

## PRELIMINARY RESULTS FROM AN INSTRUMENTED ICEBERG IN THE ANTARCTIC (Abstract only)

by

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### ABSTRACT

A data collection platform was placed near the centre of a 950 m x 800 m near-rectangular iceberg in the Weddell Sea on 4 February 1979. Meteorological conditions and the dynamic behaviour of the iceberg were recorded for every three hours over a one-year period. The following parameters were measured: barometric pressure, wind speed and direction, air and snow temperatures, and iceberg heading, tilt, and strain. Platform elevation was 35 m a.s.l. corresponding to an iceberg thickness of about 210 m. The platform was deployed at lat. 70°5'S., long. 20°3'W. Figure 1 shows the iceberg drift track between 4 February and 4 May 1979.

The tilt sensor was a Singer-Kearfott bubble-type two-axis electrolytic vertical sensing element mounted on a levelling platform. This was fixed on a 2.2 m long, 0.16 m diameter white-painted tube, which was tightly placed in a vertical drill hole in the firn, and frozen in by the addition of water (firn temperature was -5°C). The tilt sensor was level with the snow surface, and aligned so that tilt was measured along and across the main axis of the iceberg. The range of the tilt sensor was  $\pm 4.4 \times 10^{-3}$  rad with a resolution of  $3.7 \times 10^{-5}$  rad (Bø and others 1979). The strainmeter consisted of a 1 m invar rod fixed at the passive end of the instrument to a mounting block and plate, and at the active end to the core of a linear variable differential transformer (LVDT). The LVDT body was mounted in a cage connected to a rezeroing system. The strainmeter was placed in a 1.1 m deep pit and fixed to vertical wooden posts placed 2 m deeper and frozen in. The range of the strainmeter was  $1.2 \times 10^{-3}$  and the resolution  $10^{-7}$  (Bø and others 1979).

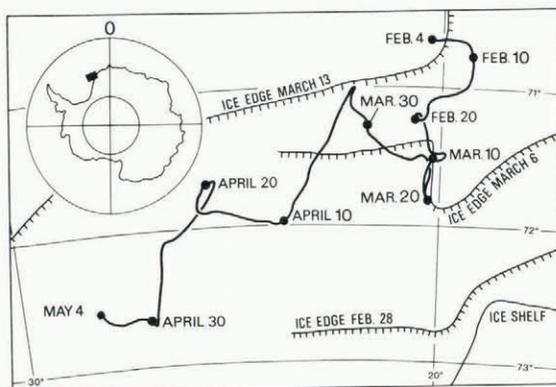


Fig.1. Drift track of the iceberg for the period 4 February to 4 May 1979. The berg was surrounded by pack ice from about 6 March.

Tilt and strain were sampled 20 times at intervals of 6 sec. This measuring sequence was repeated every three hours. The data were stored and transmitted over the TIROS-N/NOAA satellite, which provided approximately 13 passes per day for transmission of data. Eight of these gave the location of the iceberg. Analysis has been carried out of the tilt and strain data from the instrumented iceberg for the period 4 February to 4 May 1979.

### REFERENCE

Bø R, Markussen J, Strømme J 1979 *Iceberg data collection stations. Technical report.* Bergen, Chr. Michelsen Institute (Report CMI No. 78121-1)