Case Study
Tegan Foster

About Tegan

Tegan had worked in industry for many years, initially working on aircraft before finding herself at Jaguar Land Rover focused on power systems and electric vehicles. Alongside this she undertook a part time MSc, conducting a final project on modelling power losses in electric drive units, which brought her interest in modelling and research to life. The pandemic proved a good opportunity to leave the automotive industry and consider a path that she was more enthusiastic about - energy and renewables. IDCORE presented an opportunity to apply the skills she had developed by contributing to the offshore renewables industry.

> *Studying at IDCORE has confirmed my passion for working in the offshore renewables sector. I would love to take what I have learned both through the training and my project work and combine it with my other engineering skills to support the development of effective control systems for offshore renewable energy substructures.*

Tegan's Sponsor

Tegan's industrial partner is Stiesdal, a climate technology company based in Denmark. They are particularly engaged in offshore technologies, with the aim of providing technology solutions that enable unlimited, low-cost offshore wind energy from floating offshore wind turbine generators. One of Stiesdal's technologies is the modular TetraSpar concept, the world's first full-scale demonstration floating offshore wind platform.

Although the EPSRC funding for IDCORE restricts the amount of time she can spend in Denmark to a maximum of three months each year, Tegan is making regular visits to Stiesdal's headquarters, and is learning Danish to help with this. Alongside these visits she has regular online engagement in company-wide meetings and calls, and is acting as an important link for their research activities in the UK.

Stiesdal®
OFFSHORE TECHNOLOGIES

Feb **22**

Tegan's Project

Stiesdal had a very clear specification for the project they wanted delivering, and this has allowed Tegan to immediately engage in tackling a niche industry problem. The research seeks to determine which hydrodynamic load modelling methods are most suitable when assessing substructure concepts for floating offshore wind turbines. The work is particularly focussed on reliable prediction of wave run-up onto the platforms and in capturing the abnormal effects of wave-structure interaction.

Tegan has completed initial prototype testing and data collection in the FloWave facility at the University of Edinburgh using a 1:50 scale model. She really enjoyed this practical element, which also allowed her to get to know her Danish colleagues better, when they came over to join her at the test centre. The data they collected will now form the basis for ongoing analysis and modelling to characterise the response of floating platforms to extreme weather conditions.

> *One of the enduring delights of being part of IDCORE is watching the students learn, develop and make a significant difference to the industry, both through their project work and through the roles they subsequently take on. Tegan is no exception to this. Her project is taking her knowledge, practical skills and ability to learn and applying them in a way that meets a clearly defined industry need. I couldn't think of a better way of demonstrating the benefits of IDCORE.*
>
> *Lars Johanning, Academic Supervisor, University of Exeter*

THE UNIVERSITY of EDINBURGH

UNIVERSITY OF EXETER

University of Strathclyde Glasgow

UKRI Natural Environment Research Council

UKRI Engineering and Physical Sciences Research Council

SAMS Scottish Association for Marine Science