

# ICOS and the UK

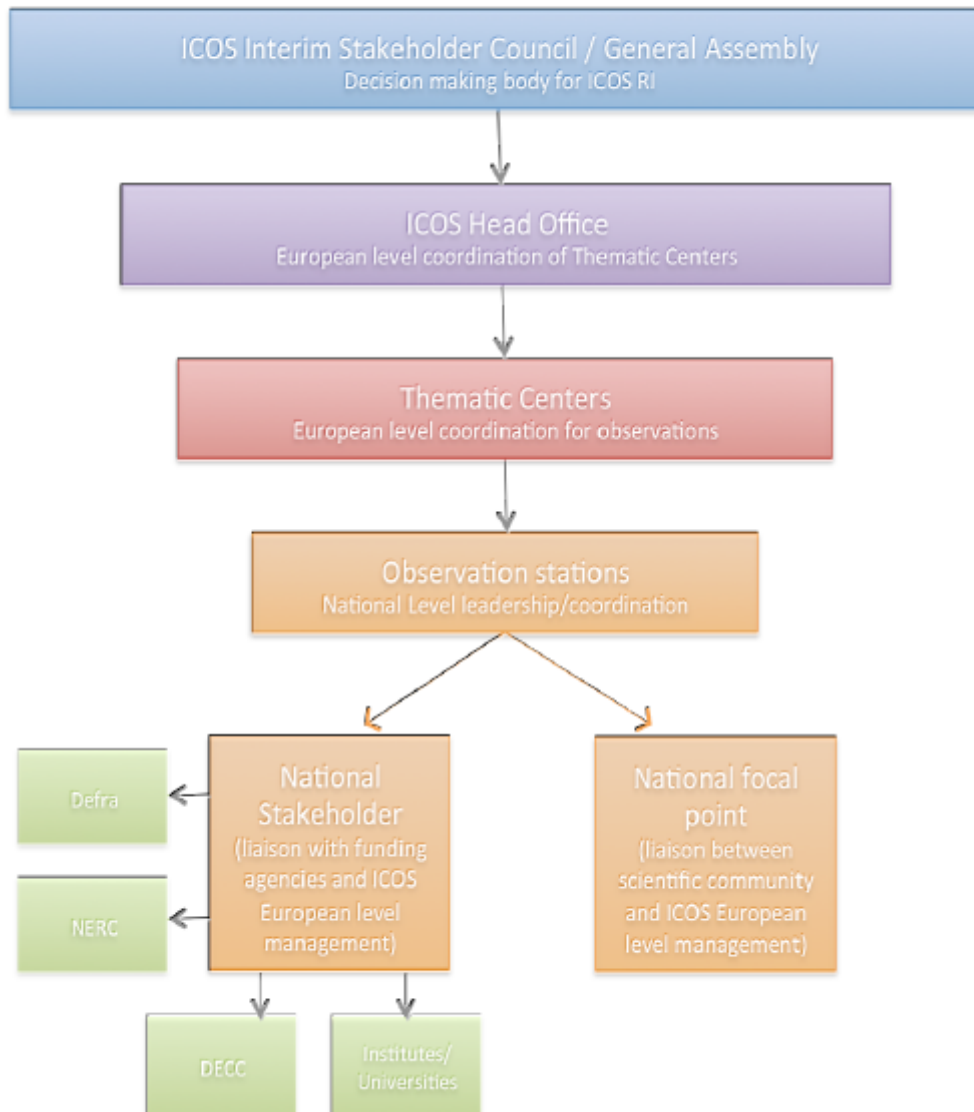
Richard Sanders (NOC) – Stakeholder

Andrew Watson (University of Exeter) – Focal point

# What is ICOS?

- European Research Infrastructure (like Argo, CERN ...)
- Aligning European efforts to:
  - Understand the greenhouse gas budgets and perturbations
  - Secure longer term funding for measurements
  - Track Carbon fluxes
  - Monitor and assess GHG reduction activities

# Management of ICOS



- Semi hierarchical structure
- Science feeds into Thematic Centers
- Thematic Centers responsible for:
  - Data coordination
  - Technology innovation
  - QC
  - Submission to carbon portal
  - Flux calculations and production of synthesis products
- National focal point contact for science community
- National Stakeholder contact for national funders

# Legal structure

- ICOS is constituted via an ERIC – European Research Infrastructure Consortium
- An ERIC is a legal agreement signed by funding bodies of participating countries.
- It gives ICOS a legal status – it's not just an informal arrangement.
- Founding members: Germany, Finland, Sweden, France, Belgium, Italy.
- Founding observers: Norway, Switzerland.
- UK, Czech Republic, Ireland, Netherlands, still to sign
- Others? (Denmark, Estonia)

# Why be part of ICOS?

- By becoming a fully paid member of ICOS member states will benefit from:
  - developments and developing cutting-edge GHG measurement
  - techniques and processes,
  - Support in station instrumentation, protocols and training,
  - Get measurement data in a harmonized and processed pool of open world class GHG database.
  - Access to EU capital funding available through the EU Infrastructure Roadmap
  - Access to national capital funding available through the UK RI roadmap

# ICOS in the UK

- Long period of hiatus
- Jan 2015 – Meeting 1 – GHG Townhall Southampton
  - Established enthusiasm for concept of UK joining ICOS
- April 2015 Meeting 2 – London
  - Prioritised stations and committed to writing report and starting website

# Icos in the UK II

- August 2015
  - Teleconference to approve report
  - Idea of UK ICOS leaflet approved
  - Jennifer Riley Left
  - Website established
- October 2015 Presented report to MSCC
  - NERC centres enthusiastic about contributing
  - DEFRA beginning process of liaising with other Govt depts to gauge their enthusiasm for contributing
  - NOC Lawyer entrained
  - Jess started work on ICOS until NOC works out what to do
- Nov 2015
  - Edinburgh meeting

Name	Sector	Employer
Grant Forster	Atmosphere	UEA/NCAS
Tom Gardiner	Atmosphere	NPL
Alastair Manning	Atmosphere	University of Bristol
Andrew Manning	Atmosphere	UEA
Stephan Matthiesen	Atmosphere (GHG programme manager)	University of Edinburgh
David Lowry	Atmosphere	Royal Holloway
Euan Nisbet	Atmosphere	Royal Holloway
Simon O'Doherty	Atmosphere	University of Bristol
Eiko Nemitz	Ecosystem	CEH
James Morisson	Ecosystem	Forest Research
Matt Wilkinson	Ecosystem	Forest Research
Dorothee Bakker	Marine	UEA
Anna Jones	Marine	BAS
Naomi Greenwood	Marine	CEFAS
Phil Nightingale	Marine	PML
Ute Schuster	Marine	University of Exeter
Richard Wood	Marine	Met Office
TBC <sup>6</sup>	(UK-ICOS project manager)	TBC
Richard Sanders	Marine (UK ICOS Stakeholder)	NOC
Andrew Watson	Marine (UK ICOS Focal Point)	University of Exeter

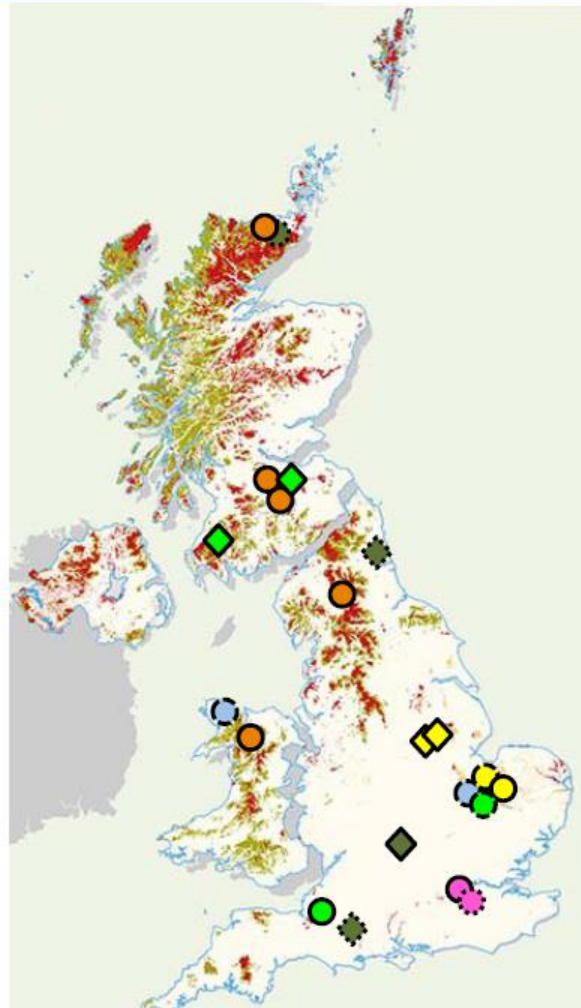


# Elements of UK ICOS

- Observing systems
  - Capital – currently supported via diverse funding streams - request in to NERC for longer term support
  - People – HEIs, NERC, FC
  - Funding – NERC, DECC, DEFRA, FC
- OTC
  - Coordination of observing systems (PML)
  - Technology innovation (NOC)
  - Data Management (UEA)
  - Data Synthesis (Exeter)
  - Engagement with Shipping industry (NOC)
- Subscription (around 50K per annum, ultimately recovered to run OTC)

# Terrestrial sites

## UK CO<sub>2</sub> flux network – all sites



- Blanket bog
  - Fen
  - Arable
  - Grassland
  - Forest
  - Urban
- 
- Site on peat
  - ◆ Site on mineral soil
  - Site operated in partnership with university
  - Site operated by university / Forest Research

# Atmospheric sites

## DECC & GAUGE tall tower network

Mace Head



Ridge Hill



Heathfield



Biltsdale



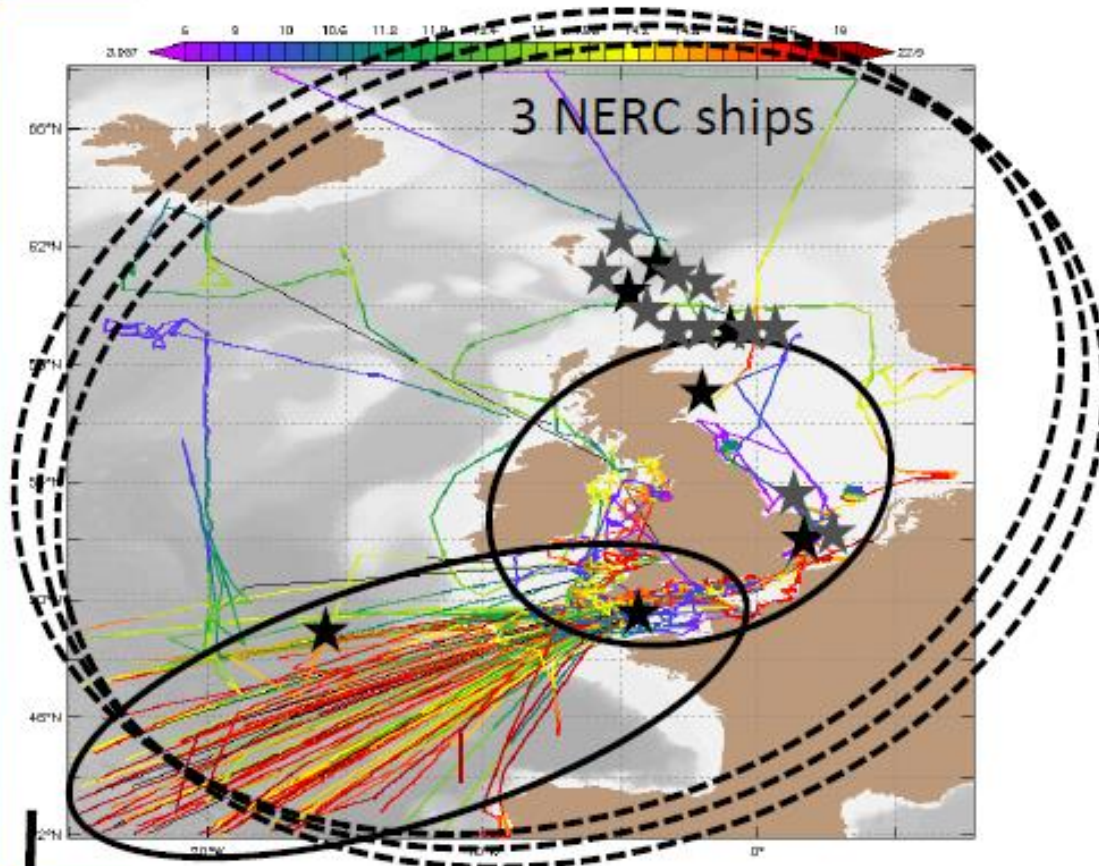
Angus



Tacolneston



# Marine sites



UK data only

24.5°N  
section

<i>Station Name<sup>7</sup></i>
<i>Porcupine Abyssal Plain Sustained Observatory</i>
<i>UK – Caribbean VOS line</i>
<i>Western Channel Observatory</i>
<i>James Clark Ross/AMT</i>
<i>Warp SmartBuoy</i>
<i>RV Cefas Endeavour</i>
<i>Marine Scotland<sup>8</sup></i>

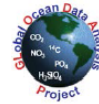


# Ocean Thematic Centre

## Major planned activity is technology innovation

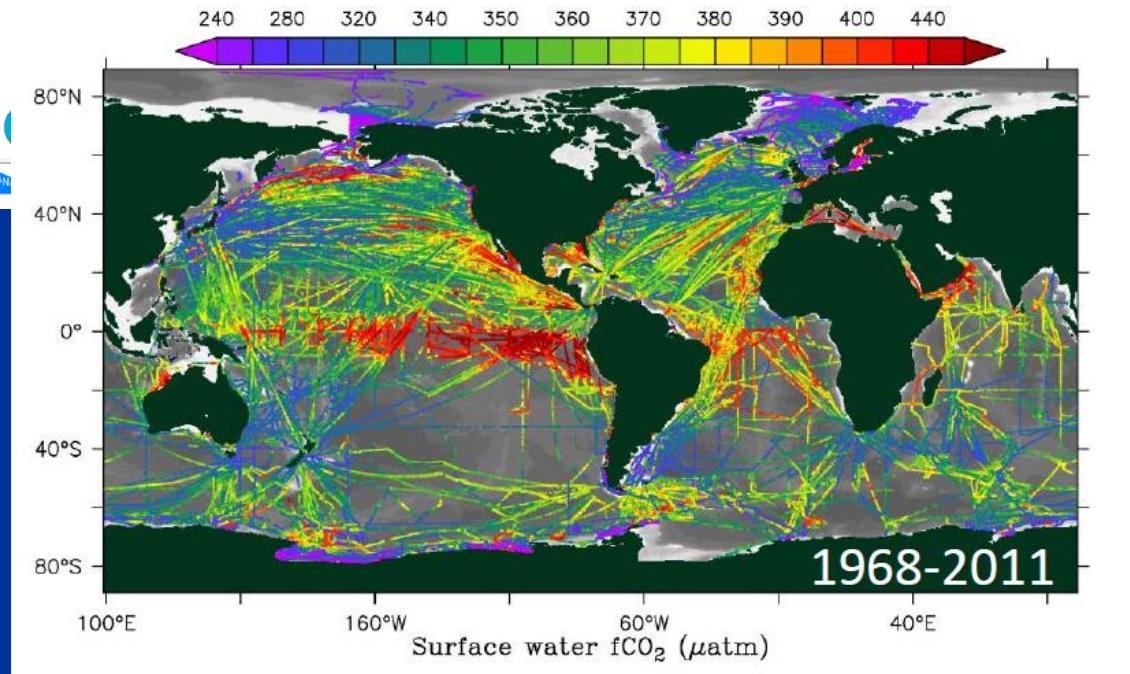


Surface Ocean CO<sub>2</sub> Atlas (SOCAT)  
Global Data Analysis Project Version 2 (GLODAPv2)  
Surface Ocean pCO<sub>2</sub> Mapping Intercomparison (SOCOM)



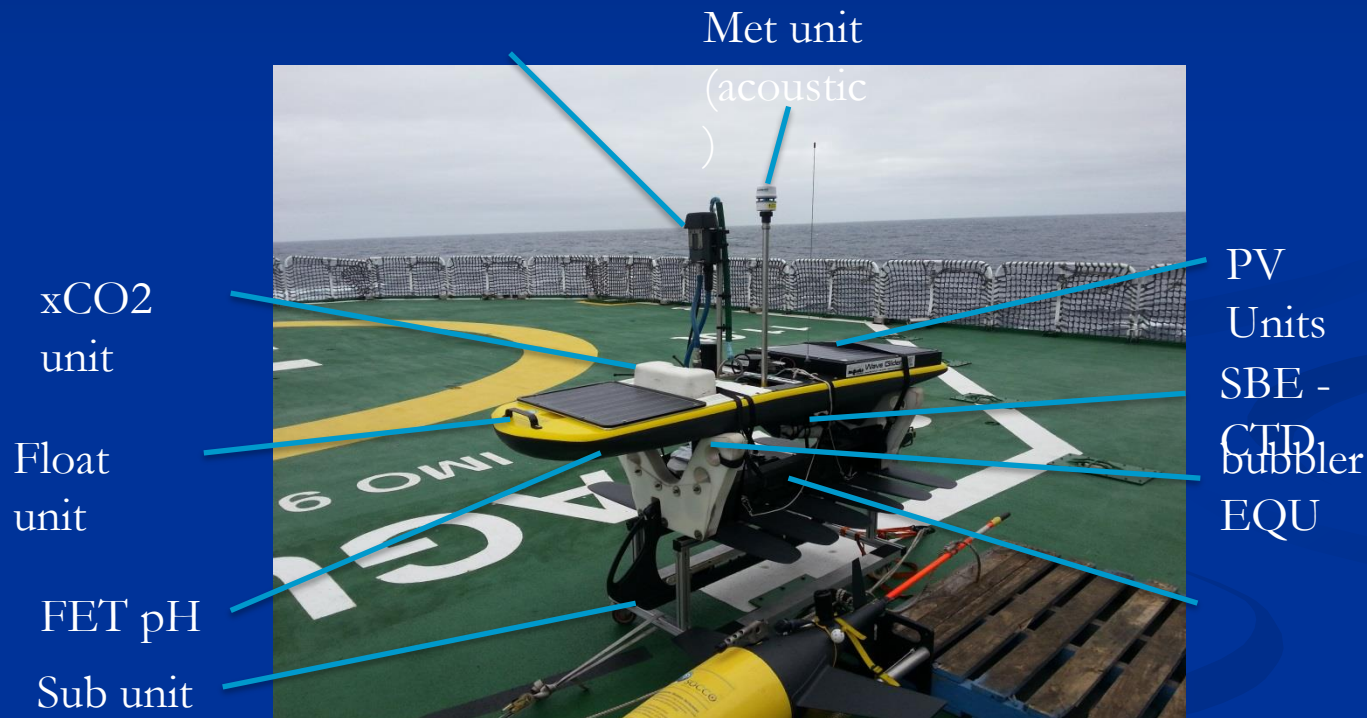
Dorothee Bakker,

Are Olsen, Kevin O'Brien, Mario Hoppema, Robert Key, Alex Kozyr, Steve Jones,  
Camilla Landa, Siv Lauvset, Nicolas Metzler, Yukihiro Nojiri, Benjamin Pfeil, Christian Rödenbeck,  
Ute Schuster, Karl Smith, Bronte Tilbrook, Rik Wanninkhof, Andrew Watson  
and all >>100 international SOCAT, GLODAPv2 and SOCOM contributors



# Ocean Thematic Centre (2)

## Technology Innovation to tackle southern ocean winter data desert



# Summary

- ICOS internationally formally established
- UK Community organised and speaking with one voice - sites selected
- Legal work underway supported by NOC
- Once complete (estimate this autumn) need to pay subscription and give legal life to UK ICOS
- That will unlock EU funding for entire community