

What is SOLAS?

SOLAS (Surface Ocean - Lower Atmosphere Study) is a new international research initiative, the goal of which is:

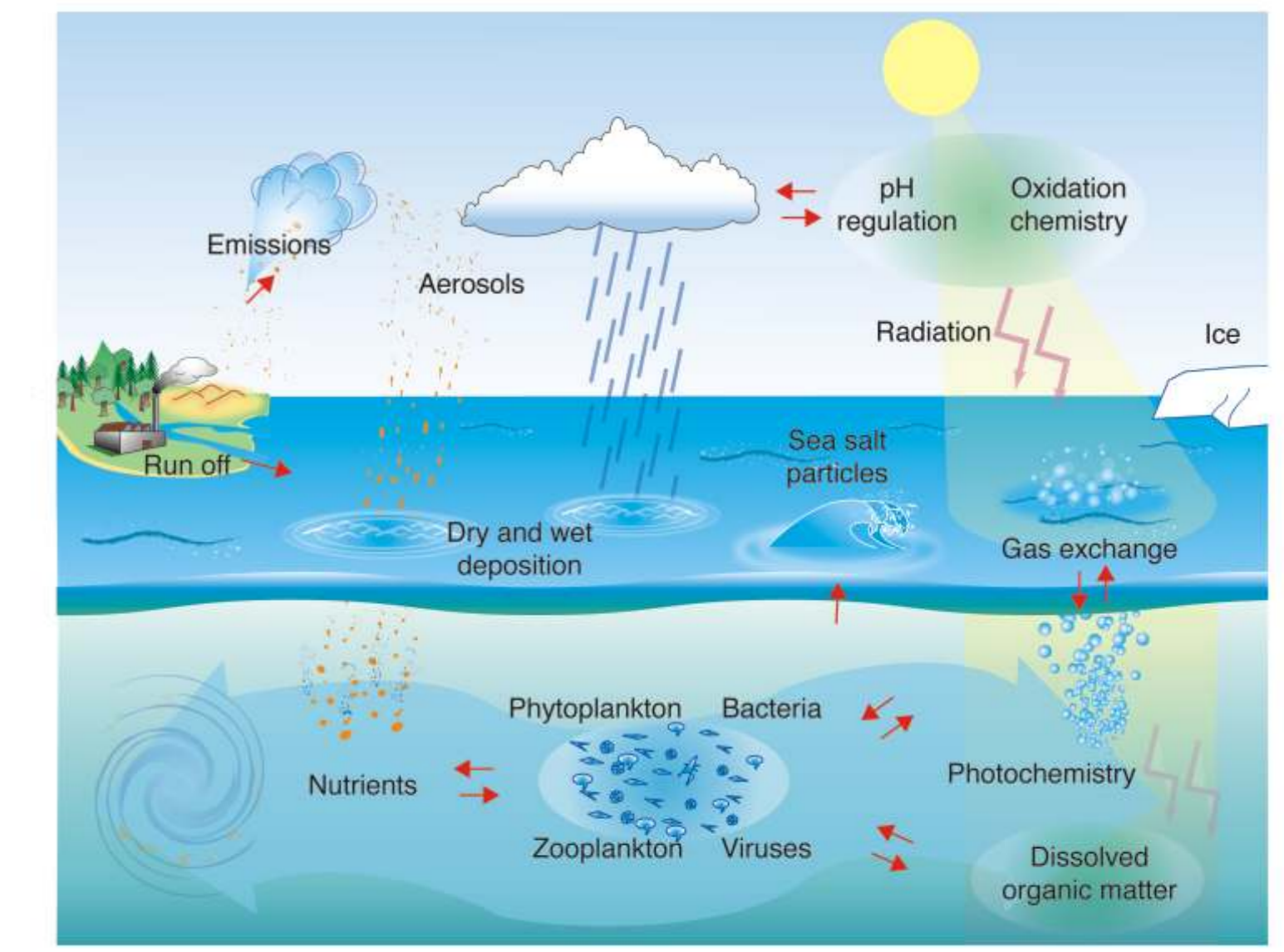
"To achieve quantitative understanding of the key biogeochemical-physical interactions and feedbacks between the ocean and atmosphere, and of how this coupled system affects and is affected by climate and environmental change."



Achievement of this goal is important in order to understand and quantify the role that ocean-atmosphere interactions play in the regulation of climate and global change.

The domain of SOLAS is focussed on processes at the air-sea interface and includes a natural emphasis on the atmospheric and upper-ocean boundary layers.

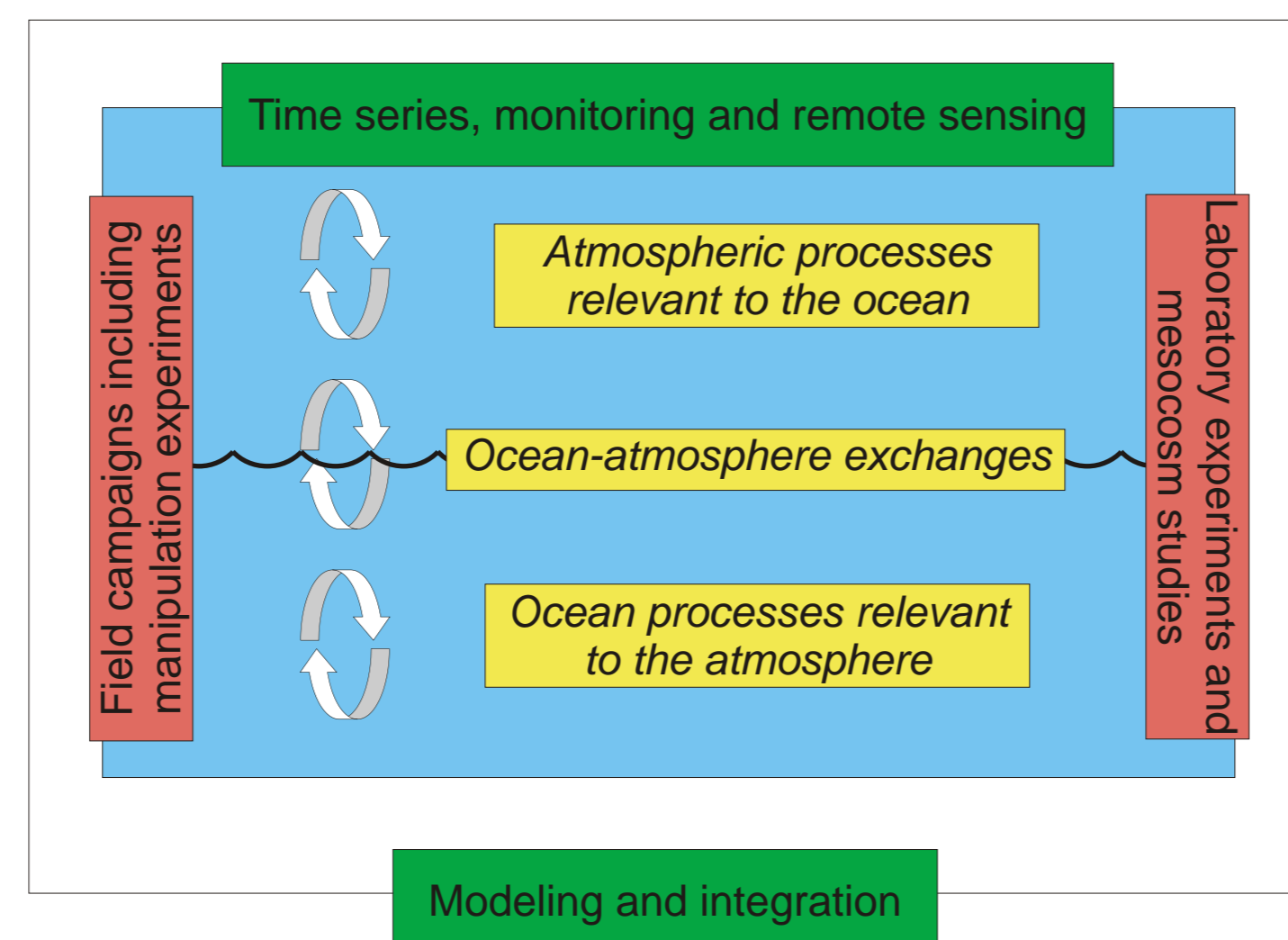
A fundamental characteristic of SOLAS is that the research is not only interdisciplinary (involving biogeochemistry, physics, mathematical modelling, etc.), but also involves closely coupled studies requiring marine and atmospheric scientists to work together.



UK SOLAS

Three 'high level' goals for the UK Surface-Ocean / Lower Atmosphere Study (UK SOLAS) directed programme are:

- To advance our quantitative understanding of the mechanisms that control the rates of air-sea exchanges of gases, dust, nutrients, aerosols and solar radiation, and to use this information to improve estimates of air-sea exchanges.
- To evaluate how these exchanges impact the chemistry of the marine atmospheric boundary layer, the biogeochemistry of the ocean mixed layer, and feedback between the ocean and the atmosphere.
- To quantify the implications of these boundary-layer processes on the global climate system through developing improved predictive modelling capabilities.



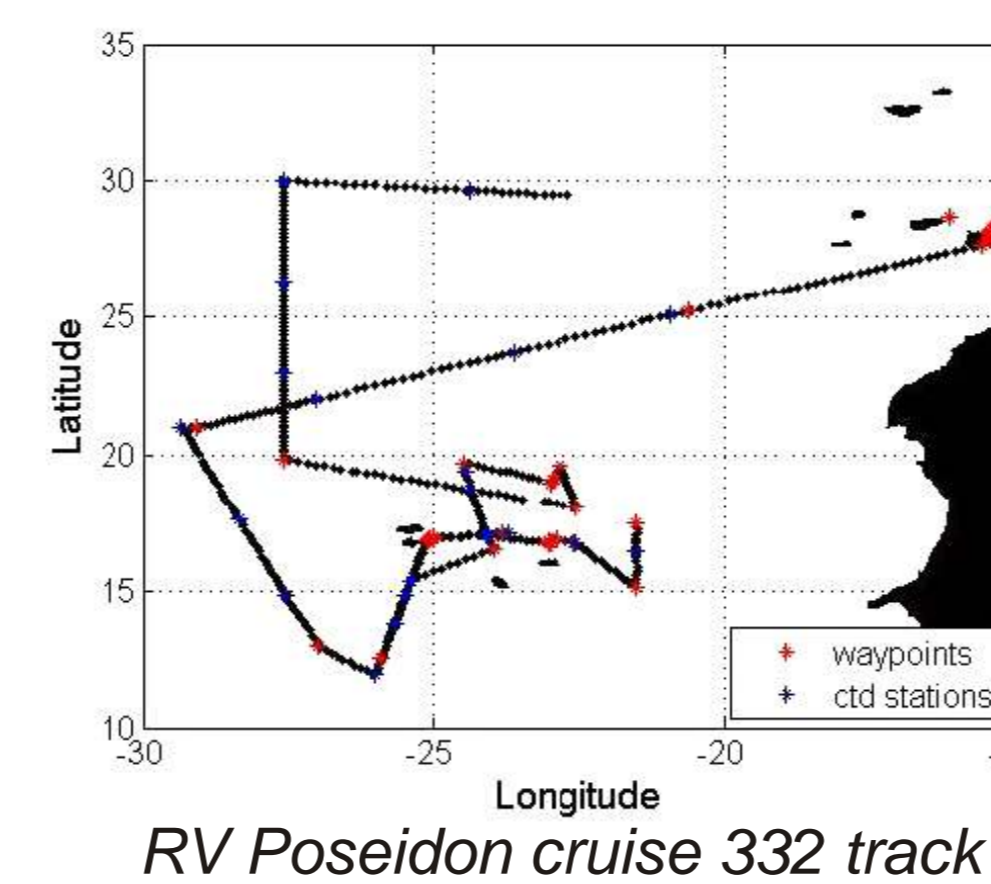
Main fieldwork activities



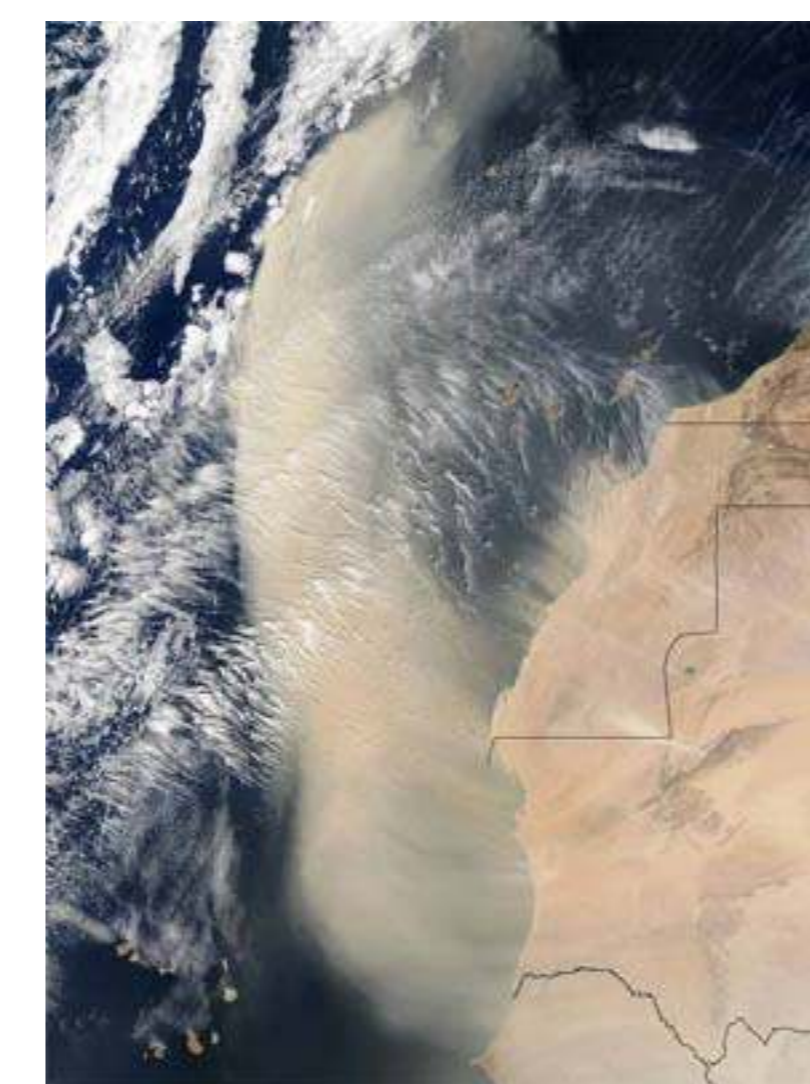
Deploying a CTD



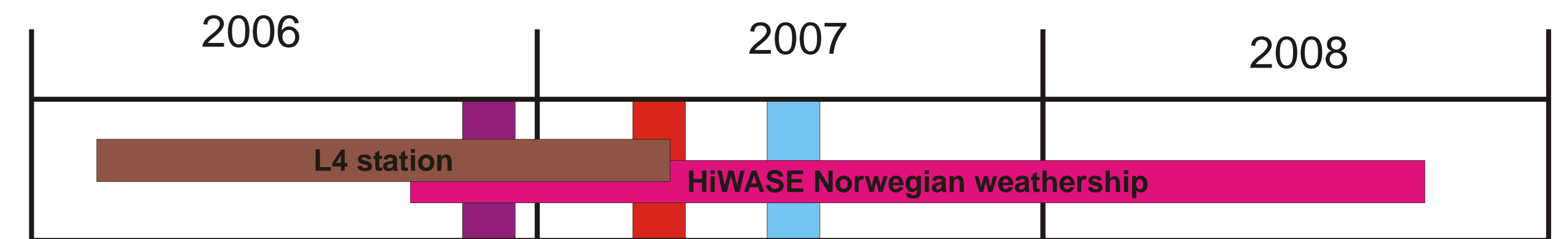
RRS Discovery



RV Poseidon cruise 332 track



MODIS satellite true colour image of dust storm over tropical North Atlantic Ocean, March 2004

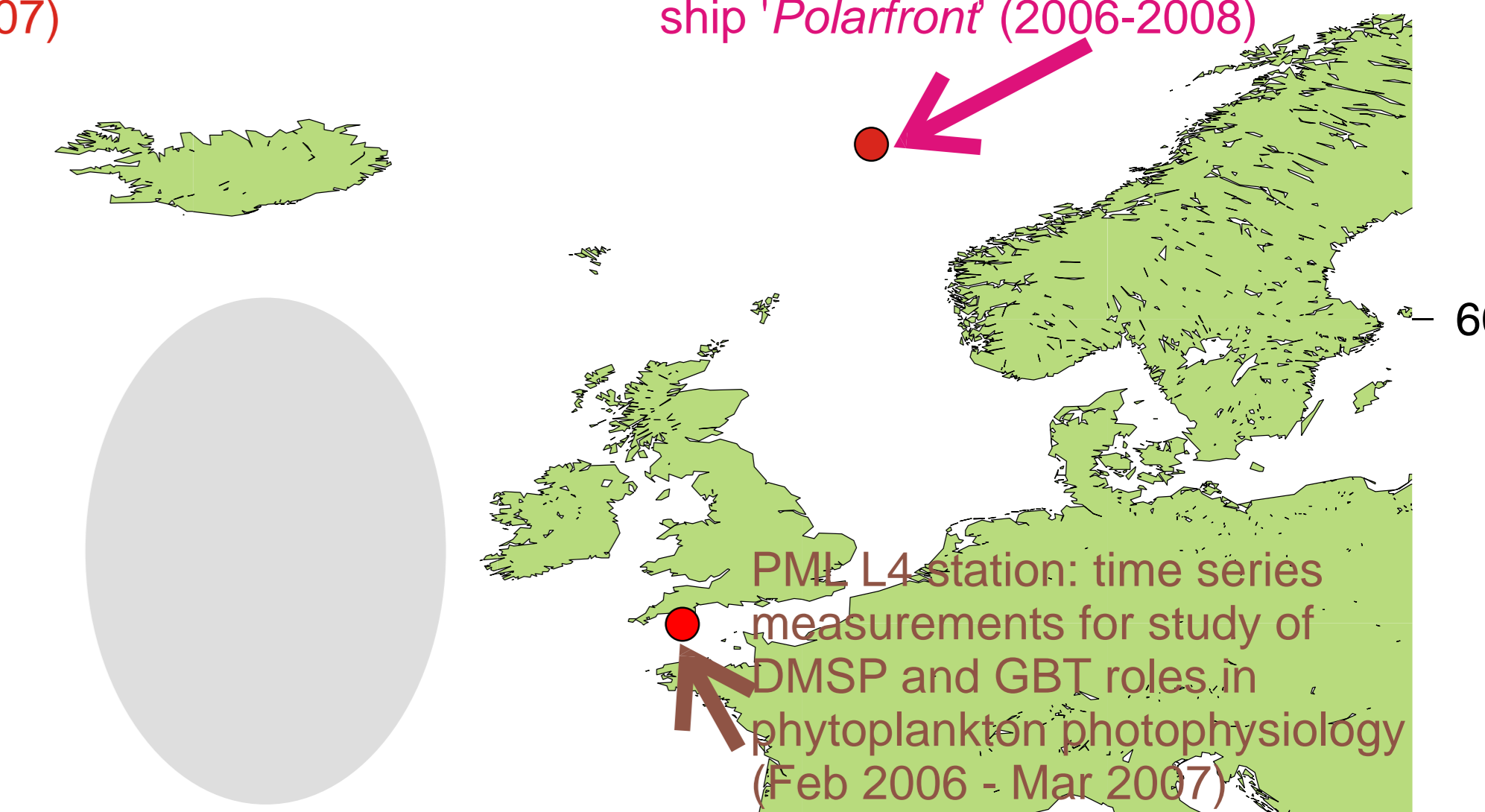


DOGEE+SEASAW cruise: deep ocean gas exchange experiment, and field observations of sea spray, gas fluxes and whitecaps (NE Atlantic, Nov-Dec 2006)

SEASAW cruise #2 (NE Atlantic, Mar-Apr 2007)

DOGEE cruise #2 (NE Atlantic, Jun-Jul 2007)

HiWASE time series measurements: met data from instruments mounted on the Norwegian ocean weather ship 'Polarfront' (2006-2008)



PML L4 station: time series measurements for study of DMSP and GBT roles in phytoplankton photophysiology (Feb 2006 - Mar 2007)

Cape Verde Atmospheric Observatory (2006-2008)

Dust deposition cruise #1: impact of atmospheric dust inputs on near-surface plankton micro-biota (off NW Africa, Jan-Feb 2006)

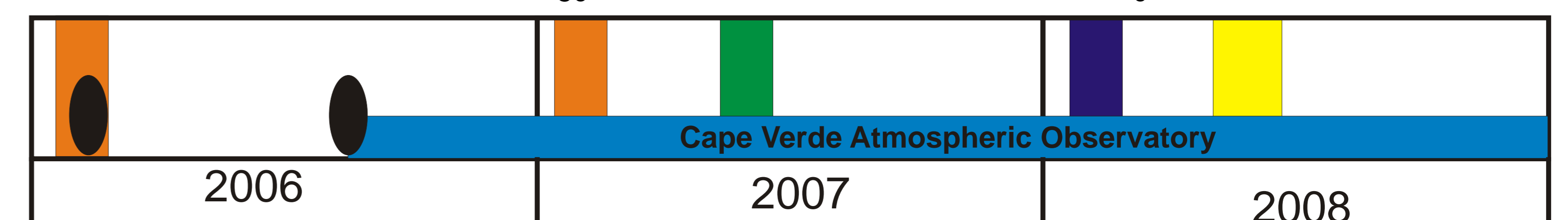
Dust deposition cruise #2 plus iodocarbons measurements (INSPIRE), plus study of DMSP and GBT roles in phytoplankton photophysiology (off NW Africa, Jan - Feb 2007)

DODO aircraft campaigns: Dust Outflow & Deposition to the Ocean (Feb and Aug 2006)

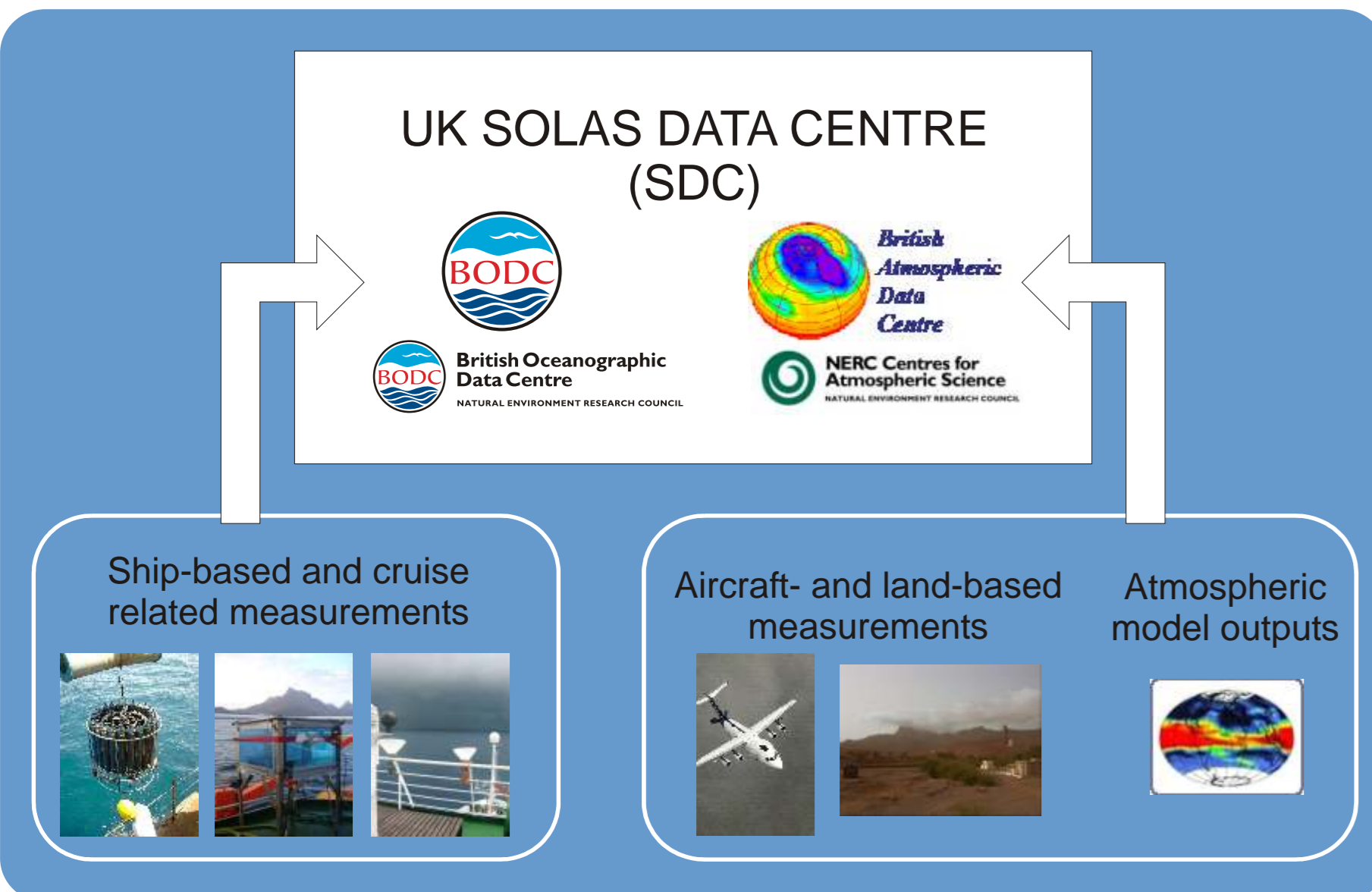
RHaMBLE cruise: Reactive Halogens in the Marine Boundary Layer (transect upwind of Cape Verde, May-Jun 2007)

Draveling cruise: impact of coastal upwellings on air-sea exchange of climatically important gases (off NW Africa, Mauritania upwelling, May-Jun 2008)

INSPIRE cruise: Investigation of near-surface production of iodocarbons- rates and exchanges (off NW Africa, near Cape Verde, Jan-Feb 2008)



Data management



For further information please e-mail Gwen Moncoiffé (gmon@bodc.ac.uk)

UK SOLAS will follow NERC policy regarding data management, to ensure the longterm availability of data collected and thereby maximise the application and exploitation of programme results.

NERC Designated Data Centres (BADC and BODC) will be engaged early in programme planning and project implementation, and subsequently used for data checking and archiving. After a period of sole access by PIs for publication preparation, data will be made available to other programme participants and the wider community.