

RESEARCH PROGRAMME ANNUAL REPORT 2011/12

Name of Research Programme	Directed Research Grant - Ocean Shelf Edge Exchange Programme– FASTNEt
Programme Administrator / Manager	
Science Coordinator (if applicable)	
Programme Management Team Leader or Lead PI for Externally Managed Programmes (if applicable)	Professor Mark Inall - (mark.inall@sams.ac.uk)
Date:	02 April 2012

Indicate the percentage of total programme activities in 2011/12 in each of Science themes of the NERC Strategy			
Biodiversity		Natural Hazard	
Climate System	30%	Sustainable Use of Natural Resources	
Earth System	40%	Technologies	20%
Environment, Pollution and Human Health	10%		

1. Scientific Achievements for 2011/12

FASTNEt Seagilder 545 “Ardbeg” has been delivered to SAMS. Bench tests are complete and sea trials will take place in April 2012. “Ardbeg” will be joined by SAMS’ other Seaglider “Talisker” and two Webb Slocum Gliders from NOC for deployment on D376. Mission plans have been agreed with four mission ‘strategies’.

The first part of the MITgcm modelling for the Celtic Sea has been completed and a discussion paper was distributed within the FASTNEt community for discussion.

High resolution POLCOMs model integrations have been performed to investigate newly identified cross-shelf exchange mechanism (see publication list below)

Throughout 2012 the Autosub Long Range vehicle will see additions to its capability implemented and tested, in order to meet its first science missions in 2013. Initial rounds of trials in the Empress Dock took place during February 2012 to test updated system-to-system communications and the newly installed navigation ADCP.

Four Marine AUV projects had been funded by NERC, and the PIs and their science plans integrated into the FASTNEt programme.

2. Science activities during 2011/12

Please list major science meetings, workshops, field campaigns, cruises etc

19th October 2011 – Kick Off Meeting, SAMS, Oban

8th November 2011 – Glider Development Meeting – by VC

15th November 2011 – WP3 Celtic Sea Cruise 2012 Planning Meeting – NOC Liverpool

11th January 2012 – Marine AUV moderating panel – BGS Edinburgh

1st March 2012 – Marine AUV planning meeting - NOC Southampton

18th April 2012 - FASTNEt month 6 full science meeting – Institute of Physics, London

3. Knowledge Exchange and User Liaison activities

This should include information on any programme-level partnerships with users, such as the nature and value of their contribution.

Knowledge exchange with policy-makers/regulator:

1) Title: New arrangement for Diplomatic Clearance for Gliders activities

Achievement: Traditionally Diplomatic Clearance (Dip Clear) must be arranged on a case-by-case basis for research cruises in territorial waters of other nation states. For the first time a UK programme will deploy multiple autonomous platforms (Seagliders) into non-UK territorial waters for extended durations (up to 6 months). Roland Rodgers at NOC has negotiated with the relevant Irish authorities a unique arrangement which allows a one-off Dip Clear for all FASTNEt Seaglider activities. This will hopefully smooth the way for the increasing number of Glider operations we are likely to see in the future.

Achieved by: Roland Rodgers, NOC and Mark Inall, SAMS

Impact: Knowledge exchange with policy-makers/regulators

International Partnership: Achieved in collaboration with the Marine Institute, Ireland.

2) Title: Posting Glider data onto the GTS

Achievement: WMO's Global Telecommunication System (GTS) is the communications and data management component that allows the [World Weather Watch](http://www.wmo.int/pages/prog/www/TEM/index_en.html) (WWW) to operate through the collection and distribution of information critical to its processes. The GTS also provides telecommunication support facilitating the flow of data and processed products to meet requirements in a timely, reliable and cost-effective way, ensuring that all Members have access to all meteorological and related data, forecasts and alerts. http://www.wmo.int/pages/prog/www/TEM/index_en.html

We have devised and tested a method by which autonomous ocean-going Seagliders can post their in situ observations of the ocean's state onto the GTS. The next step is to test the realtime assimilation of Glider data into forecast models with the UK Met Office, this is planned for later in FASTNEt.

Achieved by: Lovro Valcic, SAMS and Toby Sherwin, SAMS and John Siddorn, Met Office

Impact: Knowledge exchange NGO

International Partnership: NONE

4. International Dimensions

Please provide details of International activities in 2011/12. This should include information on any programme-level international partnerships, such as the nature and value of their contribution.

FASTNEt PIs at Liverpool and NOCL have been working with Scripps Institution of Oceanography on "wirewalker" technology for the first FASTNEt cruise D376

5. Data Management

Please provide a brief statement of progress in data management in 2011/12

Historic data from the NERC funded LOIS SES project have been retrieved from archive and reanalysed.

All ARGO float data in the FASTNEt study area have been collated

Available swath bathymetry data have been assembled for Celtic Sea model

No new observational data have been generated

6. Public Engagement with Research

Please provide details of any relevant activities (promotion of Programme, media contact, public understanding, science communication etc) undertaken during 2011/12.

FASNEt Website is up and running with public and private areas.

Media: Press release issued at start of programme

Outreach - Interactive "Great Drifter Race" web area under development for schools to participate on-line with FASTNEt Drifter releases.

7. Science Coordination

Please provide information about science coordination activities not detailed above e.g. numbers of visits to PI's, conferences attended, liaison with other programme participants, co-funders, stakeholders and service providers etc

Lead PI visits to PIs: NOC Southampton (x3), U. Plymouth (x2), NOC Liverpool (x2), U. Liverpool (x1)

PI visits to Partners: Marine Scotland, Met Office, plus communications with AFBI and Marine Institute Ireland with regard to cruise programming.

8. Problems

Please identify any problems or serious risks (e.g. scientific, technical, financial) that have prevented the achievement of planned targets for 2011/12 or will affect the programme in other ways.

Loss of Scanfish from Discovery in December may impact FASTNEt science if the replacement is not ready in time, or if an instrument borrowed from CEFAS is not compatible with NMF-SS systems.

9. **Plans for 2012/13**

Please summarise major targets for 2012/13

6 Month Science Progress Meeting scheduled for April 18th – Institute of Physics, London

Celtic Sea Cruise – Discovery D376, 6th – 29th June 2012

Gliders deployments and recoveries from D381 September 2012, and NMF vessel in January 2013

Malin Shelf cruise from RRS James Cook in August 2013

2nd Annual Science meeting – October 2013

Autosub Long Range - Deep-water trials will be conducted in mid-winter 2012/2013 in preparation for its first mission during 2013.

If you have any questions regarding the completion of this form, please contact the appropriate Programme Administrator

Publications:

Inall, M. E., D. L. Aleynik, et al. (2011). "Internal Tide coherence and decay over a wide Shelf Sea." Geophysical Research Letters. doi:10.1029/2011GL049943

Hopkins, J., J. Sharples, J. M. Huthnance (2012). On-shelf transport of slope water lenses within the seasonal pycnocline. Geophys. Res. Lett. (submitted).

Nash, J. D., E. L. Shroyer, S. M. Kelly, M. E. Inall et al. (2012). "Are Any Coastal Internal Tides Predictable?" Oceanography (submitted).