

Centre for Doctoral Training: opportunities and ideas

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NOC ASSOCIATION 7TH ANNUAL MEETING
30TH MARCH 2017



**National
Oceanography Centre**
NATURAL ENVIRONMENT RESEARCH COUNCIL

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NERC SCIENCE OF THE
ENVIRONMENT

Responsive versus focused training

Responsive PhD training

Topic is chosen by the student or supervisor and can be drawn from any part of NERC's remit.

Doctoral training partnerships (DTPs): institutions or consortia offering responsive mode (discovery) funded studentships. DTPs are outstanding clusters of excellence providing world-class PhD training and offer studentships in a range of areas from the NERC science remit.

Focused PhD training

Focused studentships and training awards that provide individuals with particular, specialist skills that are linked to our strategic priorities or to the skills gaps identified by our community.



Centres for doctoral training (CDTs): institutions or consortia offering focused studentships awarded to address professional, technical and academic skills gaps identified by NERC and its partners.

Focused studentships not only equip individuals with the skills necessary for delivering high-quality research in priority areas but also with the **skills to help address the needs of industry, policymakers, advisory bodies and regulators.**

CDTs are supported with the intention of **developing a legacy of training** excellence from an initial, directed NERC investment.

Following the initial NERC investment, it is expected that NERC CDTs will:

1. **Become self-sufficient** through investment from other sources, such as NERC doctoral training partnership (DTP) funding or industrial investment.
2. **Cease** following the completion of the final studentship.

Can submit a new evidence submission to NERC detailing how their remit remains or re-focuses an existing training priority for consideration for CDT investment.

Previous calls

Modelling and quantitative skills in ecology and evolution :

aspects of data collection, modelling, statistical analysis, producing researchers with substantial quantitative expertise capable of developing new theoretical modelling methods.



NERC/BBSRC Joint CDT in soil science : transferable skills, and an ability to integrate plant, soil, water and land management to address future research needs.

Risk and mitigation: strengthen the flow of knowledge and skills in big data into research, to the insurance sector, and to policymakers. Includes interdisciplinary studentships co-funded by NERC & ESRC.



Oil and gas: create a highly skilled workforce contributing across the wider energy and environment sectors, as well as skills gaps in the oil and gas sector.

Use of smart and autonomous observation for the Environmental Sciences : creating a community of highly skilled people with expertise relevant to both scientific breakthroughs and economic growth. The CDT is funded by NERC and EPSRC.



Centre for Doctoral Training 2017 call

NERC invites proposals for a new Centre for Doctoral Training (CDT) specialising in **one** of the two following priority areas:

- Freshwater bioscience and sustainability.
- Environmental science underpinning the sustainable future of the energy sector.

Closing date for outline proposals: Wednesday 12 April 2017

Closing date for full proposals: Wednesday 19 July 2017

Call for new ideas

Evidence of training priority

Closing date: **12 April 2017**

Online registration form (<https://reg.nerc.ac.uk/evidence/>)

Supporting evidence constitutes an important component of the prioritisation process and submissions that are not appropriately referenced are unlikely to be considered for NERC training investment.

Evidence submissions are considered by the NERC Training Advisory Board (TAB), which uses this information and input from other NERC boards to identify areas of high training priority suitable for CDT investment.

Evidence of training priority – what is required (the form)

- Provide a **summary** covering not only the broader training outcomes but also the specific skills training that students would receive.
- Provide evidence of the **training need in this area from business, policy and other end-users**
- Provide evidence the **opportunities to create partnerships** with business, policy and end-users, and potential to leverage additional investment including funding

Address questions

- How will the proposed training **meet the identified demand for skills from end-users?**
- What is the **scientific importance** to the UK environmental research community?
- What is the **UK's current capacity** to deliver high quality training in this area?
- Why is a NERC CDT the **appropriate format for delivering this training?**
- What would be the **impact of NERC investing** in a CDT in this area at this time?
- What would be the **impact of NERC NOT investing** in a CDT in this area at this time?

Maximum 2000 characters for each

What makes a good evidence case

- Based on recent major developments
- Based on major investment
- Be specific about the skills needed
- Provide supporting evidence
- Potential for scientific excellence
- Strong academic community to support the students
- Will train students with strong transferrable skills
- Relevant beyond academia
- Justify the impact of not investing in the CDT

Forward looking – future growth

Studentships are about the student



Require a generation of marine scientists fully conversant with SAOS “for syntheses, analyses, assessments, forecasts, projections, and scenarios that serve a wide range of science and societal needs” Lindstrom et al 2009 *A Framework for Ocean Observing. UNESCO 2012, IOC/INF-1284*

The **UK Robotics and Autonomous Systems (RAS) Strategy led to £400 million in government funding** being earmarked for key sectors including marine industry and robotics, and £35 million for centres of excellence in RAS

Investment of £13 M in capital funds has built the UK AUV fleet to be the largest in Europe.

UK Government Policy Exchange Think Tank highlighted RAS as “**one of the eight great technologies**” which will **propel the UK to future growth.**

Training needs **align with LWEC 2012 published ‘Most Wanted Skills’** including multi-disciplinarity, data management, numeracy, translating research into practice, fieldwork, risk and modelling.

This CDT would **fulfil the six NERC priority success criteria for training, and match all 18 recommendations**, particularly related to outcomes, student support in multidisciplinary research, transferrable skills and research excellence.

RAS 2020 – national strategy document highlighted that “**developing the skill base** in RAS technology is an inherent and essential part of achieving implementation of the RAS strategy

New technologies will **strengthen the existing UK sub-sea sector, which has a projected growth of £11.1 billion in 2016.** These technologies will become standard for both industry and environmental research

The potential impact of NOT supporting training in this topic.

1. Failure to exploit existing capital investment in the platforms and sensor developments for SAOS.
2. Limited feed through of new knowledge in SAOS into UK industry/economy.
3. UK marine science no longer at the leading edge of new observing programmes.
4. Current large observing programmes receive less support due to not being optimised for long-term climate observation.

Skills in the effective use of SAOS will be **essential in many industries**, including oil and gas, renewable, deep-sea mining, carbon capture storage monitoring, weather forecasting and deep-sea mining.

Discussion Session at 14:45 New Ideas for CDT studentships

CDT - Environmental science underpinning the sustainable future of the energy sector

There will be an increasing demand for energy, and businesses, policymakers and wider civil society will require independent evidence and expertise to inform responsible decision-making regarding the environmental impacts and sustainability of new and existing energy resources.

Along with the continued importance of ensuring hydrocarbon exploitation is carried out in a safe and responsible manner, there is now increasing focus in the UK on research into the efficiencies and environmental impacts of alternative energy resources and carbon capture and storage, and their implications for policy development and societal acceptance.

A CDT in this area will deliver subject-specific and transferrable skills in the acquisition and handling of large data sets, risk and uncertainty description, research application and sustainability science, in addition to the broad understanding of the changing nature of the energy sector and the commercial, political, and social context in which it operates.