

## Eighth GEBCO Science – presentation abstract

Venice, Italy, 8th October 2013

**Oral presentation title: R/H SABVABAA; Summary of 2012-13 Operations in the High Arctic, and Plans for FRAM-2014, 400 days drift over the Alpha Ridge Impact Area**

Authors: John K. Hall<sup>1</sup> and Yngve Kristoffersen<sup>2</sup>

1. Geological Survey of Israel (Retired), Jerusalem, Israel
2. Nansen Environmental and Remote Sensing Center, and University of Bergen, Bergen, Norway

### Abstract

GEBCO Science Day 2012 reported on FRAM 2012, up to the hovercraft recovery by Polarstern at 85°N over the Gakkel Ridge. It now appears that within the first two weeks the expedition was severely hindered by the most severe storm in recorded Arctic history.

The 2013 program will be completed as of 26 September. The first part consisted of work over the Yermak Plateau with Dr. Martin Doble from the Cambridge University's Department of Applied Maths and Theoretical Physics.

Despite the perfect weather, attempts were made to study the decay of Atlantic swell with distance into the pack using accelerometers. A 7 m dart corer with thermistors was used to make heat flow measurements. Penetration was only 4 meters so in future we will use our significantly more powerful hydrostatically boosted corer.

The second expedition is using transport to and from the area by icebreaker. In this case the Norwegian KV SVALBARD will be working between the Yermak Plateau and Greenland at 82°N. As part of the UNDER-ICE-2013 Cruise scientists from seven institutions in the US and Europe will be carrying out a wide range of buoy work including underwater acoustics. The hovercraft will provide on-ice logistics and CTD support for the oceanographic program on the Fram Strait. The FRAM-2014 expedition is what the hovercraft was built for in 2007.

In September 2014 it will travel aboard AWI's Polarstern to a point on the western end of the Alpha Ridge crest. The craft will be left with fuel and supplies for a 400 day drift across the asteroid impact zone and then out of the ice by Greenland. A two man crew will collect many sediment cores, hoping for sediments possibly as old as 100 million years. Chirp and air-gun seismics will be used to track the stratigraphy over the impact area: Station T-3 profiles from over 40 years ago show up to 500 m of the overlying sediments to be missing from the 200 by 600 km area shown below by a dashed white line.



