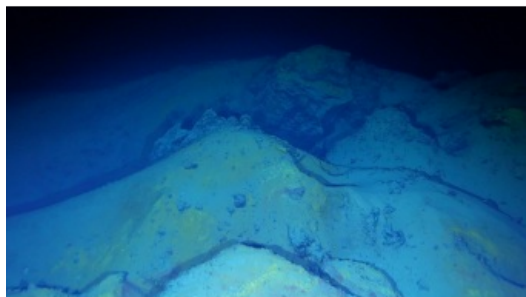


# New Project to Explore Deep-seafloor Mineral Deposits



A new project has been announced to reduce the potential environmental impact of future mining by making exploration for deep-seafloor mineral deposits much more effective. 'Project ULTRA' has been funded by the Natural Environmental Research Council (NERC), and will be led by Professor Bramley Murton at the National Oceanography Centre (NOC).

Deep-seafloor mineral deposits can provide vital new metals for emerging technologies, including those that will reduce greenhouse gas emissions. Many deposits were formed by hot springs on the seafloor and the vast majority of these now lie under a blanket of marine sediment. The big question facing geologists is whether these buried mineral deposits still contain valuable metals - have the minerals dissolved since they formed

thousands of years ago beneath the Earth's crust, or become even more concentrated?

## Disturbance of the seafloor

Project ULTRA will address these questions using a robotic drilling rig to drill the deposits - this will also generate the first 3D image of the deposits, using scientific instruments on the surrounding seafloor to listen to vibrations from the drill as it bores through the seafloor. The boreholes will then be sealed and returned to a year later, when fluids will be tapped-off from the plugs to test for reactions deep inside the deposit.

The rock core taken by the drill, and these fluid samples, will reveal the composition and structure of these types of mineral deposit, their sub-seafloor fluid pathways, alteration of the host rock, and the preservation processes of their ore minerals.

By using this information to identify where the most valuable metals are located in the deposit, Project ULTRA will help ensure any future exploitation would be able to minimise the disturbance to the seafloor and its surrounding environment. This project forms part of the NOC's ongoing research into seafloor resources and is a collaboration with the British Geological Survey (BGS), the Universities of Southampton, Cardiff and Leeds, Memorial University in Canada, as well as Oxford Museum, GEOMAR, Nautilus Minerals, VNIIOkeangeologia from Russia, and SMD Ltd.