



Climate Linked Atlantic Sector Science CLASS 2018-2023

National Capability Science Single Centre



projects.noc.ac.uk/class/

NERC National Capability

World-leading environmental science supporting national strategic needs

Research & development activities keeping the capability at the cutting edge

Activity directly procured due to a combination of its scale and complexity

NC Science integrates over at least national and decadal time-scales

Search for: NERC National Capability <https://nerc.ukri.org/funding/available/nc-funding/>

CLASS will deliver the knowledge and understanding of the Atlantic Ocean system that society needs to make evidence-based decisions regarding ocean management

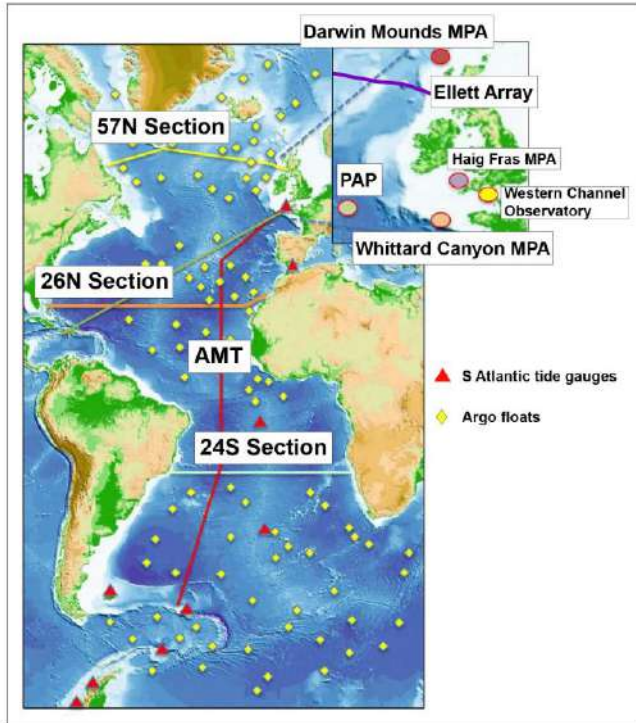
Underpinning Activities

Science Programme

Engagement and Stakeholders

Sustained Ocean Observations

Multi-decadal records from coast to deep ocean, surface to seafloor



GO-SHIP Hydrographic Sections

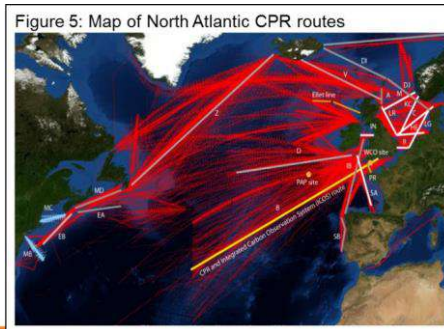
ICOS stations and lines

Marine Protected Areas

Surface marine climate data records

ARGO

GLOSS tide gauges



Cruise	Year 1 FY 18/19	Year 2 FY 19/20	Year 3 FY 20/21	Year 4 21/22	Year 5 22/23
GO-SHIP hydrographic sections		5 weeks 26°N February 2020		5 weeks 57°N Summer 2021	
Ellett Array (Rockall Trough)			3 weeks Summer 2020		3 weeks Summer 2022
Marine Protected Area related Fixed Point Observatory		2 weeks Darwin Mounds Summer 2019	4 weeks Whittard Canyon Summer 2020		
Porcupine Abyssal Plain (PAP)	2 weeks Spring 2018	2 weeks Spring 2019	2 weeks Spring 2020	2 weeks Spring 2021	2 weeks Spring 2022
Atlantic Meridional Section (AMT)	5 weeks Autumn 2018	5 weeks Autumn 2019	5 weeks Autumn 2020	5 weeks Autumn 2021	5 weeks Autumn 2022

Numerical Modelling

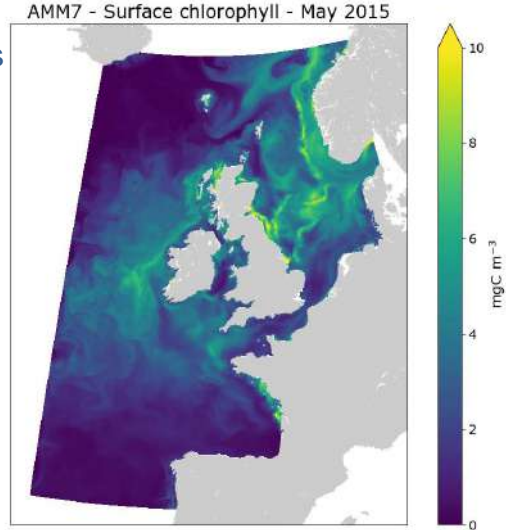
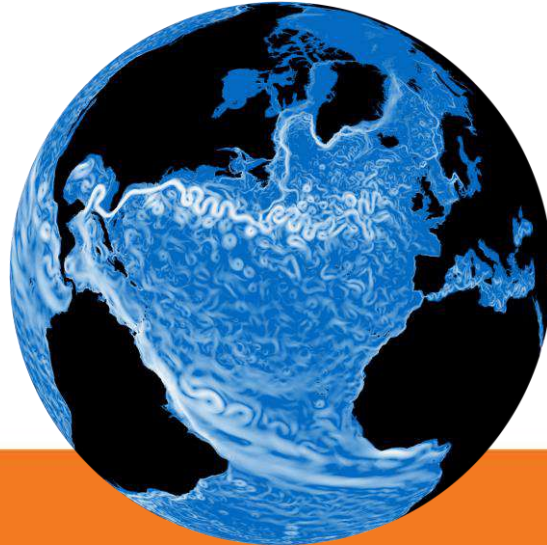
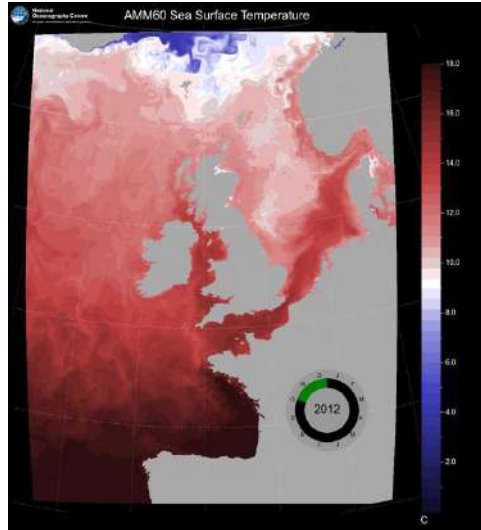
Develop and maintain world-class models of UK shelf & global marine environment

International NEMO runs and development

Ocean components for the UK Met Office Predictive systems

Global ocean to coastal systems

Ecosystem and earth system model development



Technology Innovation

Sensors and systems for robotic sensing of the ocean

Sensors – for key climate parameters with technology gaps

Methane

pH and Total Alkalinity:

Flow cytometer:

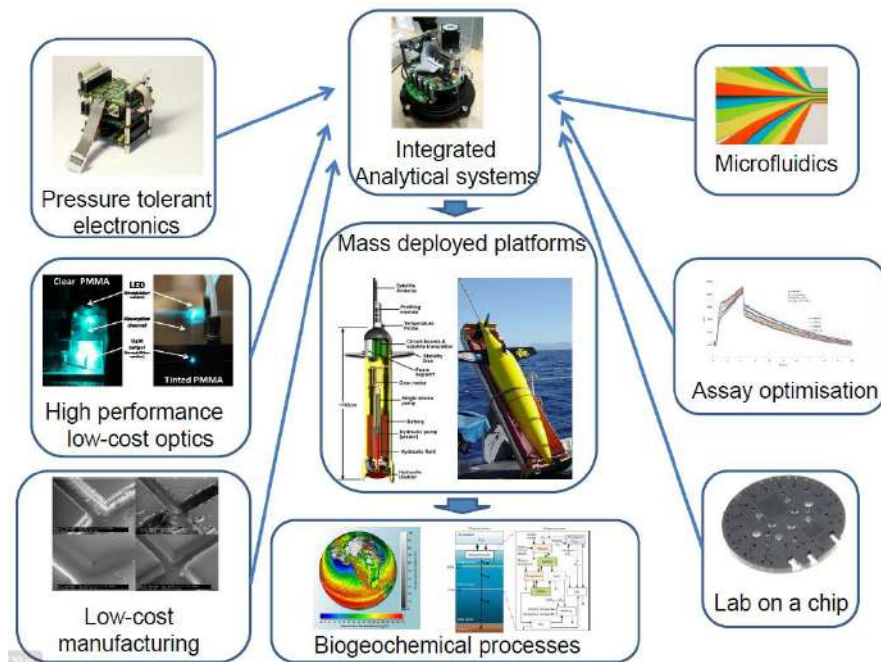
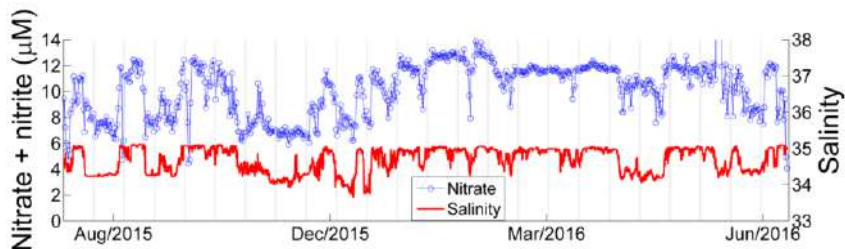
Molecular sampler - eDNA

Micro-CTD on marine mammal tags

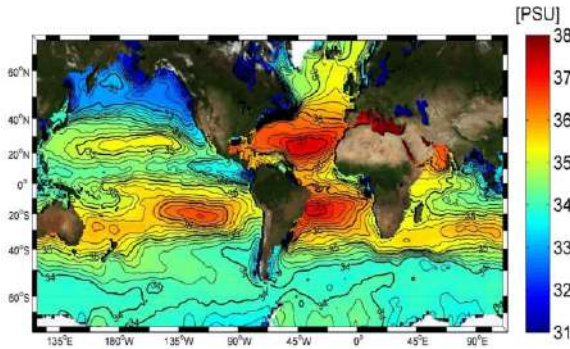
Platforms

Improved communication

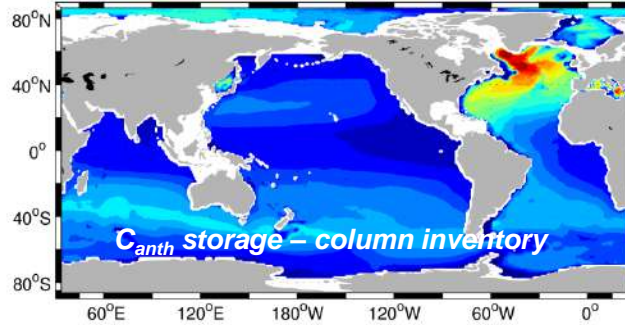
Improved energy harvesting



Understanding the Changing Atlantic Ocean

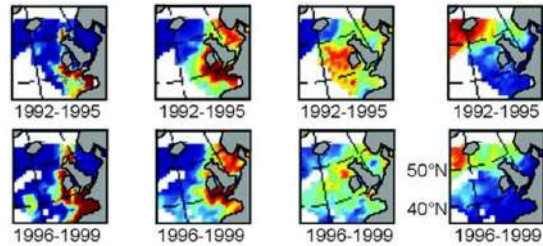


What is the current state of the hydrological cycle and how will changes in ocean salinity impact it into the future

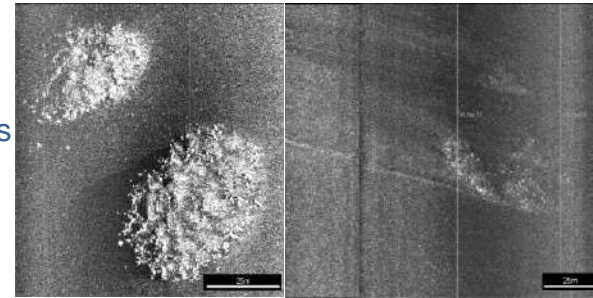


How physical and biological uptake, transfer and storage of carbon in the deep ocean interact to determine the Atlantic CO₂ sink and how this will change in the future

How the natural and anthropogenic drivers of basin and decadal changes are altering the Atlantic ecosystem, and consequences for ecosystem functioning and services



How structure, diversity and productivity of biological communities are changing in response to abrupt or episodic disturbance events compared to natural change



Academic Engagement



Supporting graduate students & early career researchers

Internships: collaborative projects with CLASS scientists

Collaboration & access to resources: berths on cruises, model output, training



Marine Science Summer School

Workshops and Annual Report Cards

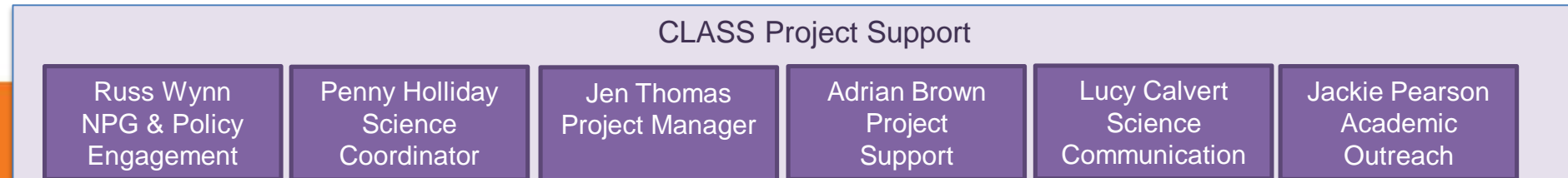
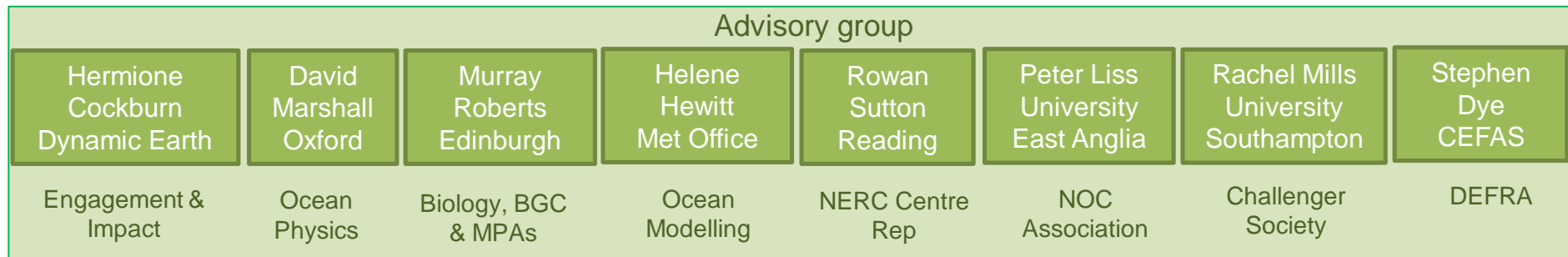
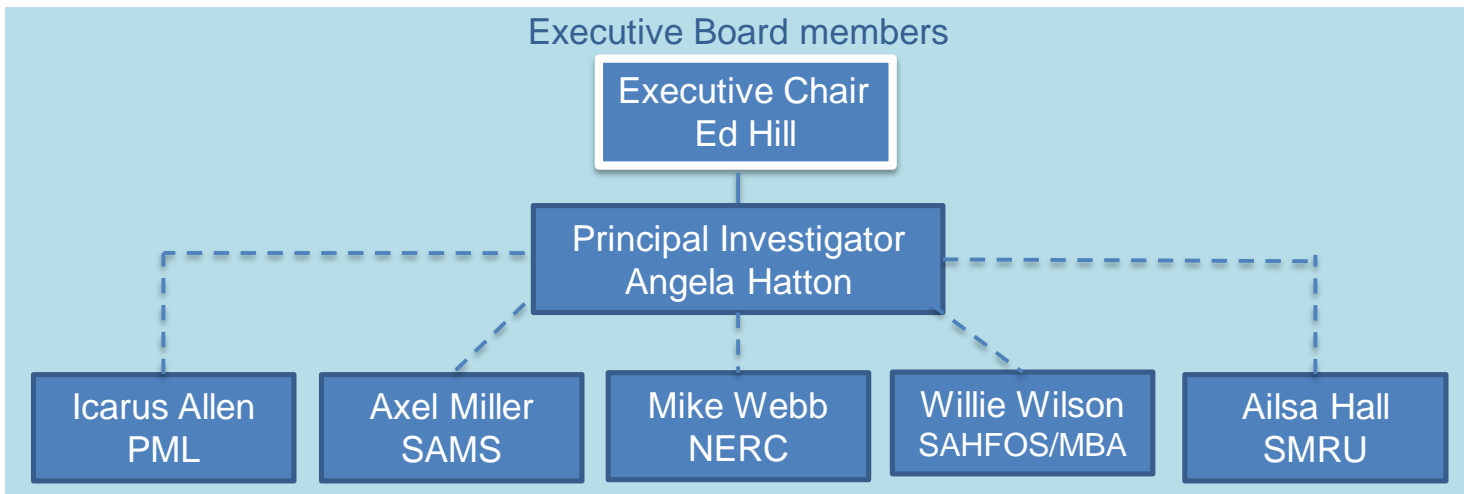


Any questions?

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email: class@noc.ac.uk

Come and talk to us at our stand



Principal Investigator
Angela Hatton

WP 1 Science Programme
Richard Sanders

WP 2 Ocean Sections
Sheldon Bacon

WP 3 Global Climate
Liz Kent

WP 4 Fixed Point Observations
Angus Best

WP 5 Numerical Modelling
Jason Holt

W 6 Technology Innovation
Matt Mowlem

T1.1 Ocean Salinity
Bacon, Smeed, Inall, Cunningham

T2.1 GO-SHIP
McDonagh, Brown, King, Holliday

T3.1 Surface CO₂
Hartman, Brown, Painter

T4.1 MPA-FPO
Huvenne, le Bas, Ruhl, Bett, Clare, Jones

T5.1 NEMO Cap.
New, Coward, Nurser, Megann, Poulton, Aksenov

T6.1 Sensors
Mowlem, Beaton, Arundel, Loucaides, Saw, Hall, Robidart

T1.2 Ocean Carbon
Brown, Yool, Rees

T2.2 Ellett Array
Cunningham, Inall, Holliday, Hopkins

T3.2 SurfaceMet
Berry, Kent

T4.2 WCO-FPO
Smyth, Widdicombe

T5.2 NEMO Con.
Sinha, Megann, Holt, Bricheno, Poulton

T6.2 Observing Systems
Bell, Foden, Mack

T1.3 Biology
Sommerfield, Bett, Henson, Jones, Atkinson, Smyth, Widdicombe, Ruhl

T2.3 AMT
Rees, Smyth

T3.3 SATGN
Hibbert

TP4.3 PAP-FPO
Ruhl, Hartman, Bett, Jones, Lampitt

T5.3 MEDUSA
Yool, Anderson

T1.4: Seafloor Recovery
Huvenne, Clare, le Bas, Bett

T2.4 CPR
Edwards

T3.4 Argo
King

T5.4 ERSEM
Blackford, Bruggerman

T5.5 Simulations
Hirshi, Coward, Yool

WP 7 Academic Engagement: Holliday, Hatton, Wynn

