

Scientists to explore the 'Grand Canyon' of the oceans

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The deepest, darkest, most inhospitable place on Earth is the focus of a new 2 million research project funded by the Natural Environment Research Council.

The ECOMAR project will explore the Mid-Atlantic Ridge, a mountain range about the size of the Alps, located deep beneath the Atlantic Ocean. The research will be mainly concentrated around the Charlie Gibbs Fracture Zone, a giant canyon hundreds of miles long and about 20 miles wide, that cuts through the mountain range and connects the two halves of the ocean.

Led by Professor Monty Priede, Director of Oceanlab at the University of Aberdeen, the consortium of researchers aims to determine the local, regional and global ecological impact of the Mid-Atlantic Ridge as a physical structure. It will provide a comprehensive overview of how all forms of life interact and function in this environment. The researchers' findings will feed into a global Census of Marine Life project.

Professor Priede said, "We are all very excited about ECOMAR. The Mid-Atlantic Ridge is a difficult place to carry out research of this nature, which is why there is so little known about it at present. One of the things we want to find out is what types of marine animals live on the two sides of the Ridge and how they are related. This should help us to ascertain if the mountain range acts as a barrier."

They will also examine the variety and spread of species in the sub-polar front, the boundary between cold, fertile surface waters to the north of

the gulf stream (which flows above the Charlie Gibbs Fracture Zone) and the less productive warm water to the south. As well as investigating marine life, the researchers will be measuring the circulation of ocean currents and the extent of food, nutrients and carbon carried to the sea floor in ‘marine snow’ –the remains of dead plankton – and the carcasses of whales and fish.

Other areas of the Mid-Atlantic Ridge have been studied before, when swarms of deep-sea creatures were discovered thriving in the hot, toxic waters surrounding hydrothermal vents (underwater volcanoes that spew out plumes of sulphurous black smoke).

Said Professor Priede, “Scientists have been so excited by hydrothermal vents that the ecology in other areas of the Ridge has been neglected. We don’t know what we’ll find down there but we intend to address that neglect and fill in some of the knowledge gaps.”

The researchers will be aided in their quest by the use of advanced technology and equipment, including unmanned robotic vehicles, remote sensing from satellites and precise acoustic techniques. They will be sailing aboard the new Royal Research Ship James Cook as it embarks on one of its first research voyages.

Source: Natural Environment Research Council

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