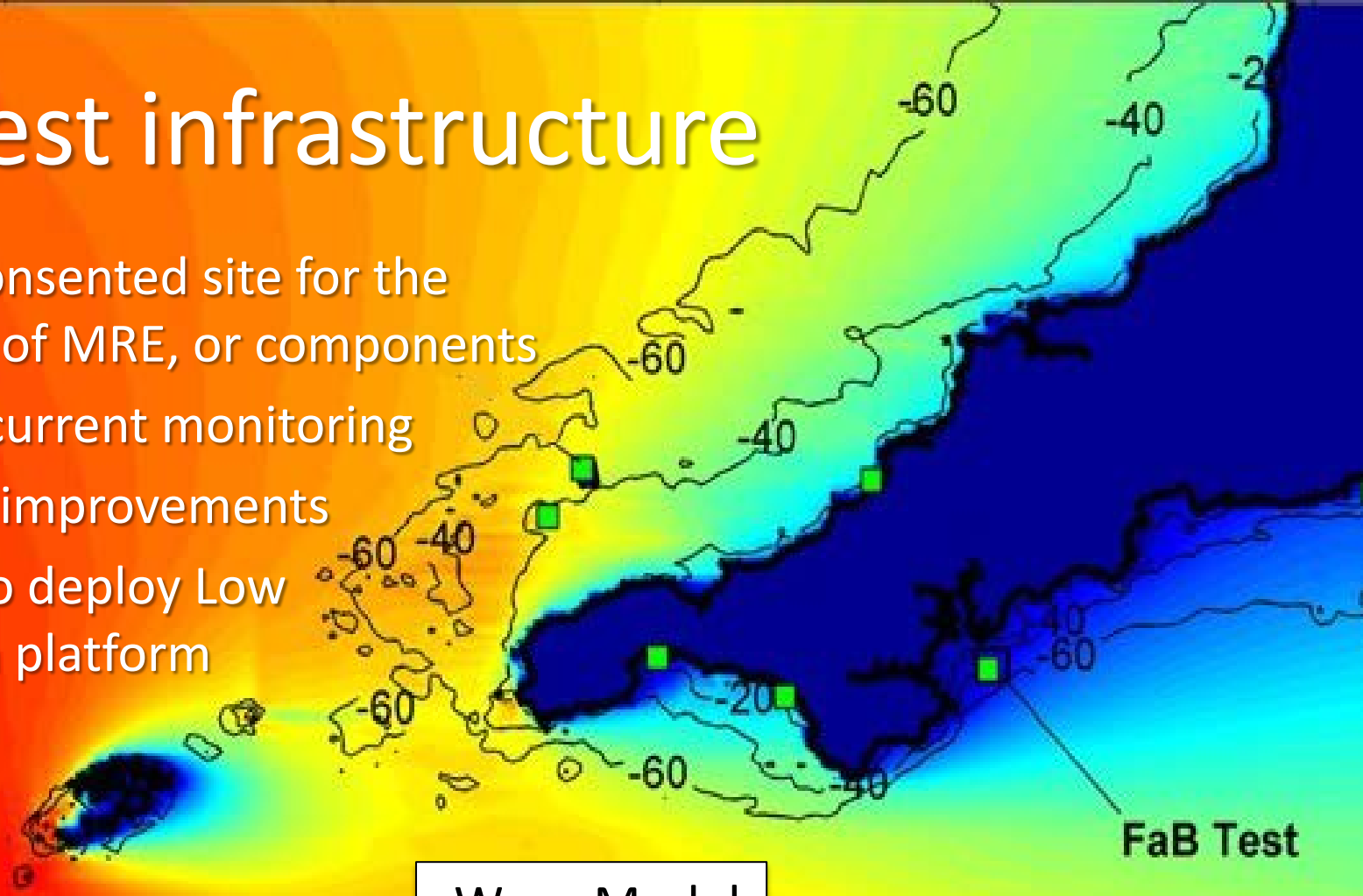
- Developing a low motion platform for Lidar wind monitoring
- Funding secured for trial deployment at FaBTest

- FaBTest site with significant recent investment through RGF
- Supporting test programs with measurement and analysis

Again, working together to develop new measurement technology, and incorporating into best practice for MRE

FaBTest infrastructure

- Fully consented site for the testing of MRE, or components
- Wave/current monitoring
- Survey improvements
- Mojo to deploy Low Motion platform



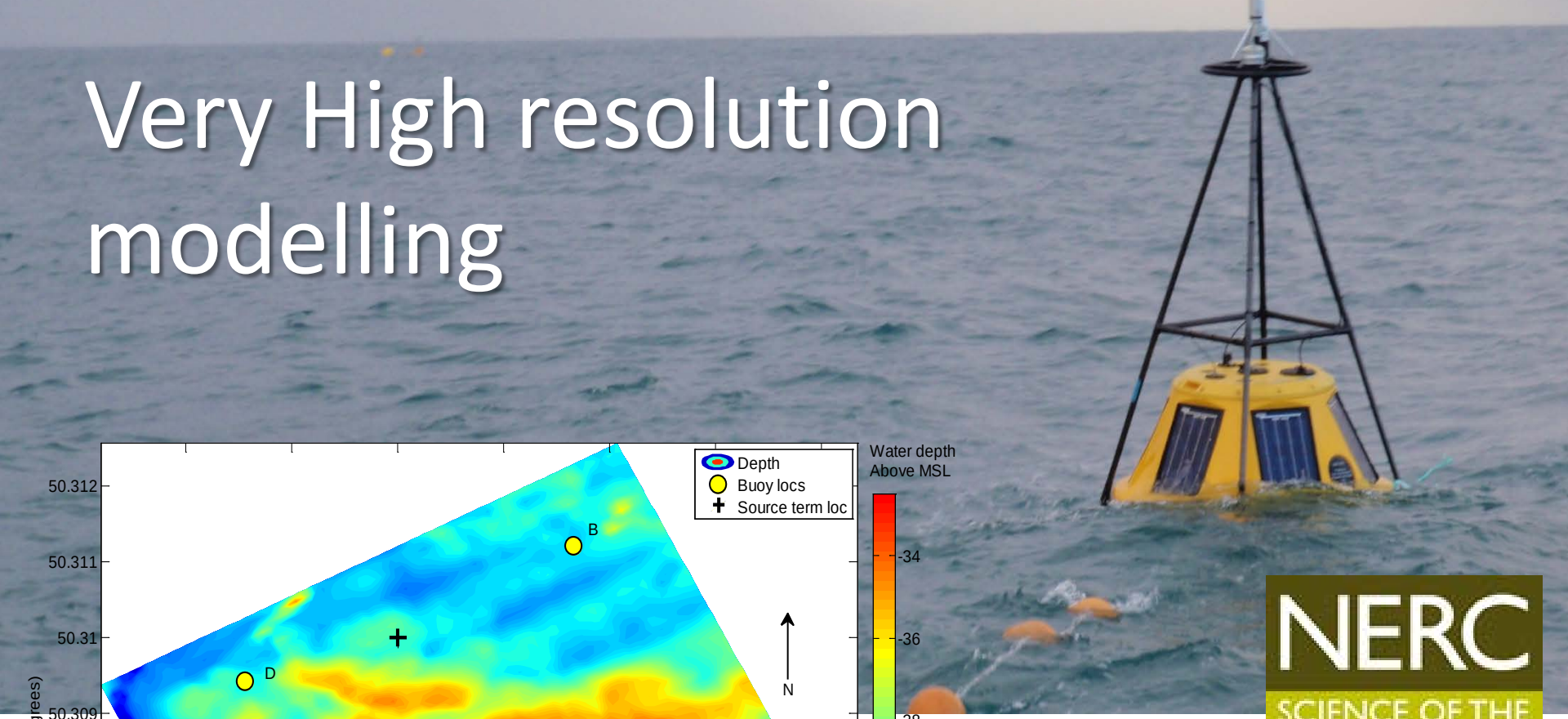
Wave Model

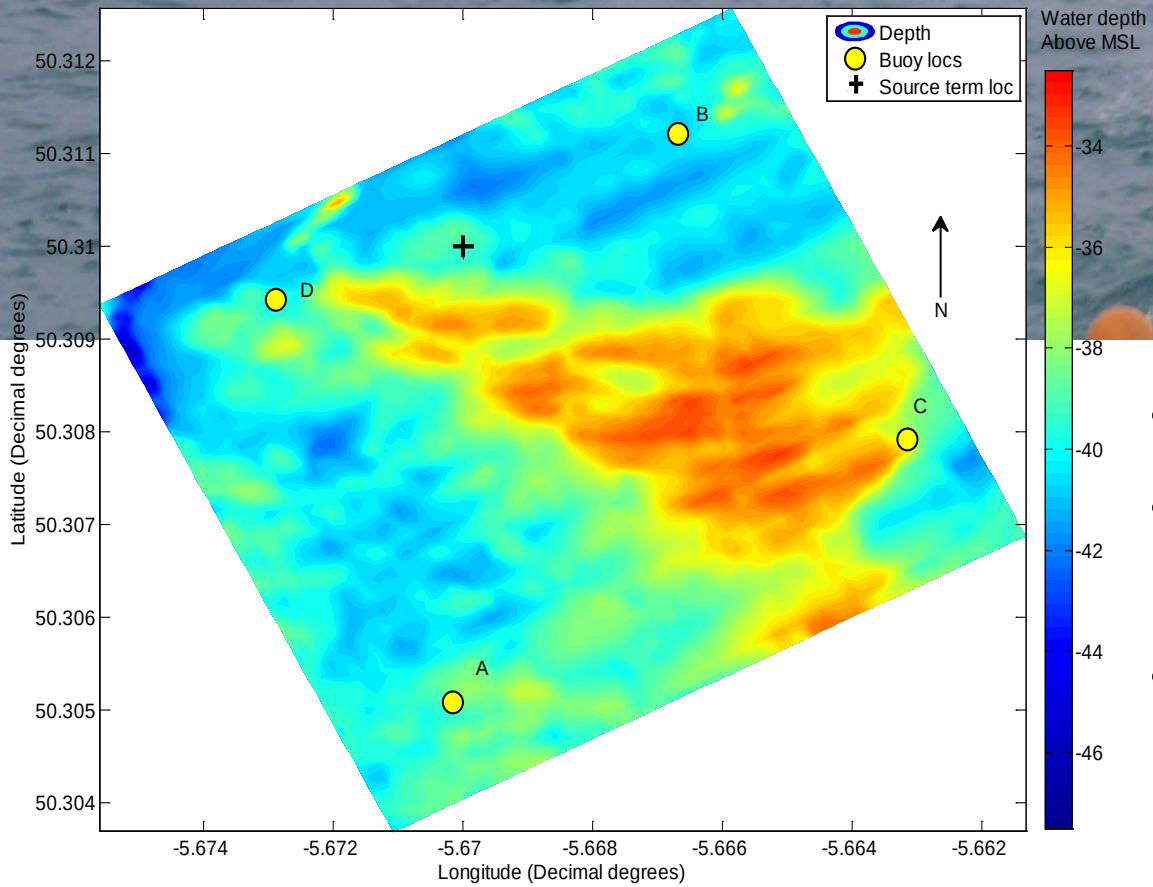
Mooring loads	Wave Buoys	ADCP's	Wind?

FaB Test

Supported by the Regional Growth Func

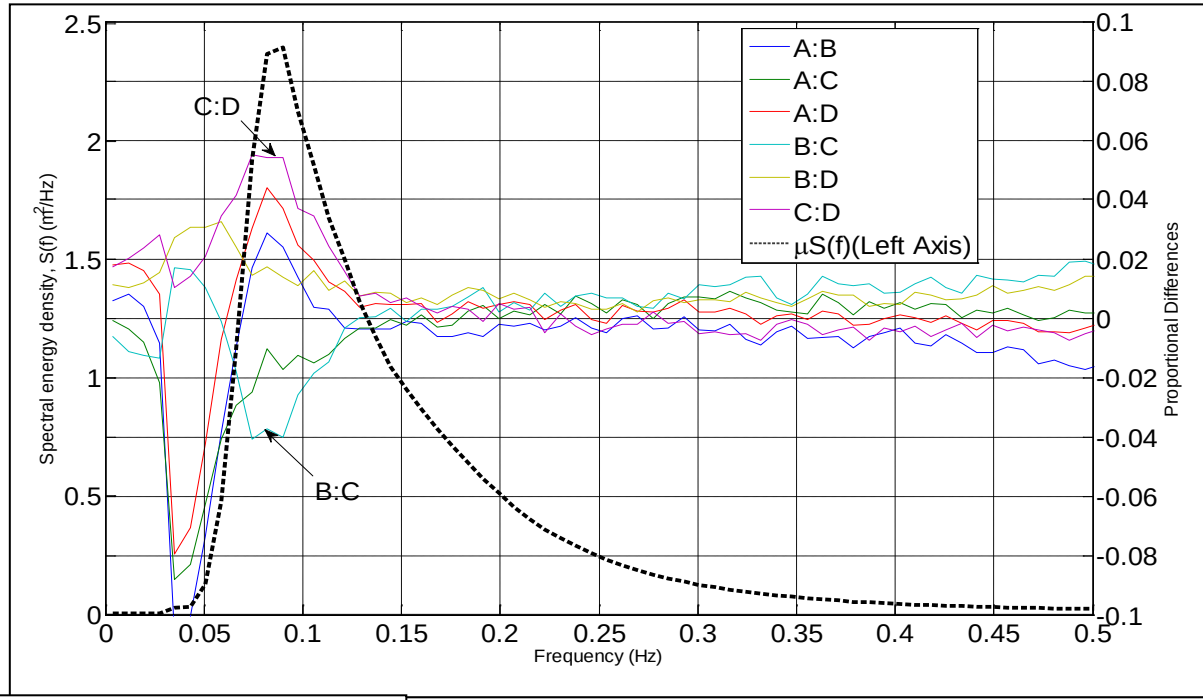
Very High resolution modelling

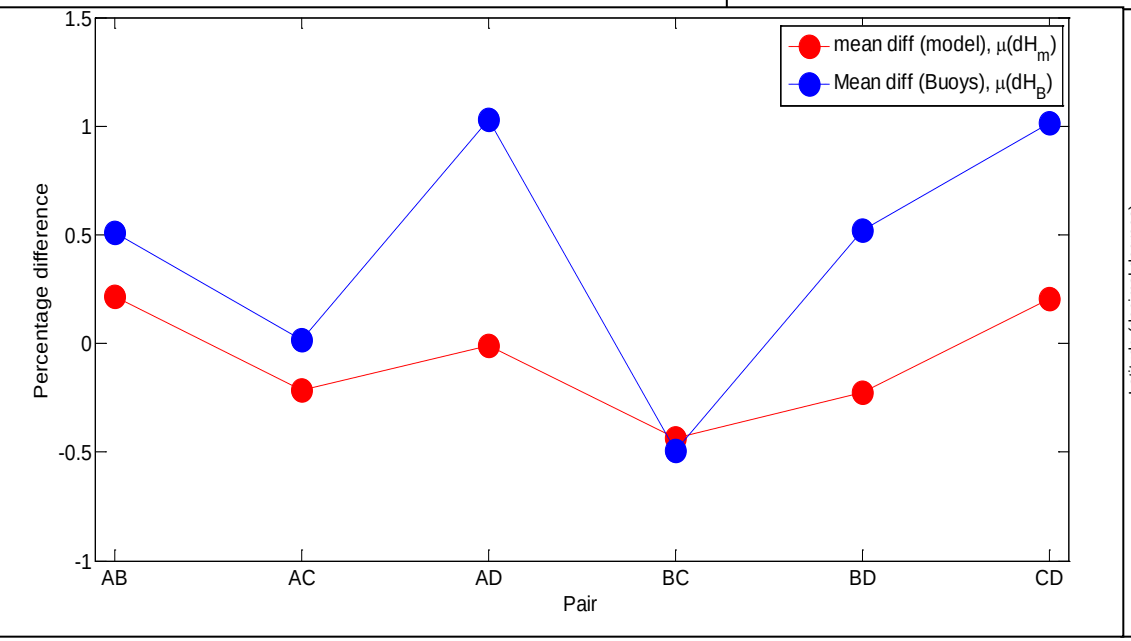


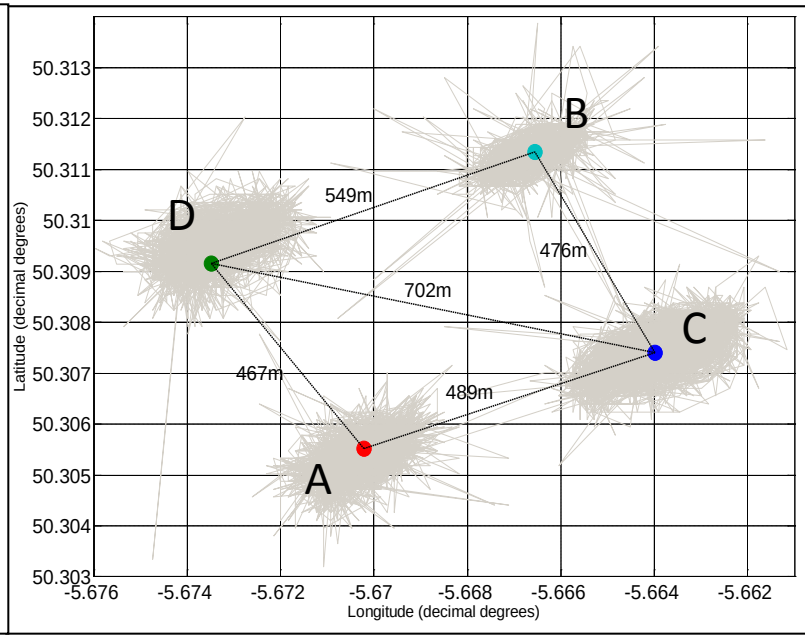


- Flowbec
- Resolving intra-site variability
- Validation against measurements

- Significant variability within 500m
- Model improves accuracy over one single buoy
- Highly dependent on inputs
- Wind/Survey/Tide



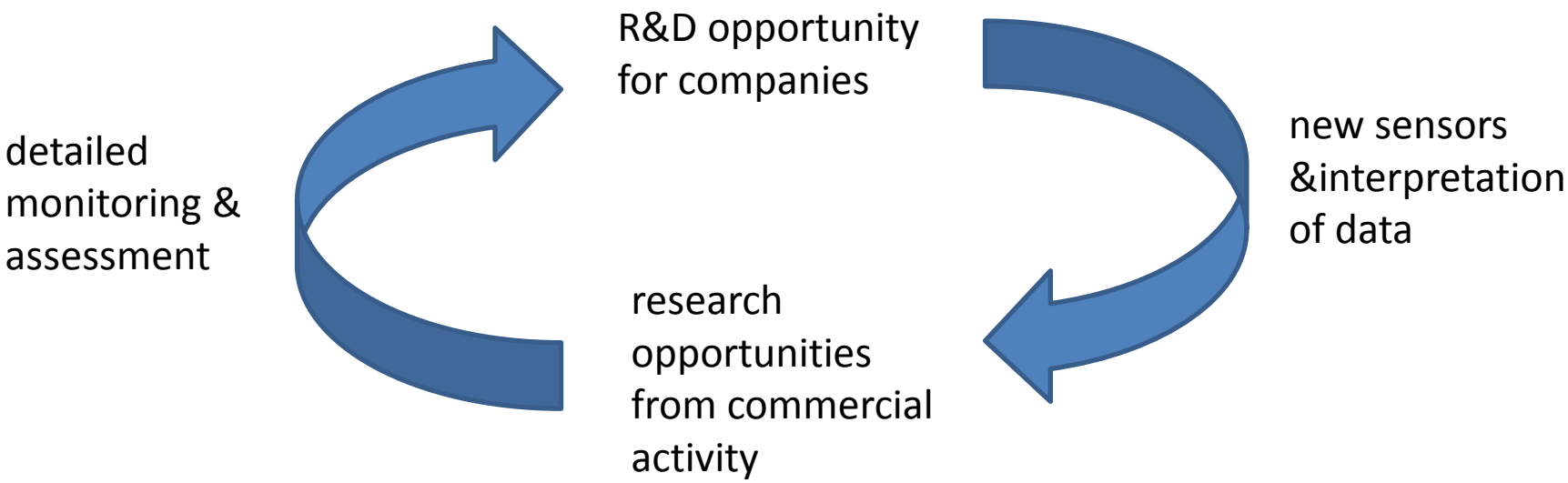




I.G. Ashton *et al*. 2014 Spatial variability of waves … Energy 66, 699-710

Summary

- Mojo Maritime offer innovative, practical solutions to challenges of measurement in MRE sites
- Interactions with UofE help use ingenuity of company in research, and feedback to support product development for global marketplace



Thank you for listening

Thanks to NERC for the Internship opportunity

Ian Ashton, University of Exeter

iga202@ex.ac.uk

Mojo Maritime enquiries

r.argall@mojomaritime.com

NERC SCIENCE OF THE ENVIRONMENT

FaB Test

Supported by the Regional Growth Func

mojomaritime wind · tide · wave