

Research Centre for Marine Sciences and Climate Change:

how our activities match strategic goals of the University and a forward view

Ric Williams, Andy Plater and Jonathan Sharples, 28 January 2010

A. How has the Research Centre contributed to the University strategic goals?

1. Research performance

The Department of Earth and Ocean Sciences and parts of Geography performed well in the last RAE. A special mention was made of the ocean and climate outputs, as well as the strong partnership with the Proudman Oceanographic Laboratory (POL). In our view, the Research Centre has helped deliver that strong partnership: the 4 POL staff returned in the RAE, Hughes, Sharples, Woodworth and Huthnance, are all active members of the Research Centre, contributing to ongoing collaborative research and grant applications, providing lectures, outreach talks and helping to organise workshops.

The partnership with POL is now cemented and joint activity enhanced through an increasing number of joint PhD studentships with the University, as well as NERC grant applications.

2. Global University

For Liverpool University to position itself as a top international university, we have to increase the profile of our high-level research. POL already has a world-leading role through the Permanent Service for Mean Sea Level (PSMSL), where they hold the tide gauge records around the globe. Members of the Research Centre have also published high-profile papers in *Science*, *Nature Geoscience* and other highly respected specialist Journals.

In terms of global partnerships, there are already strong international research partnerships: the NERC supported RAPID-Watch programme involving POL and the University with the Bedford Institute in Canada, where they deploy moorings on the seafloor in the western Atlantic for us. Williams has also developed a research partnership with Lozier at Duke University in the US, which has led to a NERC grant application by Williams and Hughes, together with a high-profile *Science* paper to be returned in the REF. Collaboration between University and POL staff and colleagues at the State Key Laboratory for Estuarine and Coastal Research in Shanghai is further underpinning the reputation of the University in the region, particularly with respect to sea level, coastal research and, through the UNESCO Ecohydrology Working Group, the impact of river impoundments on the coastal zone; there has been a joint workshop on sea level for 10-16 September 2009 involving Geography and POL staff in the East China Normal University.

3. Knowledge Exchange

The Research Centre has been successful in delivering outreach to the local community, much of which has converted to research grant income. For example, the long-established KE linkage between POL, Geography and Sefton Council provided the basis for a successful NERC FREE programme grant application that is examining the impacts of extreme events on the dune coast. There have been dedicated joint workshops from POL/University addressing concerns about climate change to Bishop James and Andrew Miller MP; a University Town and Gown Dinner Club to Civic Leaders including the City Council representatives, the Director of Merseyrail and Liverpool Vision; and a Marine Sciences Symposium addressing the themes of climate change, energy implications and policy implications. Further, the Research Centre is advising Liverpool City Council on its climate change adaptation strategy, sit on the Liverpool Chamber of Commerce Environment and Energy Committee, and, together with colleagues in Human Geography and Civic Design, are working with Liverpool Vision, the Chamber and the City Council on an ESRC-funded project to develop a low-carbon economy.

The recent development of the Liverpool Green Economy Interdisciplinary Incubation Network (L-GrEco) led by Andy Plater is complementary to the aims of the Research Centre, taking forward the climate change agenda to address how we can move forward to a more sustainable future.

Consequently, we are already providing a lead in communicating the science of climate change and providing a forum to discuss the way forward. This engagement is particularly important given the increasing critical scrutiny of climate-change science.

4. Student Experience

The Research Centre is primarily concerned with driving forward the research and making the scientific outputs more accessible to a wider audience. However, development of more accessible research outputs is useful for the student experience given the need for teaching to be research led and linked to the cutting-edge. There is a constant need to attract high-quality undergraduates and for these students to attain excellent Degrees and training. The nature of climate and environmental change is such that there will be a need for capable scientists to contribute to all walks of life as well as to conduct high level research for generations to come.

5. Widening Participation

In our view, widening participation goes hand in hand with outreach to the local community and becoming a leader for climate change in the Northwest. Again providing accessible information and the likely impacts of climate change for the region is what is needed, and can be used to underpin the engagement with local and regional schools (e.g. Plater is Chair of Liverpool Geographical Association, DEOS-led master classes in Geoscience teaching).

B. Plans for 2010

Liverpool Marine Symposium on 25 January 2010 provided up to date reviews on climate change in terms of sea level variability and storms, addressed the energy needs for the UK, the potential of tidal barrages and wave power, addressed the climate impacts of a 4C warming, and provided a local view for a way forward.

Further outreach plans include a *Climate change primer* to Anglican clergy in Merseyside on Saturday 20 February 2010 for 1/2 day event organised by Bishop James. Climate change and sea level seminars are planned for the Archbishop of Liverpool and other civic leaders on 10 March 2010.

A new project is starting to illustrate climate variability using past aerial photographs of the Sefton coastline, which is conducted by Dr Andy Heath supported by DEFRA funding obtained by Graham Lymbery, Sefton Council; this new project arose from the climate change seminar in September 2009.

C. Future outlook

In our view, the Research Centre has already been a success in raising our profile of Marine Sciences over the last 3 years. We believe that this activity can continue at the same level or step up to a new level if there is more underpinning support.

For the next 3 years, our priority is to communicate our views about climate change via the web to different audiences and potential stakeholders: prospective students and the lay public concerned about what is happening, and civic leaders and councillors concerned about what climate change means for the Northwest. A longer-term aspiration is provide advice about how to move forward and adapt to climate change, via the L-GrEco network, as well as drawing on expertise and advice in Renewable Energy from the new Stephenson Institute.