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Marine Laboratories**

REPORT 149

**Satellite-Tracked Buoy
Data Report VIII
South-West Pacific Ocean
July 1980–December 1981**

G. S. Wells

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SATELLITE-TRACKED BUOY DATA REPORT VIII

SOUTH WEST PACIFIC OCEAN JULY 1980-DECEMBER 1981

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Abstract

Track, speed and sea surface temperature data from nine buoys in the Tasman Sea and two buoys in Bass Strait are presented. The buoys were tracked by the French System ARGOS aboard the satellite TIROS-N.

Introduction

This report deals with a new series of buoys that were tracked by System ARGOS (Taillade 1978) with a fix accuracy of better than 1 km. The data presented were collected as part of the continuing work into the East Australian Current (E.A.C.) and its associated warm core eddies and from two buoys released in the Bass Strait region. It follows reports nos I-IV and VII that have dealt with buoys tracked by the NIMBUS satellite and reports V-VI that dealt with Bureau of Meteorology buoys tracked by System ARGOS.

The Buoys

The buoys were all torpedo buoys fitted with a parachute drogue, as described by Cresswell *et al.* (1979).

The Buoy Releases

Buoys 1830 and 1831 were released together in July 1980 into Eddy Maria off Newcastle. They were drogued at 200 m and 20 m respectively. The buoys escaped from the eddy after looping around it several

times and then drifted in the Tasman Sea. No further releases were made until December 1980 (day 342) when buoys 1833 and 1835 with 200 m drogues were released into Eddy Leo off Eden, New South Wales. (Two buoys, 1834 and 1837, drogued at 20 m were released into western and central Bass Strait at this time). The buoys stayed in the eddy until February 1981 and then they escaped apparently as a result of the coalescence of Eddy Leo with Eddy Maria (Cresswell 1982a). At that time, day 27/28, two more buoys, 1832 and 1836 with 200 m drogues were released into the coalescing eddies. One of these, buoy 1836, escaped from the combined eddy, Eddy Mario, on about day 55. It was recovered and then released into the eddy on day 74. Buoys 1831 and 1837 with 200 m drogues were released into the eddy on days 72 and 98 respectively. Buoy 1837 was taken from the eddy by a fishing vessel on day 154, recovered in Sydney and then returned to the eddy on day 162. Buoy 1838 with a 200 m drogue was released into the eddy on day 187 and it finally escaped in September of 1981. The time series of buoy data from the eddy has been discussed by Cresswell (1982b).

Data Presentation

The buoy tracks are presented on Mercator projections 9° of latitude and 15° of longitude. This is a change from earlier reports I-IV and VII where a constant 1:0.8 rectangular grid was used for the latitudes and longitudes. In the present charts the first fix of each day is marked with a plus sign and every tenth is labelled. In the upper panels the speeds have been calculated from the first fix on one day to the first fix on the next day. Temperatures from all fixes are plotted and so at times, particularly from September-March, afternoon effects of $1-2^\circ\text{C}$ can be observed. Figure 1 is a composite of all the buoy tracks.

Acknowledgments

The satellite-tracked buoy programs are directed by Dr George Cresswell. The buoys are assembled by Alpo Metso. David Crooks and Murray Greig are thanked for computing assistance.

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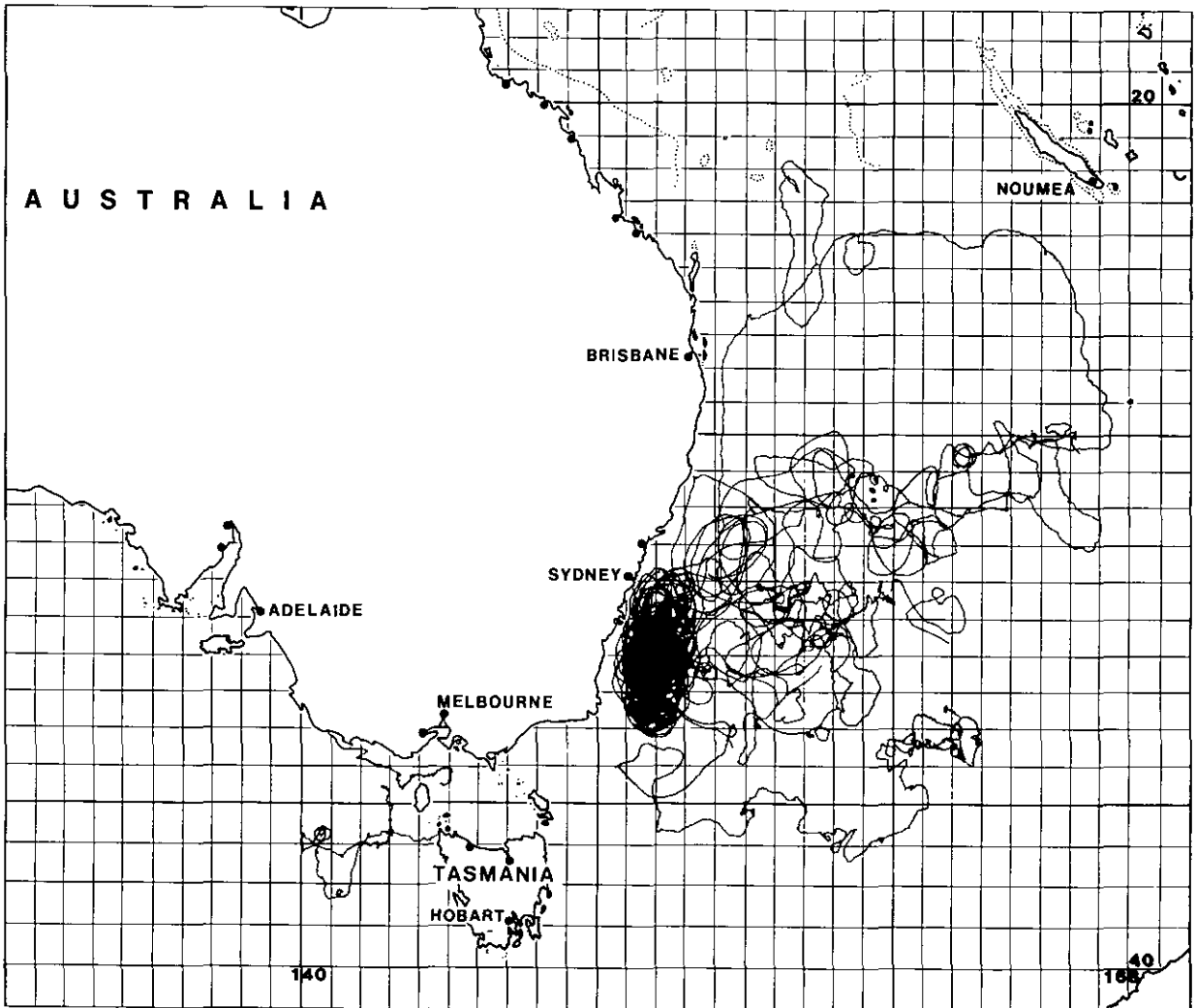
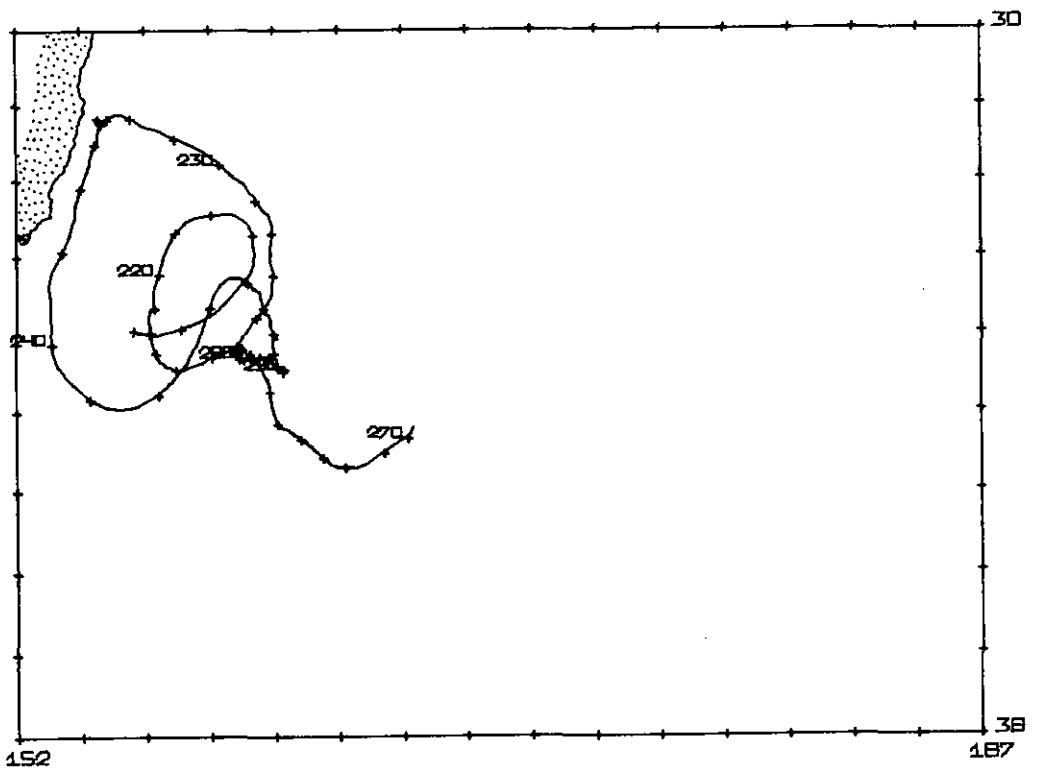
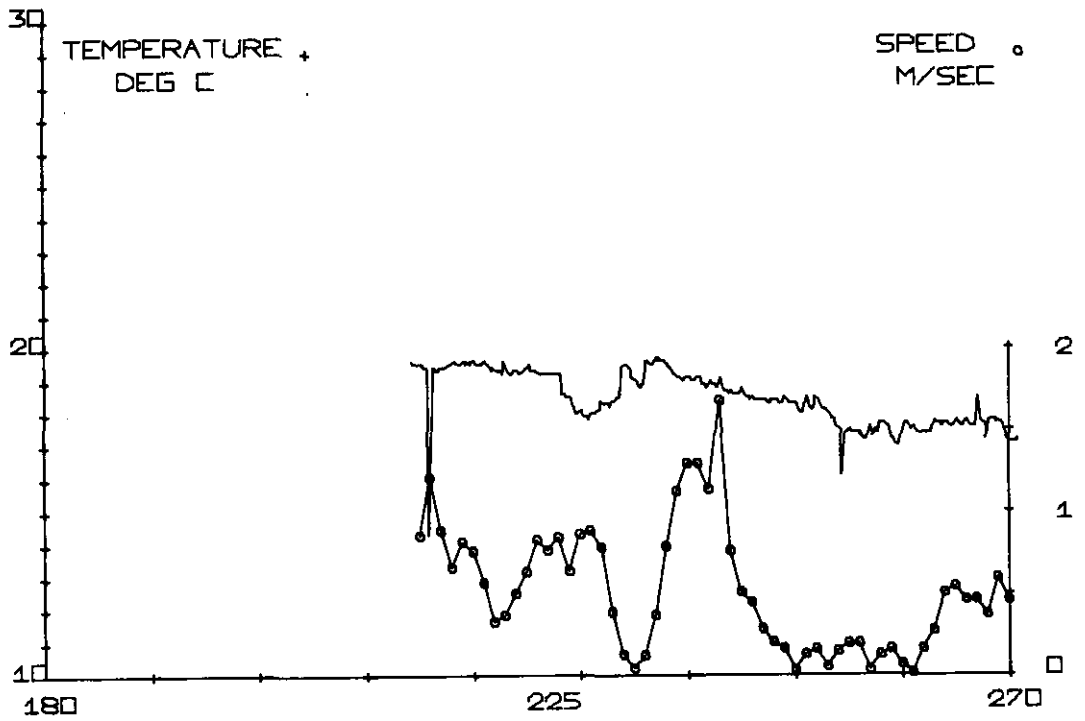
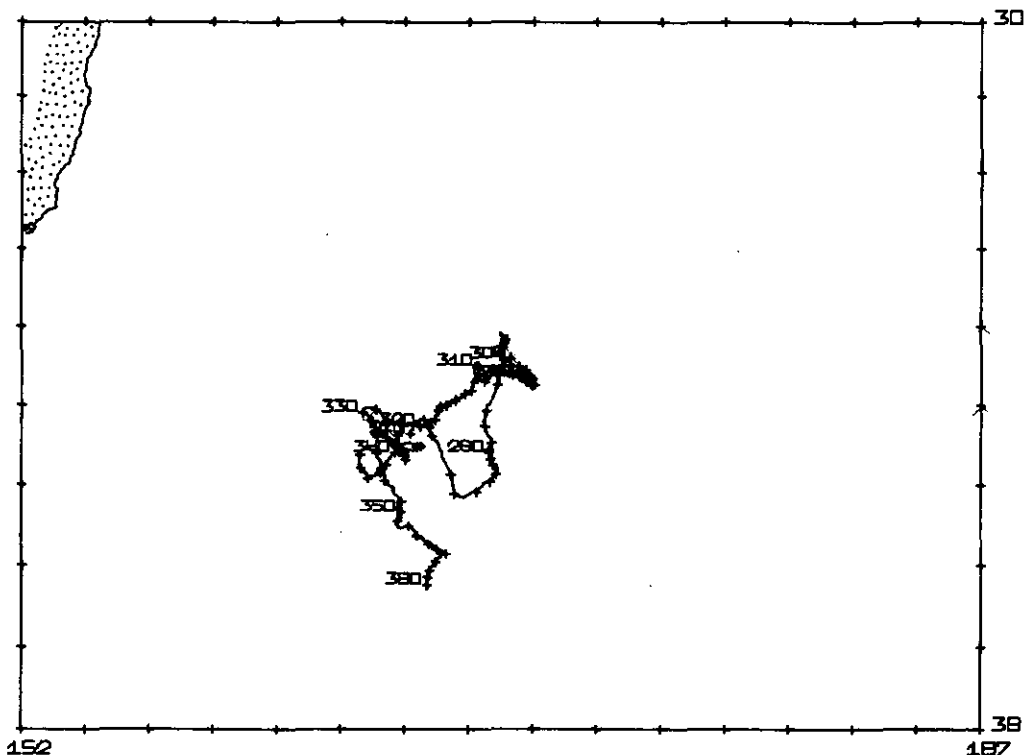
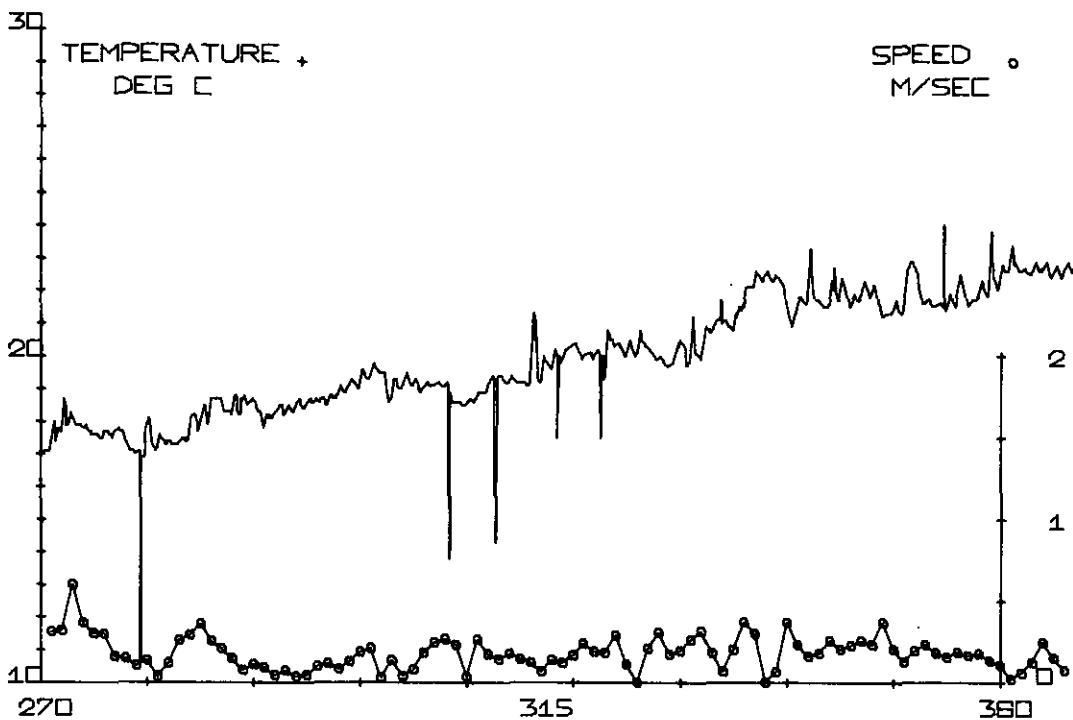


Figure 1. A composite chart of all the buoy tracks for the period of this report. It shows the influence of Eddy Leo and Eddy Mario on the buoys and indicates a meandering eastward flow across the Tasman Sea, with buoys perhaps marking the Tasman Front.

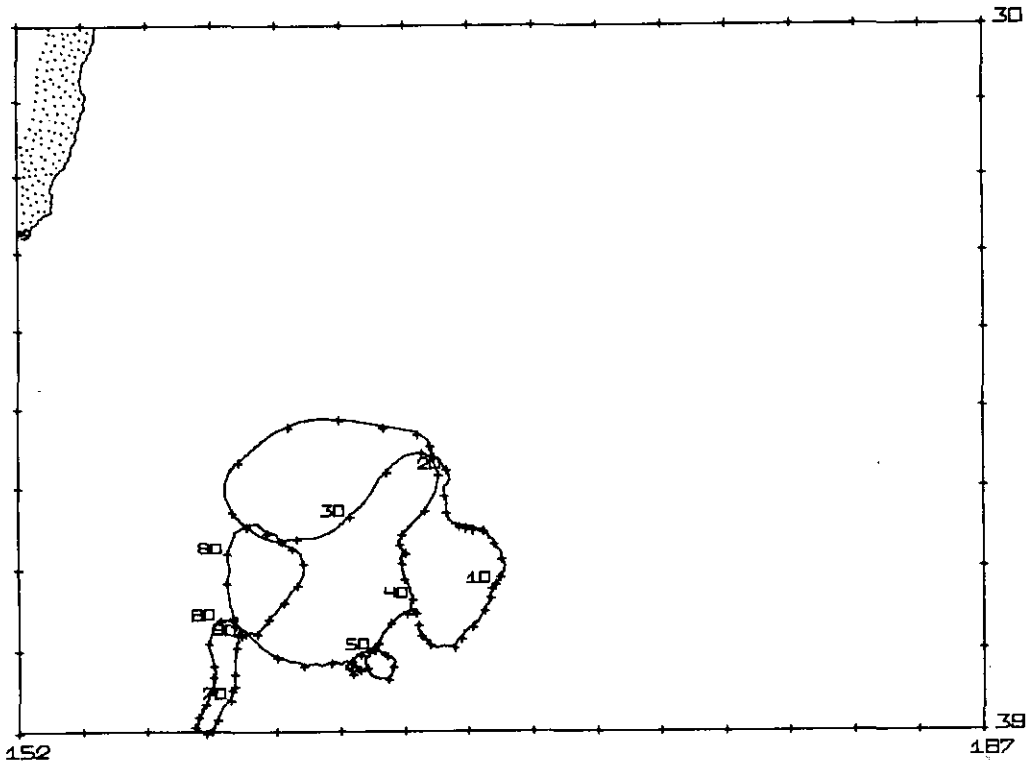
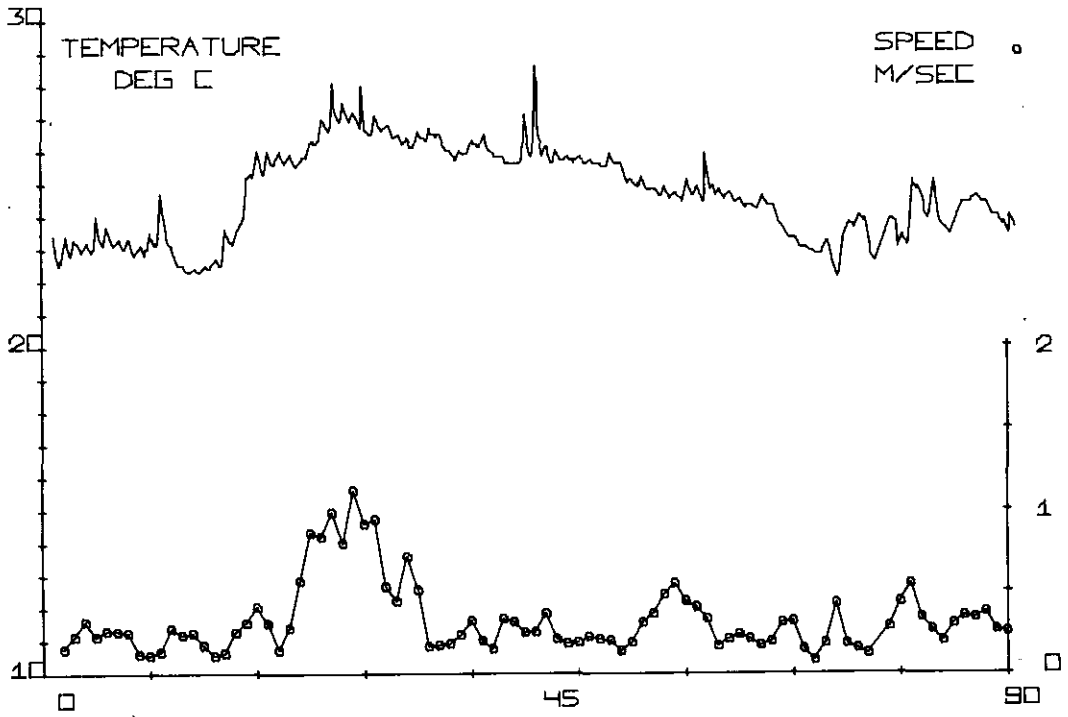
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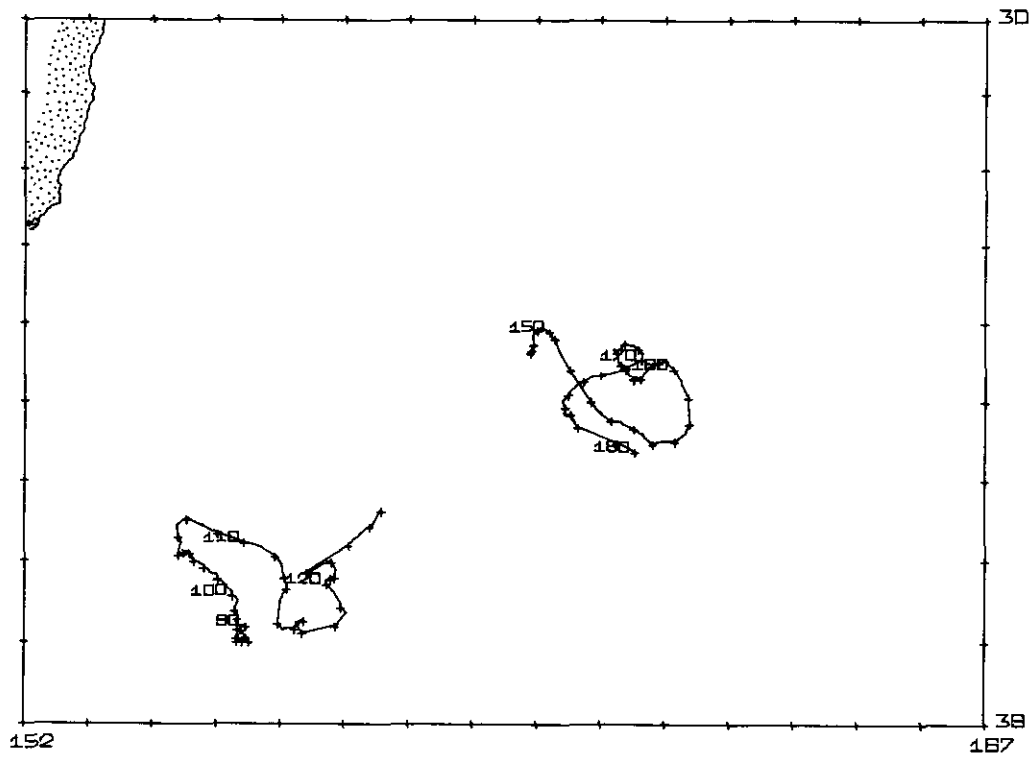
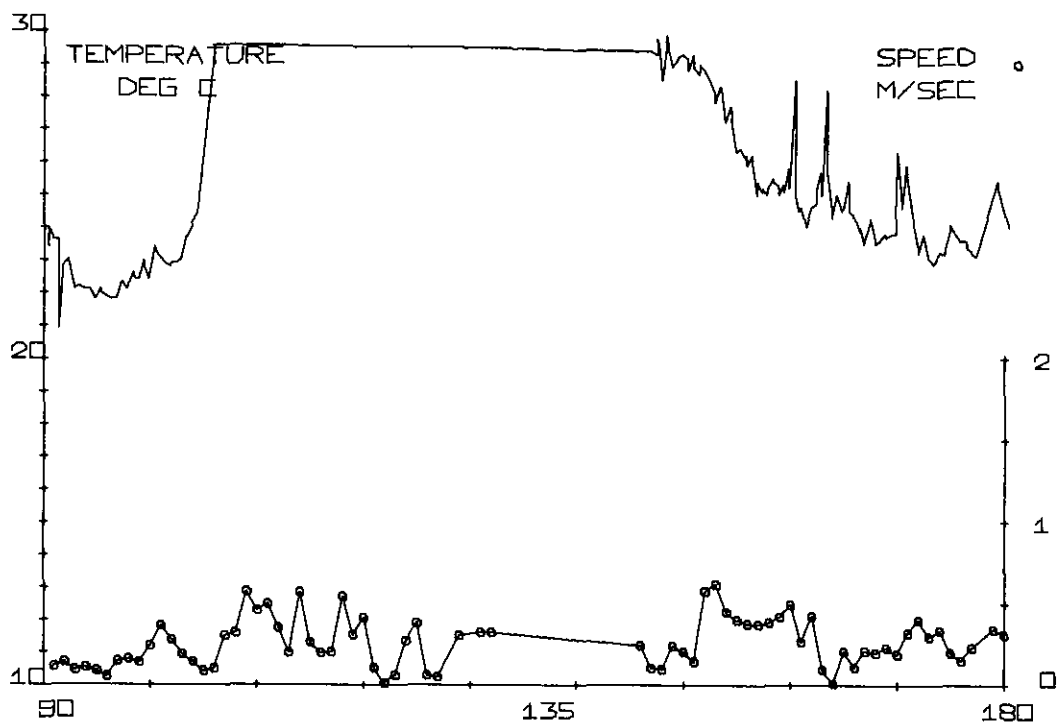
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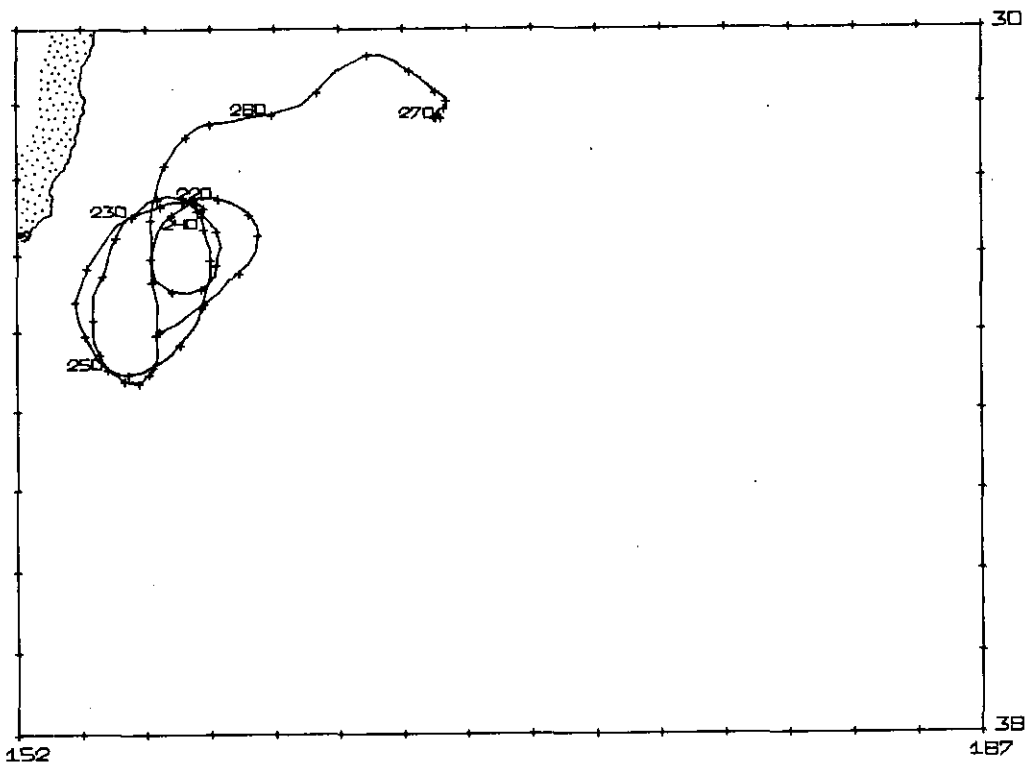
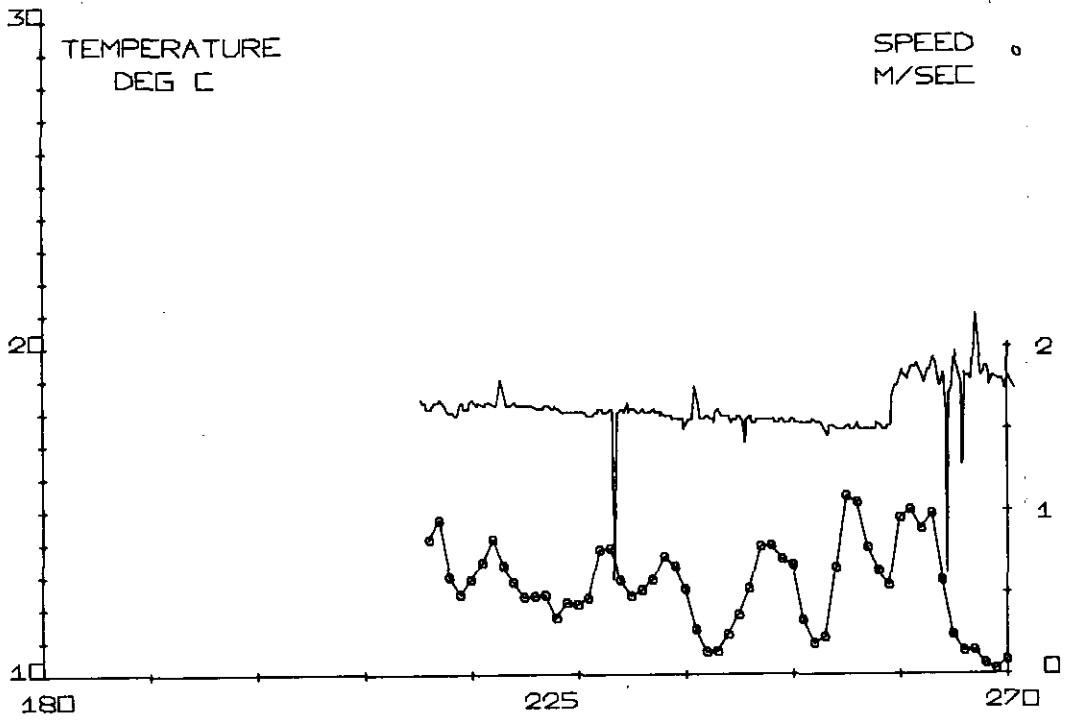
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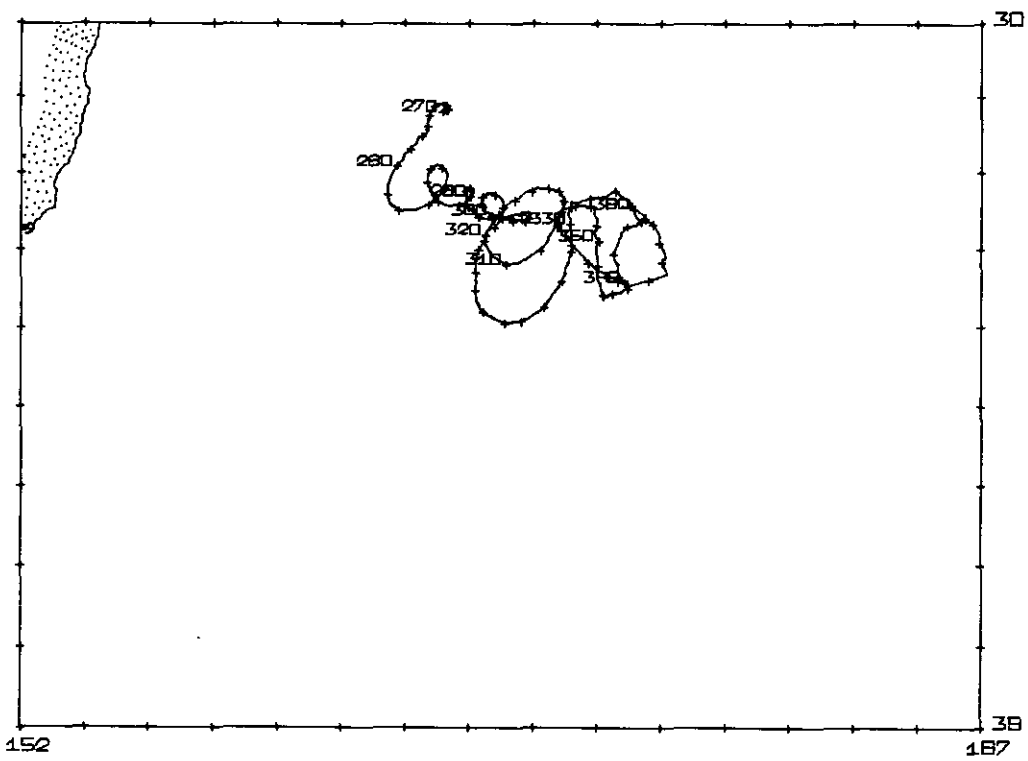
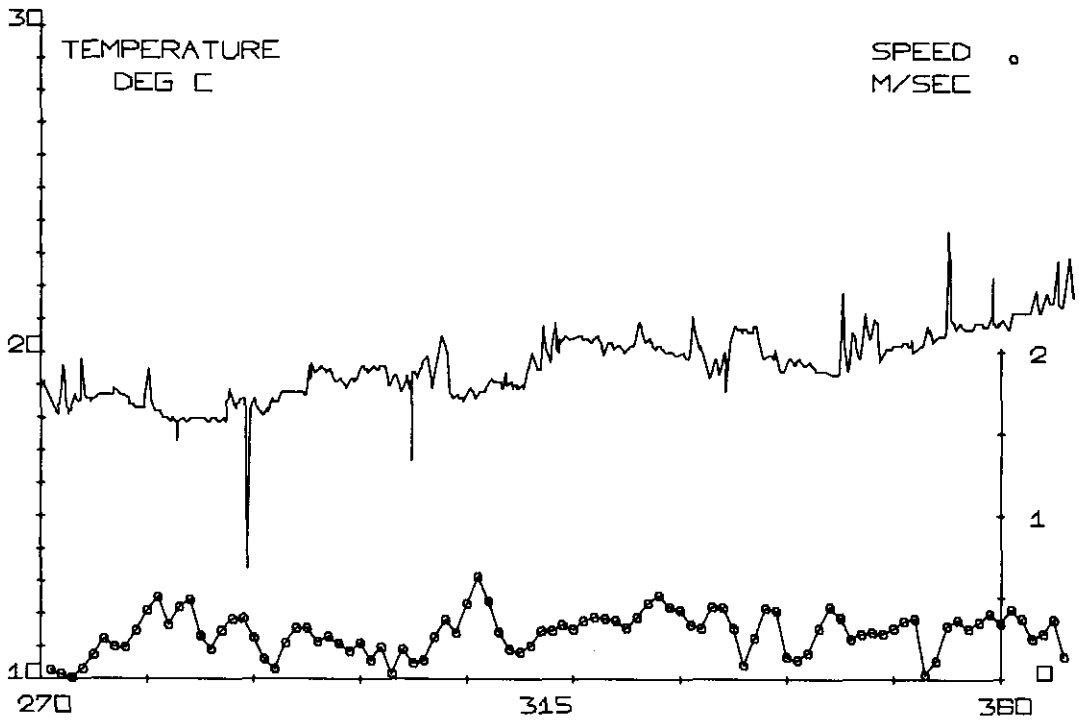
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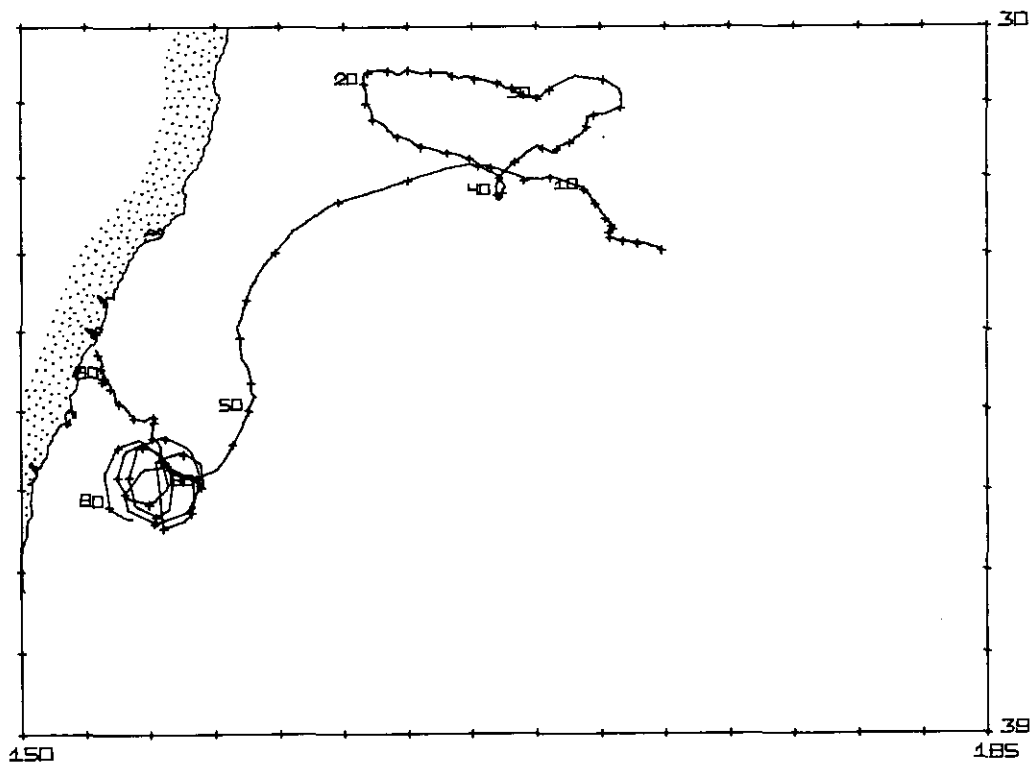
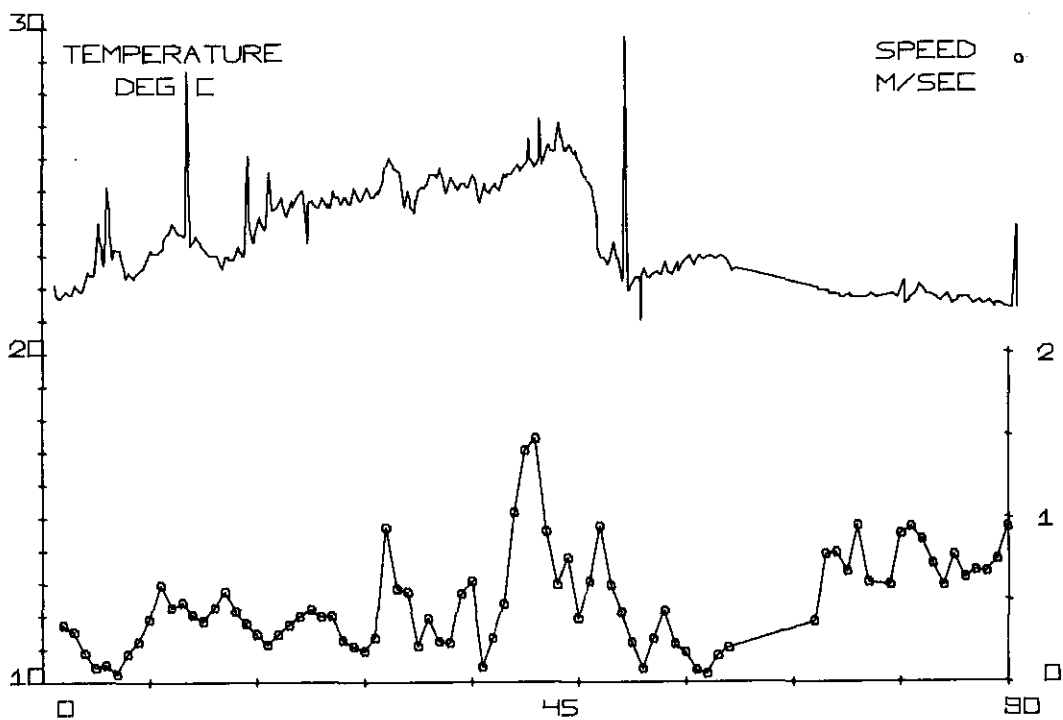
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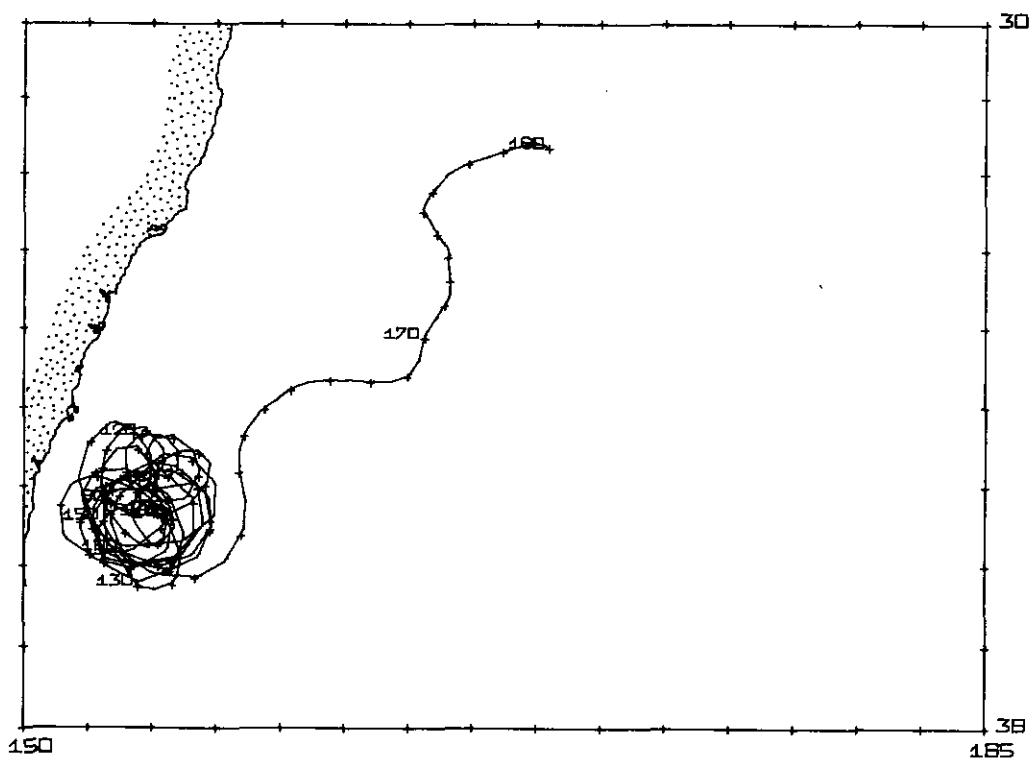
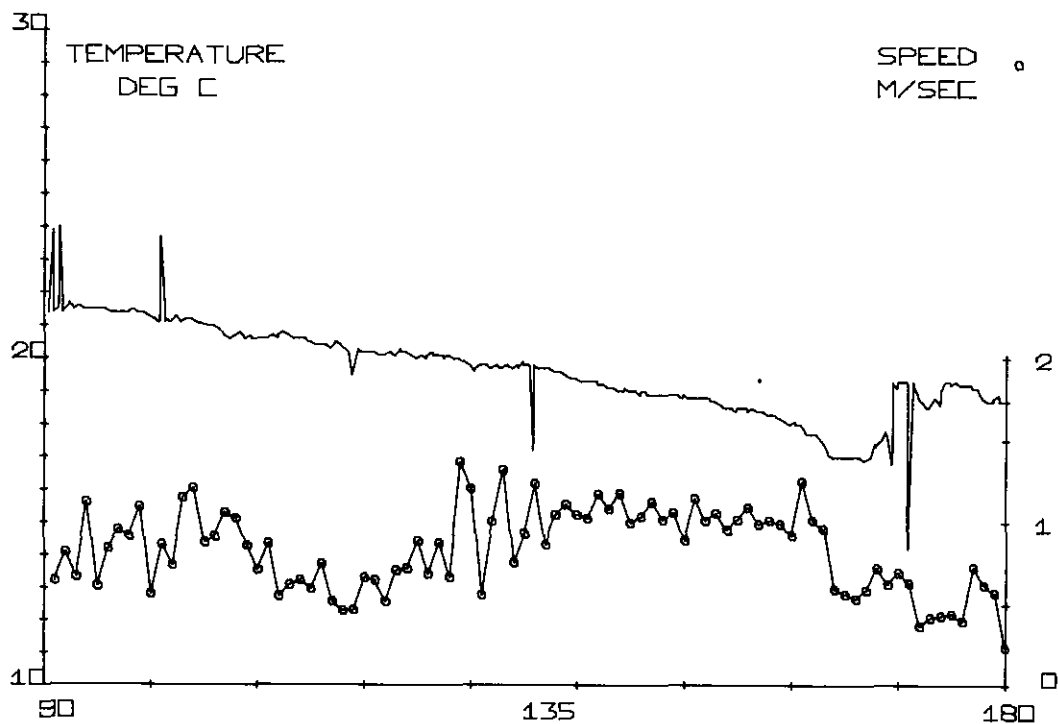
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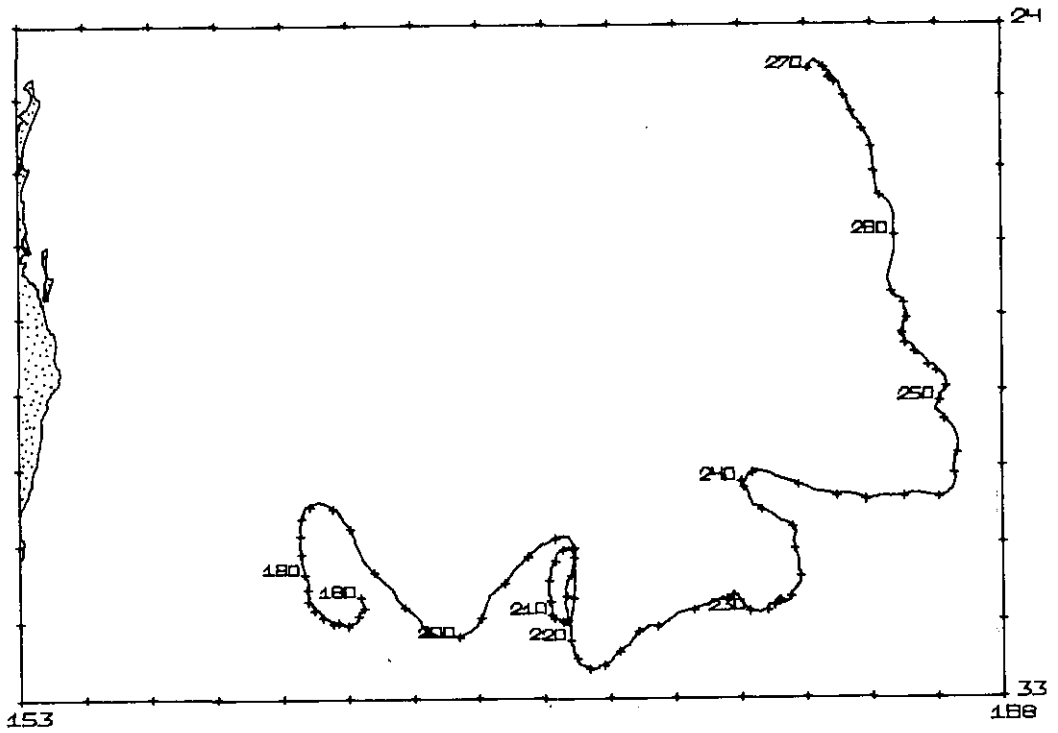
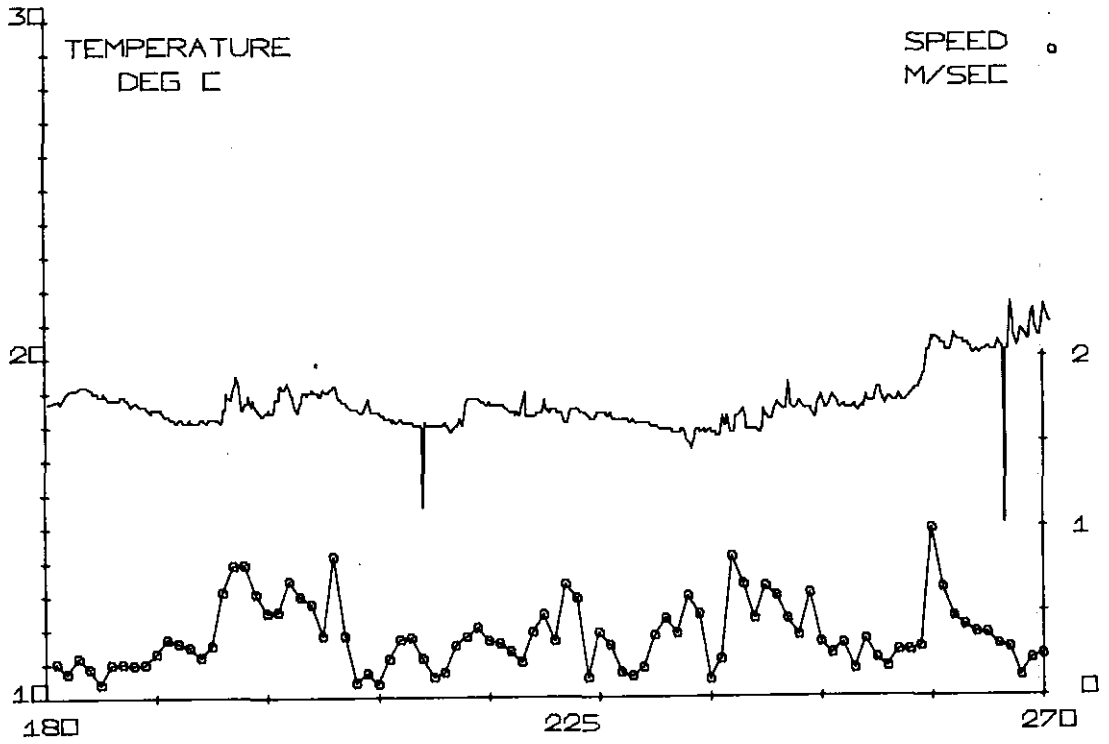
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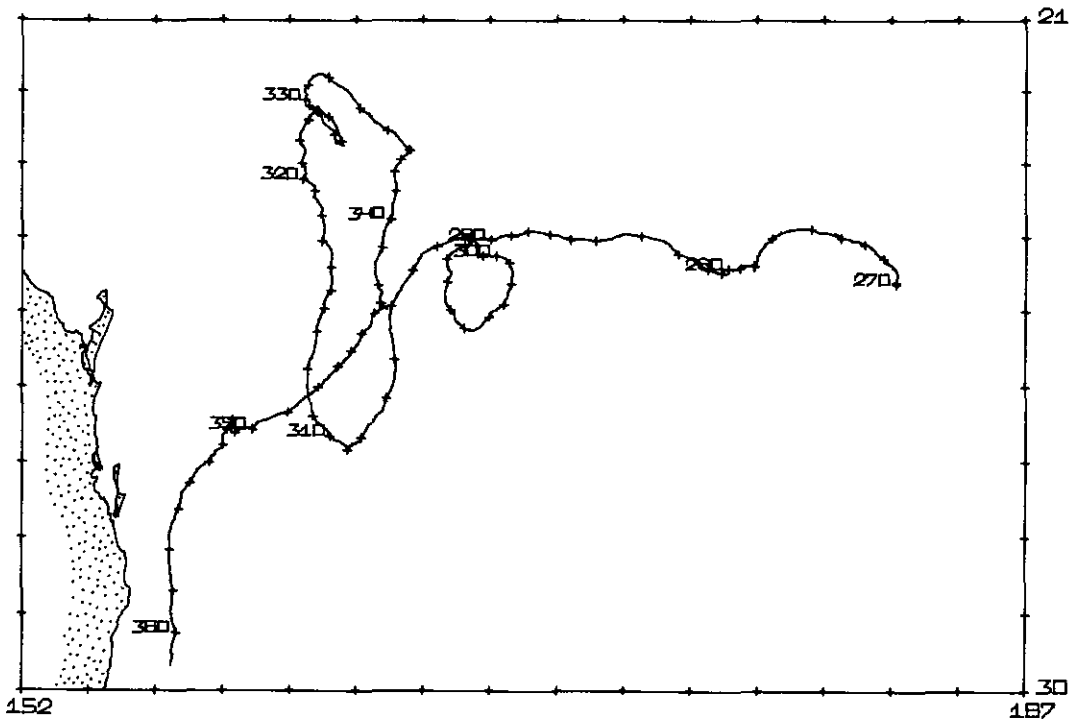
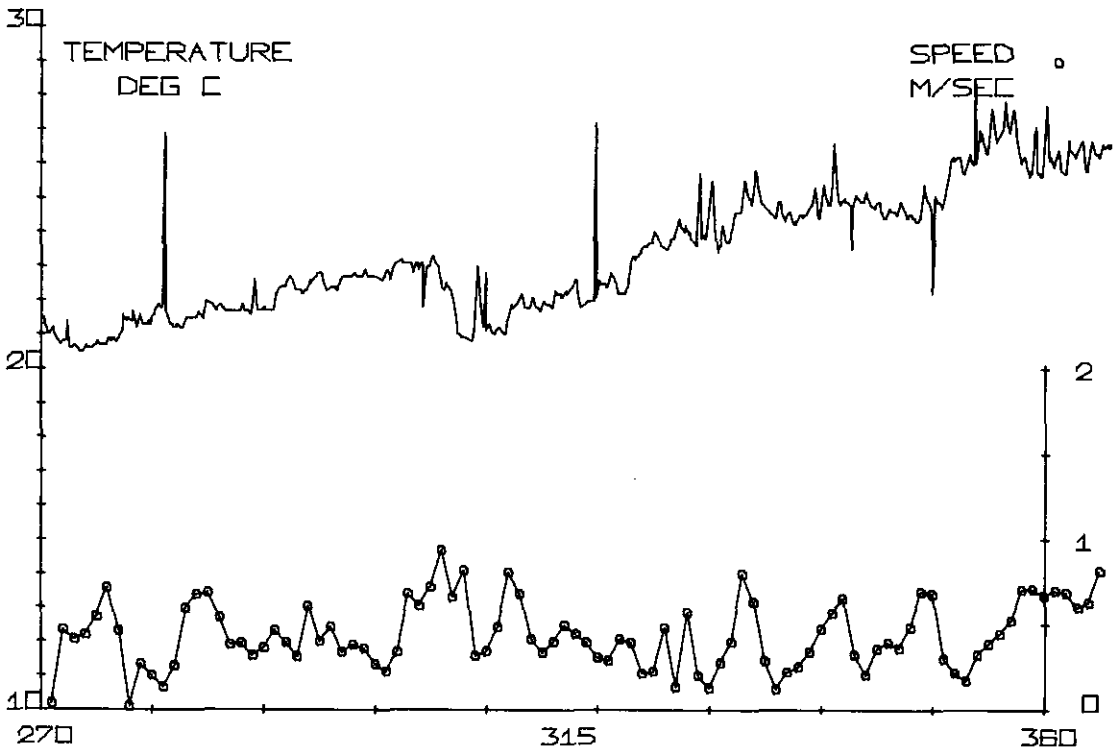
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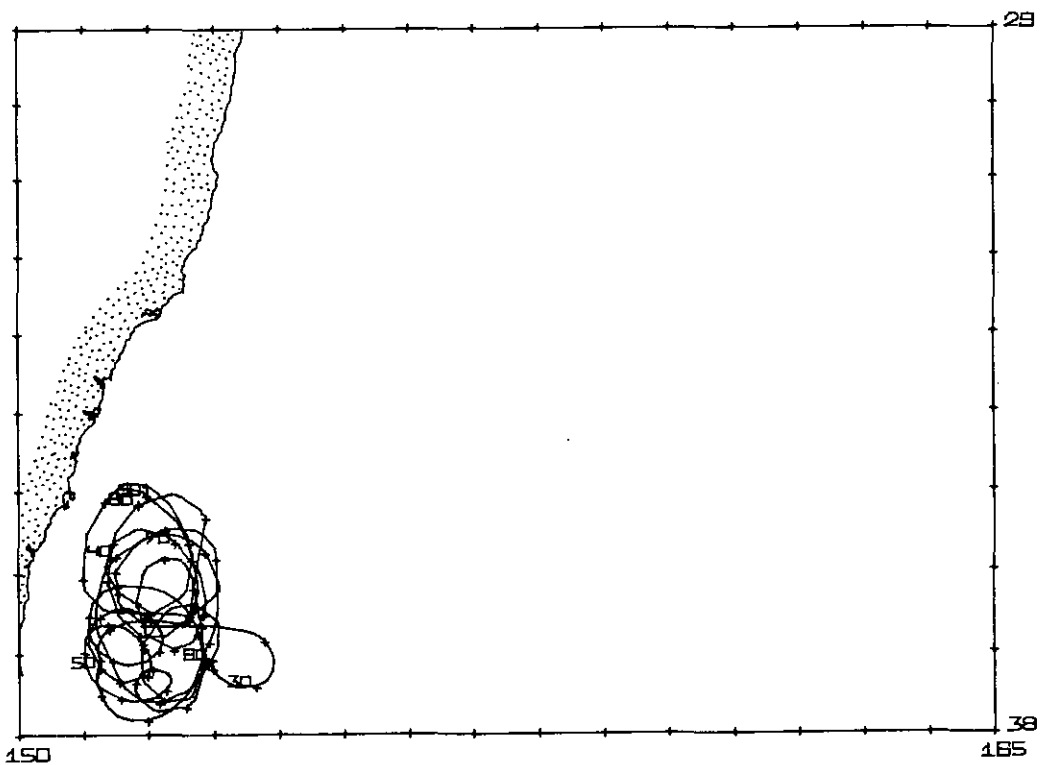
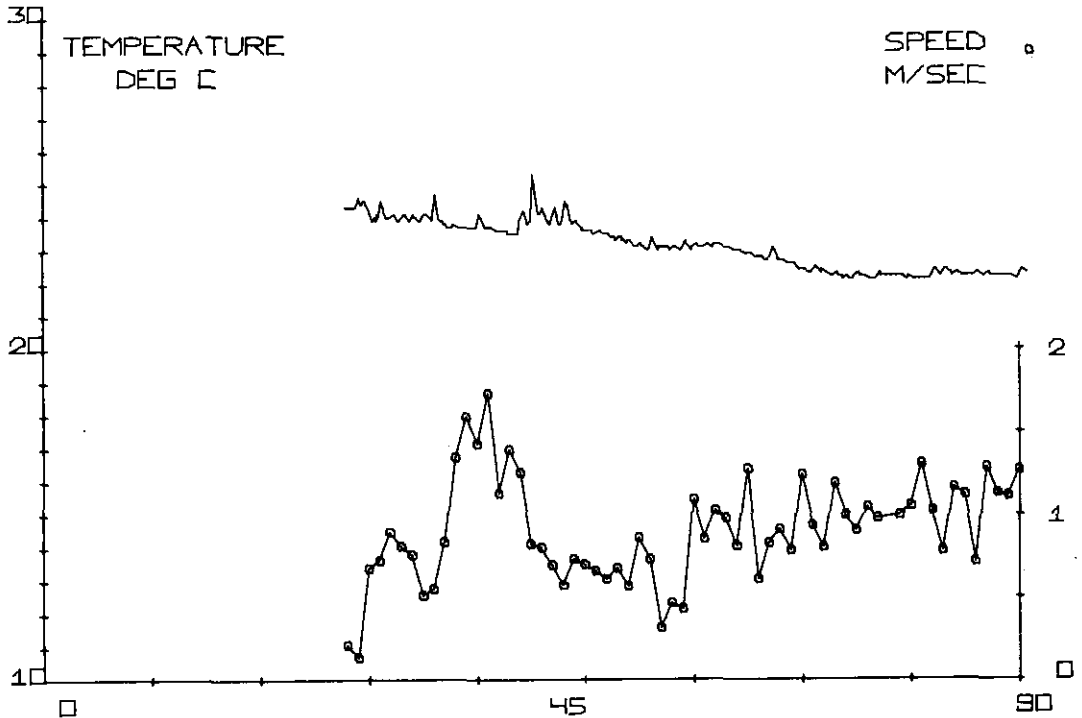
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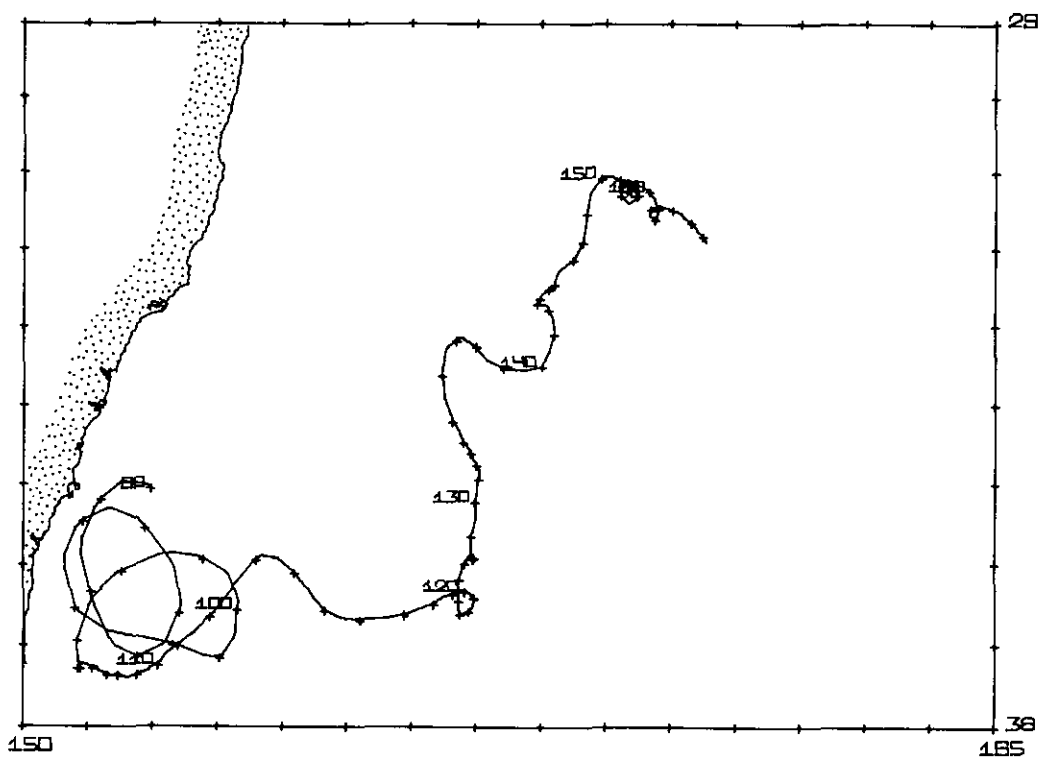
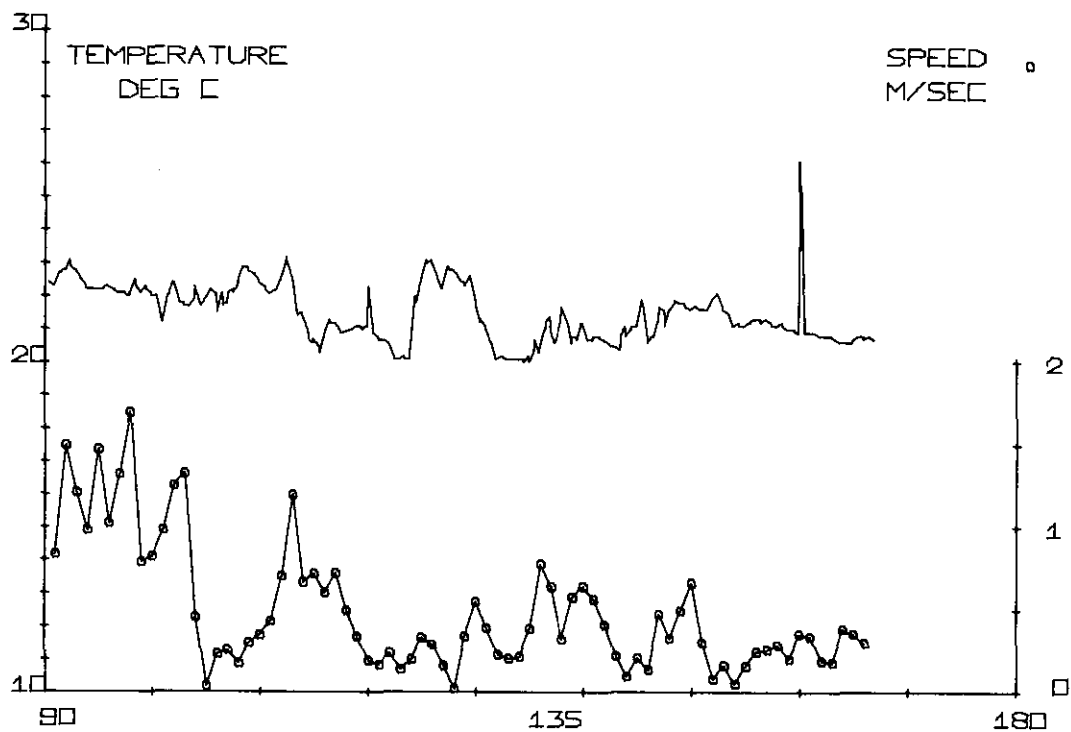
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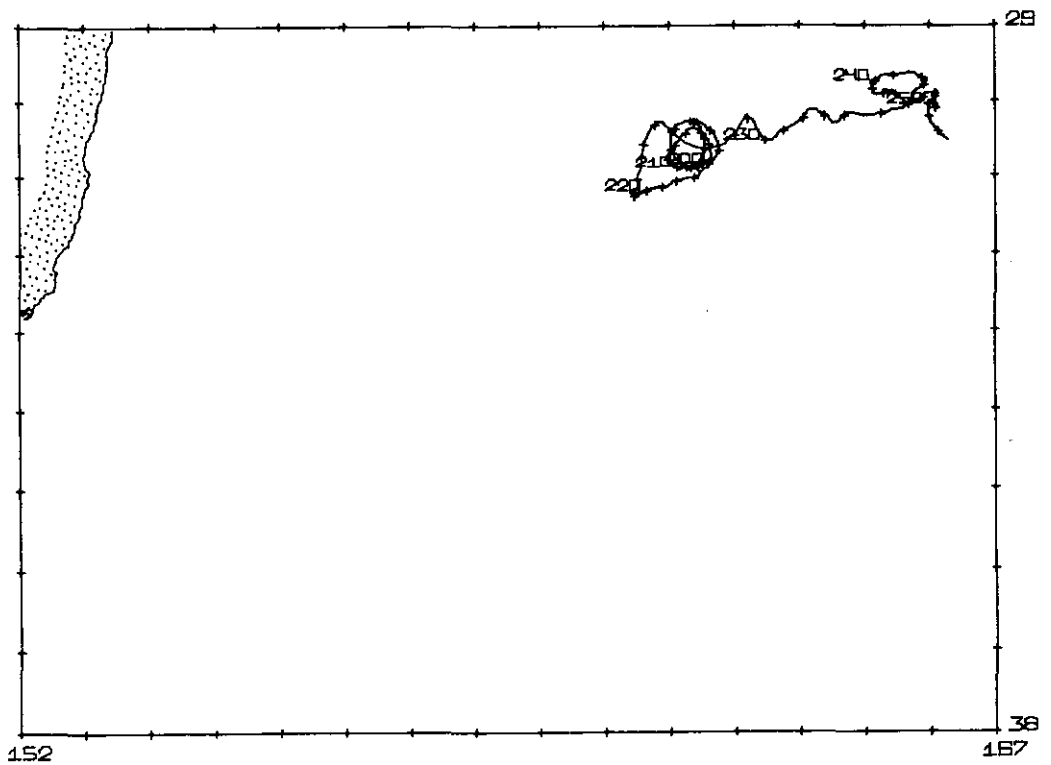
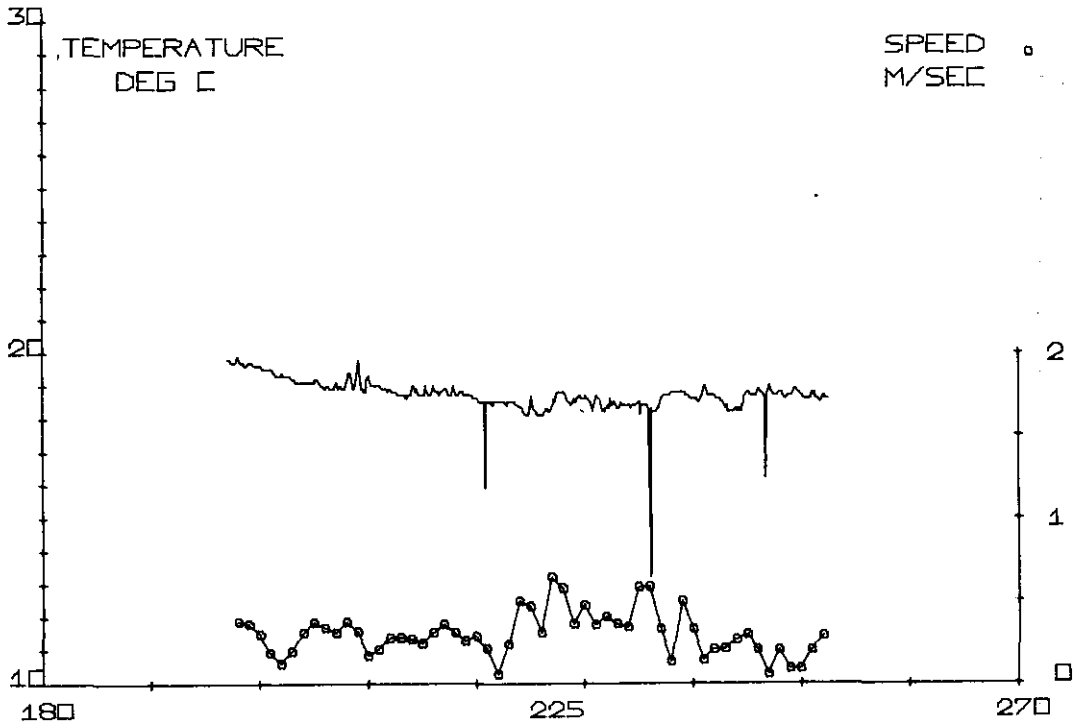
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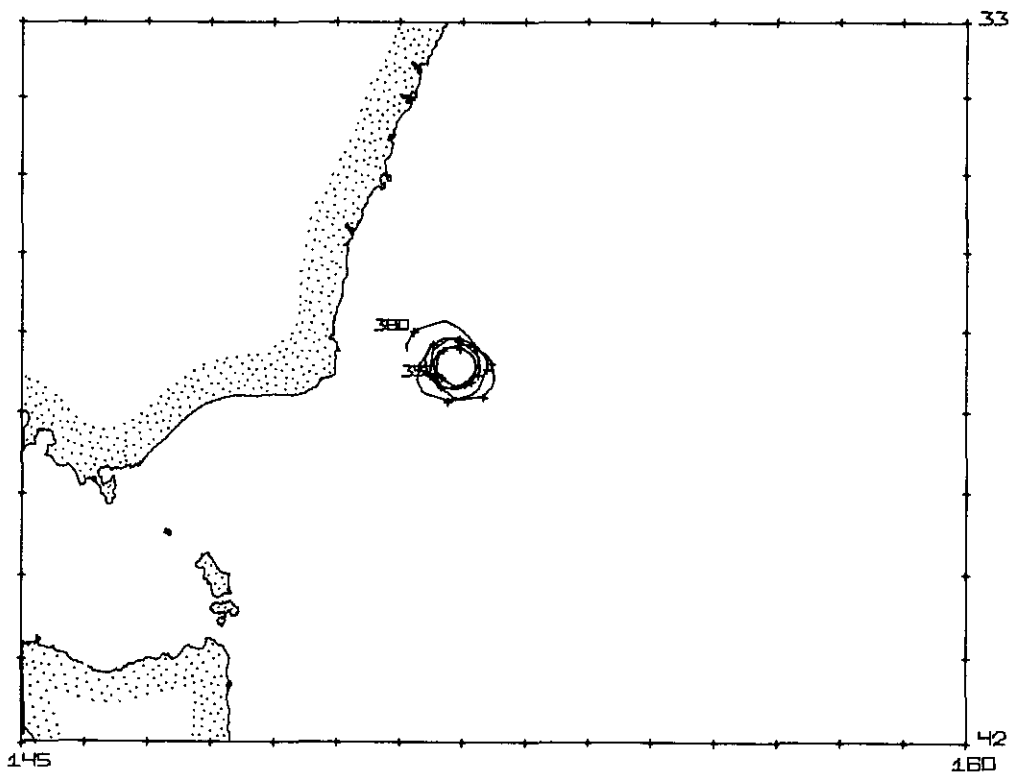
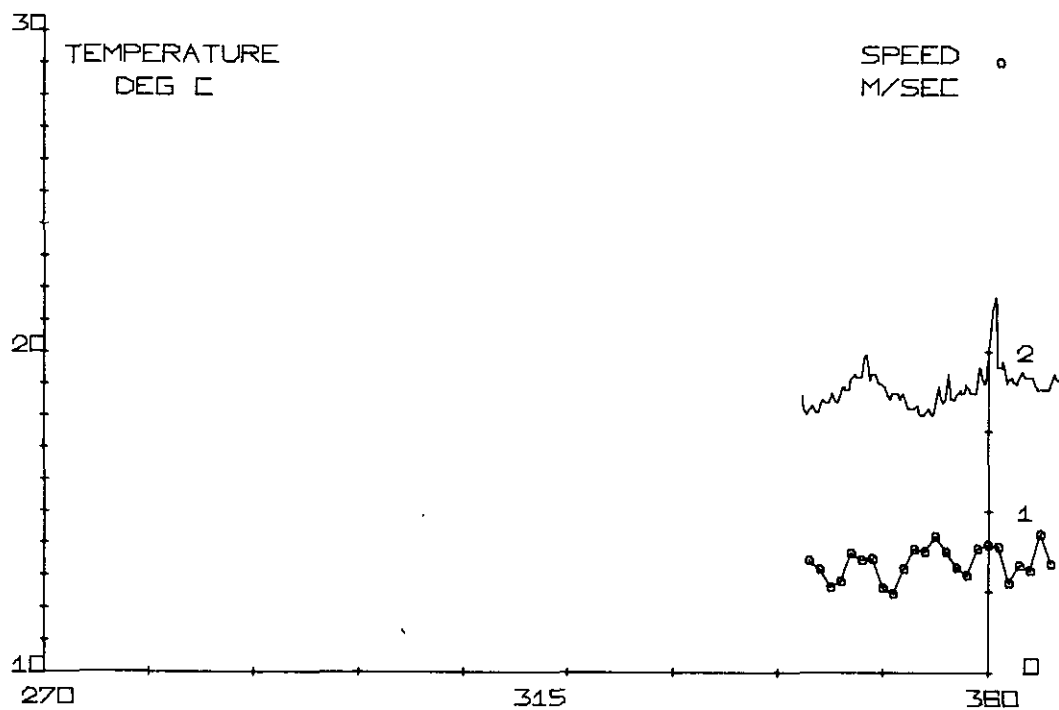
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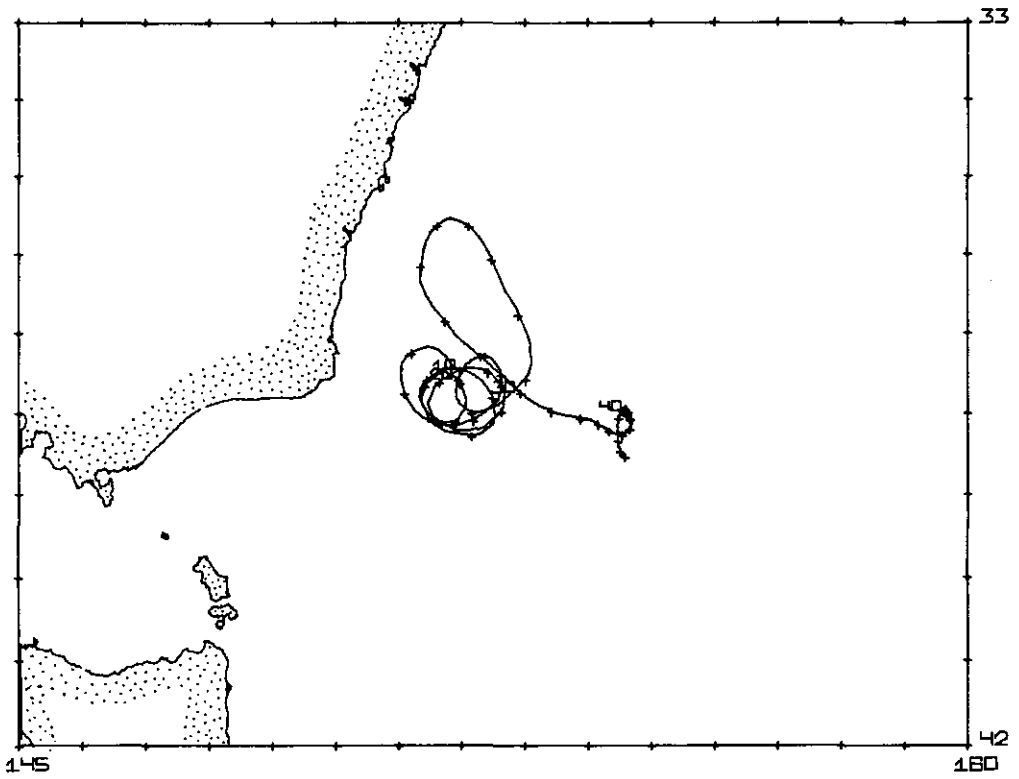
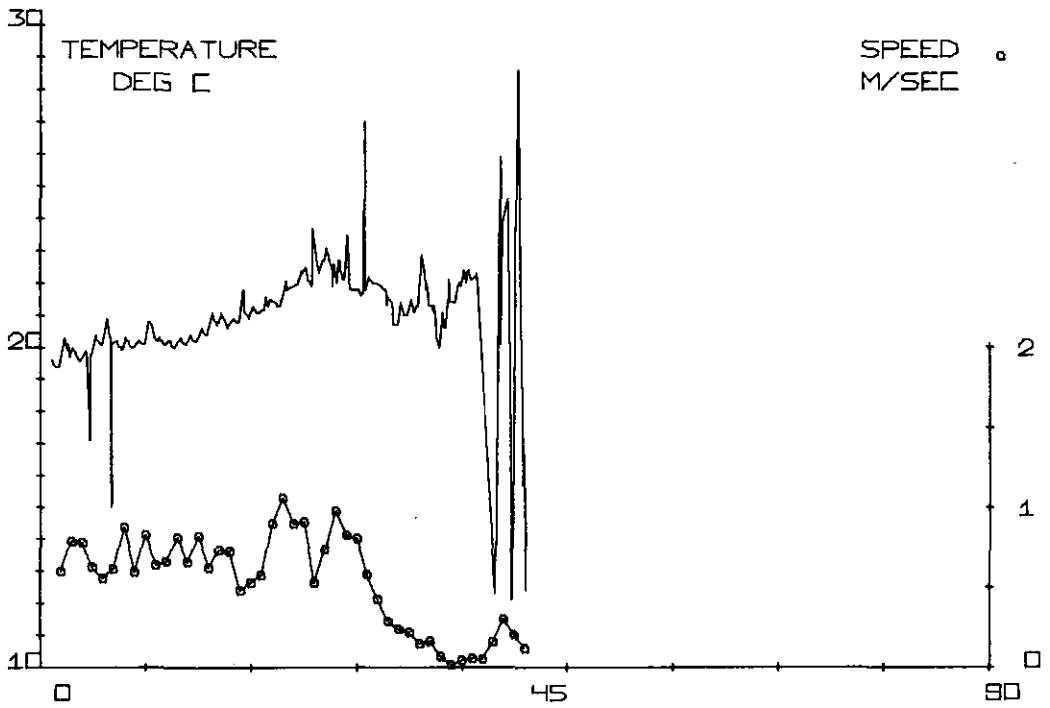
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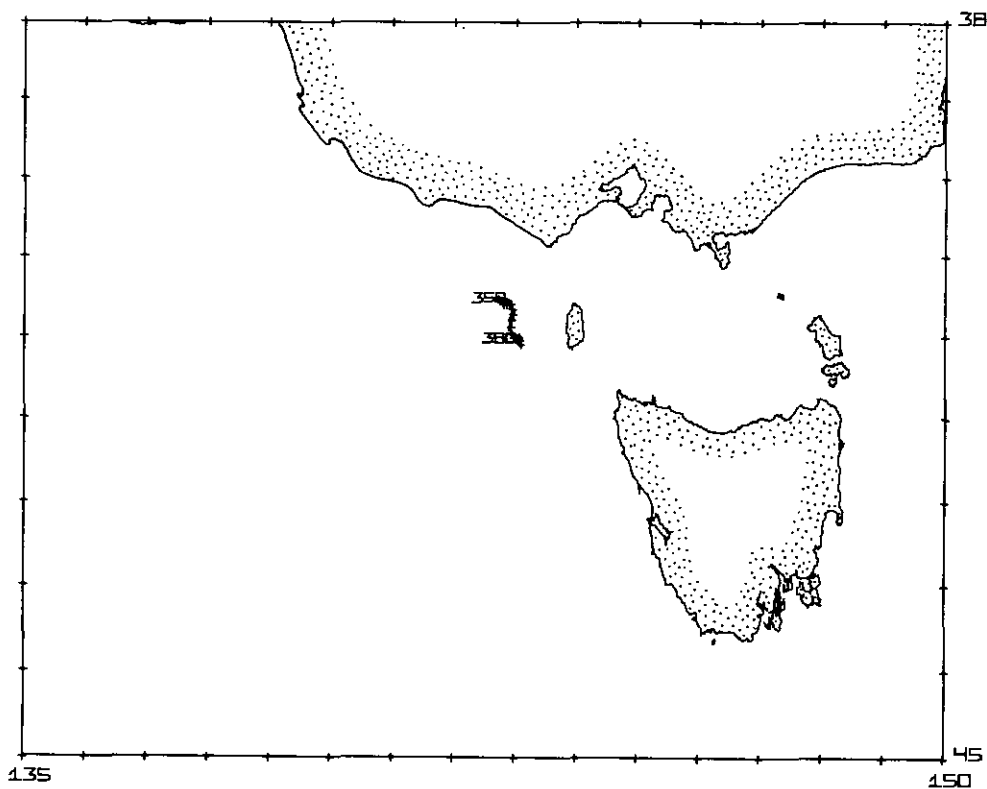
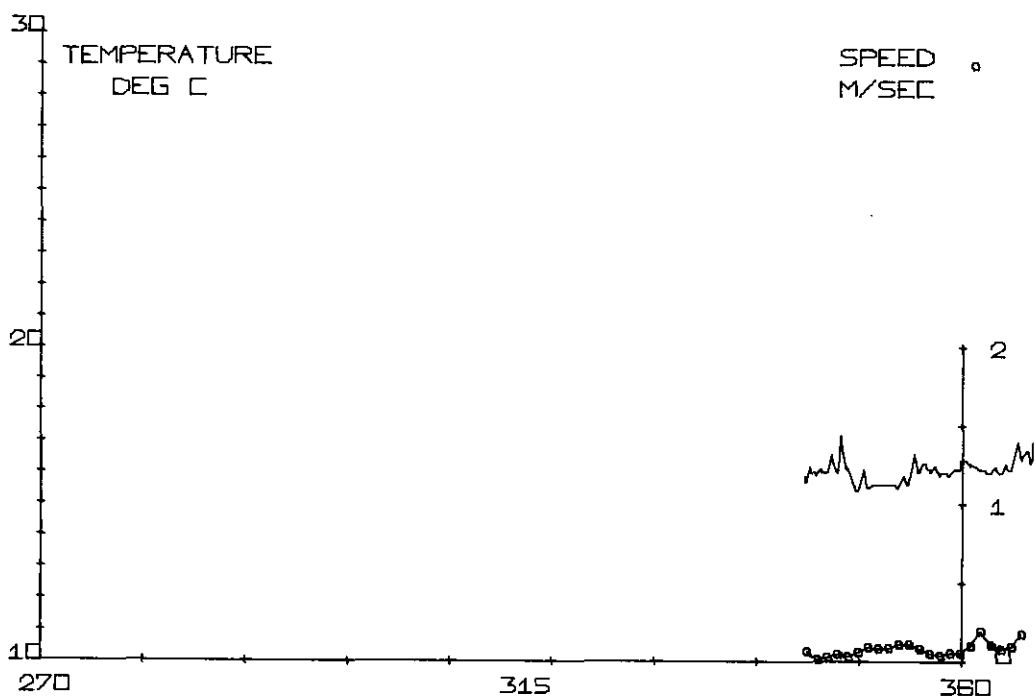
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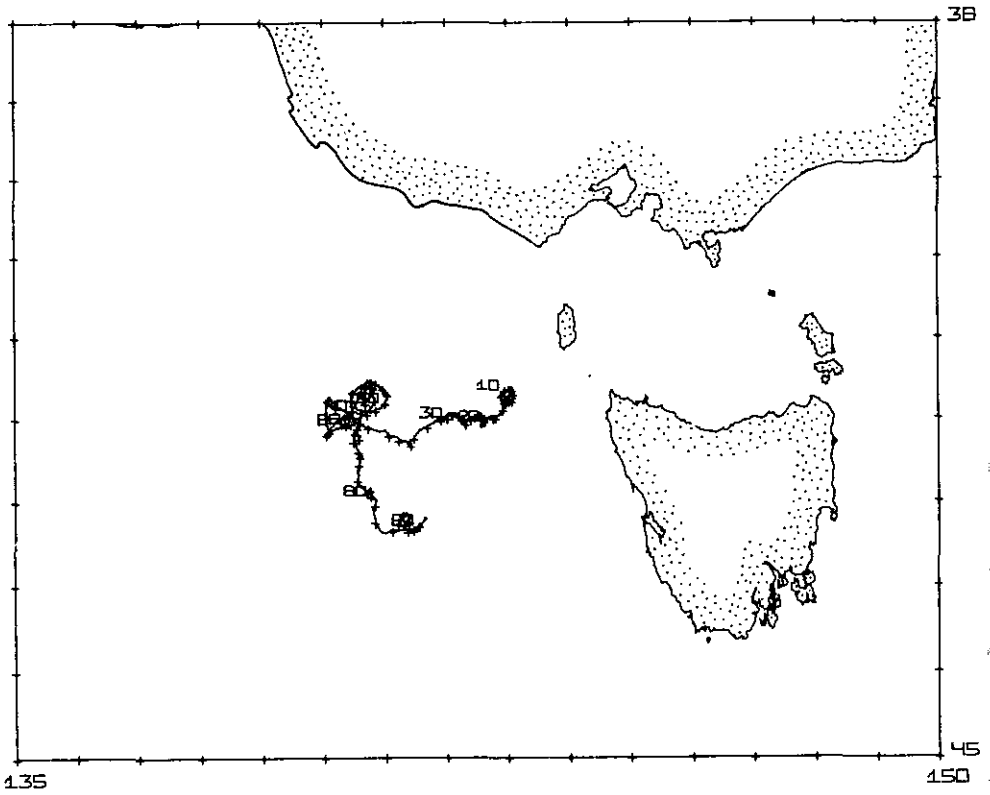
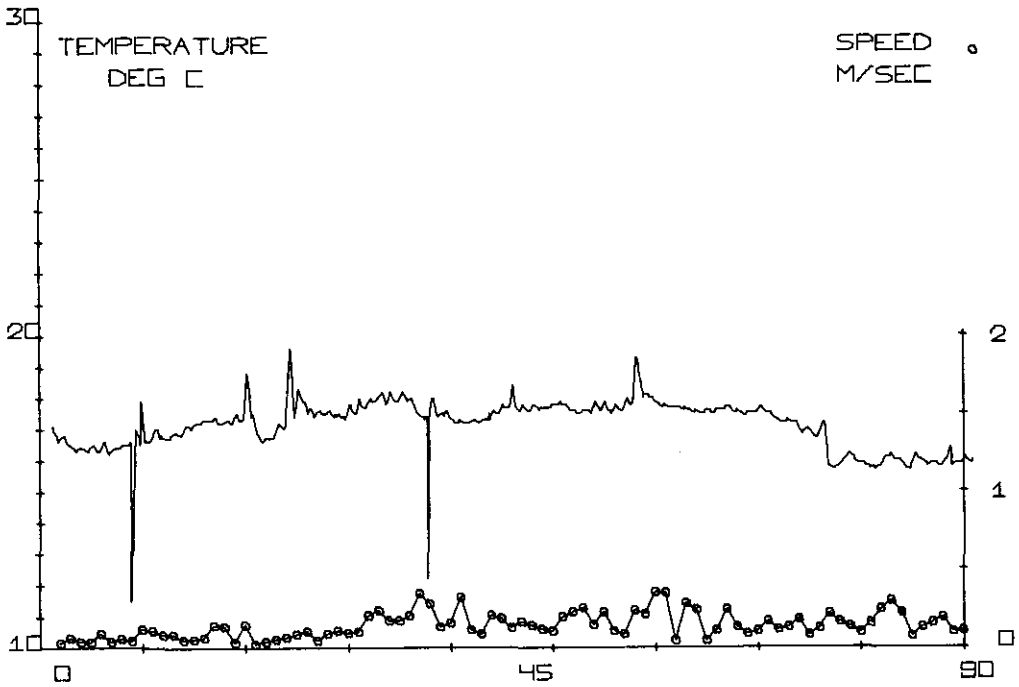
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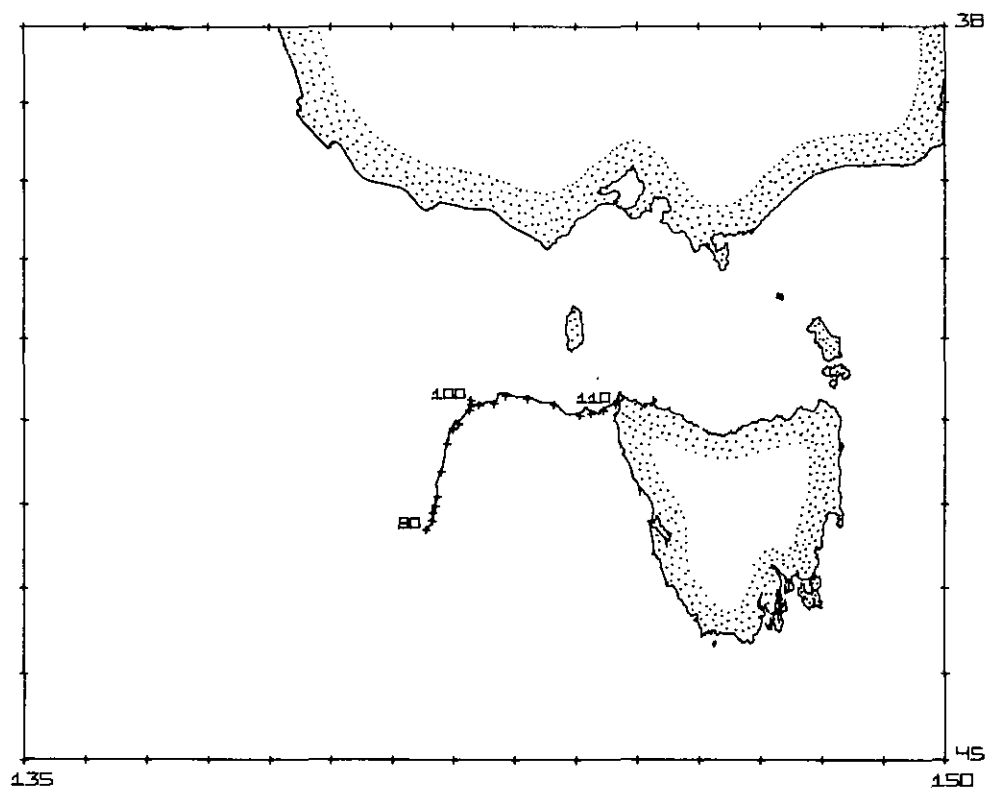
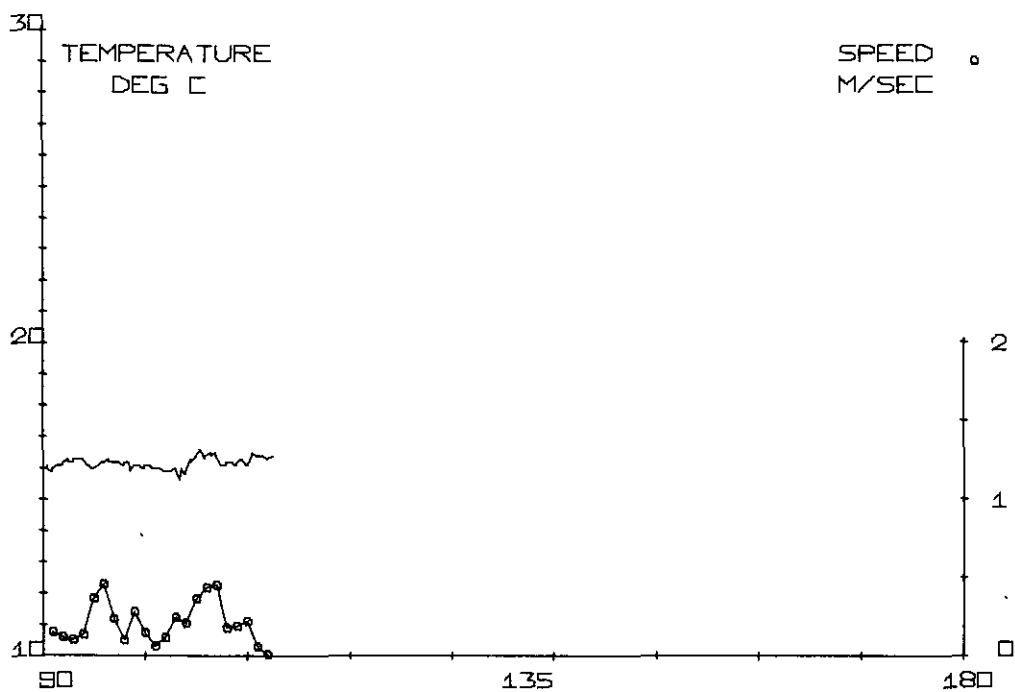
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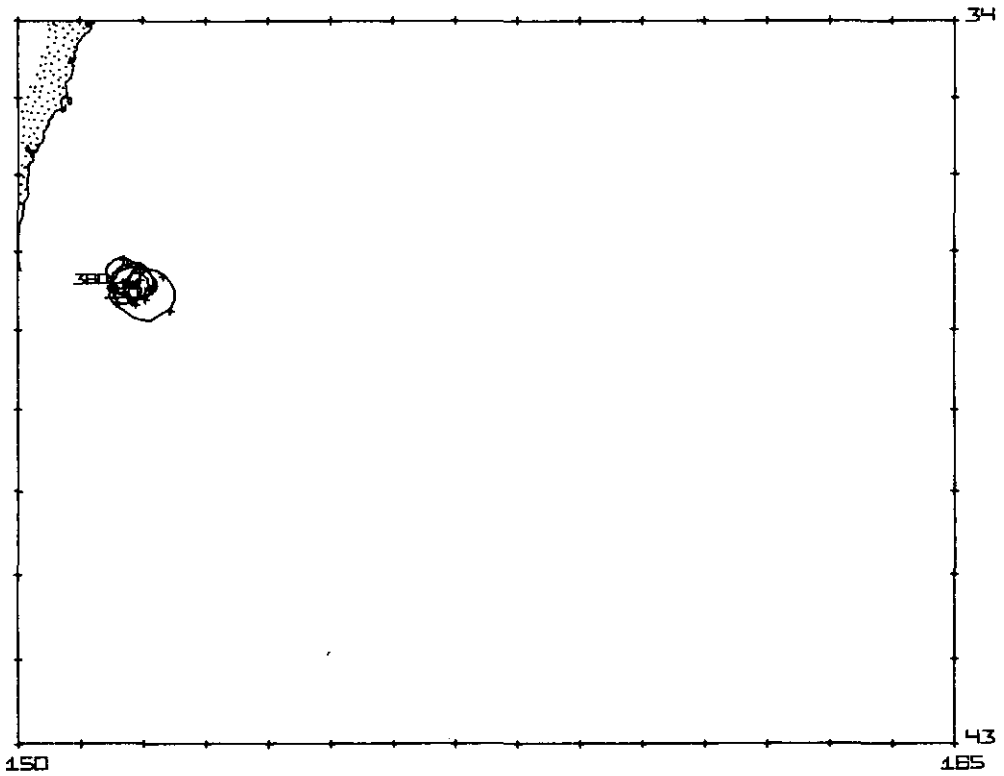
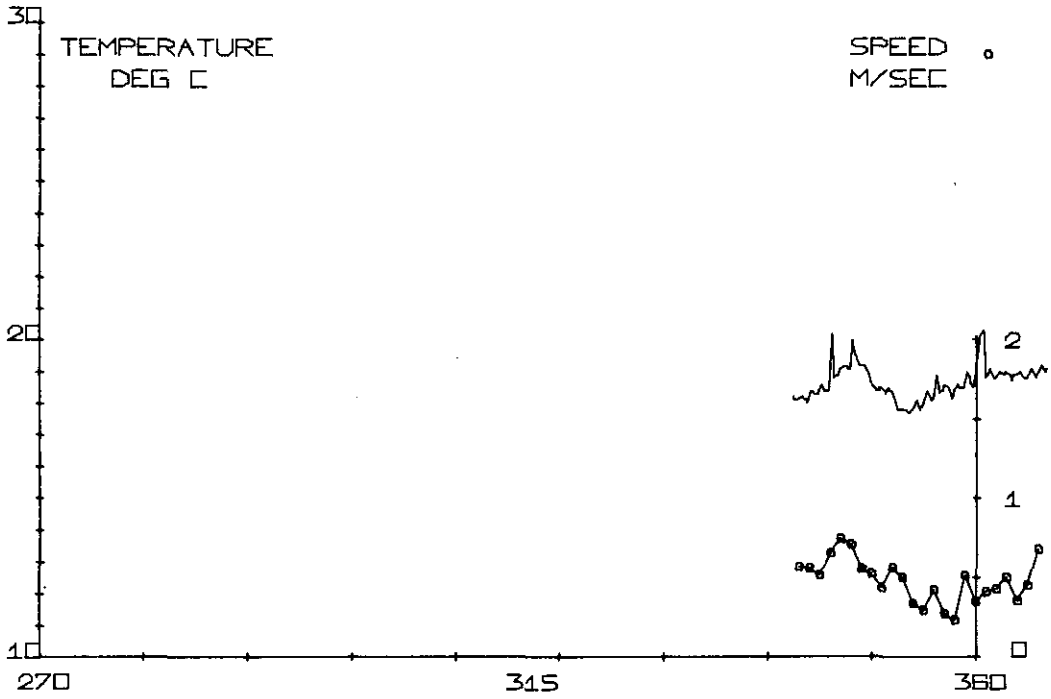
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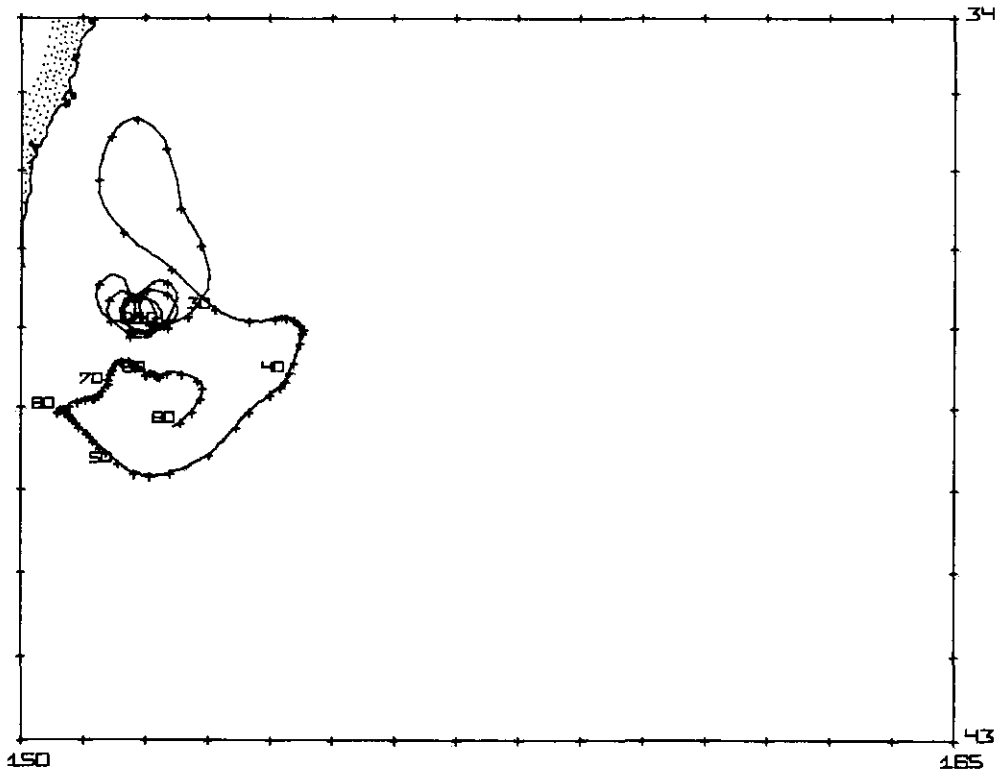
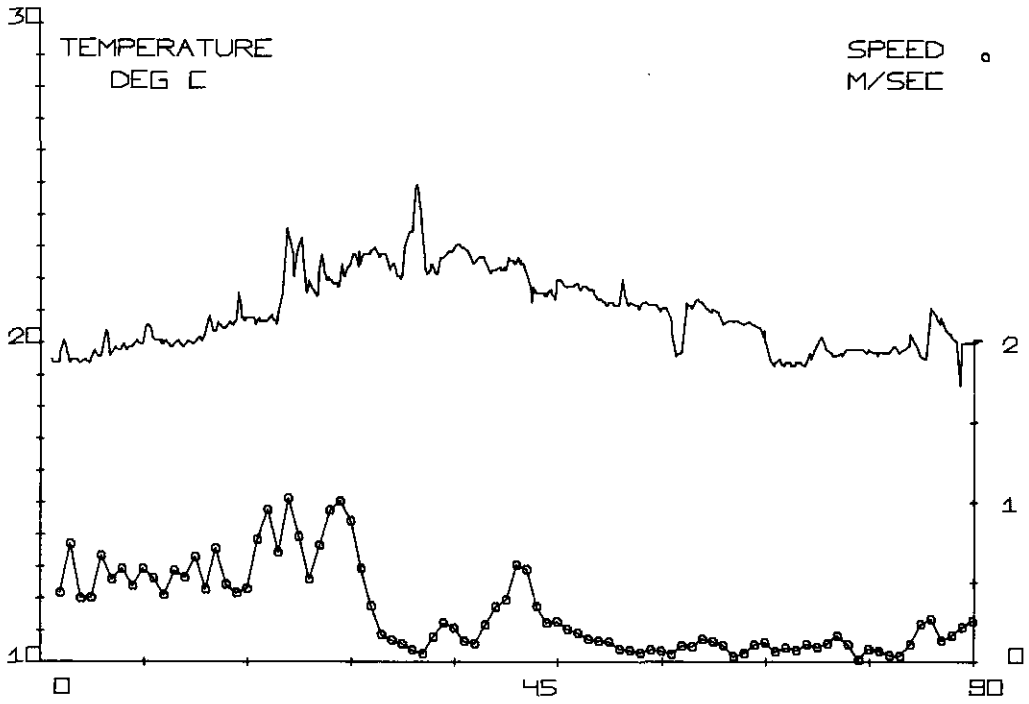
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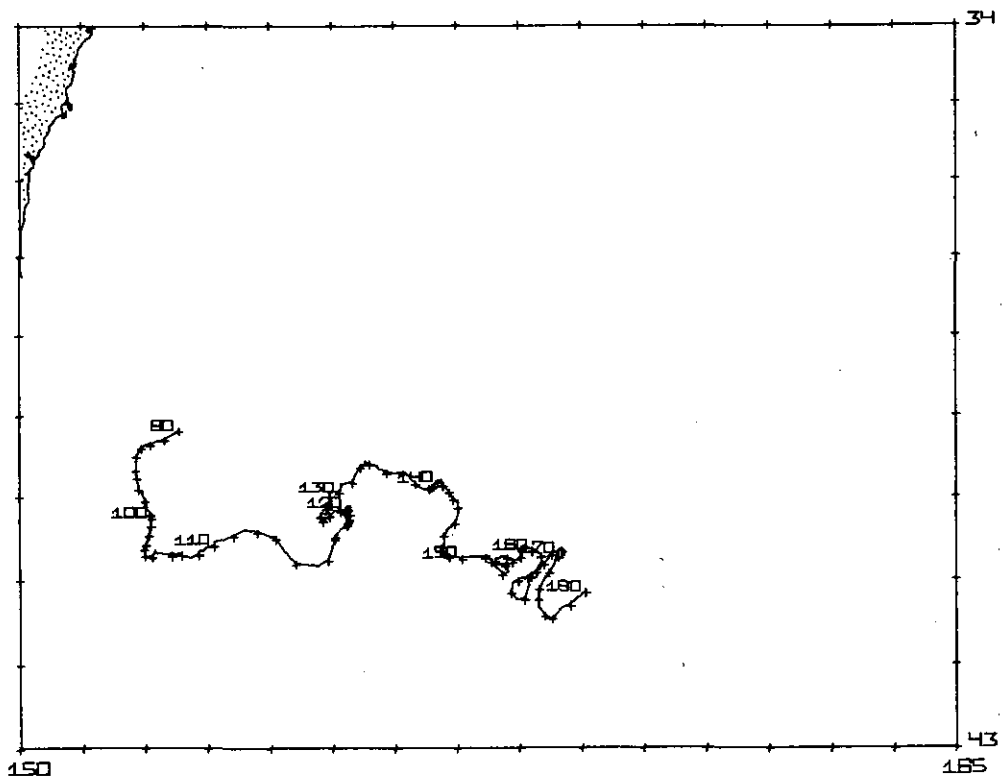
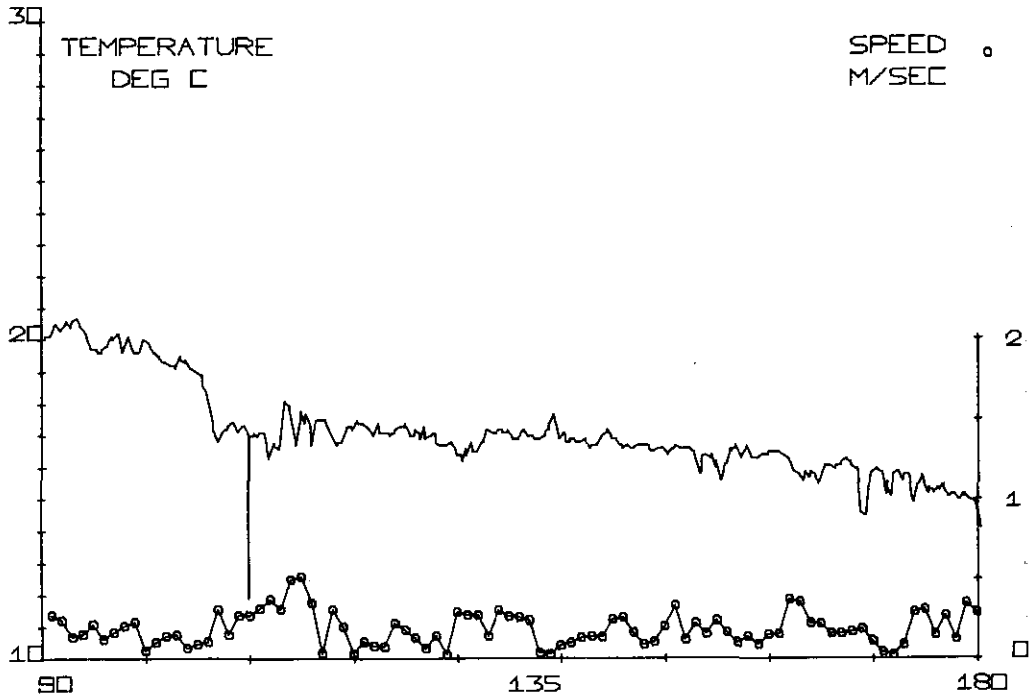
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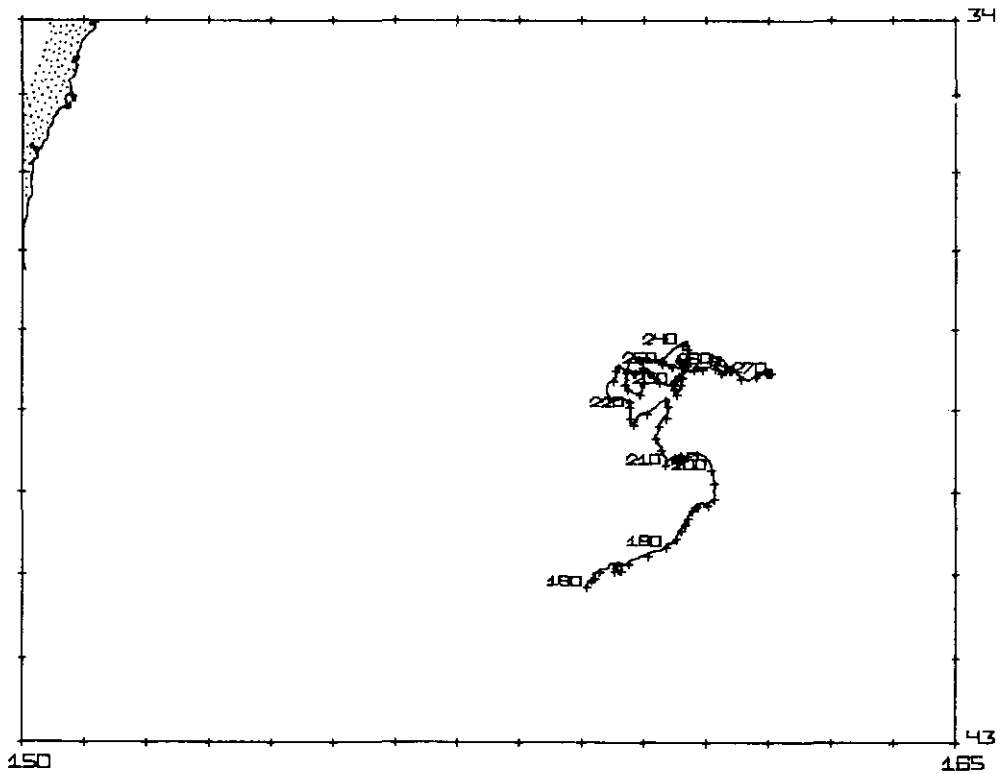
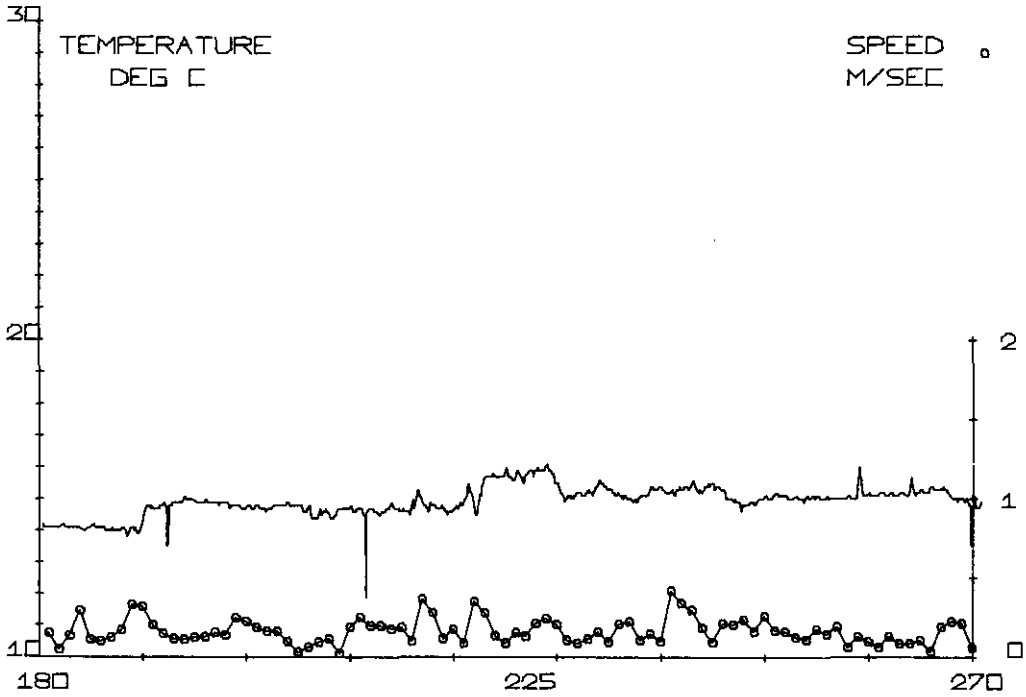
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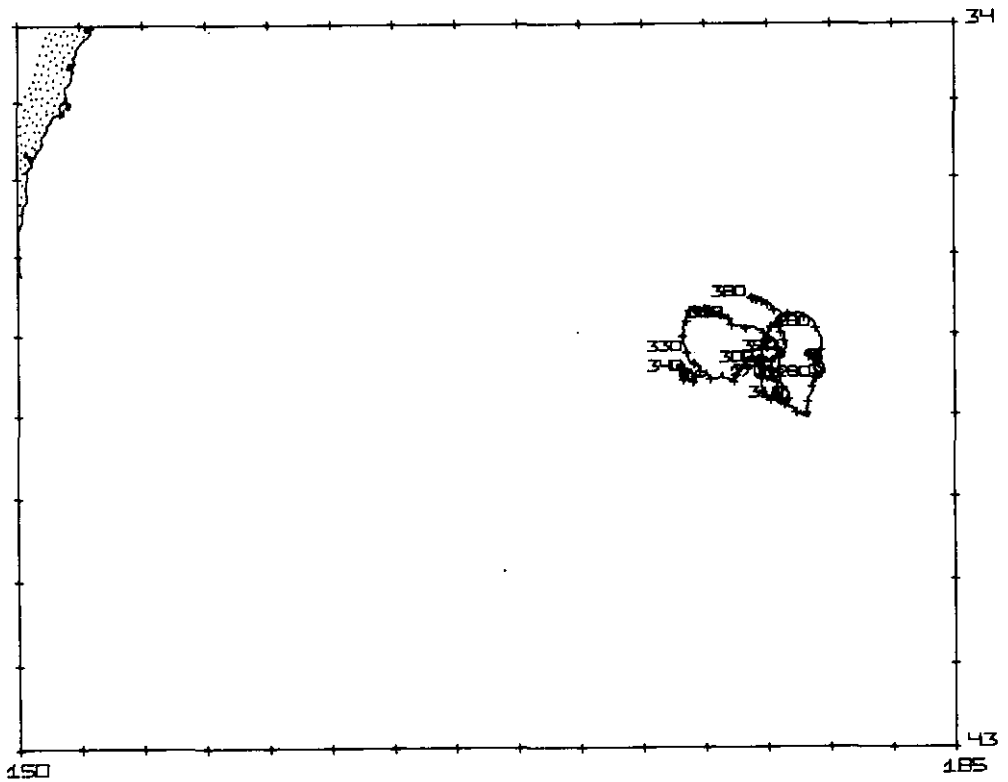
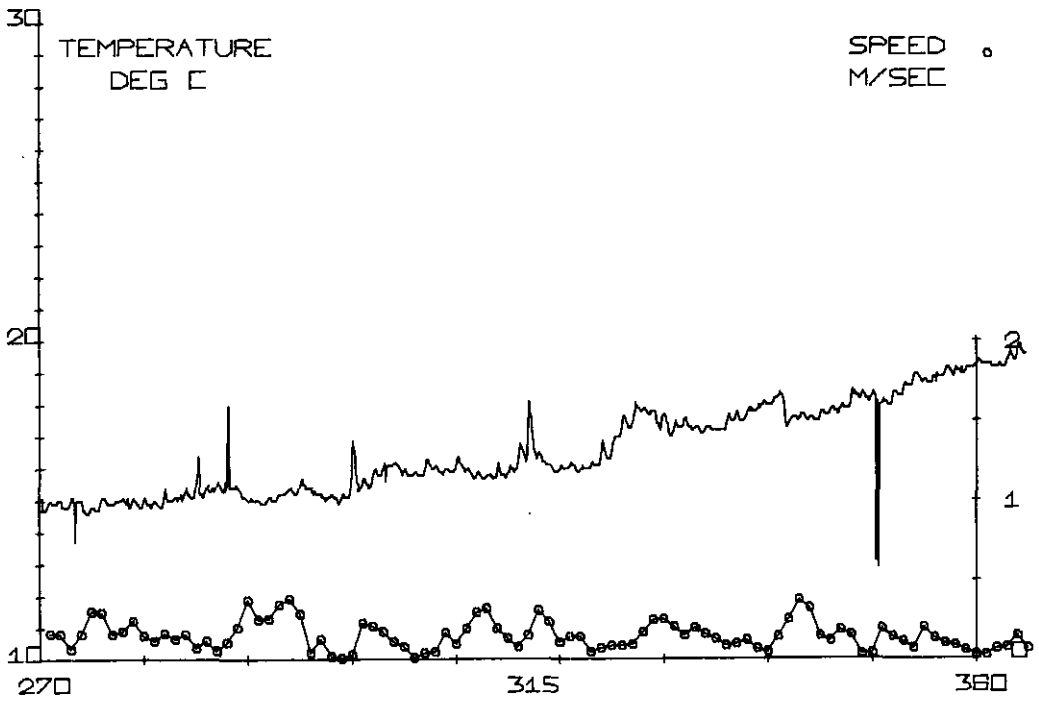
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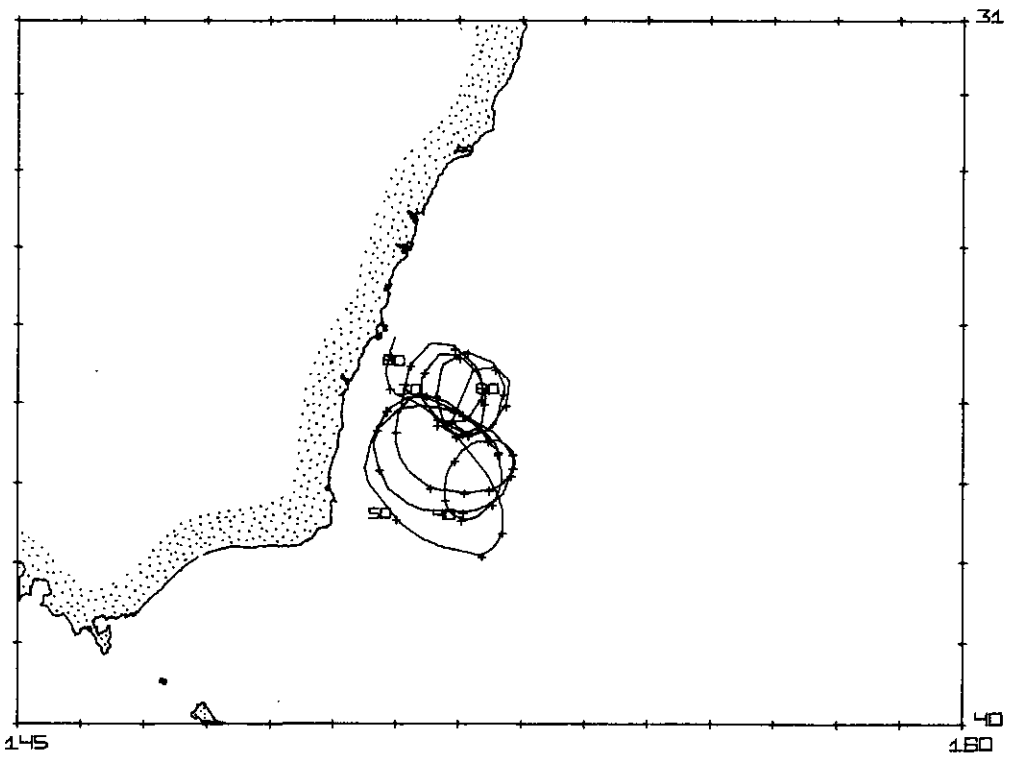
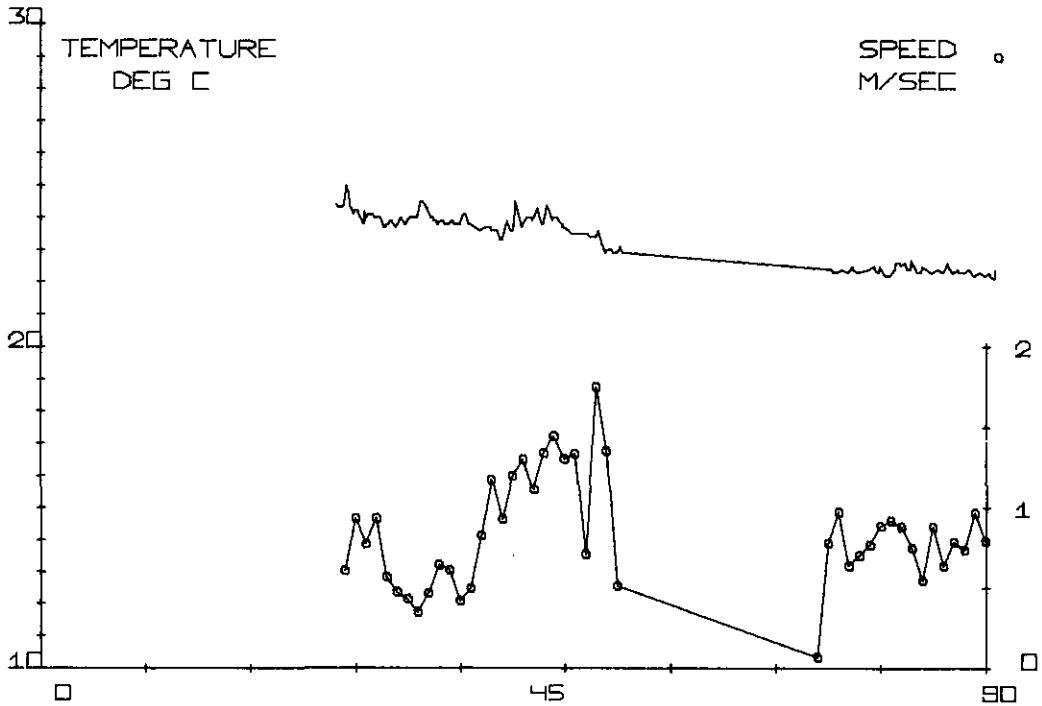
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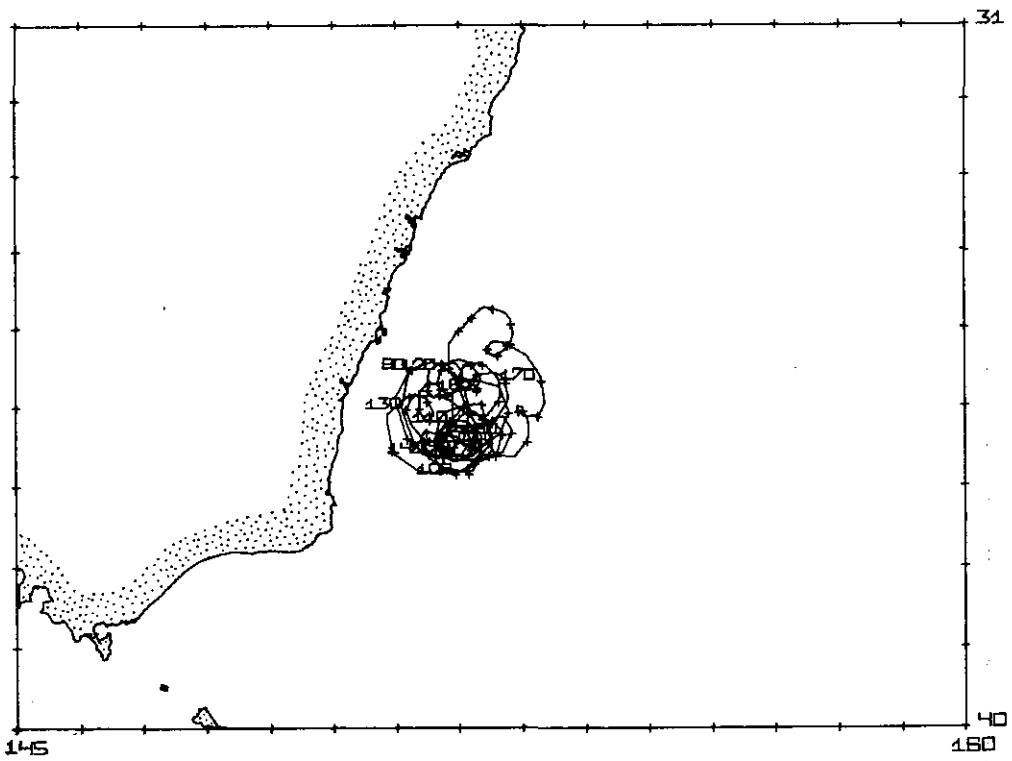
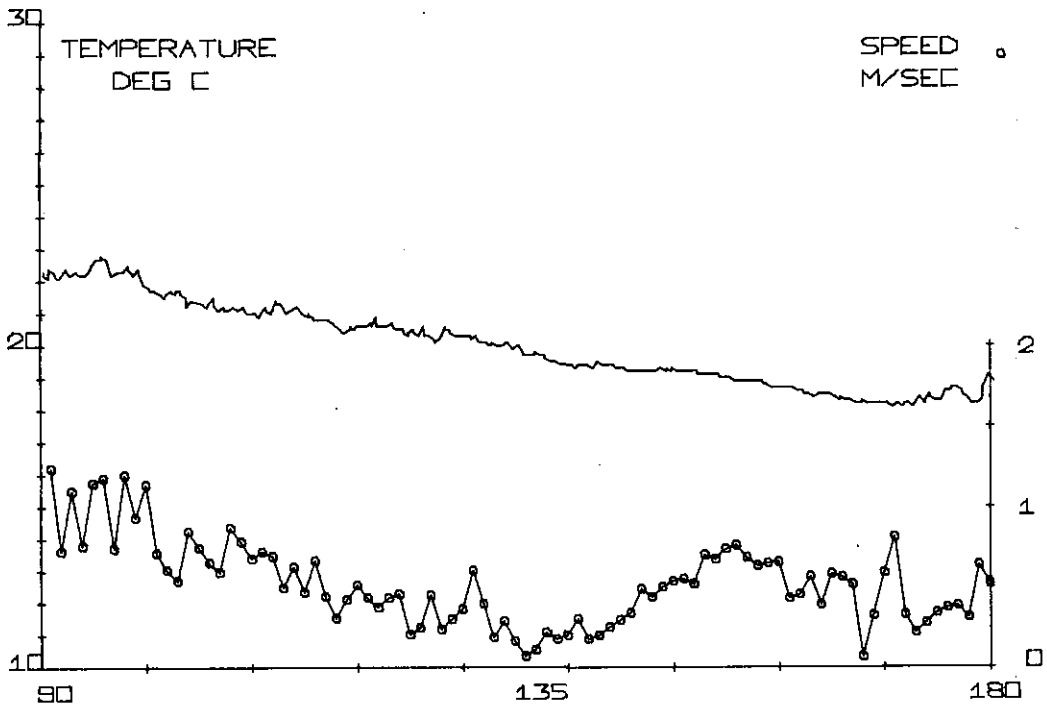
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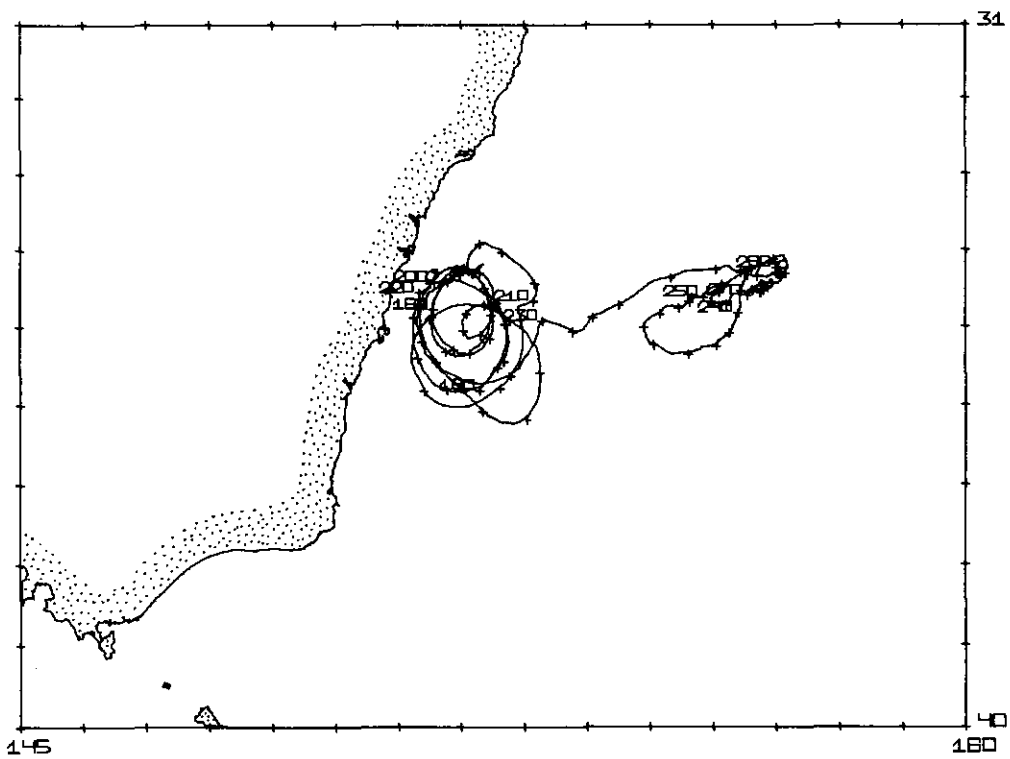
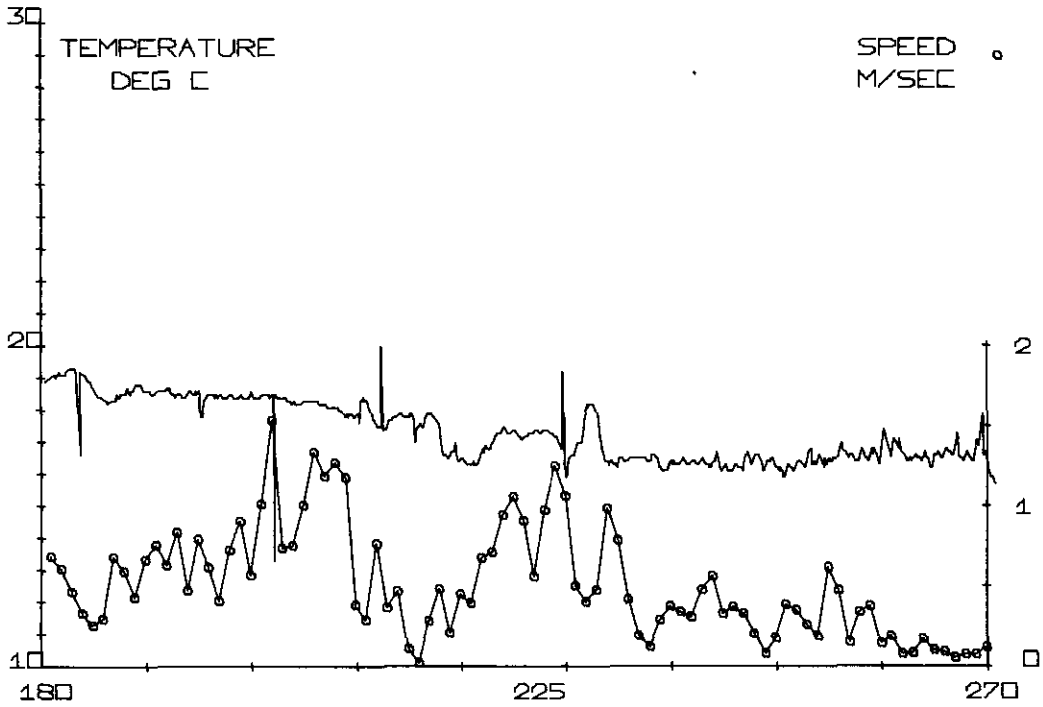
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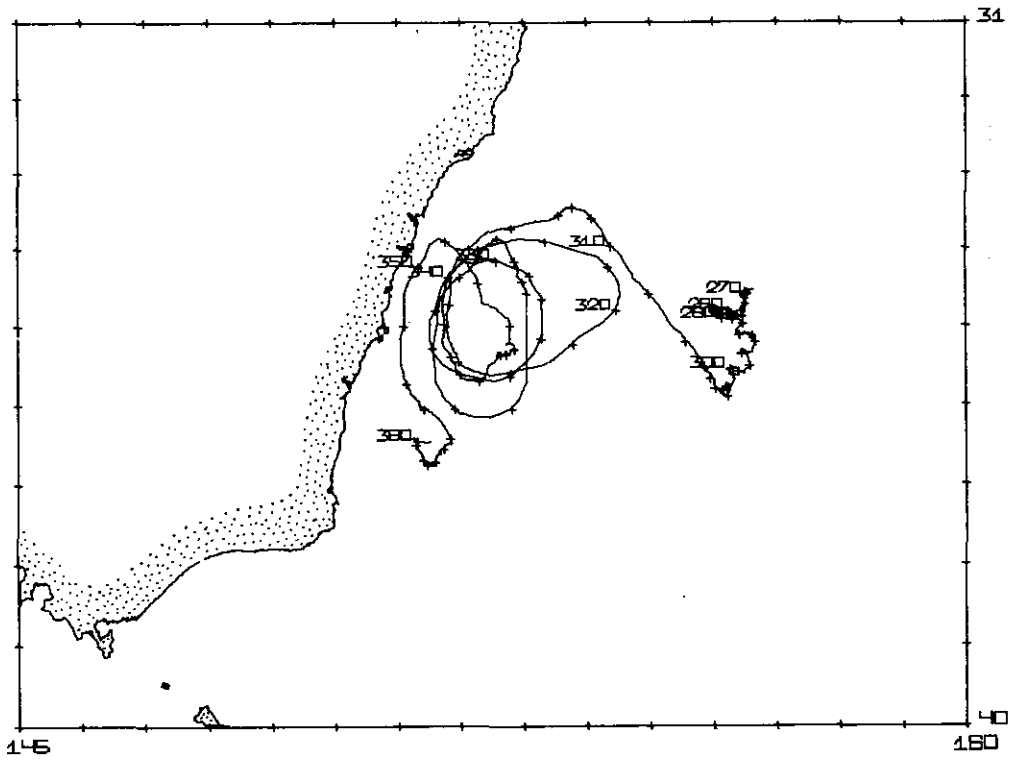
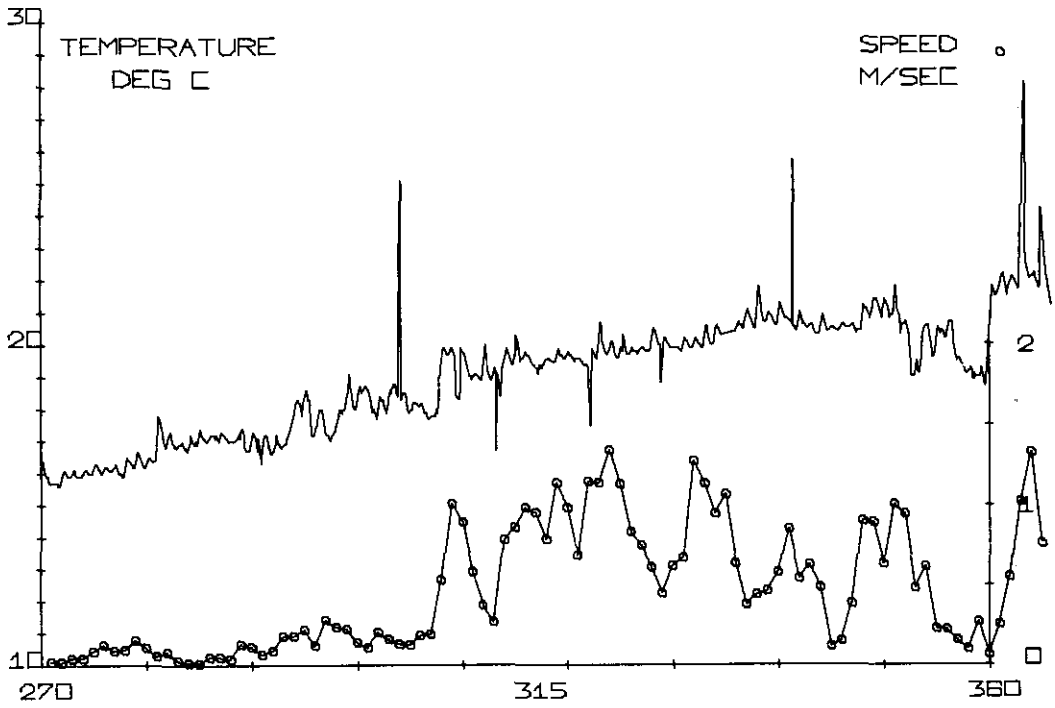
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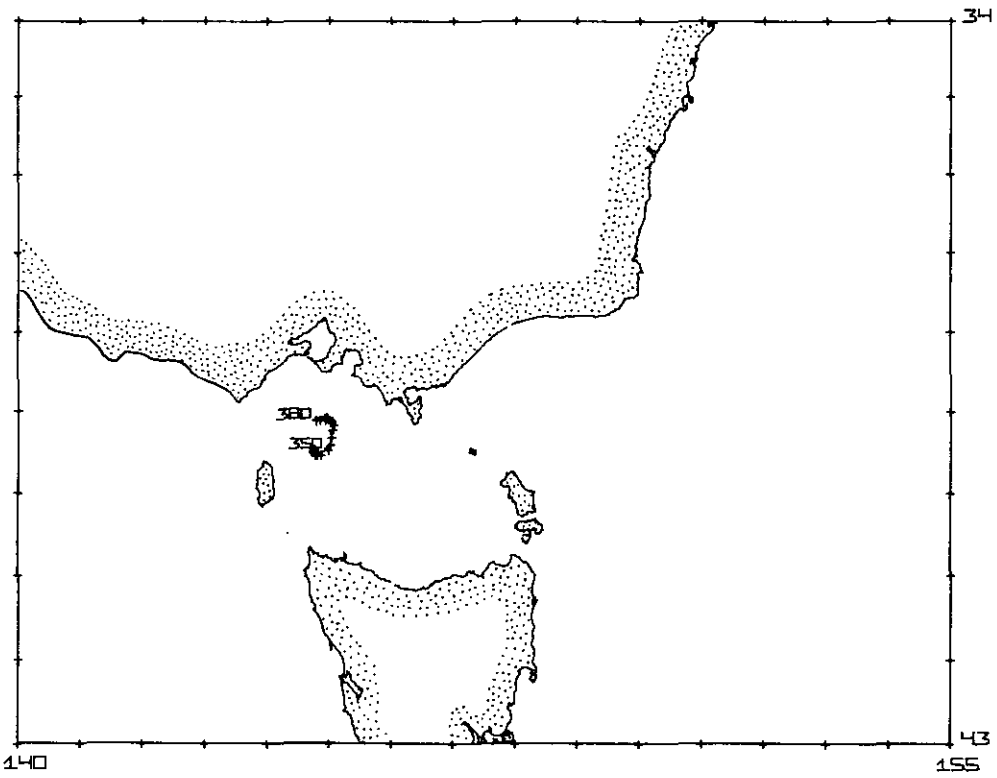
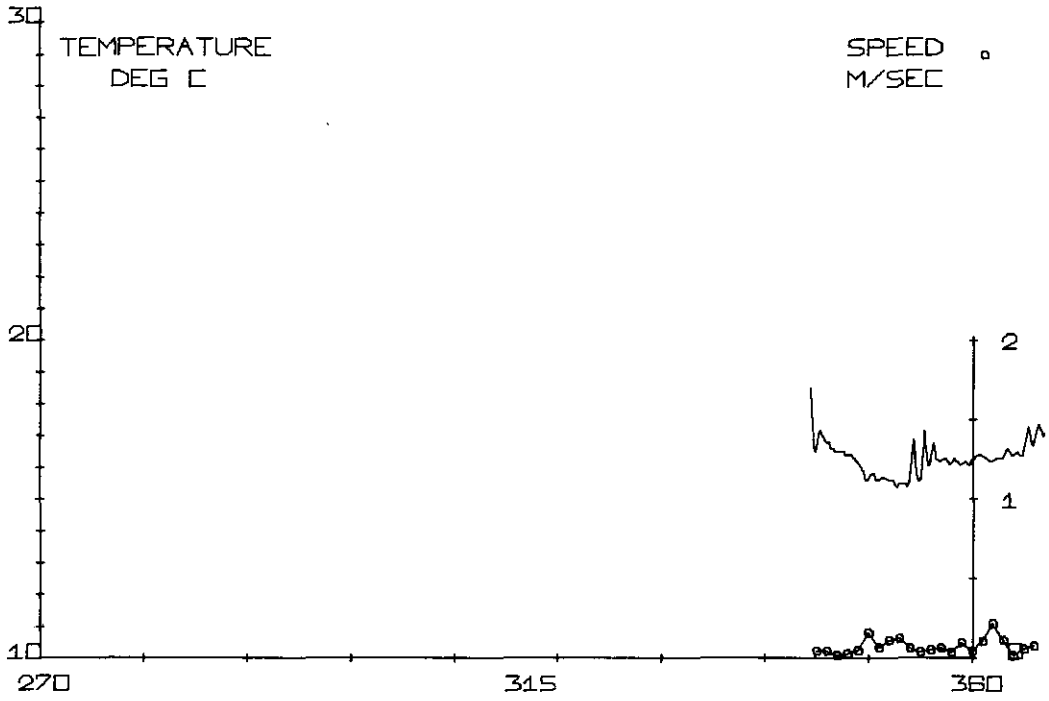
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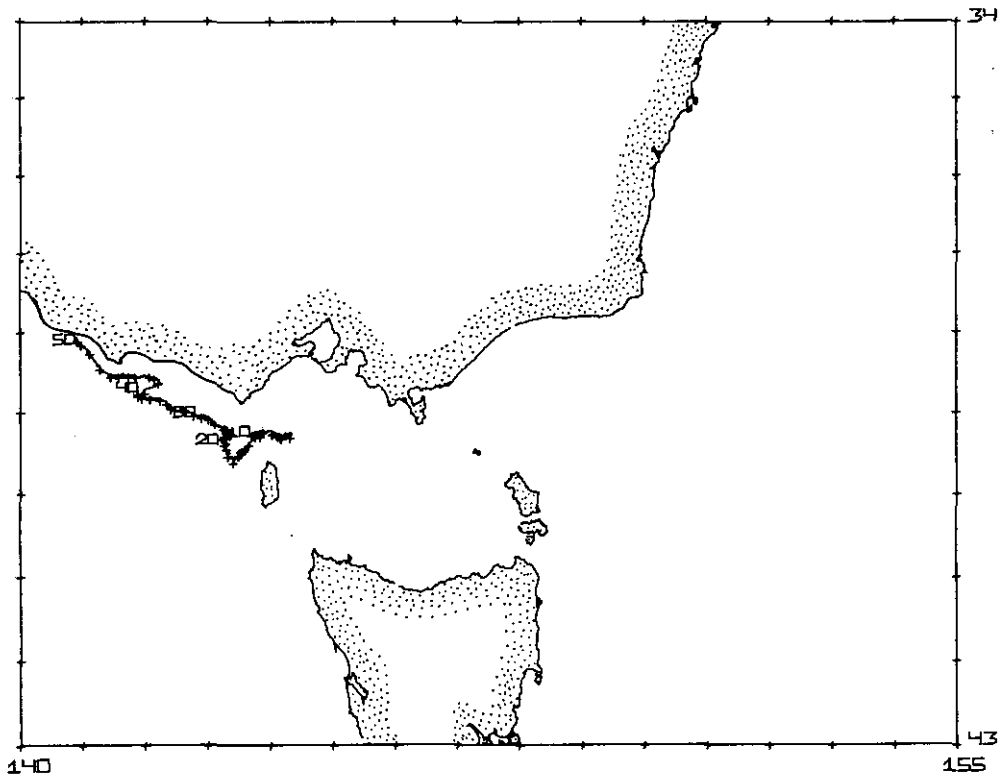
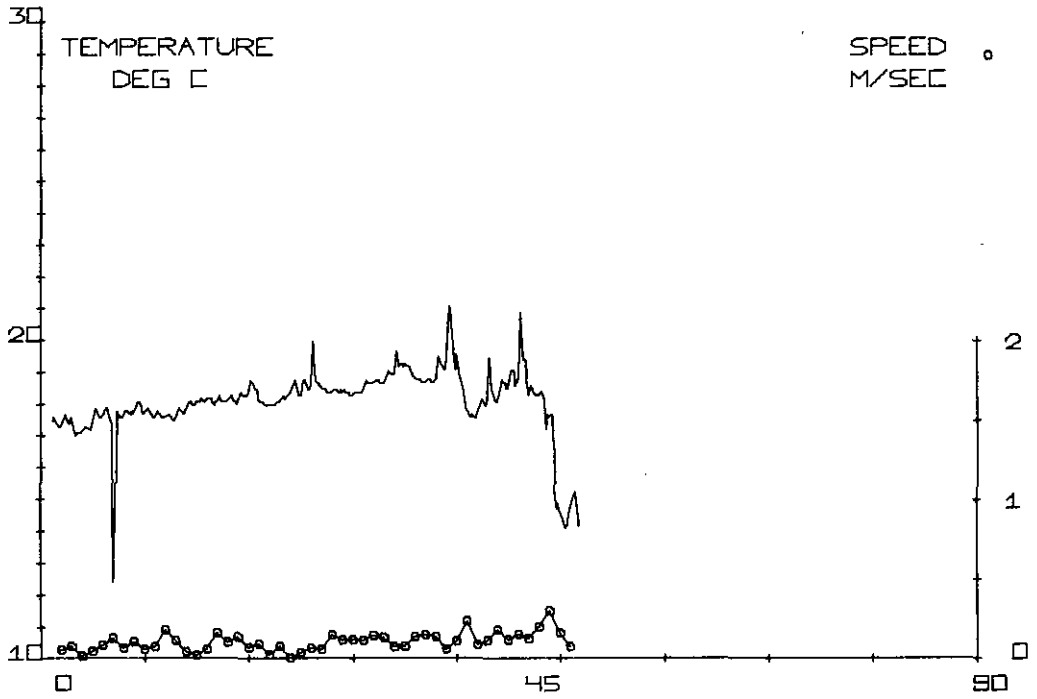
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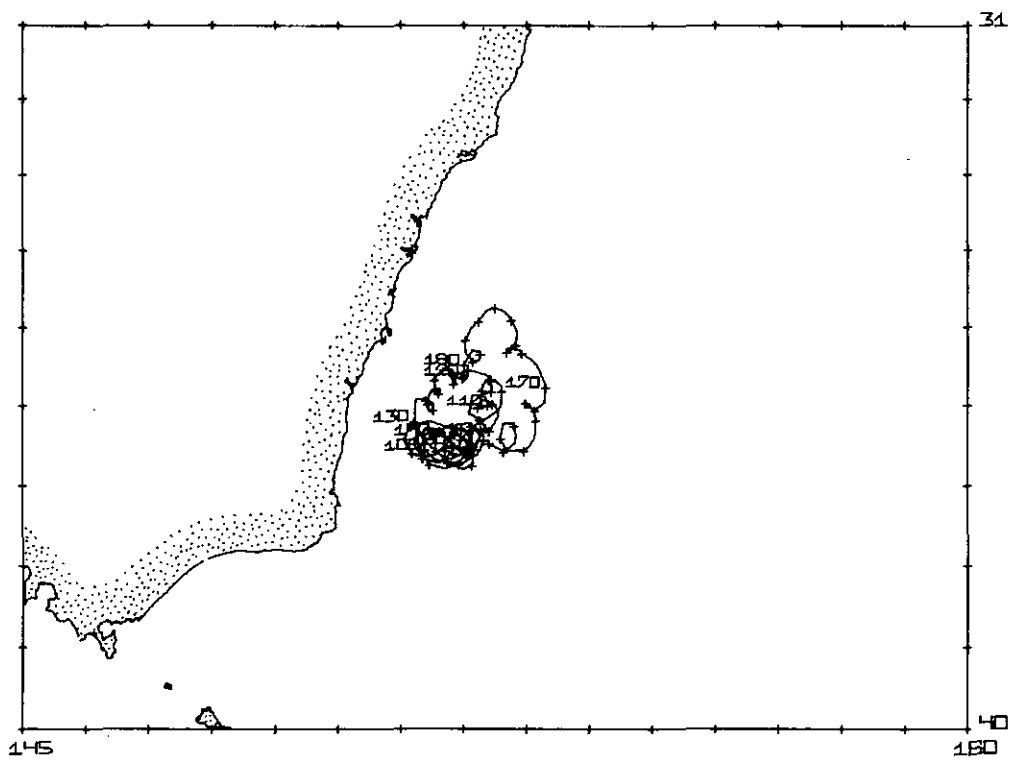
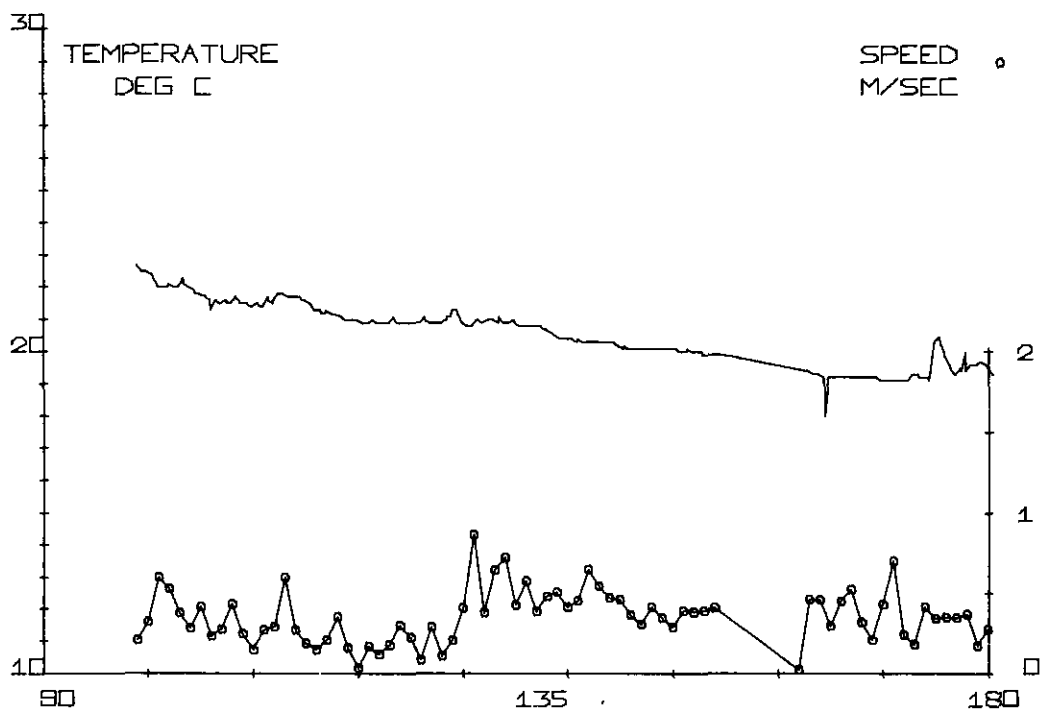
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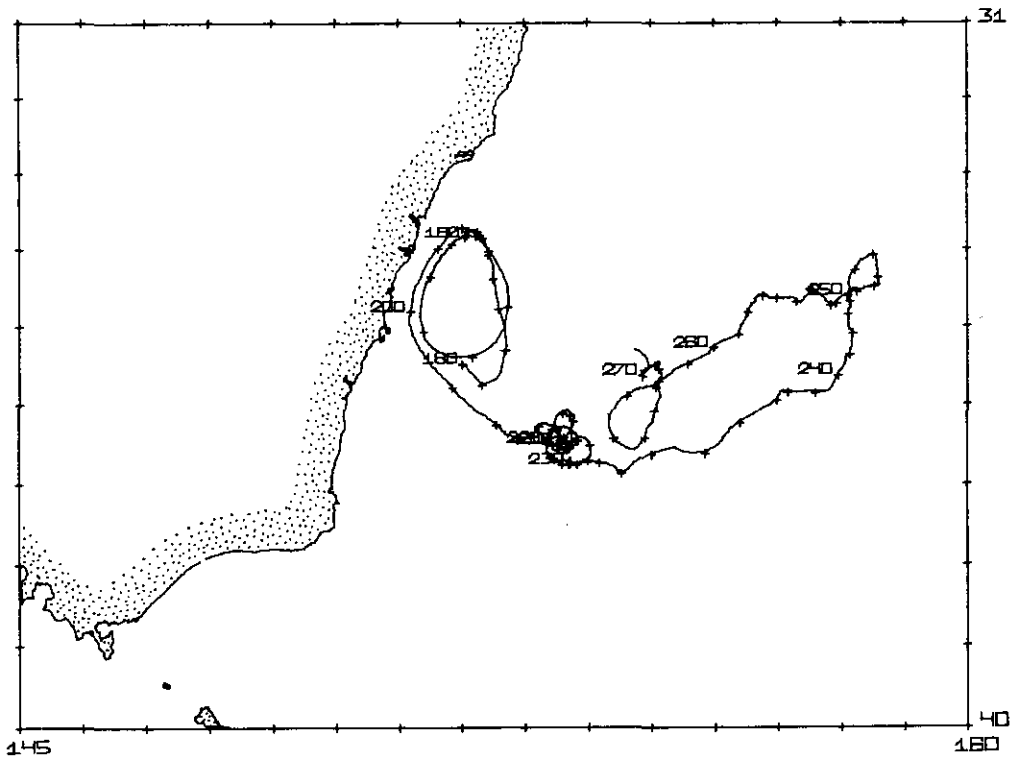
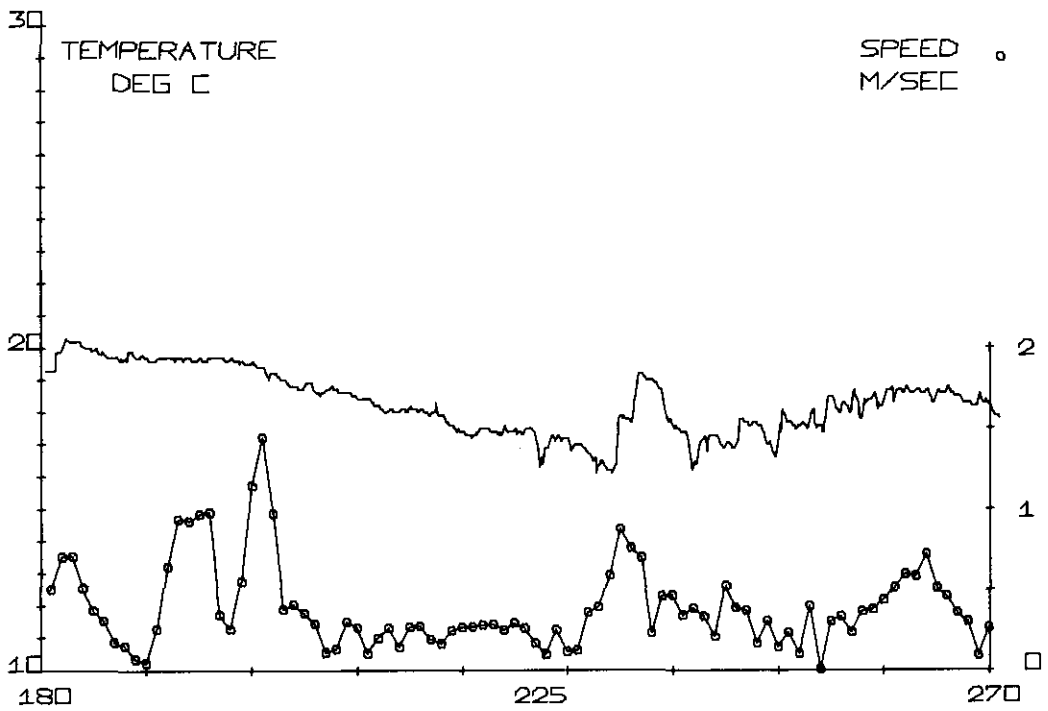
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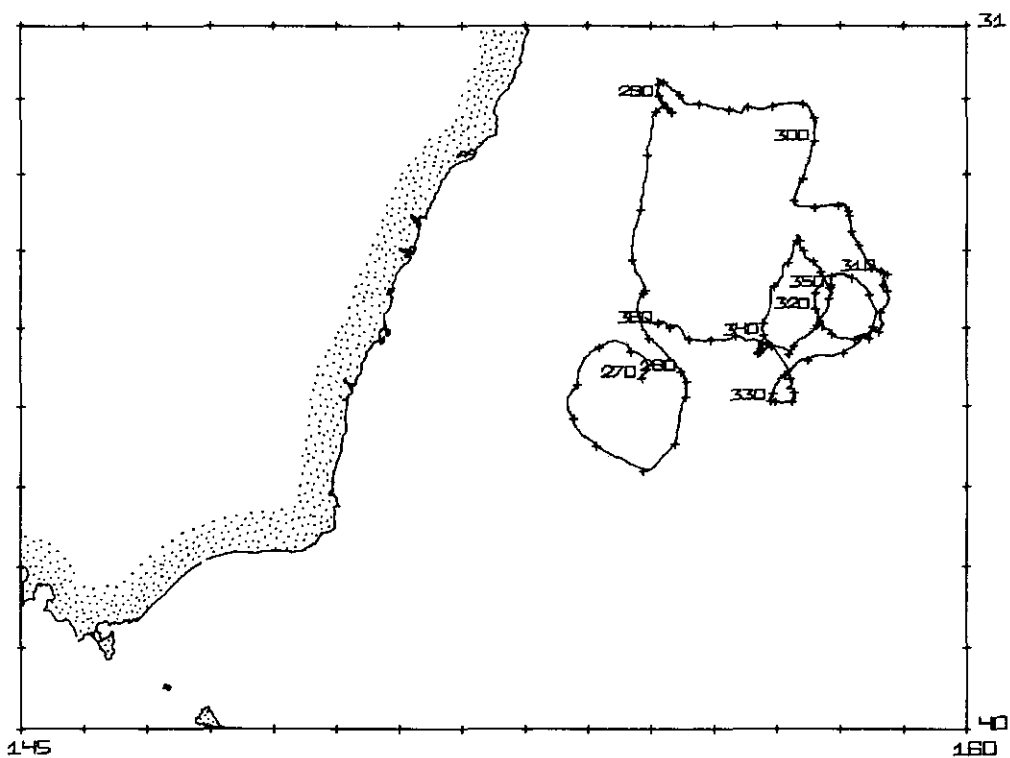
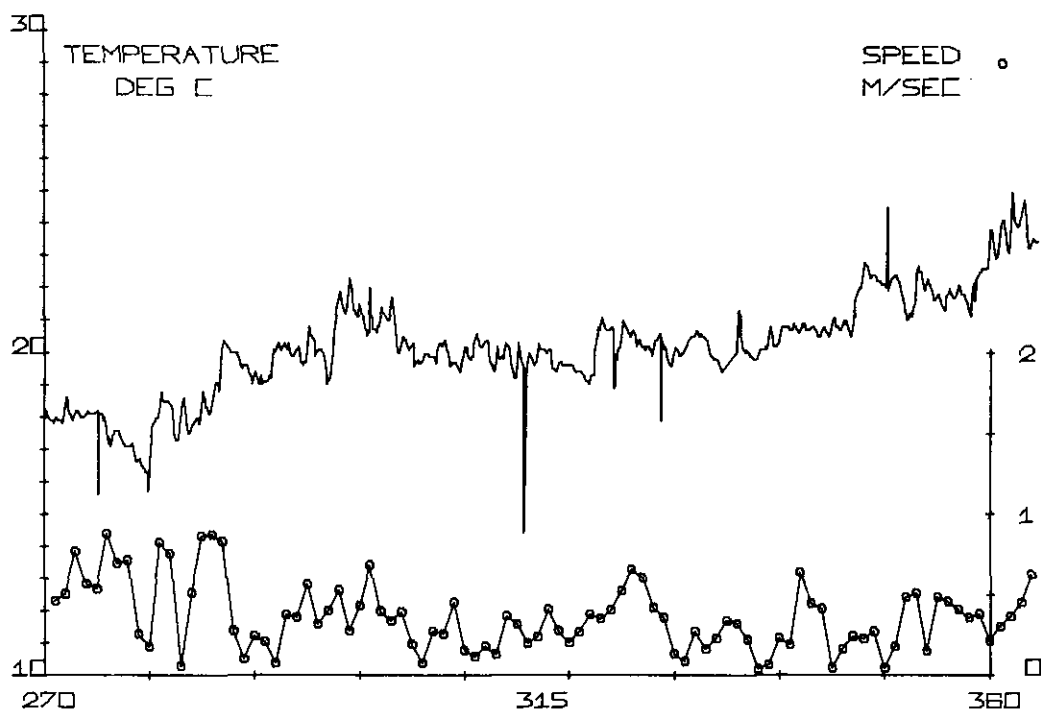
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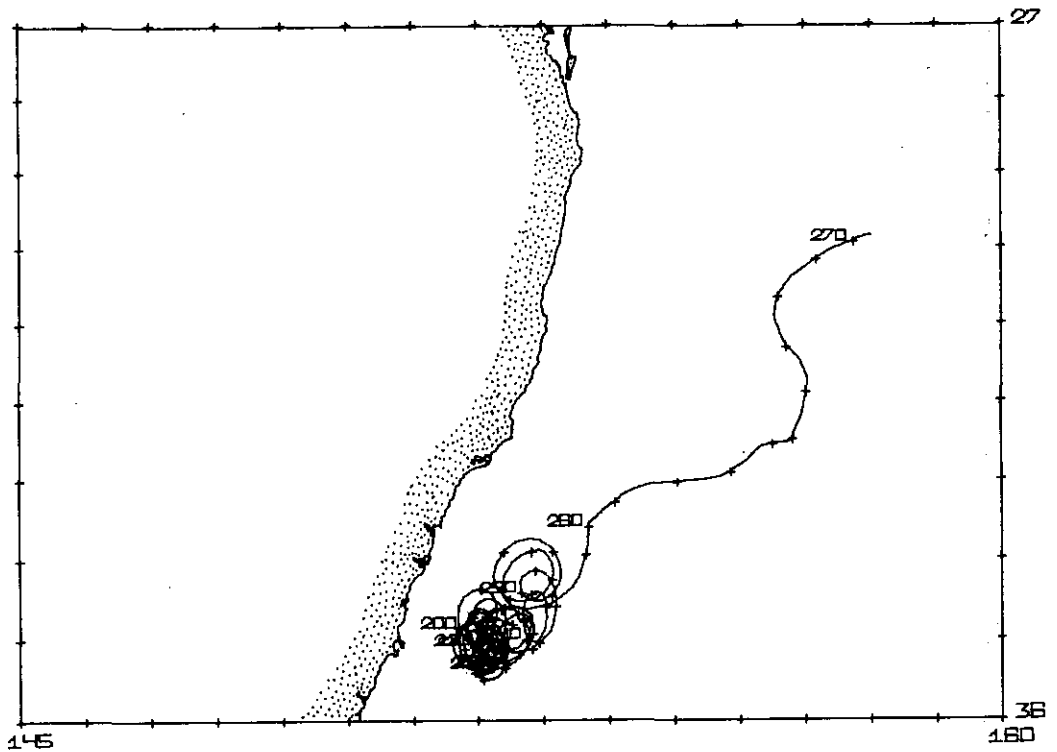
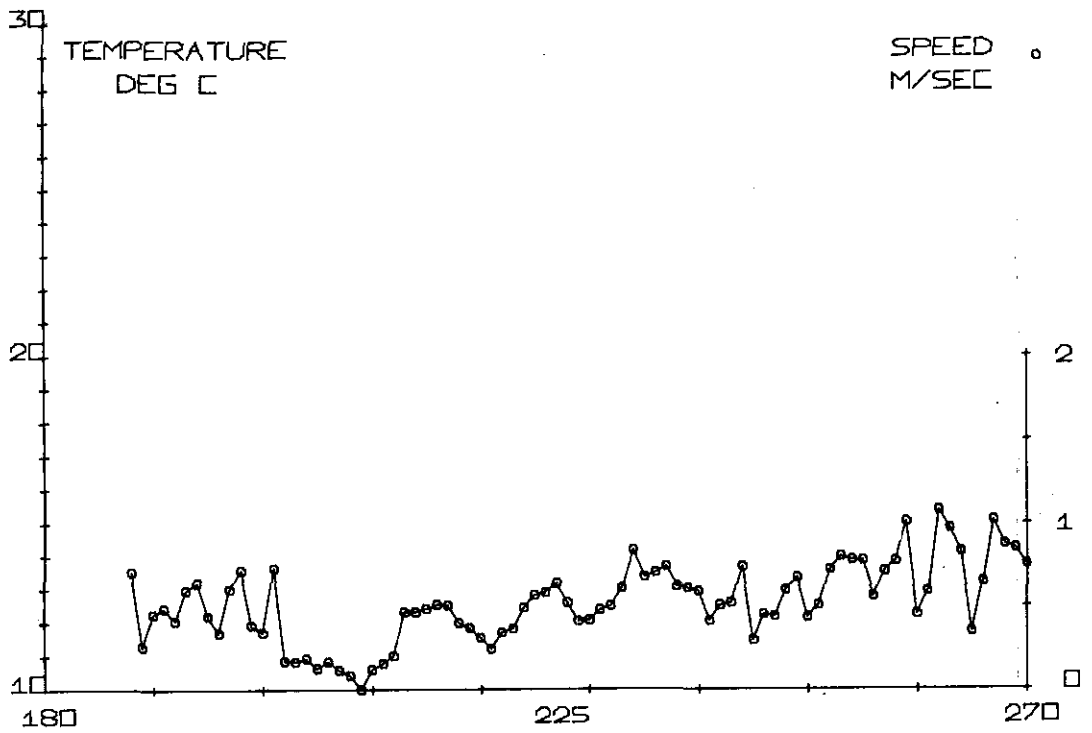
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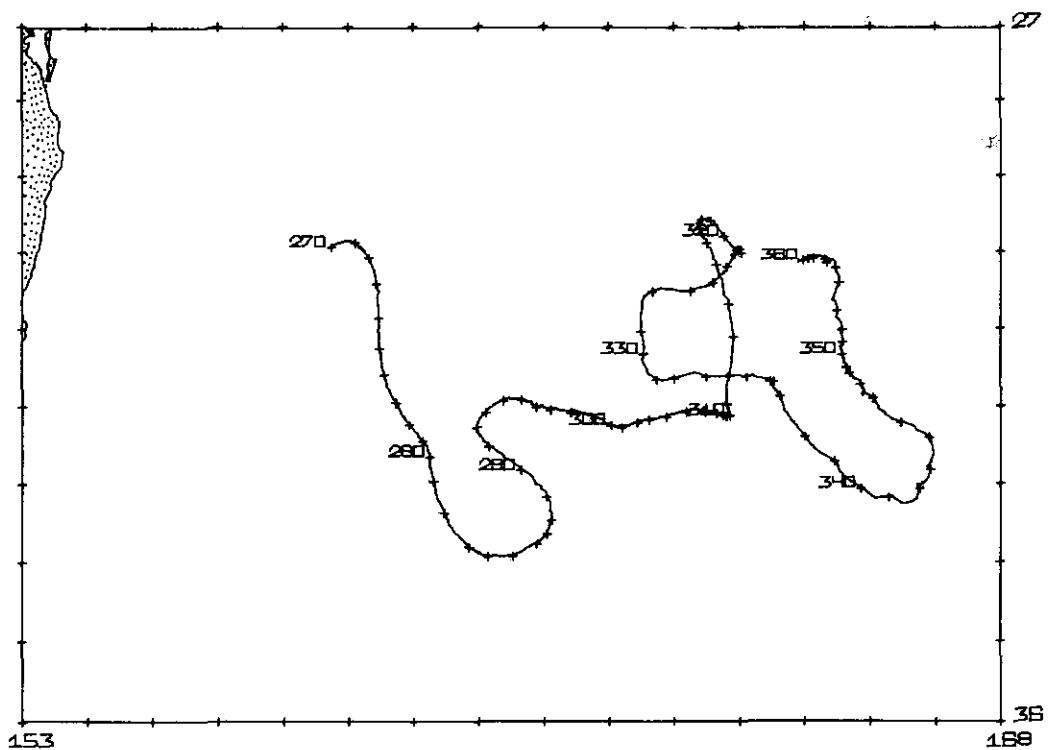
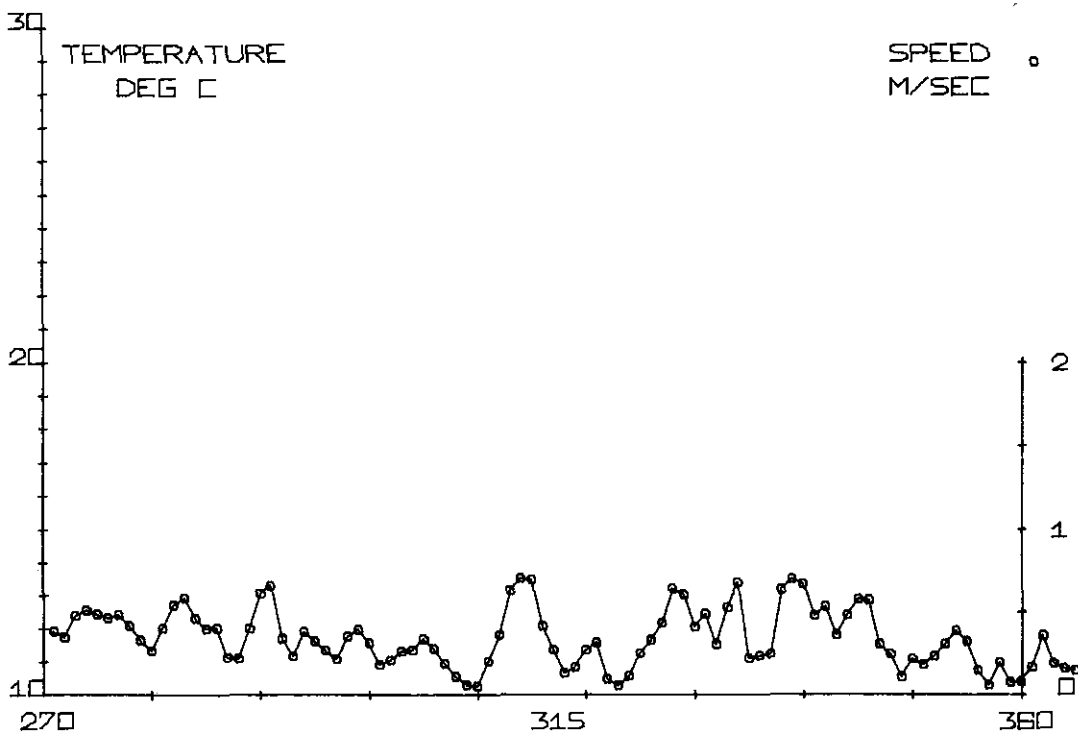
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BUOY 1838 DAYS 180-270 81



BUOY 1838 DAYS 270-360 81



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