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Arctic expedition to explore little-known undersea mountain range

Earth scientists and technicians from Canada and the United States will take part this March in an Arctic expedition which may shed more light on Canada's northern resources.

The Canadian Expedition to Study the Alpha Ridge (CESAR) marks the centennial of the first International Polar Year and follows by four years a similar study of the Lomonosov Ridge which runs through the North Pole. The location of the 1983 expedition will be about 500 kilometres south of the true North Pole.

More than 40 federal government Arctic specialists and scientists from Canadian and US universities will conduct experiments during the CESAR project to sound the deep structure of the Arctic Ocean's crust using a variety of geophysical methods. The expedition will focus on the Alpha Ridge which is a rugged submarine mountain range 350-400 kilometres wide, rising 2.7 kilometres above the adjacent Makarov and Canada basins and extending 1 300 kilometres west from Ellesmere Island to the Mendeleev Ridge.

The Arctic Ocean consists of a deep

basin surrounded by continental shelves varying from very wide along the Soviet coast to very narrow along the Alaskan coast. The basin is divided by the Lomonosov Ridge into two parts: the Eurasia Basin and Amerasia Basin. These two basins are in turn bisected by the Nansen-Gakkel Ridge and the Alpha-Mendeleev Ridge, respectively. Scientists believe the Eurasian Basin is growing along an active spreading centre, the Nansen-Gakkel Ridge which is an extension of the better known Mid-Atlantic Ridge. The Eurasia Basin started to open up after the North Atlantic Ocean opened some 70 million years ago. This process is still continuing. Today, relative motions between Greenland and Norway, and between the Lomonosov Ridge and the Barents Shelf are about 12 millimetres and 6 millimetres a year, respectively.

Arctic research difficult

Because the Arctic Ocean is remote and difficult to reach, it remains the least understood of all the world's oceans. It is also among the most complex oceans from an evolutionary point of view.



The CESAR expedition will take place in an Arctic ridge like this one.



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