



**National Oceanography  
Centre, Southampton**  
UNIVERSITY OF SOUTHAMPTON AND  
NATURAL ENVIRONMENT RESEARCH COUNCIL

UNIVERSITY OF  
**Southampton**  
School of Ocean and  
Earth Science

# Carbonate Chemistry Facility for UK Ocean Acidification Research Programme

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# Measurements

- High quality measurements of dissolved inorganic carbon (DIC) and total alkalinity (TA).
  - Precision:  $\pm 0.1$  % or better
  - Accuracy: CRMs (Prof. A. Dickson; Scripps)



Samples analysed up to March 2012:

Experimental samples	160
Oceanographic samples	700
Total	860

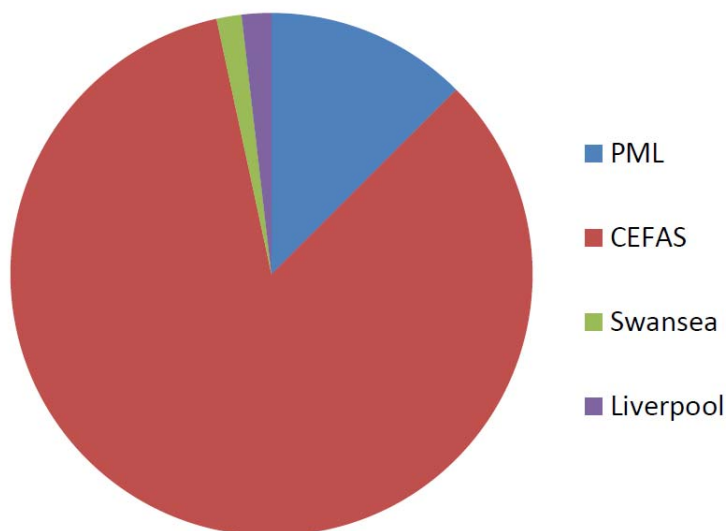


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Samples by organisation



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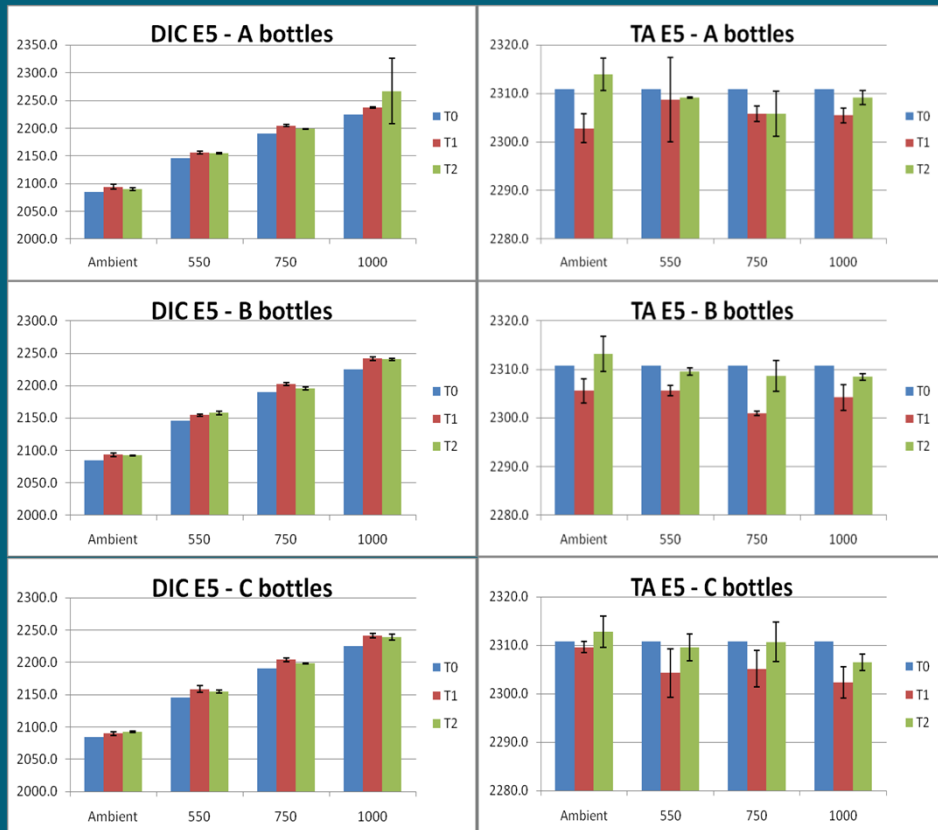
## International inter-calibration exercise:

Involved in inter-laboratory comparison for sea water CO<sub>2</sub> measurements (scheduled summer 2012)



# Measurements

- D366 UK cruise (summer 2011): Carbonate chemistry measurements for the bioassays



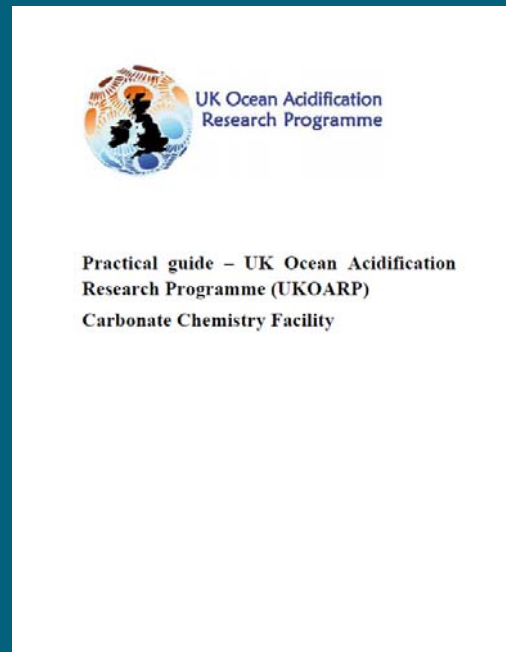
Coming up:

JR271 Arctic cruise (summer 2012)

JR274 SO cruise (winter 2012/13)

# Services of the facility

- Guide for best practices (including details on sampling, transport and use of the facility's online sample logging and receipt system)



The image shows the table of contents for the practical guide. The title "Table of contents" is at the top. Below it is a list of sections with corresponding page numbers:

Introduction	4
1. Sampling and storage recommendations	5
2. Total Dissolved Inorganic Carbon	6
2.1. Coulometric titration	6
2.2. Infrared detection	7
3. Determination of Total Alkalinity	7
3.1. VINDTA 3C	7
3.2. Apollo SciTech AS-ALK2	8
4. Precision and accuracy	9
5. Calculation of the carbonate system parameters	9
6. LIMS Software	10
References	11

Practical guide available at <http://www.noc.soton.ac.uk/ukoacf>

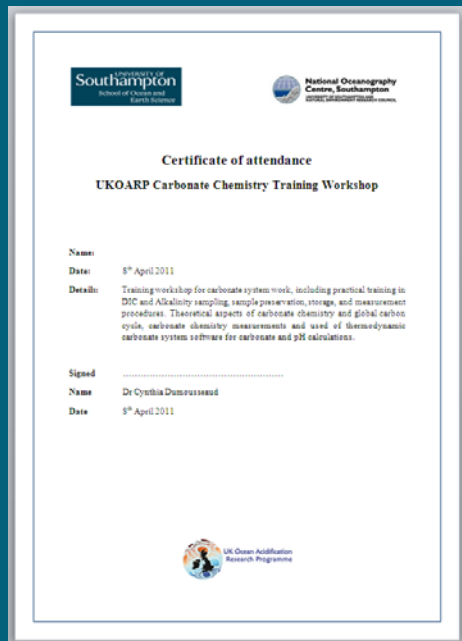
***For more information on recommended procedures:***

Dickson et al. 2007: Guide to best practices for ocean CO<sub>2</sub> measurements

EPOCA: Guide to best practices for ocean acidification research and data reporting

# Services of the facility

- Training workshops at the National Oceanography Centre Southampton for sampling, storage, transport and data analysis



Workshop	Participants
8 <sup>th</sup> April 2011	20
12 <sup>th</sup> January 2012	7
2013	?

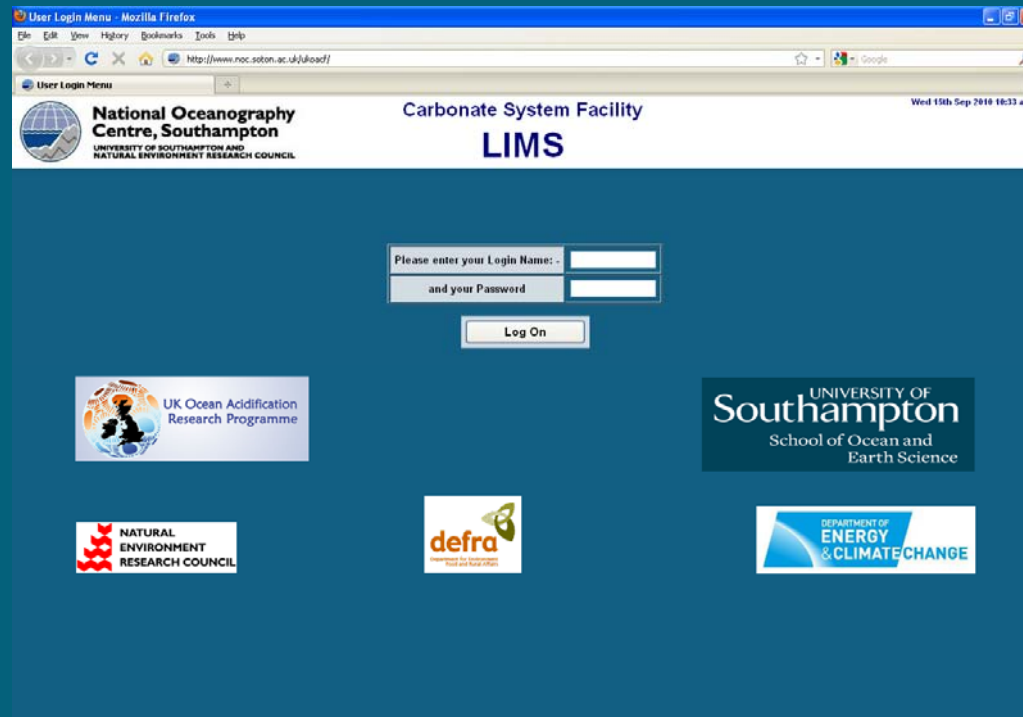
- Telephone and email technical support to the UK OA RP researchers

Prof. Eric Achterberg (eric@noc.soton.ac.uk; +44 23 8059 3199)  
Dr. Eithne Tynan (e.tynan@noc.soton.ac.uk; +44 23 8059 3641)

# Carbonate System Facility LIMS Software

Software available at: <http://www.noc.soton.ac.uk/ukoacf>

Cost of analysis: £12 per sample (for both DIC and TA) for UK OA projects



*Carbonate Facility LIMS website*



# Carbonate System Facility LIMS Software

Username and password protected

## **Input by user:**

- sample information (ID, number...)
- ancillary data: salinity, temperature, pressure, phosphate and silicate concentration
- optional: pH (including pH scale), pCO<sub>2</sub>

## **Output by Carbonate System Facility (once samples analysed):**

- analysed TA and DIC
- calculated pH (total scale)
- calculated pCO<sub>2</sub>
- carbonate and bicarbonate ion concentration
- calcite and aragonite saturation state

# Carbonate System Facility LIMS Software

Username and password protected

## Input by user:

- sample information (ID, number...)
- ancillary data: salinity, temperature, pressure and silicate concentration
- optional: pH (including pH scale),  $pCO_2$

## Output by Carbonate System Facility (once samples analysed):

- analysed TA and  $pCO_2$
- calculated  $pCO_2$
- calculated  $pH$
- carbonate and bicarbonate ion concentration
- calcite and aragonite saturation state

**FEEDBACK PLEASE!**