

Scientists measure impact of volcanic ash on ocean biology

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(PhysOrg.com) -- Scientists from the University of Southampton are investigating the impact of ash from the Icelandic volcano eruption on ocean biology.

A team from the National Oceanography Centre, Southampton, including scientists from the University's School of Ocean and Earth Science, are aboard the RSS Discovery in the region of the North [Atlantic Ocean](#) affected by ash from the eruption of Eyjafjallajökull.

The research trip was planned three or four years ago, and it is by chance that the scientists now have the opportunity to investigate how volcanic ash may influence the chemistry and biology of seawater in the North Atlantic.

The team was already planning to visit the region this spring to sample for [atmospheric dust](#) and nutrients in the seawater, and measure the activity of phytoplankton, microscopic plants that form the base of the marine food web and take carbon dioxide from the atmosphere.

In many regions of the ocean, the productivity of phytoplankton is limited by the availability of iron, which is essential for their growth. On a previous cruise, scientists from the NOCS demonstrated that the high-latitude North Atlantic Ocean - just south of Iceland and Greenland - might be one such region. Consequently [biological productivity](#), and ultimately the carbon cycle, may be sensitive to any changes in iron inputs there.

Volcanic ash is thought to be capable of providing a significant source of iron for phytoplankton, so the recent eruption of Eyjafjallajökull presented an unexpected opportunity to study a ‘natural experiment’ where the system has potentially been shifted from the normal iron-limited condition.

Professor Eric Achterberg, from the School of Ocean and Earth Science, who is leading the research programme, says: “From the first investigations, it seems the volcanic ash hasn’t made much of an impact on the ocean productivity and [iron levels](#). It is much smaller than we had expected.

“We will be doing further biological experiments at sea using samples of the ash. This work is built into our original programme and provides a unique opportunity to determine the biological effects of the [volcanic ash](#) inputs to the ocean.”

The team, which also includes scientists from the University of Portsmouth, the University of Cape Town and the Natural History Museum, set sail from Scotland on April 26 and is scheduled to return to the UK on May 28. A second planned cruise to further establish how iron availability influences upper ocean biology in the region in the summer (July-August 2010) will provide an additional opportunity to investigate the effects of the Eyjafjallajökull ash.

Provided by University of Southampton

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