

National Marine Facilities Sea Systems

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The National Oceanography Centre operate on behalf of Natural Environment Research Council (NERC) two global multi-disciplinary research vessels the RRS *Discovery* and the RRS *James Cook*. These ships are made available to the UK marine science community and their international collaborators. Operating world-wide, up to ice edge, they are world-class platforms for marine science



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2015/2016



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'James Cook'

JC120 - A 34 day expedition headed by Dr. Dan Jones from NOC - JC120 was the first UK science expedition to the Clarion Clipperton Zone (CCZ) in the northern equatorial Pacific, an area likely to be targeted for deep-sea mining for polymetallic nodules. On completion of this expedition *'James Cook'* sailed from the Pacific back to Southampton via Panama. After a 27 day passage and a return to Southampton, the ship mobilised for JC123. **JC123** was carried out around the West coast of Scotland and was part of the BRITICE-CHRONO.

The ship returned to Southampton and mobilised for **JC124/JC125/JC126** a 34 day series of 'linked' expeditions which started in the Celtic Sea and went on to a work area in the Whittard Canyon. Equipment used on this expedition included Corers, CTD's, Autosub6000 and NOC's deep water submersible ISIS. This proved to be a very successful expedition which at one point had three NOC underwater vehicles operating simultaneously.

JC130 was part of the International Ocean Drilling Program (IODP) working in Mid Atlantic. This included the use of the BGS Mebo Drill System, BGS RD2 Rock Drill System and CTD's.. The seabed drills used on the expedition were both new to the IODP programme and had new technologies that had not been tried before.

JC131 was a set of seismic trials prior to JC132. **JC132** was a seismic expedition with a work area along the Mid Atlantic Ridge. Following a large demobilisation in Port of Spain, Trinidad, JC133 commenced in the Lesser Antilles with 34 OBS deployment s. **JC134** followed, a barter cruise with NIOZ working from Antigua to Tenerife

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'Discovery'

Shelf Seas Biogeochemistry (SSB) expeditions continued with DY029/DY030/DY033/DY034 taking place from April 2015 to May, again in July 2015 with a final SSB expedition being undertaken during August.

In-between the SSB expeditions Discovery undertook DY031 an Ellet Line expedition and DY032 a Porcupine Abyssal Plain (PAP) expedition.

Refit for Discovery was carried out in September 2016 in Santander Spain. Following on from refit was the highly successful visit of Discovery to London DY038. This had the ship berthed alongside HMS Belfast with numerous NERC exhibits on-board celebrating NERC's 50th anniversary.

DY039 was to service the moorings of the RAPID 26°N project that are deployed along the Atlantic Meridonal Overturning Circulation (AMOC).

DY039 finished with a port call into Nassau/Bahamas and the science team for DY040 embarked. DY040 included a port entry into Fort Lauderdale. This expedition was a UK contribution to GO-SHIP. The plan was to occupy full-depth CTD stations on the line designated in WOCE/CLIVAR/GO-SHIP. 145 CTD stations were carried out during DY040. Discovery entered a repair period DY065 alongside in Las Palmas after the completion of DY040, with modifications being carried out on the winch cab and associated equipment. A set of ships trials followed the repair period. Autosub trials DY067 commenced on 18th March with arrival back into Southampton. Following on from Autosub trials Discovery remained in Southampton DY041 for a period of maintenance work.

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15/16 Key Achievements – RRS ‘Discovery’

Discovery in London - as part of the NERC (Natural Environment Research Council)'s 50th Anniversary ‘Discovery’ was re-positioned into the heart of London, along the Thames (going astern from Canary Wharf to the pool of London) through Tower Bridge and alongside HMS Belfast. The ship contained a vast array of NERC centre exhibits depicting NERC centre science activities, along with showcasing our array of autonomous vehicles and the ROV. Over 900 guests toured the ship including the Science Minister and the visit concluded with the announcement of the preferred yard for the British Antarctic Survey's new build polar vessel.. The event was a resounding success, so much so that the NERC Chief Executive now wants to “*take the ship to Liverpool and Edinburgh*” !



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15/16 Key Achievements – RRS ‘Discovery’

Two 45 day cross Atlantic expeditions – RAPID and RAGNAROCC.

The RAGNAROCC expedition saw us take the ship into the United States – the first ever port call into the USA for one of our ships – this entailed a large amount of preparation in advance of the port call into Port Everglades - those of you who have taken non US flag vessels into the US will appreciate the amount of compliance work that has to be carried out prior to a US port call. Numerous permits and plans and all of the marine staff having to obtain a US visa prior to joining the ship.



An extension has been added to the winch cab, giving enhanced visibility and the ability to control all winch functions from the winch cab chair.



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15/16 Key Achievements – RRS ‘James Cook’

JC130 – a 46 day mid Atlantic expedition part of the International Ocean Drilling (IODP) Program – with the BGS Rock Drill and the MARUM MeBo Seafloor drill. Cores of on average 11 Mtrs were achieved.



JC132 – a 41 day mid Atlantic expedition Seismic array expedition finishing in Port of Spain/Trinidad.



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Looking forwards to the 16/17 program

- James Cook – 48 day expedition Mid Atlantic as part of the Blue Mining project
- 10 year special docking – Shipyard will not be announced until later in the year once tendering completed
- 40 day expedition to the Madeira Torres Rise
- OBS Recovery expedition of 29 days
- RAPID expedition of 45 days
- Discovery – Expeditions from April to July (PAP, Ellet Line, Rockall Trough)
- OSNAP expeditions from July to August
- Refit in shipyard to be announced
- Showcase in Liverpool
- Then a period of proving trials for seismic, ROV and piston coring plus commissioning trials of the equipment
- Office – move to Ownership & Governance, becoming a ' Charity Limited by guarantee with a trading arm' – moving away from the Public sector and NERC
- Vessel Chartering – Open for enquiries chartering@noc.ac.uk

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