Case Study

Daria Cislo

EPSRC & NERC InDustrial CDT for Offshore Renewable Energy

www.idcore.ac.uk

Sponsor

Daria's project is sponsored by Xodus Group, an international consultancy that encompasses all aspects of offshore engineering, including renewables, oil and gas, hydrogen and CCUS. She is working within their Environmental Impact Assessment Team, helping augment standardised approaches to carbon and climate assessment for projects that align with recognised best practices.

Project

Daria's carbon footprinting work has been her initial priority, since it is delivering changes to a service already provided by Xodus. The work has required her to review methods and look for improvements, particularly around how to upgrade accounting methods, make the assessments modular and account for potential future design changes. The commercial requirement for this work and the regulatory aspects of it make it very different from a purely academic investigation, significantly increasing its potential impact.

Daria also continues to progress on the second part of the project exploring the impacts of climate change on offshore windfarms. This is using climate model outputs to investigate the implications for windfarm operation and how these vary with geography. This would be a new product for Xodus who currently only offer qualitative assessments in this area. She is currently focussed on developing accessible and user-friendly methods for processing of high-resolution global climate model outputs. This would not be possible without establishing contacts with climate modelling specialists to identify precisely what output data from the models would be needed. These capabilities are not available in the project partner institutions, but this is the benefit of having three academic supervisors – their networks are extensive.

I am a graduate of the IDCORE programme myself, so I know the value of these projects and was delighted to become Daria's industrial supervisor. She is keen, enthusiastic and takes the initiative. She is making an important contribution to the development of our carbon footprinting capabilities, particularly in the areas of uncertainty and estimating emissions from support vessels.

We are seeing increasing demand from clients for both climate and carbon assessments, and we wanted to standardise our approach to these assessments using a digital tool. Equally important to our clients is understanding the physical risks that climate change creates through, for example, changes in wind intensity and sea level rise, and the implications these have on site selection and plant design.

Through her project, Daria has the opportunity to explore these issues and test assumptions in more detail. With the additional academic methodologies and contacts she can provide, she is furthering our analysis and helping us enhance our products.

Quote: Mairi Dorward, Environment Specialist, Xodus

Background

Daria came to IDCORE from her undergraduate studies at the University of Southampton – a four-year Integrated Masters in Marine Biology and Oceanography. Throughout this first degree she focussed on microbiology and the associated large-scale processes that are impacted by climate change.

It was the learning from this course that influenced her choice to pursue a place on the IDCORE Programme with its greater focus on engineering solutions that address climate change. She saw it as an opportunity to continue to work in research, but also to have a more direct impact on climate change.

My colleagues in Southampton were surprised by my decision to pursue an engineering focussed doctorate. It was a big move, but for me IDCORE was an obvious choice with a strong connection to the offshore aspects of my first degree.

I really enjoyed the first year of training, which gave me an opportunity to gain so many new skills with great support from the rest of the cohort. The interdisciplinary nature of the programme meant that we all found a module we were 'expert' in, and we became very reliant on that sharing of knowledge which also brought us together as a social network.

Delivering my project in a consultancy environment has also been enlightening, I am gaining lots of different experiences and support from colleagues to develop my engineering knowledge alongside the other interdisciplinary skills I am able to apply.

Although Xodus is an international company, I am based in a small office in Edinburgh where I have got to know people well. However, one of my supervisors is based in London and I have even been working with colleagues in Australia and the US. I find it very insightful to participate in projects beyond the UK.

Daria Cislo

THE UNIVERSITY of EDINBURGH

University of Exeter

University of Strathclyde Glasgow

SAMS Scottish Association for Marine Science

Natural Environment Research Council

Engineering and Physical Sciences Research Council