BRAN 767:
RRS Bransfield
Bransfield Strait
Geophysics
December 1976 - January 1977

1. Introduction

The present cruise 'attempted to consolidate the magnetic data collected in the Weddell Sea by R.R.S. Shackleton during the 1973-74 season and by R.R.S. Bransfieid in the 74-75 and 75-76 seasons. Although it was originally intended that data on direct passage lines only would be gathered, the short Halley Pay relief resulted in N.E.R.C. funds being made available for about two days extra steaming.

Additional magnetic and some bathymetric data were obtained on other tracks within the Scotia Sea. The initial restriction imposed by B.A.S. of not collecting data within 500 miles of the Falkland Islands was modified to 350 miles in early January so that useful data in the western and central Scotia Sea areas could be obtained.

Table 1 lists when and where magnetic data were taken and the ship's tracks are shown in Figure 1. The performance of the various items of equipment is described below.

1976-77 Season

Magnetic Legs

Leg No.	From	To	FROM DAY/HR/MIN	TO DAY/HR/MIN
23	500 miles limit	South Georgia	354 22 08	355 21 30
24	South Georgia	Halley Bay	358 18 18	363 16 20
25	Halley Bay	Signy I.	006 18 52	012 02 54
26	Signy I.	South Georgia	014 12 03	016 09 28
27	South Georgia	~ 44 °W	019 3.9 38	020 16 26

Table 1

2. Performance of scientific and ship's equipment

a) Redifon RSN-1 satellite navigator

Once again the satellite navigator has proven troublesome throughout the whole of the cruise. After its annual servicing, the machine was re-installed aboard R.R.S. Rransfield in mid-October and immediately it was discovered that there was a complete loss of sensitivity resulting in very few fixes being produced. Redifon managed to inspect the machine before the ship sailed and declared the fault corrected. Eowever, it is unclear whether only the computer memory board was replaced or the whole machine, aerial and pre-amplifier unit.

At the end of November, I received a sample 6-day majority-vote printout from Jack Tolson (2nd Officer) which indicated that the sensitivity loss was still present. The only solution that Redifon could suggest was the replacement of the aerial cable.. I took a spare cable with me when I joined the ship on December 10th at Montevideo. Installation of the cable, however, had no effect on satnav performance and this situation remained throughout the season. Whilst sufficient high-quality satfixes were received to produce a fairly well satfixed track, there were periods of several hours

when no useable fixes were received.

Further problems with the satnsv equipment have been the failure of the thermal printer and of several of the *neon* bulbs providing the illuminated display. This latter problem proved uncorrectable since the supplied spare bulbs wera different from thoss in the machine!

The machine will be fully serviced this summer in preparation for possible R.R.E. John Biscoe research cruise next season.

b) Kelvin Hughes MS38 metric P.D.R.

Despite an overhaul during last summer, this unit failed early in the season at about 57°S,27°30'W. The electrical officers were completely unable to fix the machine and consequently, a great deal of bathymetric data in previously unsounded areas was lost.

c) Barringer oceanographic magnetometer and clock unit

On the whole, both of these units required little attention throughout the whole cruise. Early in the season, one of the magnetometer cables snagged and broke whilst the bottle was being streamed. Whilst the two bottles could, by virtue of the fish connectors, be interchanged only one towing cable was available for the whole season - lack of suitable tools making rewiring of the towing cable and towing cable connector impossible.

The only other problem that was encountered was an occasional noisy signal. This noise could not be pinpointed as being due to th bottle since the precession signal displayed no noise, and the problem persisted even when the polarising fluid was changed. However, this did not prove more than a. minor irritation as far as data quality was concerned.

3.. Acknowledgements

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