

rocks are being conducted. Archival air photographs and recent satellite image of some representative glaciers help determine whether the iceberg sediment load is the consequence of landslide activity as well as what the possible path and fate of the iceberg was, on the basis of ocean current patterns. It is important to know whether this activity is on the increase as a result of climate change, because low profile, rock-loaded icebergs pose a threat to exploration and shipping in the north Atlantic.

**Tracing the source of a low profile iceberg with ice
rafted debris in the Nares Strait area between
Canada and Greenland**

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One of the dangers to navigation in northern waters is the presence of icebergs loaded with ice-rafted debris (IRD). Neutrally buoyant icebergs, floating slightly above or below the water line, can go undetected by radar due to their characteristic low profile and rock cover. On August 17, 2001, during the Canadian-German Nares Strait Geo-Cruise Expedition, a near neutral-buoyancy rock-loaded iceberg was encountered (Kane Basin, Lat. 80°N; Long. 69°W). The large, roughly 90 by 70 m, iceberg had a significantly low profile, floating only 5 to 15 m above sea level. The coverage of dark debris gave no contrast with the dark sea, and the submerged nature of the iceberg made it otherwise invisible to radar. The ice surface was covered with boulders, gravel sand and silt. Blocks were generally less than 1 m, with one impressive limestone block (2 × 2 × 3 m).

Samples collected by boarding the iceberg revealed predominantly unfoliated, angular, fossiliferous, and petroliferous sedimentary rock and scarce rounded gneiss and granitoid fragments. Their characteristics match those of Cambrian, Ordovician and Silurian strata mapped in valley outcrops of the enormous Petermann and Humboldt glacier, NW Greenland (Cape Webster, Cape Storm, and/or Goose Fiord formations). Similarities also exist in Dobbin Bay, Richardson Bay, and Rawlings Bay tidewater glaciers on Ellesmere Island (Allen Bay Formation) but the glaciers are small in comparison and rocks there have been affected by Eureka deformation.

To ascertain the source of the debris, petrographic, mineralogical (XRD), and organic maturation analyses of petroliferous