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# Oceanlab Cruise assisted by OSIL Multiple Corer

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Note

The 60th research cruise of the RSS James Cook completed recently, having spent 5 weeks in the North East Atlantic in rough seas and high winds, collecting samples from the Darwin Mounds and Rockall Bank (North-West of Scotland) for Oceanlab researchers Dr. Evina Gontikaki & Neils Jobsvoigt.

The overall aim of the cruise was to investigate the different biotopes and faunal communities in the area, assess the extent of human impact on these habitats and the effects of protection measures in marine protected areas.



The first part of the Oceanlab project was a laboratory based experiment aimed at further understanding the degradation of organic matter at bathyal depths, and particularly the effect of introducing fresh organic matter from surface waters on the rate of decomposition in sediments.



The research team used a megacorer, supplied by OSIL, to collect sediment cores from 500, 700 and 900 m in the Darwin Mounds area, which were then incubated after addition of different quantities of  $^{13}\text{C}$ -labelled fresh organic matter into the samples.



The progress of the degradation of fresh and old organic matter for each quantity level and depth was monitored once a week for 21 days. The experiment will provide important insights into carbon cycling processes in the North East Atlantic and enable us to test what effects future changes in the amount carbon falling to the seafloor might have on the communities living in the sediment.





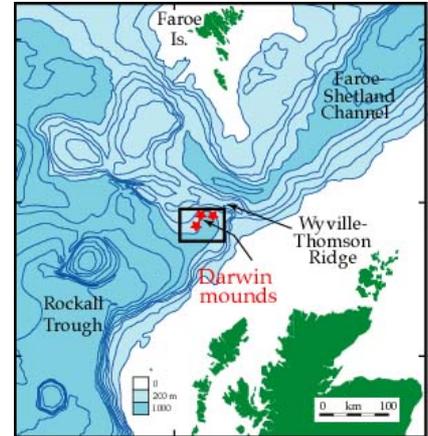
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The second part of the project was focused on assessing the impact of trawling activities on infaunal communities (animals that reside in the sediment). Sediment samples were taken from 3 stations inside the Darwin mounts protected area, and from another 3 stations outside (but nearby) the protected area, using the megacorer. Changes in the relative abundance and biodiversity of infaunal communities due to trawling will likely have an effect on the sediment biogeochemistry and ecosystem processes such as carbon cycling and nutrient regeneration. However, information on the effect of trawling on these communities is lacking.



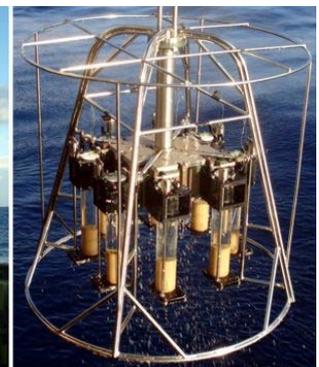
The Mega Multiple Corer used on the cruise is a hydrostatically damped multiple-corer (penetration rate ~1 cm/s), designed to collect high quality undisturbed samples of surface sediments, including the sediment/water interface and overlying supernatant water. Each of the four multiple corers available, Mega, Maxi, Midi and Mini, provide a simple and reliable way of collecting the most accurate sample possible by eliminating the bow wave generated by traditional corers.



The rugged frame of the corer is made from 316 stainless steel and the core tubing itself can be manufactured from acrylic, poly carbonate or stainless steel, depending on the requirements of the customer. With a deployment rate of approximately 1 metre per second on the descent, coupled with a retrieval rate at winch speed, the corers are ideal for rapid assessment work.

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Images courtesy of NOC, Southampton.  
Megacorer belongs to the Ocean Biogeochemistry and Ecology (OBE) group of the NOC.

