

ROV with a Chain Saw! (Norway)

2012-09-28 08:25:00 by jamesmc



Using a remotely operated underwater vehicle with an installed saw, researchers have acquired geological samples from the Jan Mayen Ridge this summer.

The method is new – and the results provide new and useful knowledge.

“This is the most fun thing I have done as a geologist!” says Robert W. Williams in the Norwegian Petroleum Directorate (NPD), who took part in the expedition with the G.O. Sars research vessel.

The expedition is a collaboration between the NPD and the University of Bergen, through Professor Rolf-Birger Pedersen at the Centre for Geobiology.

The ship sailed from Akureyri in northern Iceland on 4 August. During the course of two weeks, geological material was acquired from five locations in the steep underwater cliffs on the Jan Mayen Ridge, both on the Norwegian and Icelandic sides.

Williams says that the expedition will provide considerable new knowledge about the geology off Jan Mayen, but that it is too soon to say whether there could be oil or gas there.

Furthermore, he says that the findings match the seismic from the area perfectly – but that the surveys have also entailed some surprises:

“I hadn’t expected there to be so much sandstone there, for example. Over basalt layers of approx. 250 metres (basalt = volcanic rocks), we measured sandstone layers more than 250 metres thick.”



The Jan Mayen Ridge was formed in the Oligocene Epoch approx. 30 million years ago. Williams describes the geology on the Jan Mayen Ridge as a mirror image of Greenland. Jan Mayen is located between Norway and Greenland, north of Iceland. Greenland and Norway used to be located very close together, much closer than the current distance between Norway and the UK.

During two major rift episodes, the Norwegian Sea and Greenland Sea were formed. Greenland and Norway separated when the Norwegian Sea was formed; Jan Mayen remained a part of Greenland. When the Greenland Sea formed, Jan Mayen was separated from Greenland, forming a microcontinent.

Water depth in the surveyed area varies from 600 to 2000 metres. Little is known about the geology, the data material that exists is scattered seismic data from the 1980s and shallow boreholes from 1974. The NPD acquired 2D seismic off Jan Mayen this summer, but the data has not been interpreted yet.

The ROV expedition was lead by Professor Rolf-Birger Pedersen, head of the Centre for Geobiology at the University of Bergen.

Samples were taken with an ROV on the Jan Mayen Ridge last year as well, but since an ROV with a grab was used, nearly only loose material was sampled. This made it difficult to

determine the age of the rock:

“We couldn’t know for certain if the rocks really came from the Jan Mayen Ridge or if they were foreign rocks brought with icebergs from Greenland,” Williams explains.

Icebergs can drag with them rocks, sand and gravel from the mountain where the icebergs are located. These rocks are sometimes released on the seabed far from their origin and can be found scattered across the North Atlantic.

On this year’s expedition, some innovative steps were taken in relation to the tool in order to obtain samples directly from the solid bedrock.

”Professor Pedersen went to a building materials store and bought a large, hydraulic chainsaw which is actually intended for foundation work. The ROV mechanics replaced some hoses, made some adjustments and installed it on the ROV,” says Williams.

The patent worked as the researchers had hoped – and a total of nearly 40 samples were taken, the largest stone block weighs 40-50 kilos.

<http://www.rovworld.com/modules.php?name=News&file=article&sid=6382>