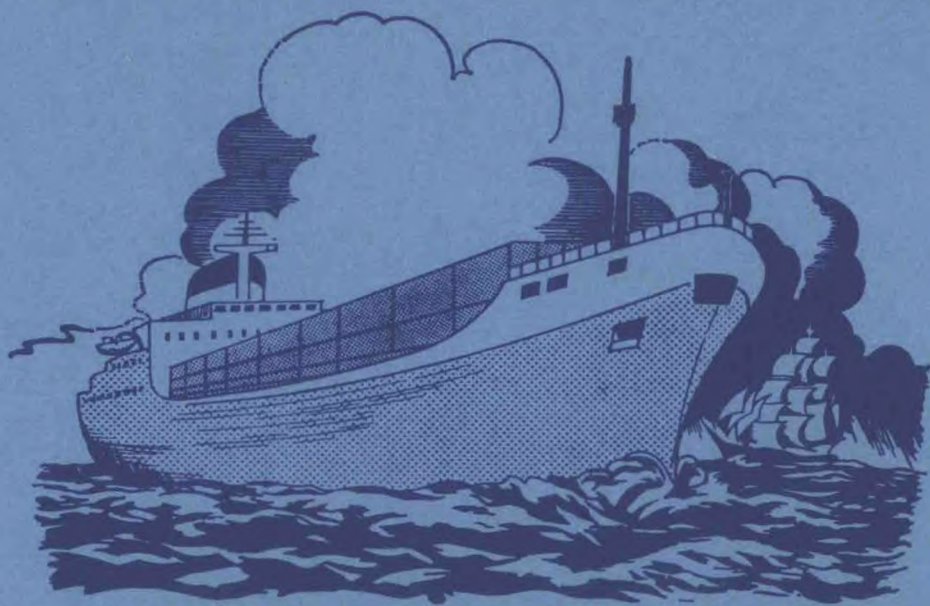


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*A quarterly journal of Maritime
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THE MARINE OBSERVER

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*Letters to the Editor, and books for review, should be sent to the Editor 'The Marine Observer',
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October, November, December

The Marine Observers' Log is a quarterly selection of observations of interest and value. The observations are derived from the logbooks of marine observers and from individual manuscripts. Responsibility for each observation rests with the contributor.

Observing officers are reminded that preserved samples of discoloured water, luminescent water etc. considerably enhance the value of such an observation. Port Meteorological Officers in the UK will supply bottles, preservative and instructions on request.

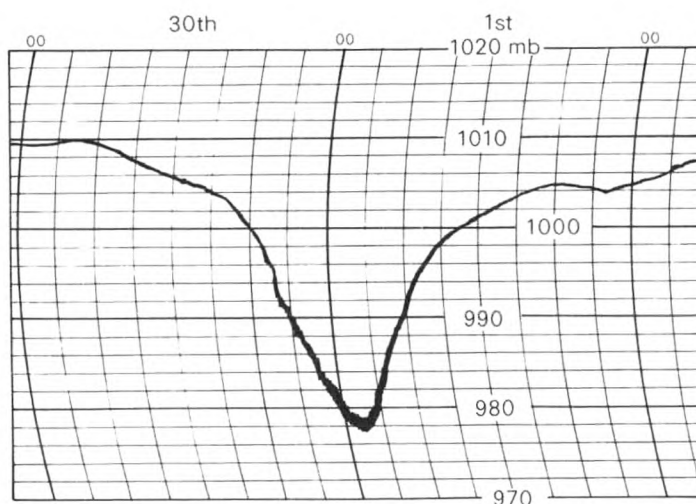
TYPHOON 'ELSIE'

North Pacific Ocean

m.v. *Aotea*. Captain L. E. Howell. Wellington to Kobe. Observers, Mr J. Kennedy, Chief Officer, Mr D. Lewis, 2nd Officer, and Mr M. Trafford, 3rd Officer.

1 October 1981. Typhoon Elsie was first noted on Japanese facsimile charts on 25 September, moving w'n towards the Philippines. By 28 September it was moving NNW at about 8 knots, had a central pressure of 895 mb, and was accompanied by maximum winds up to 120 knots.

Early morning reports on 1 October from Tokyo forecast a change from a NNW path to a NNE path, with later tendencies towards the NE. Speed was expected to increase to 20 knots.



The vessel hove to at 0400 GMT on 1 October in position $28^{\circ} 30' N$, $137^{\circ} 35' E$ to await the passage of the typhoon, which was expected to pass 120–150 n. mile to the north in about six hours time. By 1500 that afternoon the weather had deteriorated rapidly and dramatically as shown in extracts from the deck logbook. Plain language weather reports were sent frequently to Chosi Radio.

Time GMT	Wind Dir'n	Force	Baro. pressure mb	Remarks
0300	S'E	8–9	994.7	Vessel rolling and scending heavily at times in heavy s'ly swell and following seas. Overcast with haze. Pressure falling rapidly.
0400				Vessel hove-to.
0500	S	10–11	988.8	
0600	S	12	984.0	Vessel hove-to in storm conditions. Exceptionally steep heavy s'ly seas and very high swell. Visibility reduced in driving spray. Vessel pitching moderately and rolling heavily at times and shipping seas forward.
0700	S	12	981.7	
0930	S	12	978.0	Barometer now steady.
1100	SSW	12	980.5	Vessel hove-to. Mountainous seas and very steep ssw'ly swell. Shipping heavy seas forward. Driving rain and spray. Visibility reduced. Engine movements various to maintain steerage way.
1200	SW	11	982.9	
1400	SW	10	989.7	
1500	WSW	8–9	995.3	Barometer rising rapidly. Vessel hove-to. Heavy steep w'ly swell and very rough seas. Shipping occasional water forward. Pitching and rolling heavily.
1700	SW	8–9	998.1	Course various towards 270° as wind veers. Engine movements various.
1900	W'N	7	1000.8	Weather moderating.
2035	W	6–7	1002.0	Vessel resumed course to Hino Misaki.

It was noted later that from 2100 GMT on 30 September to 1200 GMT on 1 October the typhoon had moved $055^{\circ}(T)$ at about 20 knots and Japanese papers reported it as veering sharply to the East. In addition to the very high, steep seas encountered, it must be added that the screaming roar of the wind at the height of the storm had a nasty penetrating edge to it.

Position of ship at 0400 GMT on 1 October: $28^{\circ} 30' N$, $137^{\circ} 35' E$.

Note. The *Aotea* is a New Zealand Selected Ship.

TROPICAL DEPRESSION 'ALEX'

Indian Ocean

m.v. *Mairangi Bay*. Captain J. Cosker. Suez to Melbourne. Observers, the Master, Mr D. K. MacCorquodale, Chief Officer, Mr J. C. Hoy, 2nd Officer, Mr N. A. Escott, 3rd Officer, Mr D. A. Kelsall, Radio Officer and other members of the ship's company.

21–26 October 1981. Whilst on passage from Suez to Melbourne during this period the vessel came within range of a moderate tropical depression named Alex. The reports received from various stations and the effects on board the vessel are summarized in the following account, in which all times are GMT and MR = Mauritius Radio, CR = Colombo Radio and PR = Perth Radio. The tracks of the depression and of the vessel are shown in the sketch.

CR 22/0540: Depression developing in Indian Ocean centred near 07°S , 83°E at 21/0900.

MR 22/0600: Moderate tropical depression Alex centred within 60 n. mile of 08.5°S , 83.8°E quasistationary, tendency to move slowly ssw.

MR 22/1200: Centred within 60 n. mile of 08.8°S , 83.5°E , quasistationary.

MR 23/0600: Centred within 60 n. mile of 11.5°S , 86°E , moving SE at 12 knots.

PR 24/0900: Centred near 14.8°S , 85.2°E , moving S at 9 knots. Pressure below 965 mb.

25/0000: Vessel's position $10^{\circ} 24'\text{S}$, $80^{\circ} 18'\text{E}$. Vessel pitching easily, wind sw, force 3. Pressure 1008.8 mb. Dry bulb 26.1°C , wet bulb 23.5°C . Heavy SSE'ly swell. 5/8 cloud, slight intermittent rain.

25/0600: Vessel's position $11^{\circ} 42'\text{S}$, $81^{\circ} 48'\text{E}$. Vessel pitching moderately. Wind sw, force 4. Pressure 1008.7 mb. Dry bulb 27.0°C , wet bulb 23.3°C . Heavy S'ly swell. 7/8 cloud, light rain showers.

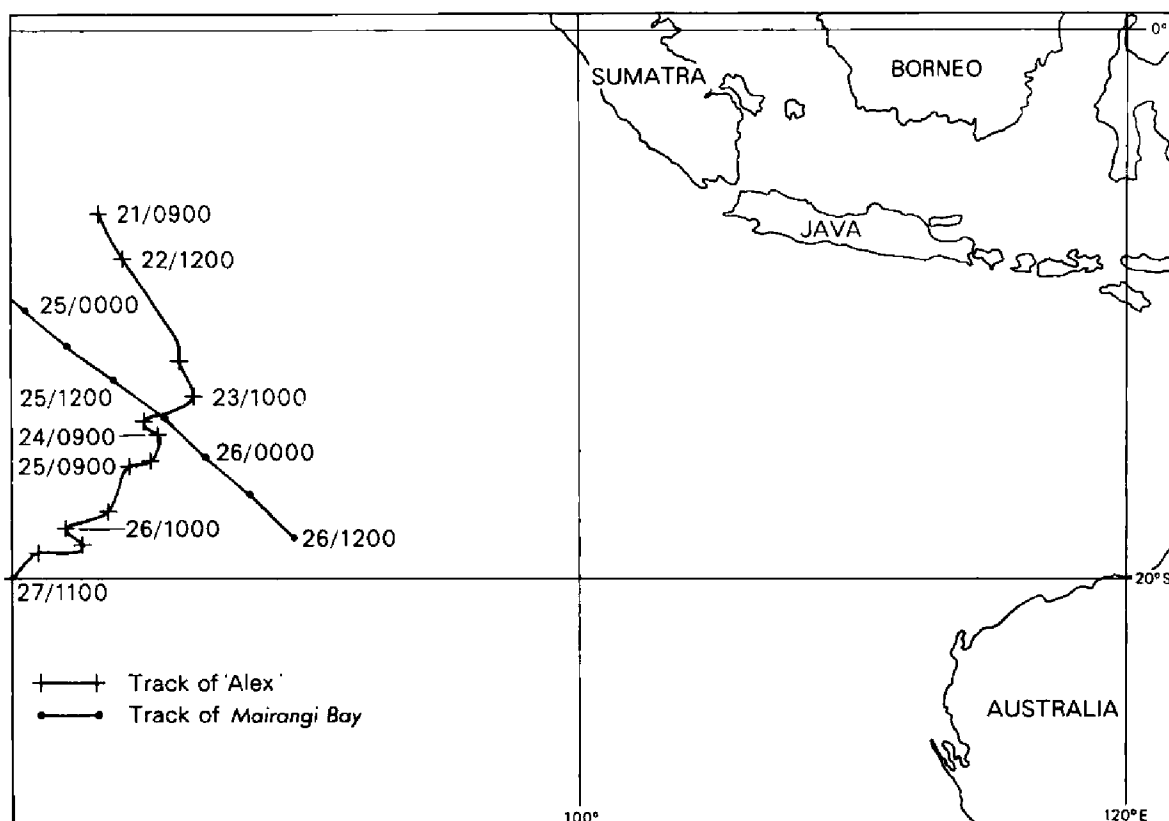
PR 25/0900: Centred near 16.0°S , 84.0°E , moving S at 3 knots.

25/1200: Vessel's position $12^{\circ} 48'\text{S}$, $83^{\circ} 36'\text{E}$. Vessel pitching and rolling moderately. Wind WNW, force 5. Pressure 1006.5 mb. Dry bulb 25.0°C , wet bulb 23.8°C . Heavy S'ly swell. 8/8 cloud, heavy rain showers. Three-hourly observations commenced by request from Perth Radio (transmitted to Tropical Cyclone Warning Centre).

25/1500: Vessel's position $13^{\circ} 30'\text{S}$, $84^{\circ} 24'\text{E}$. Vessel pitching and rolling moderately. Wind N'W, force 5. Pressure 1008.3 mb. Dry bulb 25.1°C , wet bulb 23.4°C . Heavy S'ly swell. 6/8 cloud, heavy rain showers.

25/1800: Vessel's position $14^{\circ} 24'\text{S}$, $85^{\circ} 12'\text{E}$. Vessel pitching and rolling moderately. Wind N, force 7. Pressure 1008.1 mb. Dry bulb 25.2°C , wet bulb 24.0°C . Heavy SSW'ly swell. 6/8 cloud, fine.

PR 25/2100: Centred near 16.8°S , 83.7°E , moving SSW at 4 knots.



25/2100: Vessel's position $15^{\circ} 00'S$, $85^{\circ} 54'E$. Vessel pitching and rolling moderately. Wind NNE, force 7. Pressure 1007.4 mb. Dry bulb $26.0^{\circ}C$, wet bulb 24.3. Heavy ssw'ly swell. 1/8 cloud, fine and clear.

26/0000: Vessel's position $15^{\circ} 42'S$, $86^{\circ} 42'E$. Vessel pitching and rolling easily. Wind NE'N, force 6. Pressure 1009.6 mb. Dry bulb $25.5^{\circ}C$, wet bulb 23.8. Heavy w'ly swell. 4/8 cloud, scattered light rain showers.

26/0300: Vessel's position $16^{\circ} 30'S$, $87^{\circ} 30'E$. Vessel pitching and rolling moderately. Wind NE'E, force 5. Pressure 1012.2 mb. Dry bulb $26.0^{\circ}C$, wet bulb 24.6. Moderate w'ly swell. 4/8 cloud, fine and clear. Cease sending three hourly reports to Perth Radio.

PR 26/0400: Centred near $17.7^{\circ}S$, $83.3^{\circ}E$, moving ssw at 6 knots.

26/0600: Vessel's position $17^{\circ} 06'S$, $88^{\circ} 24'E$. Vessel pitching and rolling moderately. Wind E, force 5. Pressure 1011.4 mb. Dry bulb $25.0^{\circ}C$, wet bulb 23.8. Moderate w's swell. 6/8 cloud, fine and clear.

PR 26/1000: Centred near $18.2^{\circ}S$, $81.9^{\circ}E$, moving wsw at 9 knots.

PR 26/2100: Centred near $18.7^{\circ}S$, $82.5^{\circ}E$, moving wsw at 5 knots.

HEAVY WEATHER

North Atlantic Ocean

m.v. *Dorsetshire*. Captain M. J. Horn. Ghent to Baltimore via great circle route. Observers, Mr S. Foster, 2nd Officer, Mr M. S. Hume, 3rd Officer, and other members of the ship's company.

6-8 October 1981. In the following account all the information is derived from the meteorological and deck logs.

At 0600 GMT on the 6th the wind was observed to be w'ly, force 4 and the barometric pressure was 1012.7 mb. The sea was moderate and there was a low to moderate swell running. The sky was mainly overcast, fine and clear with occasional rain showers earlier.

By 1700 GMT the wind had backed to become s'ly, force 5. The pressure had been dropping steadily and was now 1001.4 mb. The sea was s'ly and moderate, and the swell was also moderate but NE'ly. The sky was overcast with continuous light rain.

GMT

1800 Wind w's, force 8; barometric pressure 997.4 mb.

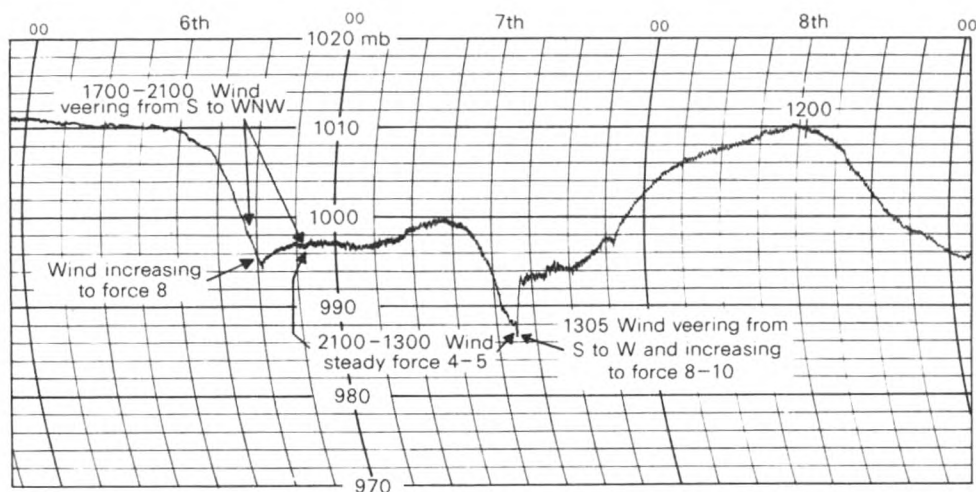
1900 Wind w'ly, force 5-6; barometric pressure 999.7 mb.

2000 Wind w'N, force 6; barometric pressure 1000.4 mb.

At 2100 GMT the wind had veered to WNW, force 5-6. The barometric pressure had by this time risen to 1000.7 mb. There was a moderate to rough w's sea running and a moderate, confused swell. The weather was cloudy, fine and clear.

These conditions persisted for some hours with only the pressure changing, falling to 1000.0 mb at 0100 GMT on the 7th and then rising to 1001.2 mb by 0500 GMT before dropping to 1007.0 mb by 0900 GMT.

By 1300 GMT on the 7th the wind had backed to s'ly, force 5 and the pressure was 992.4 mb. The sea was moderate and s'ly whilst the swell was NE'ly and moderate. The sky was overcast and there had been some rain earlier. At the time of the 1300 observation disturbed water was observed off the starboard bow. At 1305 GMT the wind rapidly increased to force 8-10 and also rapidly veered from s'ly to w'ly. The barometric pressure was dropping rapidly, reaching a low of 988.1 mb at the time at which the wind force increased, after which the pressure started to rise extremely quickly.



By 1700 GMT the wind force had still not decreased, being w'ly, force 8. The barometric pressure by this time had risen to 998.1 mb. There was a rough w'ly sea and swell running at the time although there was no simultaneous precipitation.

At 2100 GMT the wind was still w'ly but was by then a force 9. The barometric pressure had risen slightly more and now stood at 1001.0 mb. There were very rough seas and a heavy confused swell. The sky was cloudy and the weather was mainly fine but there were occasional heavy rain showers.

By 0100 GMT on the 8th the wind had finally died down to a force 5-6 and had veered to NNW. The barometric pressure by this time had reached 1008.0 mb. There was a moderate NNW'ly sea and a moderate to heavy swell. Earlier rain had cleared, leaving the sky cloudy and conditions fine and clear.

Position of ship: 1000 GMT on 5 Oct., 49° 04' N, 20° 21' W.

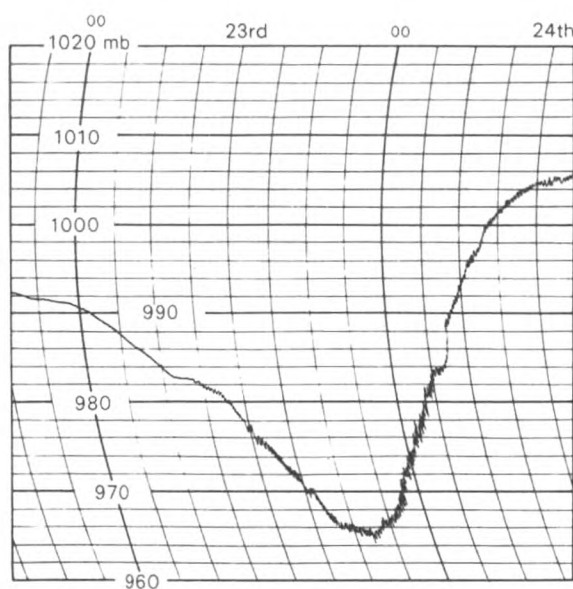
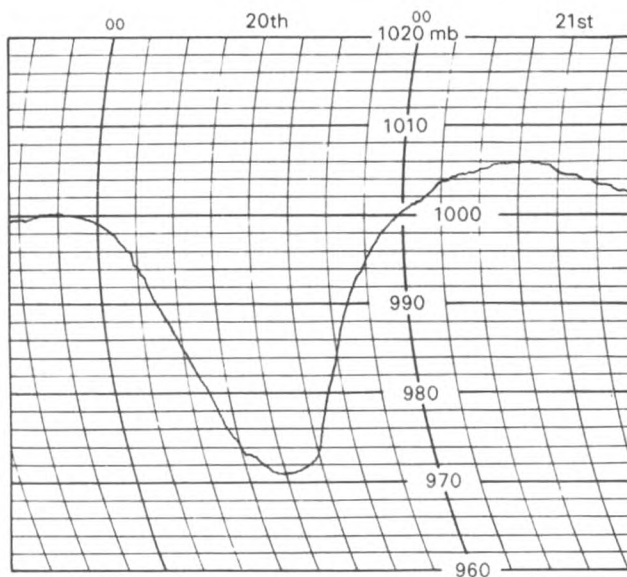
1300 GMT on 7 Oct., 47° 53' N, 35° 48' W.

m.v. *London Enterprise*. Captain T. S. Nurcombe. Awaiting berth off the Shetland Islands. Observers, the Master, Mr G. J. Smith, Chief Officer, Mr A. Follett, 2nd Officer, Mr G. Douglas, 2nd Officer, Mr. B. Woodward, 3rd Officer and Mr P. Philpott, 4th Officer.

19-25 November 1981. The vessel was drifting off the west coast of the Shetland Islands waiting to berth at Sullom Voe. The barometric pressure began to fall at about 2200 GMT on 19 November, decreasing from 1000 mb to 971 mb by 1200 on 20 November. The pressure then began to rise rapidly, the trace on the barogram being almost vertical, until at 0000 on 21 November the pressure once again was 1000 mb. The following are extracts from the logbook:

	GMT	
20th	1200	Wind NE, force 6-7, barometric pressure 973.9 mb, overcast with moderate rain, rough sea, moderate to heavy swell.
	1600	Wind N, force 9, barometric pressure 982.5 mb, overcast with continuous rain, very rough sea, heavy swell.
	2000	Wind NNW, force 6, barometric pressure 997.1 mb, cloudy, fine and clear, rough sea, heavy swell.
21st	0000	Wind NW'w, force 6, barometric pressure 1004.1 mb, cloudy, fine and clear, rough sea, moderate swell.

From 1000 on the 21st the barometric pressure fell slowly but steadily to 965 mb at about 1900 on the 23rd. The vessel had received orders at 0800 to proceed inward to the pilot station prior to berthing. At that time the vessel had drifted



to a position south of the Shetland Islands and a westerly course was set to pass at least 10 n. mile south of Foula Island. At 1045 advice was received that the port of Sullom Voe was closed owing to adverse weather and at this time the vessel was hove-to. The following are extracts from the logbook:

	GMT	
23rd	0800	Wind wsw, force 6-7, barometric pressure 985.7 mb, overcast with light showers, rough sea, moderate swell.
	1200	Wind w'n, force 11, barometric pressure 979.6 mb, cloudy, visibility affected by blowing spray, very rough sea, very heavy swell.
	1600	Wind w's, force 11, barometric pressure 972.5 mb, overcast with occasional hail showers, very rough sea and heavy swell.
	2000	Wind nw'w, force 9, barometric pressure 967.1 mb, overcast with frequent heavy showers, very rough sea, very heavy swell.

24th 0000 Wind NNW, force 11, barometric pressure 975.2 mb, cloudy, very rough sea, heavy swell.
 0400 Wind N, force 11, barometric pressure, 986.9 mb, overcast with heavy rain. Very rough sea, heavy swell.
 1200 Wind NW'N, force 10, barometric pressure 1007.0 mb.
 2000 Wind NW, force 8, barometric pressure 1009.6 mb.

Thereafter the weather moderated slowly. Captain Nurcombe states that, in his opinion, the wind speeds as logged were somewhat underestimated as, according to the pilot, the wind speed ashore at Sullom Voe during the 23rd and 24th had been recorded as 80 knots.

Position of ship at 1200 on the 20th: 60° 06'N, 1° 36'W.

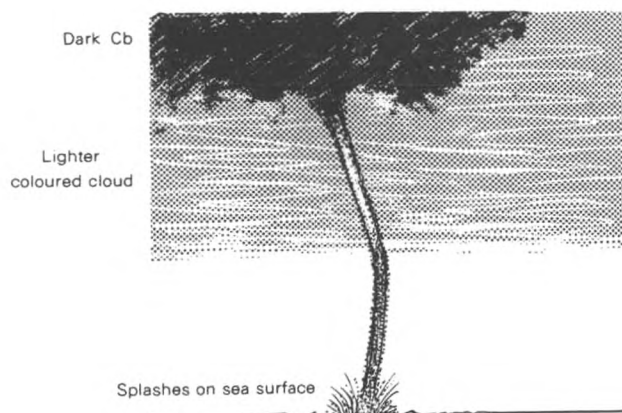
Position of ship at 1200 on the 24th: 60° 24'N, 2° 24'W.

WATERSPOUTS

Gulf of Oman

m.v. *Scottish Eagle*. Captain M. D. Whiteley. Singapore to Ras Tannurah. Observers, Mr P. L. White, 2nd Officer, and other members of the ship's company.

18 December 1981, 0250–0315 GMT. The first waterspout was observed at 0250 GMT on the starboard bow at a distance of approximately 8 n. mile. It appeared as a silvery column descending from a dark cumulonimbus cloud (base 600 ft) at a slight angle to the vertical. It ended two-thirds of the way to the horizon. An area of splashes was observed on the sea surface underneath. It developed by extending vertically downwards in a dark column until just above the surface. The splashes became larger to meet the column. The lower part was dark while the upper was pale grey. An area of disturbed water on an otherwise calm sea surrounded the waterspout. It passed approximately 4 n. mile away and was not seen after 0315 GMT, when it was hidden behind another vessel.



At 0300 GMT the second waterspout was seen on the starboard quarter about 5 n. mile away. It was then already fully developed. It moved astern and was hidden behind rain showers at times; it was not observed after 0315 GMT, at which time it was still well developed.

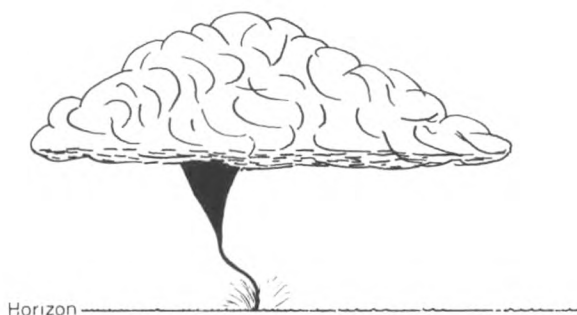
Weather conditions: dry bulb 23.1 °C, wet bulb 20.1, barometric pressure 1018.5 mb, very light airs.

Position of ship: 25° 15'N, 57° 37'E.

Strait of Malacca

m.v. *Aurora*. Captain A. R. Matthews. Singapore to Richards Bay. Observers, Mr K. A. Stapleton, Chief Officer, and cadet.

3 November 1981, 2350 GMT. The waterspout was observed emanating from the base of a medium cumulus cloud. The cloud was bearing approximately $289^{\circ}(\text{T})$ at a distance of 8 n. mile. A sextant gave the black cloud-base an altitude of $1^{\circ} 35'$ above the horizon. The waterspout was seen to reach the surface, with spray coming from the base.



Weather conditions: dry bulb 29.3°C , wet bulb 29.0 , sea temperature 28.5 ; barometric pressure 1010.8 mb, wind light airs, occasional rain at station.

Position of ship: $5^{\circ} 09' \text{N}$, $97^{\circ} 59' \text{E}$.

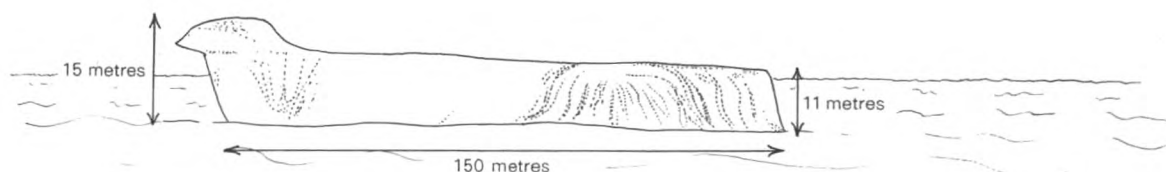
ICEBERGS

South Pacific Ocean

m.v. *Mairangi Bay*. Captain J. Cosker. Port Chalmers to Zeebrugge via Cape Horn. Observers, Mr D. K. MacCorquodale, Chief Officer, Mr N. A. Escott, 3rd Officer, Cadet R. Dakin and other members of the ship's company.

27–28 November 1981. The vessel was following a composite great circle course via 60°S . At 1715 GMT on the 27th, an echo was observed at a range of 21.7 n. mile on the port bow. The visibility at this time was reduced owing to very low stratus cloud and continuous fine drizzle. The echo passed 13.3 n. mile abeam to port, without any observation. Another echo was observed at 1730 GMT on the limits of the 24 n. mile range, again on the port bow. The echo passed 12.4 n. mile abeam to port.

By 1800 the visibility had improved to about 6.0 n. mile, with the stratus cloud dissolving and the wind increasing to force 6. At 1815 an echo was observed on the starboard bow, distance 10.9 mile. When the echo was 6.5 n. mile away a low grey/white iceberg was observed through the mist. The tabular iceberg was about 150 metres long at the waterline, with a maximum height of 15 metres at one end, which levelled off to an average of 11 metres for the remaining length of the iceberg. It passed 3.9 n. mile abeam to starboard and was observed to have a bluish/grey tint. Its edges were very definite and not very weathered.

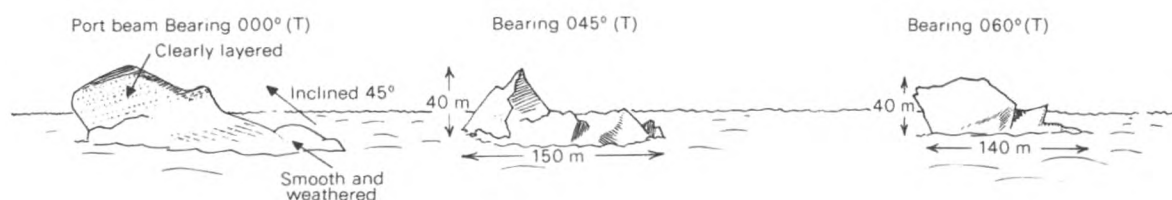


Weather conditions at time of sighting: dry bulb 3.1°C , wet bulb 2.6 , sea temperature 2.5 , barometric pressure 984.8 mb, wind WNW, force 6, moderate to rough seas and moderate NW'ly swell.

Position of ship at 1840 GMT: $57^{\circ}00'S$, $140^{\circ}52'W$.

Over the next six hours a few more icebergs were observed with a number of growlers and bergy bits, downwind of the actual bergs.

At 0100 GMT on the 28th another echo was observed on the limits of the 24 n. mile range of the radar. At 12.0 n. mile on the port bow the iceberg was first seen. It was about 140 metres in length and approximately 40 metres high, at its peak. Its colour was more of a greyish/white, with distinct layers on its left-hand side (see sketch). The lower, right-hand side of the berg was smooth and well weathered, whereas the higher left-hand side had distinct edges around its peak. The observers came to the conclusion that the right side had at one stage been permanently under the water. The iceberg had then capsized and brought the smooth weathered section above the sea surface.



Smaller pieces of ice were observed falling off, into the sea, from the higher peak, so it was assumed that the berg was at the advanced state of disintegration. When the berg had been passed, approximately three bergy bits and two growlers, downwind of it, were noted; these pieces of ice had apparently broken free from the bigger iceberg.

Weather conditions: dry bulb 5.1°C , wet bulb 3.1 , sea temperature 2.2 , barometric pressure 990.1 mb, wind WNW, force 6, moderate to rough seas, moderate NW'ly swell.

Position of ship: $57^{\circ}02'S$, $136^{\circ}43'W$.

WHALES

North Atlantic Ocean

m.v. *Mairangi Bay*. Captain J. Cosker. Port Chalmers to Zeebrugge via Cape Horn. Observers, Mr N. Escott, 3rd Officer, Cadet R. Dakin and Mr N. Lewis.

10 December 1981. At 1120 GMT what was deduced to be a Bottle-nosed Whale was observed about 3 n. mile away on the port beam. It was swimming in a wsw'ly direction, apparently heading towards the Caribbean. The whale was estimated to be 6 metres in length and was dark grey in colour. It had a distinct beak, or bottle nose. It leaped completely out of the water at least eight times, within the space of five minutes, and then disappeared from view. The whale leaped, perhaps 60–90 cm clear of the water, and then 'bellyflopped', causing a large splash, as it re-entered the sea. The whale was seen from an angle such that its tail appeared to be vertical.

Weather conditions: sea temperature 27.2°C , slight seas and low swell. Cloudy, fine and clear.

Position of ship: $1^{\circ}20'N$, $30^{\circ}32'W$.



Note. Mr D. A. MacBrearty, of the Department of Anatomy, University of Cambridge, comments as follows:

‘This is an interesting sighting both from the point of view of what was seen and in its description. Let me say firstly that I have two identical descriptions and two different drawings of the same sighting. One (the earlier I suspect) is recorded on one of my report forms which have been distributed, the other is a copy of the logbook entry.

‘The first rough sketch shows an animal with a distinct beak, a gently sloping ‘forehead’, small pectoral fins and a small dorsal fin about three-quarters of the distance towards the tail. The flukes are shown vertically but I think this illusion is probably due to the twisting motion seen as the animal leaped clear of the sea. All cetaceans have horizontal flukes, only fishes have vertical tail fins.

‘The second sketch (in the logbook) is a much more diligent drawing, precise and very carefully shaded. I suspect that this was copied from a picture of a bottlenose whale after the observers had some discussion. In my opinion, the observers were seeing a ziphiid or beaked whale, but not the bottlenose whale (*Hyperoodon*). Neither the northern nor the southern bottlenose whales are found around the equator, they prefer much cooler waters.

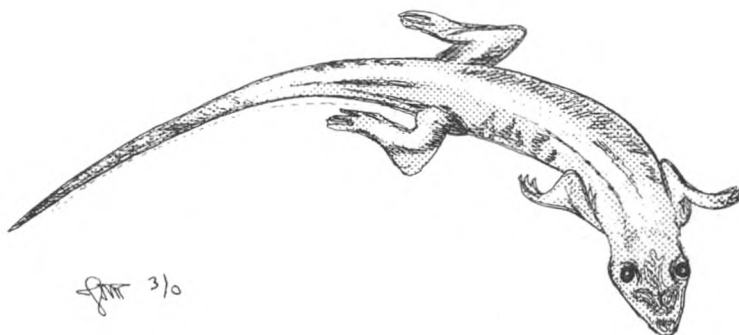
‘There are probably three ziphiid whales which may be seen in the area of this sighting, these being Cuvier’s whale (*Zipheus cavirostris*), the dense beaked whale (*Mesoplodon densirostris*) and in the southern portion of its range, Gervais beaked whale (*M. europaeus*). All three whales have been reported as being grey or dark grey in colour, and the first two have also been described as being brownish grey. In size, the smallest is the dense beaked whale at around 5 metres, whereas the other two may be in excess of 6 metres. At close quarters, the dense beaked whale may be recognized by virtue of its high arched jaw line formed by two enormous teeth in the middle of the lower jaw.’

REPTILE

Suez Bay

m.v. *Falmouth Bay*. Captain P. J. Manson. At anchor in Suez Bay. Observers, Mr J. M. Torkington, 3rd Officer and Mr C. Hayward.

30 October 1981. A lizard (possibly a gecko) was found on deck. Its overall length was 8 cm and the colour on top was brownish-grey whilst the underside was cream. There appeared to be some sort of small spikes or scales at the start



of the tail whilst the rest of the body was relatively smooth. The vessel had been at sea for eight days, the last port of call having been Bahrain (preceded by three other Gulf ports).

Position of ship: $29^{\circ} 54' \text{N}$, $32^{\circ} 30' \text{E}$.

FISH

Borneo coastal waters

m.v. *Baron Wemyss*. Captain F. M. Dalby. Port Kembla to Bangkok. Observers, the Master, Mr R. C. Bucknall, Chief Officer, Mr S. A. Budd, 2nd Officer, Mr D. Finlayson, 3rd Officer and Mr S. Cole.

7 October 1981. At 0400 GMT (1200 LMT), as the vessel was closing Peduantan Island on a course of $321^{\circ}(\text{T})$, a school of large sharks was observed close to on the starboard side. The sharks were approximately 6.5 to 7 metres in length and appeared to have flattish, wide heads, although they were definitely not hammer heads.

The sharks were basking near the surface, with dorsal and caudal fins frequently above water. At the approach of the ship, the sharks grew neither agitated nor frightened, responding only with lazy sweeps of their tails. Their heads were a mottled black/grey/brown in colour, although the fins were black. The school comprised 10 or 12 of the creatures.

Thirty minutes after the encounter with the first school, a second, slightly larger group was passed. The nearest of the creatures was a mere 15 metres from the ship and made no attempt to increase the distance.

Position of ship: $0^{\circ} 46' \text{S}$, $107^{\circ} 48' \text{E}$.

Note 1. The *Baron Wemyss* is an Australian Selected Ship.

Note 2. Dr. F. Evans, of the Dove Marine Laboratory, University of Newcastle upon Tyne, comments:

'These sharks are so large that they sound like whale sharks, a very large species of basking, plankton-eating sharks with a rather flattened head, but I cannot be certain from the information given, I am afraid.'

Californian waters

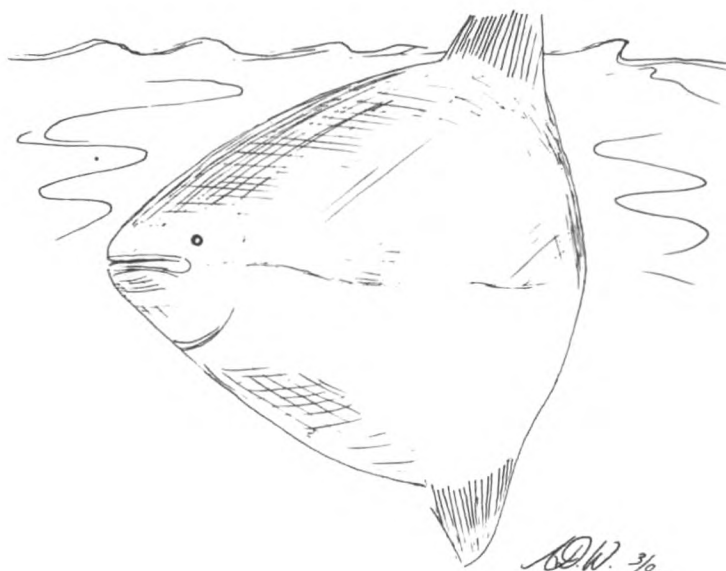
m.v. *Magdalena*. Captain B. Hodges. Panama to Los Angeles. Observer, Mr A. D. Wells, 3rd Officer.

13 October 1981. At 1825 GMT (1125 LMT) when off Port San Isidro, what was thought to be a sunfish was observed, passing by the port side of the vessel, swimming just below the sea surface. The fish's dorsal fin was clearly visible above the surface of the water. The upper half of the rounded body was of a light green/brown colour and the lower half a creamy yellow. Only two fins were visible—the upper dorsal fin previously mentioned and another fin on the underside, directly beneath and opposite to the dorsal fin. The 'sunfish's' shape and colour could be clearly observed in the limpid water (see sketch). It was noted that the fish made no attempt to dive or swim away but was soon lost from sight beneath the wash of the ship's bow wave.

Position of ship: $31^{\circ} 11' \text{N}$, $116^{\circ} 42' \text{W}$.

Note. Dr Evans comments:

'There is a reference to the ocean sunfish, *Mola mola*, in *The Marine Observer*, January 1981. Sunfish are found worldwide in tropical and warm temperate seas, growing to a weight of over a ton. They are known to feed on jellyfish. There exists a delightful drawing of a sunfish washed



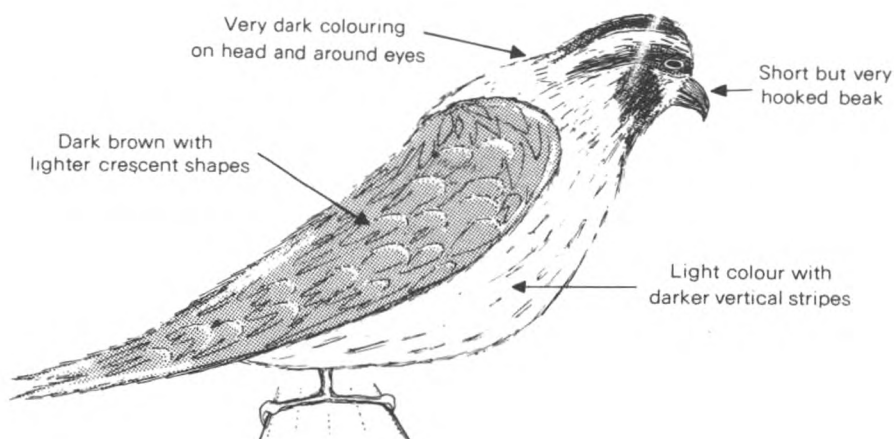
aboard an Atlantic liner in a gale. Its weight has smashed down the main deck rail and it confronts the 'Old Man' and a junior mate, its dorsal fin rising higher than their heads. The incident was genuine, the year, 1926.'

Birds

Florida Strait

m.v. *Wiltshire*. Captain P. S. Bytheway. Pajaritos (Mexico) to Cartagena (Spain). Observers, Mr A. R. Mortensen, 2nd Officer and Mr S. J. Kitchen, 3rd Officer.

5-12 October 1981. Whilst the vessel was on passage through Florida Strait a hawk appeared and was first noticed sitting on the foremast. It was approximately 40-45 cm in height; the head was a combination of dark-brown ear coverts, with a dark brown eyestripe, a lighter-brown crown and forehead, the throat and nape being of a cream colour. The breast and leggings of the hawk were of a cream colour with 2-5 cm long dark-brown vertical stripes with a cream barring of the tips. The tail and rump feathers were identical to those of the wings. The bill was dark brown, approximately 4 cm long and only hooked in the last centimetre.



The bird was very hardy and withstood all the weather that was experienced, including temperatures ranging from 28 to 21 °C, force 6 winds and considerable amounts of driving rain.

Considerable numbers of smaller birds were noticed round the vessel, of varying sizes and species. During the daylight hours the hawk averaged about six kills a day. On one particular day six were taken in the morning between 0600 and noon. Some of the smaller birds proved absolutely no match for the speed and manoeuvrability of the hawk, but it failed once after 5 minutes of trying to kill a pigeon. It would range as far afield as the $\frac{1}{2}$ n. mile once observed off the port quarter, but always returned.

Its method of catching was one of repeated swooping from about 12 metres above the water on to the prey, which would be gliding just above the waves. Sometimes it took the prey in mid-air and at other times it picked it out of the water. The hawk disappeared or was noted as missing on the morning of the 12th, some 30 hours before the vessel was due off the Azores, but also with it went the profusion of smaller creatures that had kept appearing around the vessel for some seven days' steaming across the Atlantic.

Position of ship at 1200 GMT on 5 October: 24° 18'N, 80° 36'W.

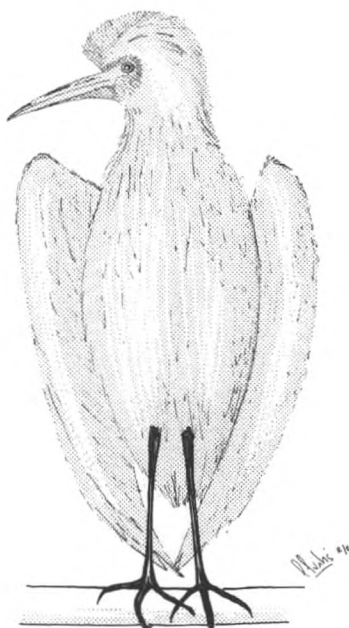
Note. Captain G. S. Tuck, Vice-President of the Royal Naval Birdwatching Society, comments:

'Consider Peregrine Falcon (*Falco peregrinus*) in immature plumage.'

North Pacific Ocean

m.v. *Pacific Swan*. Captain J. Cairns. Tokai (Japan) to Balboa. Observers, Mr P. A. Booker, 2nd Officer, Mr K. M. MacDonald, 3rd Officer and Mr C. Curtis, Radio Officer.

18 October 1981. At about 0400 GMT when the vessel was 220 n. mile off the west coast of Costa Rica, two birds were seen circling the ship. It was immediately apparent that these were not the usual large gliding birds commonly seen in these waters because of the continuous flapping of their wings during flight.



Observation through binoculars revealed them to be waders, as evinced by their long legs and beaks. After having circled the ship several times they provided the ship's company with plenty of amusement as they attempted to alight on the main aerial. The aerial was swinging wildly and no sooner had they settled on it than it tipped them off again. Eventually they gave up and settled for an easier perch on the top of the gantry crane, where they remained until about 0520 GMT, when they took off and flew back out to sea again.

Observation revealed the following details: the feathers were all pure white, the legs black, and the beaks yellow with an orange tint. The tips of the beaks were dark and almost black in colour. The necks, legs and beaks were all long while the wings and tails were fairly short.

At about 0700 GMT a flock of nine birds of the same species appeared over the ship and remained for about half an hour until eight of the birds flew off. The ninth settled on the rail of the bridge-wing and remained there for nearly three hours until a little before 1030 GMT when it too took to the air and flew off in a southerly direction. While it was on the bridge-wing it was possible to make some accurate sketches of the bird. No-one on board could positively identify it but it was thought that it could have been an egret. The height of the bird was about 38 cm.

Position of ship at 1200 GMT: $9^{\circ} 12' N$, $90^{\circ} 00' W$.

Note. Captain Tuck comments:

'A very good identification of all important parts of plumage confirmed identity in the sketches. The birds were Snowy Egrets (*Egretta thula*).'

m.v. *Magdalena*. Captain B. Hodges. Los Angeles to Golfito. Observers, the Master, Mr C. Trinnick, Chief Officer, Mr A. D. Wells, 3rd Officer and other members of the ship's company.

19 October 1981. At daybreak local time (1200 GMT) a large bird was observed, perched on top of the starboard derrick at No. 3 Hatch. After a while the bird moved its perch from the derrick to a yard protruding from the radar mast and was still there at the end of the watch, two hours later.



The bird, thought to be similar to a 'fish eagle' or 'osprey' was about 60 cm in length from the tip of its curved yellow beak to the tip of its tail. Its breast and front side from cheeks down to the legs were white, the breast being speckled with grey hackles, the tips of which extended to the tip of the tail. In an attempt to photograph the bird one of the observers succeeded in approaching it to within 2 metres by climbing the radar mast. It had its eye on him all the time and uttered a chirp similar to that of a kestrel, as if to say 'Don't come any closer'. At no time, however, did the bird seem to be unduly alarmed. It made no attempt to eat a large fat herring placed on the deck, and shortly before midday it flew off in a northerly direction towards the Mexican coast.

Position of ship: 15° 20' N, 98° 05' W.

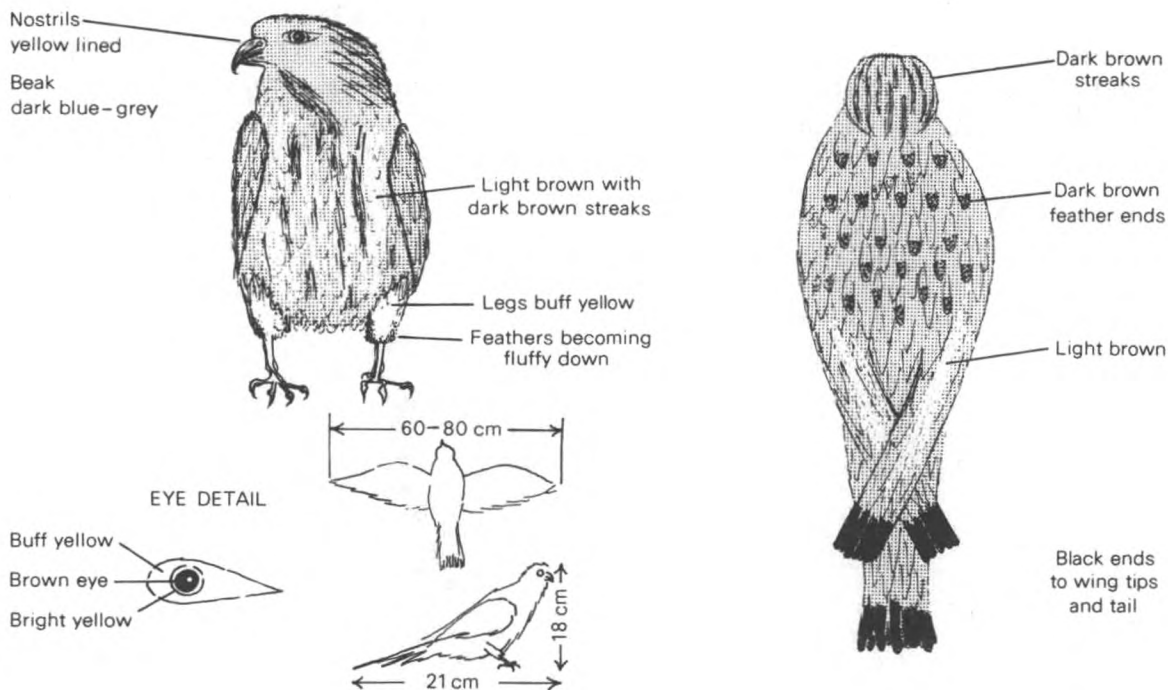
Note. Captain Tuck comments:

'From the excellent all-over description and sketch the bird has been identified as an Osprey (*Pandion haliaetus*).'

Arabian Sea

m.v. *Kinpurnie Universal*. Captain C. Gowans. Muscat to Cape Town. Observers, the Master and ship's company.

22 October 1981, 0700 GMT. The hawk was first sighted at around 0330 GMT when it was found on the starboard bridge-wing by the Master and Chief Officer. At around 0530 it made its presence known again by flying into the bridge windows with a loud 'clunk' and flew off apparently unharmed. At 0700 it flew into the bridge, strategically perching itself at the entrance to the Chart Room. This caused some concern to the 3rd Officer when he had need to enter or leave the Chart Room.



Few people showed any interest in inspecting the beast, least of all the 2nd Officer, who came up for his watch via the bridge-wing:

The bird was later expelled by the Cadet, who donned visored helmet, gauntlets and one pair of parallel rules for protection. The bird flew off happily to the after deck and disappeared later in the afternoon.

Position of ship: 21° 36' N, 59° 36' E.

Note. Captain Tuck comments:

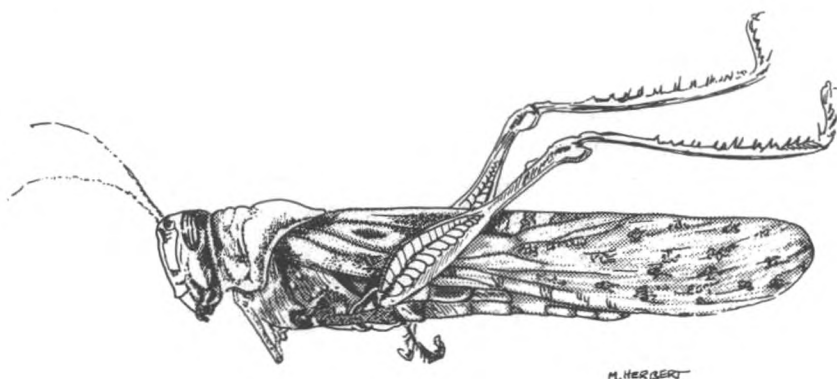
'The species is quoted as a hawk and the accompanying sketches show this to be so. Clearly a lot of trouble has been taken with the points in its plumage; however, definite identification has not been possible. It appears to have been most probably a Kestrel.'

INSECTS

Eastern North Atlantic

R.R.S. *Bransfield*. Captain M. J. Cole. Southampton to Rio de Janeiro. Observers, Mr R. C. Plumley, 2nd Officer, Mr H. M. O'Gorman, Radio Officer, and ship's company.

3 November 1981. On passage about 105 n. mile ssw of Madeira a live locust was found on deck near the wheel-house. The wind had been E'ly, 5-10 knots for the previous 12 hours with the air becoming sandy during the early morning.



A locust report was sent to 'Foodagri, Rome'. The locust was anaesthetized by the ship's dentist using Halothane and preserved by freezing.

Position of ship: 30° 42' N, 18° 18' W.

Note. The preserved locust was forwarded by the Port Meteorological Officer, South-west England to the Centre for Overseas Pest Research, London. Dr L. D. C. Fishpool, of the Desert Locust Information Service of the Centre, comments:

'Thank you very much for forwarding the locust specimen; it was a female Desert locust, *Schistocerca gregaria*. Its colour and shape indicated that it was a solitary individual (i.e. had not come from a swarm): however, it is not without interest since towards the end of 1981 large populations were known from Mauritania and an invasion of Morocco seemed likely. This did not take place and this specimen suggests that a possible explanation for this was that at least part of the population were blown out to sea. Solitary specimens are night flying so this insect probably landed on the ship the night before its capture, possibly attracted by the ship's lights.'

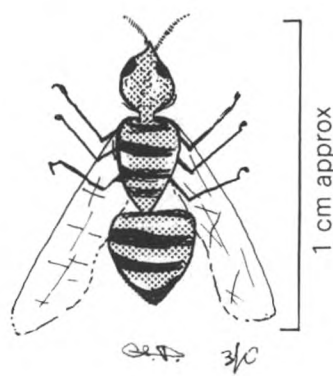
'Thank you for the trouble taken; I hope this is of some interest.'

Liberian Coastal Waters

m.v. *King Richard*. Captain T. Young. At Buchanan (Liberia) Anchorage. Observer, Mr A. Dawson, 3rd Officer.

10-12 November 1981. During the evening of the 10th the ship was besieged by a swarm of flying insects (see sketch), presumably attracted by the ship's lights. On the following morning a great number of the insects were found to have remained on the ship's bridge-wings and outer accommodation, splitting

up into very close-knit groups of around 10–20 insects. Closer inspection of the insects during the evening of the 11th revealed that they were shedding their wings, while still remaining in their tightly packed groups.



On the morning of the 12th, with the help of a magnifying glass, a cluster of white eggs was observed in the centre of each group. Unfortunately that evening the ship berthed alongside and no further observations were possible before the ship sailed two days later by which time the insects had dispersed, leaving the eggs unattended. The eggs and any remaining insects were soon killed off by the colder weather encountered in the next few days.

Weather conditions on 10 November: dry bulb 27.5 °C, wet bulb 25.2, barometric pressure 1011.3 mb, wind s'ly, force 1–2.

Position of ship: 5° 54' N, 10° 04' W.

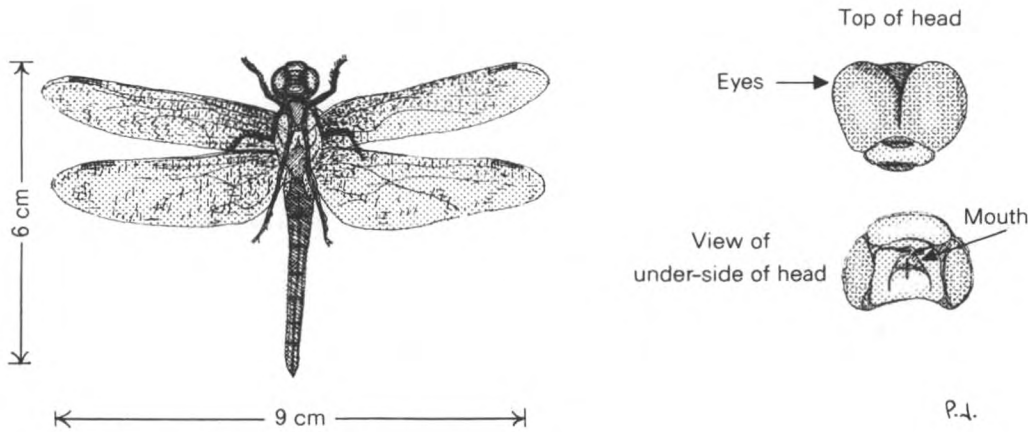
Note. Mr M. C. Day, of the Department of Entomology, British Museum (Natural History) comments:

'The notes and sketch permit positive identification. The ants were queens of *Oecophylla longinoda* Latreille. The aggregating behaviour of the recently fertilized queens is unique to this group. The wings are shed prior to commencing the work of seeking a site for a new nest and raising a new brood of workers.'

Arabian Sea

m.v. *Mairangi Bay*. Captain J. Cosker. Suez to Melbourne. Observers, Mr N. A. Escott, 3rd Officer and Mr. P. Johnson.

22 October 1981. At 0400 GMT, whilst the vessel was two days out from the Gulf of Aden, three of the 'dragonfly' type of insect shown in the sketch were



found in the corner of the bridge-wing. They were 6 cm long from head to tail and had a wingspan of 9 cm. The abdomen was of a light green colour with black markings. The underside was of a creamy white colour with similar black markings. The thorax was dark green, with black markings where the head joined. The head was an iridescent green with relatively large dark green eyes and a brown mouth area.

Position of ship: $5^{\circ} 08' \text{N}$, $61^{\circ} 00' \text{E}$.

Note. Mr Stephen Brooks, of the British Museum (Natural History) comments as follows:

'Thank you for your enquiry regarding the dragonfly caught on board m.v. *Mairangi Bay* off the gulf of Aden. This specimen is *Hemianax ephippiger* (Burm.) and is commonly found in the Mediterranean region and Arabia and will often migrate over large distances.

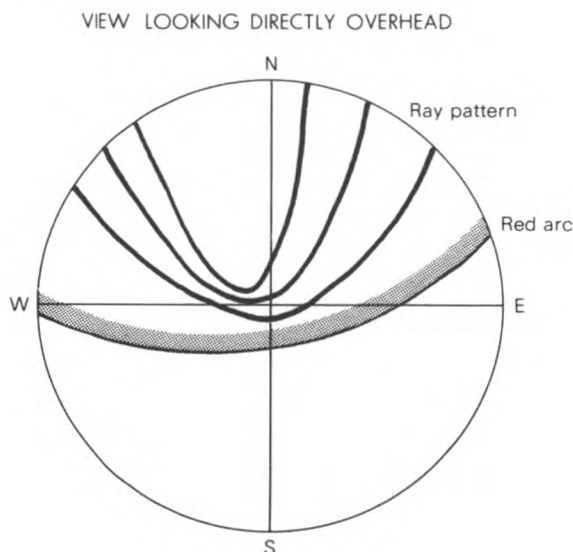
'When I received this specimen it was preserved in formalin and placed in a metal tobacco tin. On opening this tin much of the formalin splashed out—some of it on to me. Also the tin had become highly corroded and if left for much longer might have begun to leak. I would ask you, therefore, if you would refrain from sending specimens packed in this manner. If they are preserved in fluids they should be contained in well-sealed glass tubes or jars.'

AURORA BOREALIS

North Atlantic Ocean

m.v. *Manchester Challenge*. Captain J. McKay. Le Havre to Montreal. Observers, Mr P. Springett, 2nd Officer and Mr J. Hollamby, 3rd Officer.

14 October 1981. At approximately 0140 GMT a deep red patch was observed glowing in the sky, bearing due west and centred on the star Altair, which was about 15° above the horizon. This glowing patch faded after 10 minutes. Shortly afterwards a deep bright-red arc appeared, running from the horizon in the west to the horizon bearing ENE and passing directly over the ship. After two or three minutes the portion directly overhead intensified in brightness while retaining its bright-red colour. At its maximum intensity the portion of the arc directly overhead outshone anything in the sky. At the time there was $3/8$ cumuliform cloud cover with a full moon. After five minutes the intensity decreased and rays began to form from the arc down to the horizon. As the intensity of the arc decreased the rays became more pronounced, forming a distinct pattern centred directly overhead. The pattern resembled a series of hyperbolic arcs with the



focus directly overhead. This pattern persisted at moderate brightness for about 10 minutes, and for about two hours after that at weak brightness. Twenty minutes after the original red arc had faded, small red patches reappeared along the line of the arc which faded and reappeared at about 20-minute intervals. Throughout the display the only colours present were red, in the main arc, and white in the rays.

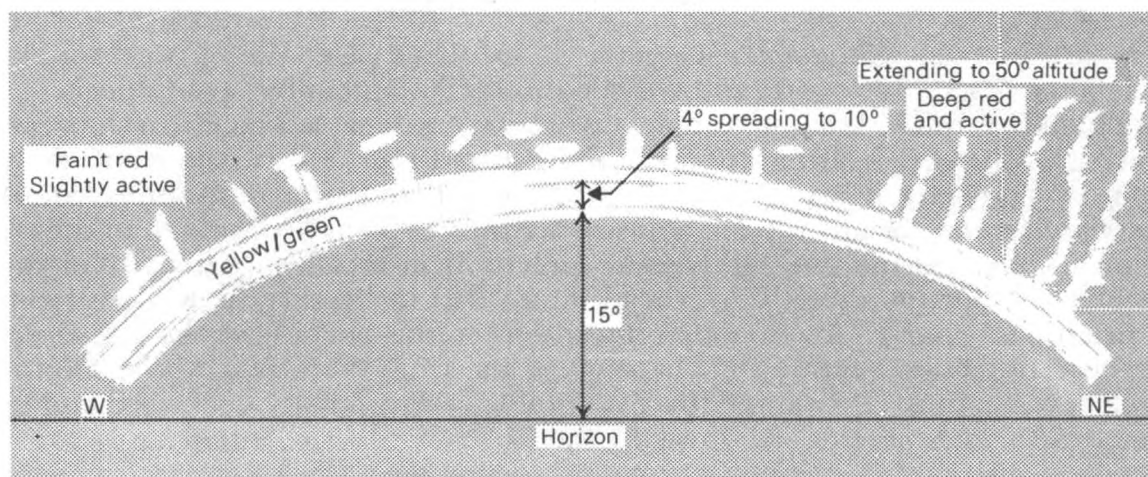
Approximate time-scale: 0140 GMT, red glow noticed in the west; 0200, brilliant red arc appeared; 0215, arc fading and raying starts; 0230, hyperbolic pattern at maximum; 0235, red patches along arc fade; 0255, red patches at maximum.

The Radio Officer experienced no adverse effect on communications on the 14th or during the next three days.

Position of ship: $53^{\circ} 33' \text{N}$, $33^{\circ} 32' \text{W}$.

m.v. *Appleby*. Port Cartier to Port Talbot. Captain M. B. Bradley. Observers, the Master and Mr W. K. Mutch, 3rd Officer.

14 October 1981, 0200–0300 GMT. On passage through the Grand Banks of Newfoundland at around 2330 local time an unusual display of aurora was observed. It started in the NE and eventually spread through to the west. It



started off as deep red rays to the NE spreading into a yellow-green arc with red rays at either end. This lasted for around 30 minutes during which the aurora was active. In the later 30 minutes about one-quarter of the sky was covered with an active green/yellow patch which was later obscured by developing cloud.

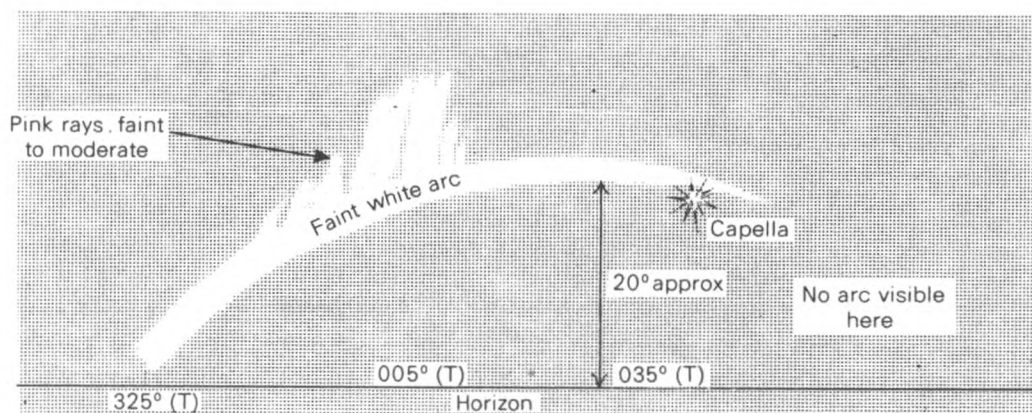
Position of ship: $46^{\circ} 34' \text{N}$, $52^{\circ} 12' \text{W}$.

North Pacific Ocean

m.v. *Southland Star*. Oakland to Vancouver. Captain J. G. Reeve. Observers, Mr R. Paterson, 3rd Officer, Mr L. Petts and other members of the ship's company.

14 October 1981. This display was observed on a very clear evening. The horizon was sharp, and the sky had a mere trace of cloud at very low altitude. The display would probably have been more intense but for the presence of a full moon in the east at an altitude of about 25° .

The display was visible for a total of 70 minutes from 0255 to 0405 GMT and was an active rayed arc, with a period of roughly $2\frac{1}{2}$ minutes. The maximum altitude was approximately 20° , bearing $035^\circ(\text{T})$. The arc itself was of a pale blue, but the rays were shaded a salmon pink. Brightness was moderate alternating with very faint. The sketch represents conditions at 0335 GMT. At 0338 the whole display faded to very faint. At 0341 there was a faint arc with moderate pink rays bearing $320^\circ(\text{T})$ at the altitude of the Plough. At 0353 a prominent single ray, light pink, bore $355^\circ(\text{T})$ and this was the last notable feature before the display finally disappeared at 0405 GMT.



Weather conditions: dry bulb 12.9°C , wet bulb 10.3 , wind N'yly, force 2.
Position of ship: $46^\circ 12' \text{N}$, $125^\circ 00' \text{W}$.

METEORS

North Atlantic Ocean

m.v. *Stonepool*. Captain J. E. Jennings. Quebec to London. Observers, Mr S. Bleasby, 3rd Officer and Mr D. Horkan, Radio Officer.

13 December 1981. At 2336 GMT a bright light illuminated the ship's deck and surrounding area. A meteor was seen to pass over the vessel, which was on a course of $094^\circ(\text{T})$, from starboard to port; it had a magnitude of approximately -5.0 . The meteor was clearly distinct from the trail which was composed of smaller meteors which could be seen to be burning up. The colour of the meteor and trail changed from brilliant white to a reddish glow shortly before it completely broke up and disappeared. The whole display lasted no more than 2–3 seconds in which time the phenomenon traversed an arc of approximately 50° . The altitude was about 40° although this is only an estimation and it could have been more or less, so short was the time of appearance. The trail and the meteor disappeared simultaneously, leaving no afterglow or vapour trail. Shortly afterwards two smaller meteors were seen to be travelling in approximately the same direction; they had magnitude of about 2.0 and showed no signs of trails or changes of colour from white. They were visible for about one second. Although the sky was watched with interest for the next 30 or 40 minutes no more meteors were seen.

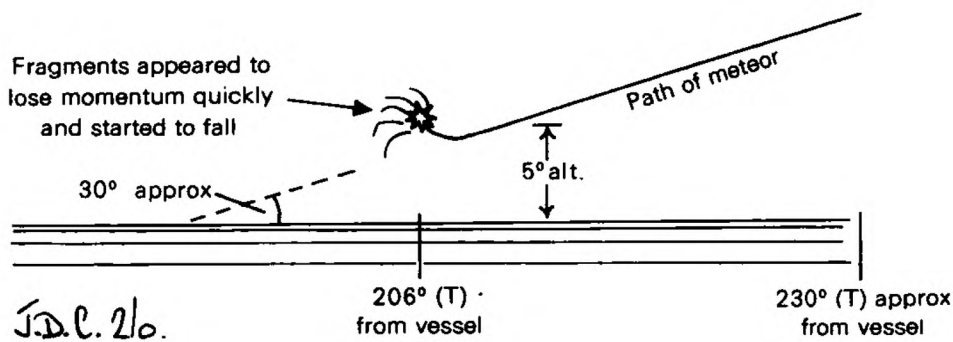
Weather conditions: cloudy, fine with good visibility.

Position of ship: $51^\circ 03' \text{N}$, $33^\circ 15' \text{W}$.

Indian Ocean

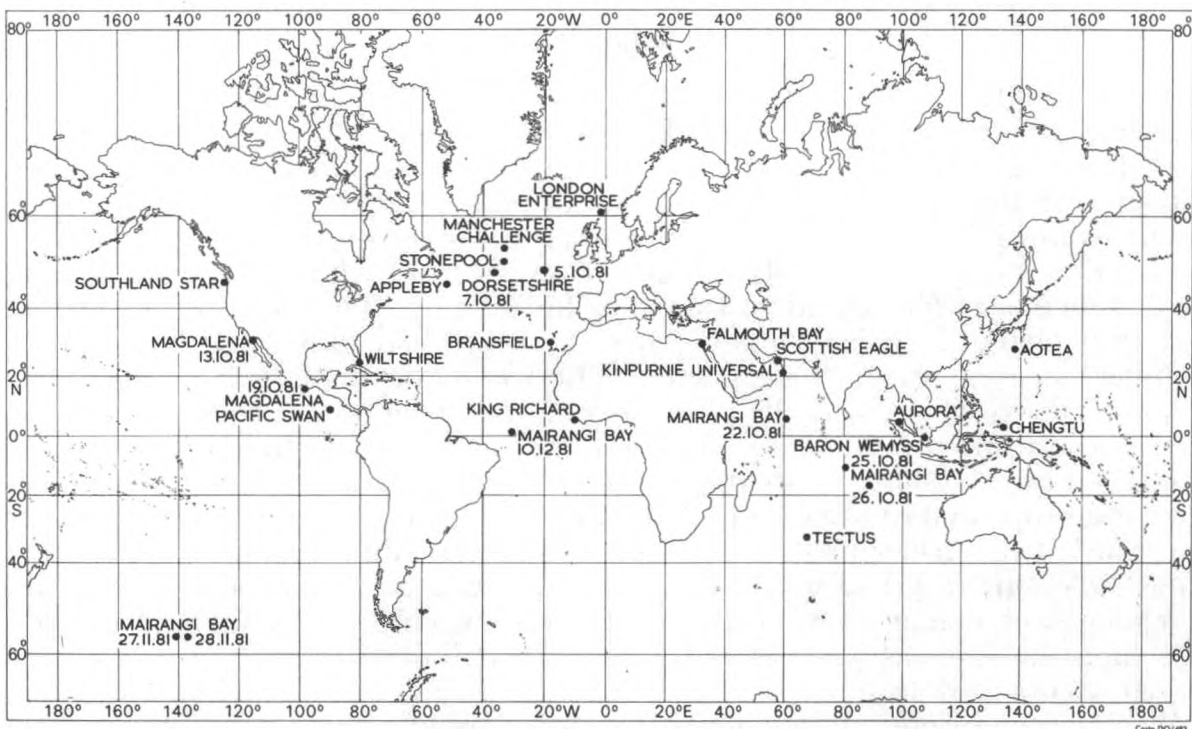
m.v. *Tectus*. Captain J. Booth. Saldanha Bay to Kashima (Japan). Observer, Mr J. D. Cranston, 2nd Officer.

1/2 November 1981. During the night numerous meteors were observed. They did not emanate from the same point in space but appeared at random. One meteor which was observed at 21.42.40 GMT on a bearing of 206° (T) and at an altitude of approximately 5° was seen to change its path abruptly from one of approximately 30° to the horizon to an upward path. Moments later it appeared to explode (no sound heard at the vessel) into several fragments with an intense green flash. The fragments had the same green colour but only



remained for $\frac{1}{4}$ to $\frac{1}{2}$ second before disappearing. The trail of the original meteor remained faintly green for perhaps 2 seconds. The sky was completely cloudless and the visibility excellent.

Position of ship: $32^{\circ} 34' \text{S}$, $67^{\circ} 36' \text{E}$.



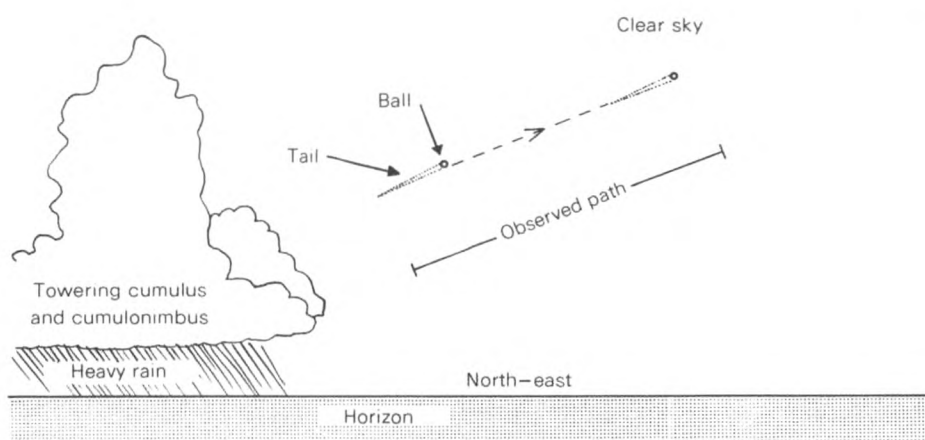
Position of ships whose reports appear in 'The Marine Observers' Log'

UNIDENTIFIED FLYING OBJECT

North Pacific Ocean

m.v. *Chengtū*. Captain B. Keeble. Hong Kong to Wewak (Papua New Guinea).
Observers, Mr S. E. Beechinor, 3rd Officer and Mr F. Turiano, Quartermaster.

18 November 1981, 1330 GMT. A bright orange ball of about the same apparent size as Venus appeared on a bright, clear night. The 'ball' had a tail, also orange in colour, which subtended an angle of some 5° from end to end. The object



came into sight at an altitude of approximately $30-35^\circ$ and after a period of two to three seconds it disappeared at an altitude of approximately $40-45^\circ$. The object appeared to be quite close, that is to say within the earth's atmosphere.

Position of ship: $3^\circ 32'N$, $133^\circ 52'E$.

Note. The *Chengtū* is a Hong Kong Selected Ship.

Thirty years in weather ships

By COMMANDER C. E. N. FRANKCOM, O.B.E., R.D., R.N.R. (RETD)

(Formerly Marine Superintendent of the Meteorological Office)

Thirty years is quite a slice out of anybody's life, but any person who chooses to spend it serving aboard North Atlantic weather ships is surely a glutton for punishment or extremely dedicated to the sea. Nevertheless, at least 10 individuals (1 Master, 1 Chief Engineer, 4 Meteorologists and 4 Electronics/Communications Officers) have recently done just that and it will be noted that they are not all professional seamen. Some of these Meteorologists and Electronics/Communications Officers voluntarily transferred to the chartered trawler *Starella* when she took up duty on 6 February this year as the lone British weather ship in replacement of *Admiral FitzRoy* and *Admiral Beaufort*, the last of the Castle class frigates to perform this arduous task.

It was in July 1947 that o.w.s. *Weather Observer* (formerly H.M. Flower class corvette *Marguerite*—a class of ship immortalized in Monsarrat's 'Cruel Sea') took up station in the North Atlantic as the first British ocean weather ship. By February 1948 she had been joined by three sister ships *Weather Recorder*, *Weather Watcher*, and *Weather Explorer*, and the four ships between them kept up constant vigil at two ocean stations in the North Atlantic. Flower class corvettes, although exceptionally seaworthy, had a well-deserved reputation for violent motion in heavy weather and one wondered how the meteorologists and radar technicians (many of the latter ex-army men) would put up with these 'broncos', but, after some initial sickness, they took to it like ducks to water. Up to 1975 all the weather ships were operated under the auspices of the International Civil Aviation Organization (ICAO), which meant that they provided communications, electronic navigational aid and air/sea rescue facilities for transatlantic aircraft in addition to making their regular surface and upper-air meteorological observations and oceanographical observations. This meant that the crews of all the ships had to be expertly trained in these activities; in this context the keenest air/sea rescue boat's crew in one of the British ships consisted largely of meteorologists.

Construction of Flower class corvettes commenced in 1939. These ships suffered their most uncomfortable period during wartime when they carried crews of about 100 (mostly sleeping in hammocks), and they spent most of their time escorting merchant ship convoys across the North Atlantic or Arctic Ocean—often steaming at high speed. As weather ships their crews were reduced to only 54 (all civilians) and although most men slept two or three to a cabin, each had a bunk and living quarters generally were much improved. As the ships steamed at only 9 knots to and from station and spent most of their time on station 'lying stopped', the Master could nearly always place them in the most comfortable possible position relative to winds and sea.

The ship's boats, which had quick-hoisting winches for recovery, were exercised very frequently, sometimes in conjunction with RAF Coastal Command aircraft.

International meteorology dates back to 1829 when officers aboard the merchant ships of most of the then maritime nations started making meteorological observations in all oceans. The weather ship network sprang into life in 1948 because it was needed for the safety and economy of the enormous number of aircraft then flying across the Atlantic. Under a scheme planned by ICAO a network of 13 ocean weather stations was set up in the North Atlantic, operated and/or paid for jointly by all countries which flew civil aircraft over that ocean.

The map on this page (Figure 1) shows that eight of these stations were operated by the USA and the remaining five by European states. The European stations were so located that two ships sufficed to man each one continuously; the USA not only had three extra stations, but also needed more than an average of two ships per station because of the distance some of them were from port. This

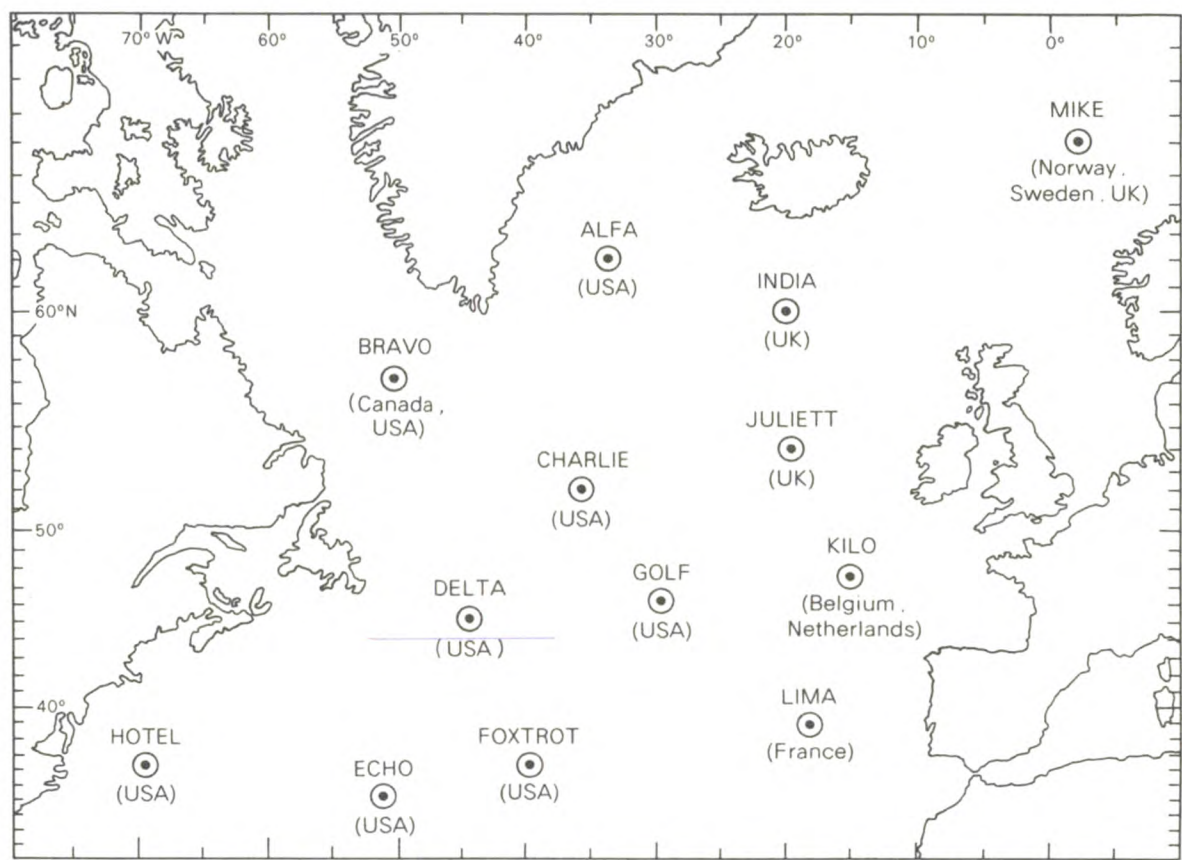


Figure 1. Positions of the ocean weather stations as agreed at the ICAO Conference, London 1946.

rough-and-ready division of the Atlantic was a shining example of international good will, and the even cruder division of the finances of the operation (which was, after all, a very expensive job) involved enormous good will and ‘horse-trading’. It proved almost impossible, for example, to evaluate the operating expenses of the USA ships, because they were semi-military Coast Guard cutters having various duties and necessarily large crews. However, the scheme worked admirably; the administration of the European ships was broadly co-ordinated by the ‘European Weather Ship Committee’ which met annually and produced a financial and operational report for discussion by all the contributing countries, somewhat akin to a company report for shareholders.

The map on page 210 (Figure 2) shows that it was not long before economy reared its head, and the number of stations was reduced to 10 in 1949 and to 9 in 1954, resulting in four U.S.A. stations (including the cold and inhospitable station ‘B’ and mid-ocean ‘C’) and five European ones. During the period 1958–61 the four British Flower class vessels, being over 20 years old and having completed over 10 strenuous years’ weather-ship duty, were withdrawn and replaced by four Castle class frigates. Built in 1944, with a length of 70 metres compared with the 60 metres of a Flower they had also been engaged in similar

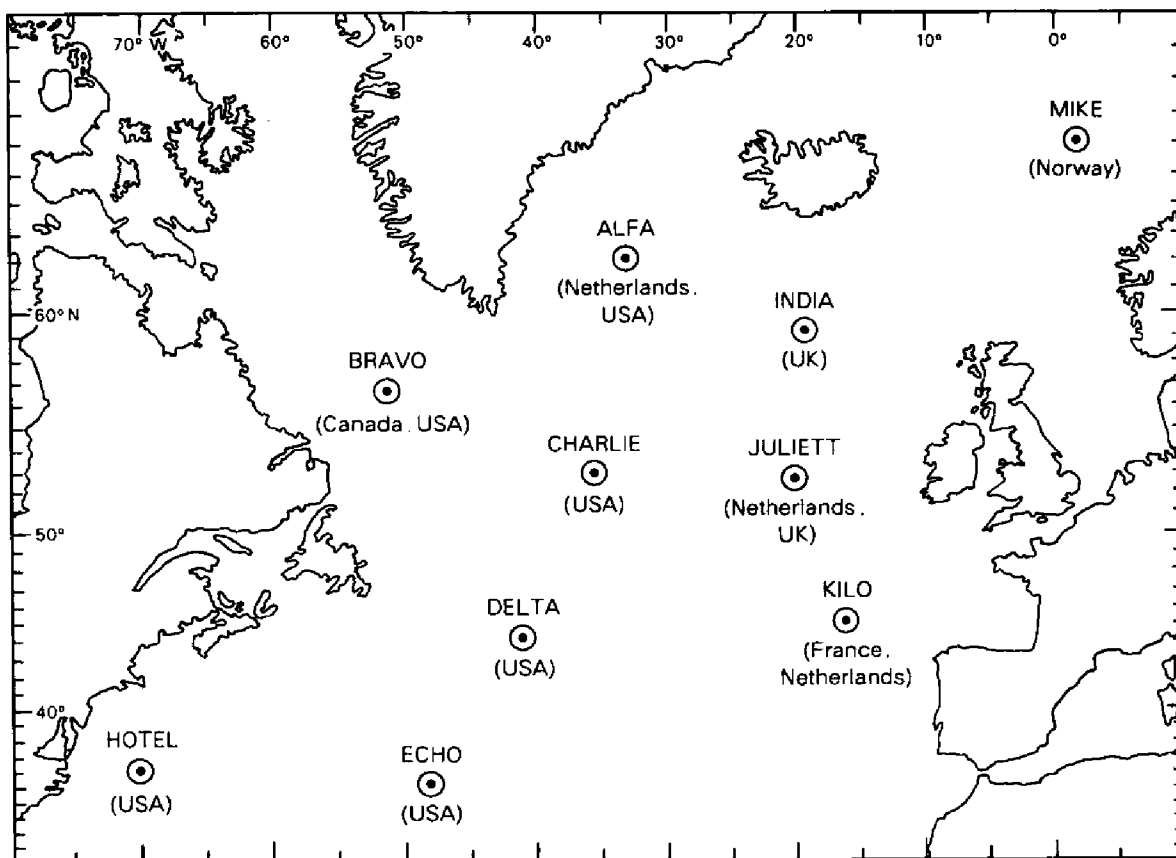


Figure 2. Positions of the ocean weather stations, 1949.

jobs in the war, and had subsequently been laid up in 'moth-balls' at either Falmouth or Plymouth; as a result their interiors were in magnificent condition, particularly their machinery. The author had the job of selecting all these ships for weather-ship conversion and of designing the new layout of their accommodation, work-spaces, etc. in consultation with the Navy Department and with the Air Ministry in respect of communications; all the preliminary general arrangement drawings were provided by Meteorological Office cartographers. The Castles were able to provide more spacious accommodation and work-spaces than the Flowers and were provided with an oceanographical winch and more efficient wind-finding radar; they had a similar reciprocating engine and single screw but two water-tube boilers in separate pressurized boiler rooms, which meant increasing the crew from 54 to 56. The ships were renamed *Weather Reporter*, *Weather Adviser*, *Weather Monitor* and *Weather Surveyor*.

During the years 1973 and 1974 the USA withdrew all their weather ships because they no longer felt justified in operating such expensive ships in the western part of an ocean in which the weather systems moved from their own coast in the west towards the east. However, during the 16 years that they had operated, their ships had provided an enormous amount of valuable data for the benefit of international meteorology. This left five stations to be manned by the Europeans.

In 1975 ICAO decided that for various practical reasons civil aircraft crossing the North Atlantic no longer needed navigational, communications or air/sea rescue aid from weather ships, so the co-ordination and joint financing of a modified weather ship scheme was taken over by the World Meteorological Organization (WMO). Despite the recent availability of information from satellites, meteorologists still had an urgent need of the regular surface and

upper-air data that these ships alone could supply for the safety and economic operation of aviation, shipping, and other 'weather-sensitive' activities. The map on this page (Figure 3) shows that under the WMO scheme the Eastern Atlantic network was reduced to four stations; 'L' manned by the United Kingdom (two ships), 'M' by Norway, Sweden and The Netherlands (one Norwegian ship and one Netherlands ship), 'R' by France (two ships) and 'C' by a newcomer—the USSR (three ships). In 1977 the UK withdrew *Weather Reporter* and *Weather Surveyor* from service because of their age, and *Weather Adviser* and *Weather Monitor* were appreciably modified and modernized and renamed *Admiral FitzRoy* and *Admiral Beaufort* respectively. For the meteorologists one good result was the raising of the balloon shelter by one deck, which meant that when preparing the large upper-air balloons for ascent every six hours in rough weather they no longer had to wade thigh-deep in sea water.

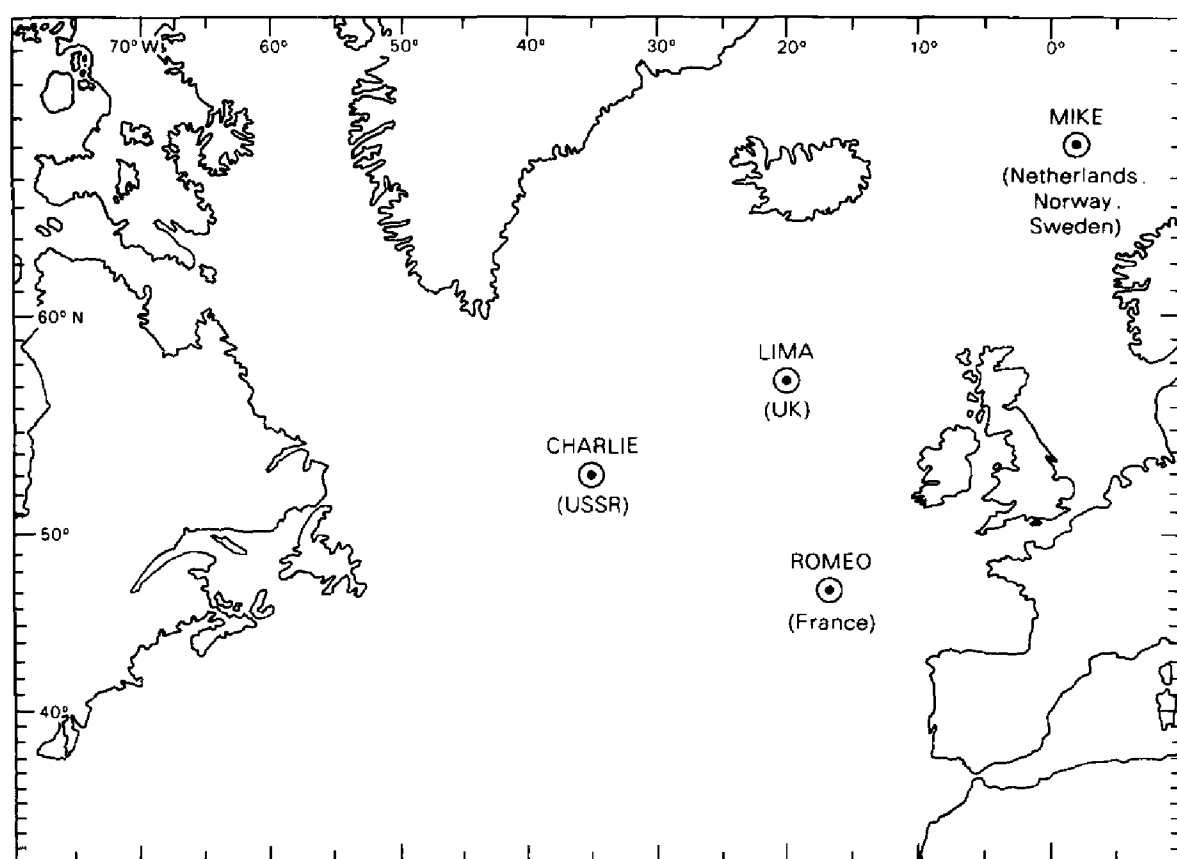


Figure 3. Positions of the ocean weather stations under the Joint Financing Agreement on North Atlantic Stations, 1975.

In January 1982 the scheme underwent a further change; the two British ships *Admiral FitzRoy* and *Admiral Beaufort* had to be withdrawn because of their age and their strenuous life and in February these two ships were replaced by a single large trawler, the *Starella*, a diesel-electric vessel 70 metres in length, built in 1965, which has been chartered until at least the end of 1985. She has now been fitted with sophisticated equipment for making regular meteorological observations at the surface and in the upper air and for their automatic transmission by radio. She has a crew of 20, including 7 Meteorological Office staff. She has Loran C to assist in maintaining position and will stay 30 days on station.

In addition to the hourly surface reports from the weather ships, about 900 reports come daily from voluntary observing merchant ships in the North Atlantic. The accumulation of data since the weather ships started has provided a unique picture of the climatology of the North Atlantic. In this computer age the analysis of such data is relatively simple and it can be valuable for various practical purposes. The following statistics from stations Juliett and Lima may prove interesting.

	Station Juliett	Station Lima
Max. air temp.	20.5 °C (24.8.55)	15.7 °C (26.8.76)
Min. air temp.	0.5 °C (3.3.72)	-0.2 °C (11.1.77)
Max. sea temp.	19.0 °C (1.8.55)	15.3 °C (22.8.77)
Min. sea temp.	7.8 °C (19.4.51)	8.4 °C (13.3.76)
Max. wave height (resultant of sea and swell waves)	19.5 m (9.12.61)	18.3 m (17.11.79)

INDIAN EXCELLENT AWARDS

(From the Deputy Director-General of Meteorology (Weather Forecasting), India)

During the year 1980-81 there has been active and continued co-operation between the India Meteorological Department and the ships of the Voluntary Observing Fleet in the collection of meteorological information from the high seas and this is very much appreciated. We look forward to more and more co-operation in future. It is increasingly being realized that the ocean and atmosphere should be observed and studied together because they affect each other in a number of ways.

During the year ending 31 March 1981, 278 ships were on the strength of the Indian Voluntary Observing Fleet (IVOF) out of which 39 were Selected, 207 Supplementary, and 32 Auxiliary Ships. In all 1358 logbooks were received by this office.

It is imperative that the observations made by the ships should be transmitted as expeditiously as possible to the nearest coastal radio stations in order to facilitate their proper reception on a real-time basis at the forecasting offices. Special encouragement is given to the ships which sent crucial observations during abnormal weather. The *Vishva Tirth* of the Shipping Corporation of India, in particular, sent such observations from the field of a cyclonic storm in the Bay of Bengal on 16 December 1980. Due recognition has been given to this ship. Recognition is also given to the ships which do not belong to the IVOF but transmit such observations.

The meteorological work of the IVOF during the year 1980-81 has been assessed taking into account the quality and quantity of observations and also the percentage of recorded observations which have been transmitted to coastal radio stations. Allowance has also been given to individual ships for the actual number of days spent at sea. As usual, 15 ships have been selected to receive the Excellent Awards in the form of books and those for the award of Certificates of Merit are 10 in number. The Masters and other officers who were on board these ships for at least 6 months during the year have been awarded Books or Certificates.

The names of the ships which received Excellent Awards are as follows:

NAME OF SHIP	OWNER
<i>Nancowery</i>	Shipping Corporation of India
<i>Jalakanta</i>	Shipping Corporation of India
<i>Chennai Perumai</i>	South India Shipping Corporation
<i>Lok Palak</i>	Mogul Lines Ltd
<i>Andamans</i>	Shipping Corporation of India
<i>Lokmanya</i>	Mogul Lines Ltd
<i>Chennai Muyarachi</i>	South India Shipping Corporation
<i>Jal Godavari</i>	Scindia Steam Navigation Co. Ltd
<i>Samudragupta</i>	Shipping Corporation of India
<i>Jalamatsya</i>	Scindia Steam Navigation Co. Ltd
<i>State of Kerala</i>	Shipping Corporation of India
<i>Vishva Aditya</i>	Shipping Corporation of India
<i>Vishva Parijat</i>	Shipping Corporation of India
<i>State of Bihar</i>	Shipping Corporation of India
<i>Jalatapi</i>	Scindia Steam Navigation Co. Ltd

Certificates of Merit have been awarded to the following ships:

<i>Jalayamini</i>	<i>Vishva Apurva</i>
<i>State of Andhra Pradesh</i>	<i>Vishva Pankaja</i>
<i>Ratna Vandana</i>	<i>Vishva Yash</i>
<i>Chhatrapati Shivaji</i>	<i>Chennai Jayam</i>
<i>Vishva Tirth</i>	<i>Satyamurthy</i>

The Excellent Awards were distributed at the National Maritime Day function held on 5 April 1982 at Bombay. The Certificates of Merit were handed to the shipping companies concerned for onward transmission to the officers who qualified for them.

AURORA NOTES OCTOBER TO DECEMBER 1981

BY R. J. LIVESEY

(Director of the Aurora Section of the British Astronomical Association)

October was an eventful month which began quietly with an isolated observation in the auroral zone. On the 3rd there were reports of active rays at the magnetic latitude of Orkney. Banded activity noted by a weather ship on the 6th at station Lima heralded an active storm on the 7th seen northwards from central Scotland, which continued into the following night of the 8th at Stavanger in Norway. Further groups of reports kept track of auroral forms on the 8th, 10th, 11th, 13th and 14th with further isolated sightings on the 17th, 18th and 19th. Such activity helped to prepare observers to be alert and in readiness when an intense storm took place on the 20th, visible northwards from Hampshire throughout the United Kingdom with coronal structures from central Scotland to Stavanger. There were a few reports of activity on the 21st but on the 22nd there was a second massive storm supported by reports of the aurora from Western Australia. Further activity was noted on the 23rd, 30th and 31st. In October, radio aurorae were detected on the 7th, 10th, 11th, 16th, 20th, 22nd and 23rd. Intense magnetic disturbances were recorded on the 2nd, 3rd, 7th, 8th, 10th, 11th, 13th and 14th and then through to the 24th.

November, in contrast, was a quiet month with small groups of sightings on the 4th, 6th, 17th, 18th, 20th, 21st, 22nd, 23rd and 25th. That of the 18th was the most extensive. Radio aurorae were heard on the 11th, 14th, 17th, 18th, 23rd, 28th and 29th. Intense magnetic disturbances were recorded on the 8th, 11th, 12th, 14th, 17th and 25th.

December was extremely quiet. There were magnetic storms on the 29th and 30th together with radio auroral activity on the 30th and 31st. The only visual report to date has come from a weather ship at station Lima on the 27th with a description of active rays and bands.

In the accompanying table are listed the marine observations which contributed to the auroral record for this period. It is gratifying to note an increase in the number of reports which indicates the interest which the current auroral activity has generated.

Marine Aurora Observations October to December 1981

DATE 1981	SHIP	GEOGRAPHIC POSITION	TIME (GMT)	FORMS
1 Oct.	<i>Solentbrook</i>	71° 19' N 27° 30' E	1900-1915	N
3	<i>Solentbrook</i>	65° 22' N 39° 38' E	2040-2050	aMR, aRB
3	<i>Appleby</i>	59° 30' N 22° 50' W	2100	pRB
5/6	<i>Reynolds</i>	57° 55' N 18° 00' W	2100-0100	G
6/7	<i>Reynolds</i>	56° 20' N 28° 25' W	2130-0130	G, RA
7	<i>Admiral FitzRoy</i>	57° 27' N 19° 53' W	0200-0400	qhB
7/8	<i>Reynolds</i>	56° 40' N 38° 36' W	2200-0300	G, RA, RB
7/8	<i>Admiral FitzRoy</i>	57° 14' N 19° 55' W	2000-0445	qhB, qN
9	<i>Reynolds</i>	49° 54' N 64° 46' W	0200-0215	RA, RB
11	<i>Admiral FitzRoy</i>	56° 41' N 20° 04' W	0445-0545	qN
14	<i>London Baron</i>	53° 30' N 39° 35' W	0140-0355	pR, B, aR
14	<i>Appleby</i>	46° 34' N 52° 12' W	0200-0230	mR, hA
14	<i>Manchester Challenge</i>	53° 33' N 33° 32' W	0130-0330	phA, mR, CR, P
14	<i>Southland Star</i>	46° 12' N 125° 00' W	0300-0405	aRA, R ₃ , R
14	<i>Solentbrook</i>	08° 26' N 39° 14' E	2010-2020	aCmR
20	<i>Solentbrook</i>	62° 10' N 05° 25' E	2037-2235	aCmRR, CmR, mP, qmP
20	<i>King Charles</i>	54° 00' N 11° 45' W	2100-2140	S, mR, N
20	<i>Benjamin Bowring</i>	49° 36' N 05° 24' W	2115-2130	S, mR
20	<i>Atlantic Causeway</i>	45° 09' N 59° 52' W	2145-2345	m ₂ P, mR, RA, mR, RA
21	<i>Solentbrook</i>	69° 52' N 16° 46' E	2130-2145	pRA
22	<i>Solentbrook</i>	56° 50' N 05° 34' E	2025-2215	hA, mhA, RA, RS, pRS, P
22	<i>Act 3</i>	34° 26' S 171° 59' E	1240-1310	G, aR
22	<i>Lord Mount Stephen</i>	57° 27' N 01° 22' E	2050-2110	RA, RB
23	<i>Solentbrook</i>	63° 42' N 06° 23' E	2200	aR
23/24	<i>Baltic Eagle</i>	55° 15' N 00° 55' E	2330-0030	aRA
30	<i>Solentbrook</i>	60° 39' N 04° 16' E	2105	aR, N
4 Nov.	<i>Admiral Beaufort</i>	57° 03' N 20° 03' W	2240-2250	qhA
17	<i>Vitrea</i>	55° 59' N 19° 34' W	2230-2250	RA, RB, R
18	<i>British Dragon</i>	55° 33' N 00° 41' E	1925-2040	mRB, mRB
27 Dec.	<i>Admiral FitzRoy</i>	56° 59' N 20° 03' W	2250-2305	qhB, aRA

KEY: A=arc, a=active, B=band, C=corona, G=glow, h=homogeneous, m=multiple, P=patch, p=pulsating, q=quiet, R=ray, RA=rayed arc, RB=rayed band, S= surface, N=unspecified form.

We say goodbye to the weather ships *Admiral Beaufort* and *Admiral FitzRoy* whose officers have contributed regularly from station Lima to the auroral records. In turn we welcome the Dutch weather ship *Cumulus* and the British weather ship *Starella* which are now sharing station Lima and have begun to send in auroral observations. We are very glad to receive the weather ship contribution and thank the officers concerned for taking the time and trouble to log their auroral observations in addition to their other meteorological tasks.

With regard to the large auroral storms of 20 and 22 October, Figure 1 indicates the variations in the horizontal direction of the earth's magnetic field as measured by a simple bar magnetometer operated by Mr Karl Lewis in Cornwall, together with a note of locally visible auroral activity. Readers will note the times of activity reported by the various ships and how they relate to the magnetic record.

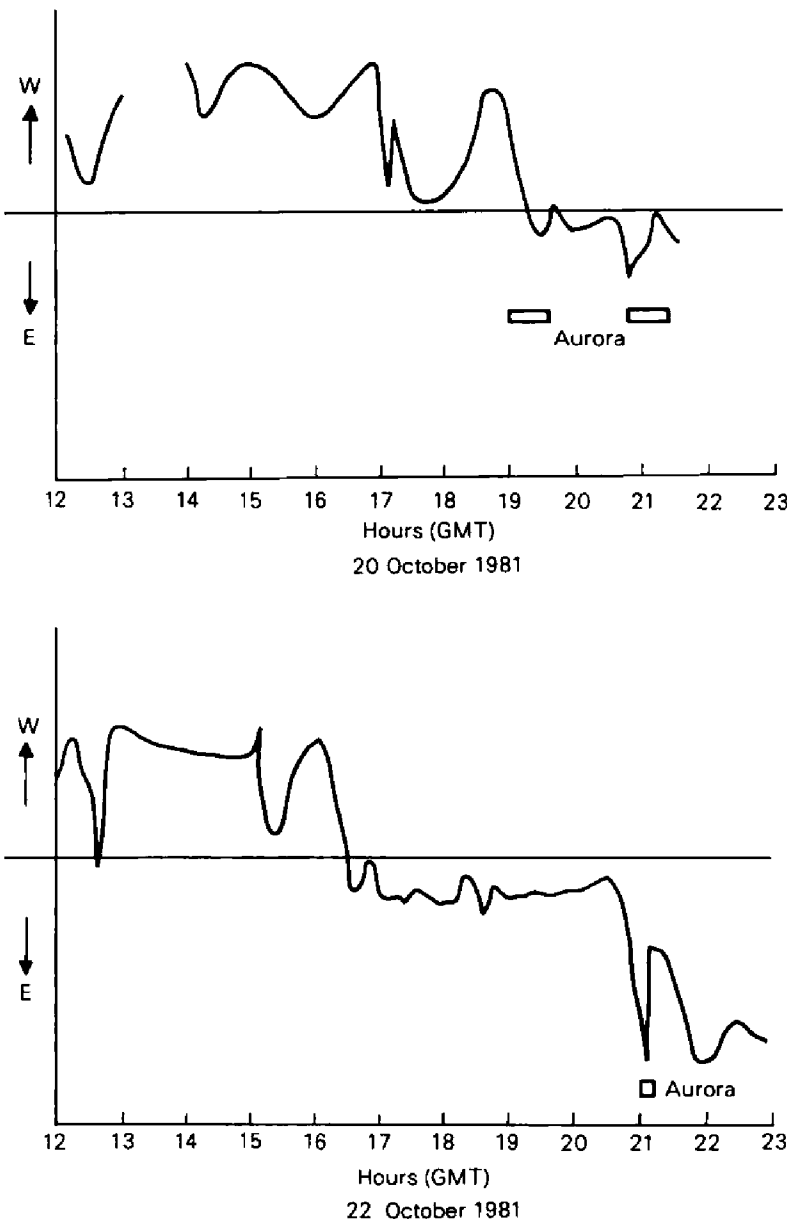


Figure 1. Variations in magnetic west declination measured by Mr Karl Lewis in Cornwall.

In Figure 2 is given an excerpt from the aurora-magnetic record. Each group of lines is 27 days long and represents the rotation of the sun. It will be noted how the big events of 20 and 22 October were not preceded by comparable events in September but some activity survived one rotation of the sun to provide storm activity by 18 November, but none in December. At the time of the aurorae the sun's face carried some complicated sunspots although the number of sunspots was higher at the end of September and November. These intense storms would appear to have been triggered by activity in the complex sunspots. In simplistic terms, magnetic energy has collapsed and been converted

into the velocity of atomic particles which have blasted out from the sun towards the earth to trigger off the electrical and magnetic effects that cause the aurora and the associated magnetic storms.

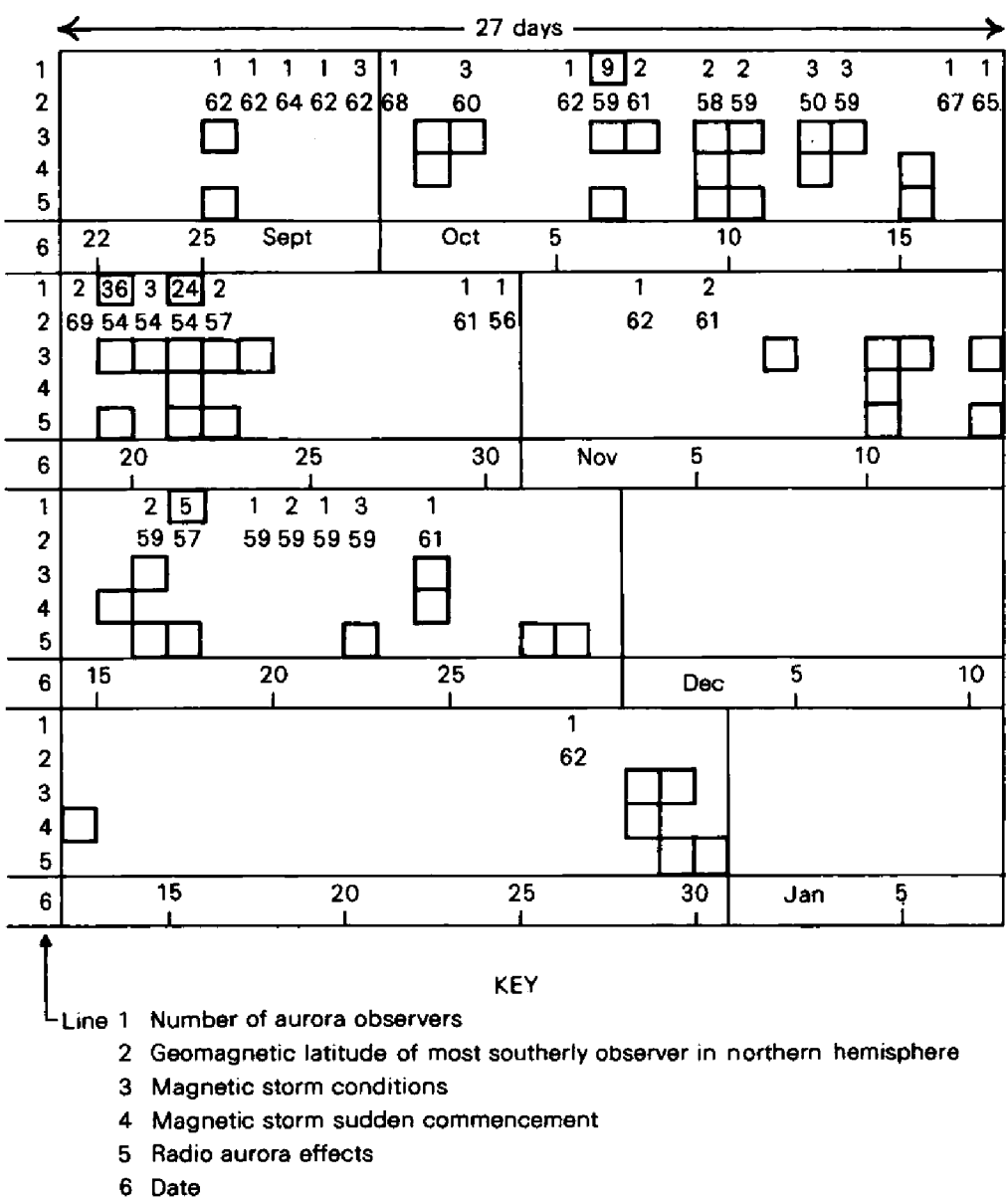


Figure 2. Excerpts from aurora-magnetic record.

It might be useful to comment that the auroral day begins at 1200 GMT in our records and normally we quote the date as 3/4 March indicating that the record extends over the evening of the 3rd and the morning of the 4th of March. In these quarterly reports it has been the custom to quote the evening date for reference. In the table, however, the marine observations are given for the calendar date of the time of the observation as for the entry in the ship's meteorological logbook, so that there is no confusion in transcription of the marine record. Ships' observations are thereafter converted into auroral code with the appropriate time and date for ease of data processing in our records.

At the time of writing preparations are being made for the Annual Exhibition Meeting of the British Astronomical Association. As usual we expect to display in the Aurora Section exhibit some of the marine observations that have been received. Your contributions are always welcome. We are always glad to see the

drawings for they convey much information that may not easily be written down, while the coding of the data at the end of the day takes away the artistry and the beauty that can be read into a sketch, from knowledge of the phenomenon.

Recently we received some lovely watercolours of the aurora which had been well preserved, made by Mr R. J. Reid from the ocean weather ship *Weather Watcher* in 1960. The aurora has been the subject for many artists throughout the centuries, firstly in mythological terms and latterly, especially in the days of polar exploration, for its artistic merit. The writer has never seen the subject in an art gallery and only in polar museums and preserved ships of exploration. This is a pity for as every observer who has seen a good auroral storm knows it is equally a subject for the artist's brush as a sunrise or sunset. Are any of you mariners amateur artists who would like to take up the challenge?

ICE CONDITIONS IN AREAS ADJACENT TO THE NORTH ATLANTIC OCEAN FROM MARCH TO MAY 1982

The charts on pages 220 to 222 display the actual normal ice edges (4/10 cover), sea-surface and air temperatures and surface-pressure anomalies (departures from the mean) so that the abnormality of any month may be readily observed. (The wind anomaly bears the same relationship to lines of equal pressure anomaly as wind does to isobars. Buys Ballot's law can therefore be applied to determine the direction of the wind anomaly.) Southern and eastern iceberg limits will be displayed during the iceberg season (roughly February to July). In any month when sightings have been abnormally frequent (or infrequent) this will be discussed briefly in the text.

The periods used for the normals are as follows. Ice: 1966-75 (Meteorological Office). Surface pressure: 1951-70 (Meteorological Office). Air temperature: 1951-60 (US Department of Commerce, 1965). Sea-surface temperature: area north of 68°N, 1854-1914 and 1920-50 (Meteorological Office, 1966), area south of 68°N, 1854-1958 (US Navy, 1967).

MARCH

There was little significant change in the pattern of pressure and temperature anomaly from that during February 1982. The excess of ice in the Davis Strait continued. In the Gulf of St Lawrence there was some anomaly for south-westerly winds resulting in unusual congestion of ice along the western coasts of Newfoundland. The anomaly for southerly winds off East Greenland and Svalbard persisted. The ice edge remained about 75 n. mile further north than usual in these areas and the previous excess of ice in the Barents Sea was reduced.

APRIL

Pressure was generally lower than usual. The anomaly for cold north-westerly winds over north-eastern Canada continued and there was again some excess of ice in the Davis Strait. The continuing anomaly for south-westerly winds extended ice further east than usual in the vicinity of Belle Isle Strait. However, north of Iceland the change to an anomaly for cold westerly winds (instead of southerly with some deficits of ice) resulted in ice reverting to near normal by the end of the month. In the East Greenland and Barents seas wind and temperature anomalies were small and the previous tendency for ice to remain north of its normal position continued.

MAY

The main feature was for slightly higher pressure than normal over north-eastern Canada but pressure anomalies were much smaller than in recent months. The overall tendency was for ice conditions to become near normal although there was still a marked deficit of ice in the Greenland Sea. Break-up was earlier than usual along coasts in the eastern Barents Sea.

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- | | | |
|--|------|---|
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Baltic Ice Summary: March–May 1982

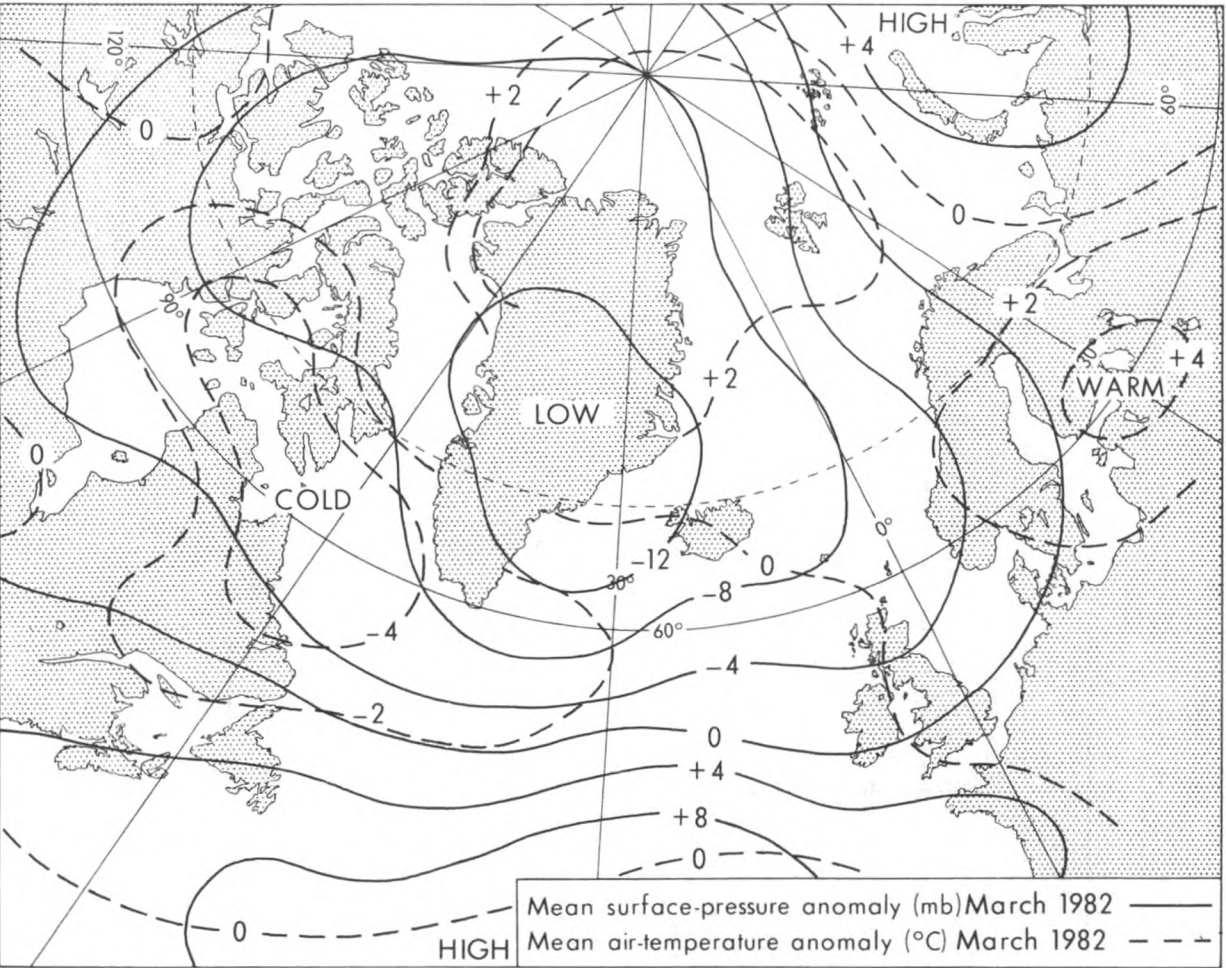
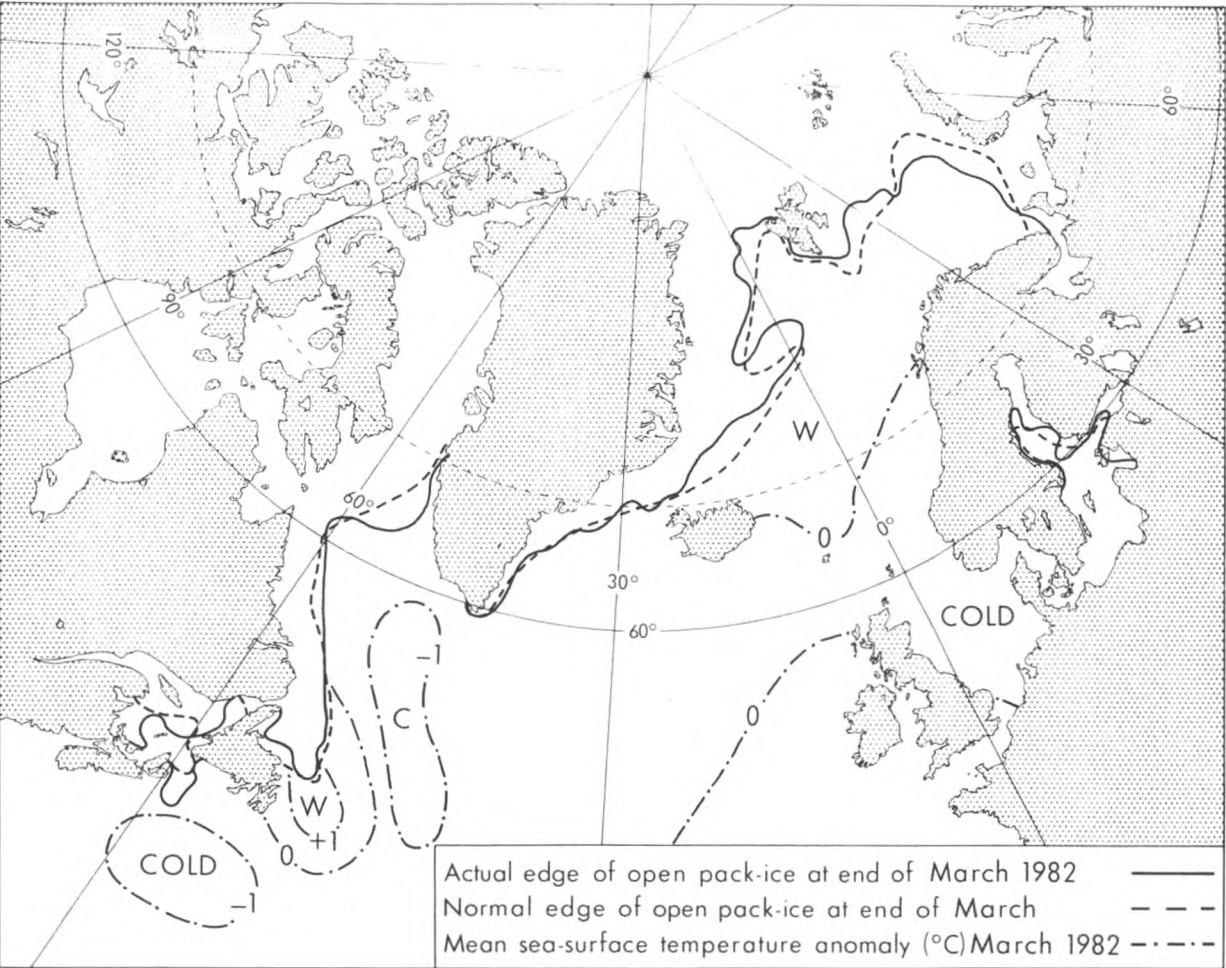
No ice was reported at the following stations during the period: Visby, Göteborg, Emden, Bremerhaven, Hamburg (Elbe), Flensburg, Kiel, Lübeck, Rostock, Stralsund, Stettin, Gdansk, Copenhagen, Aarhus, Oslo, Kristiansandsfjorden.

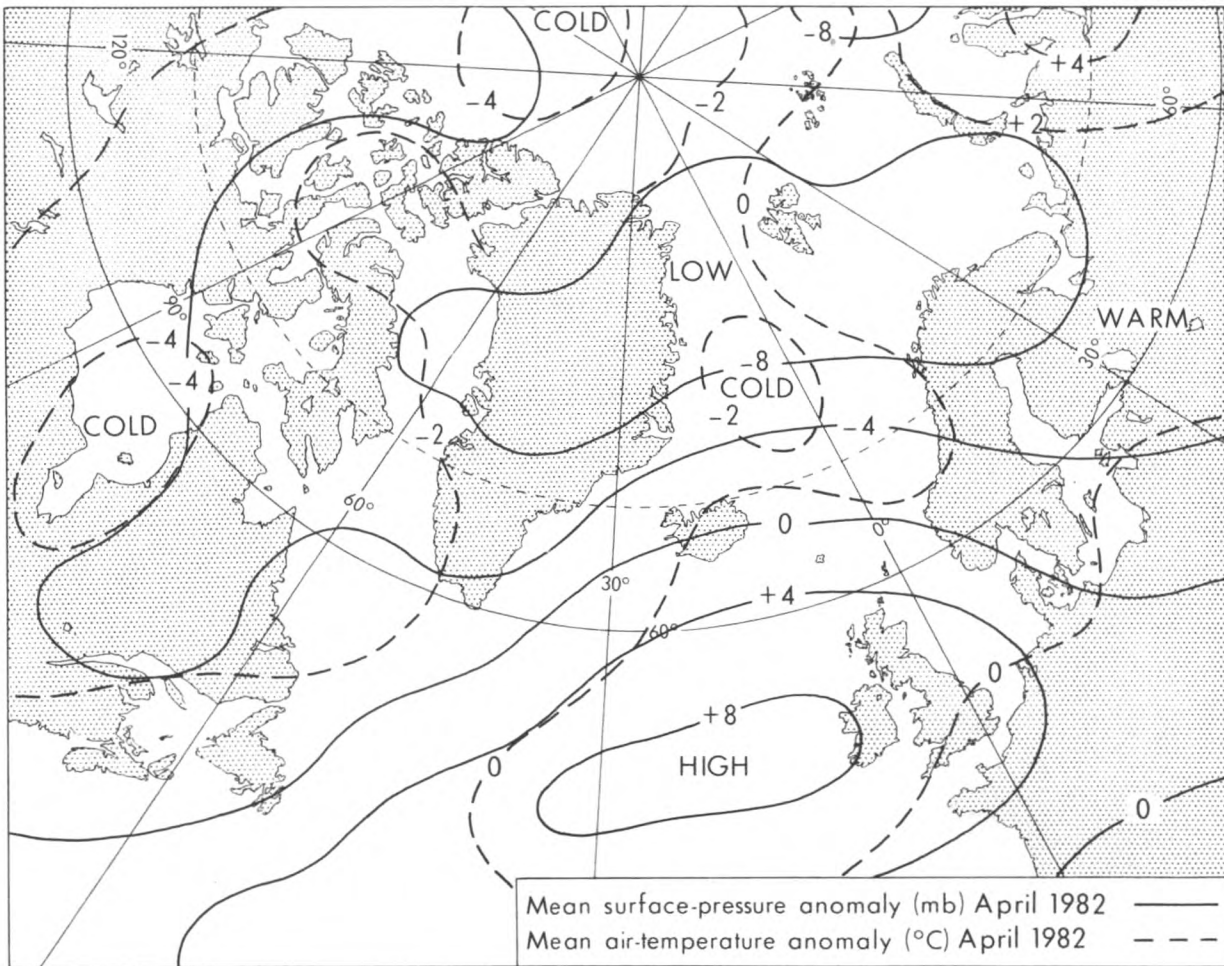
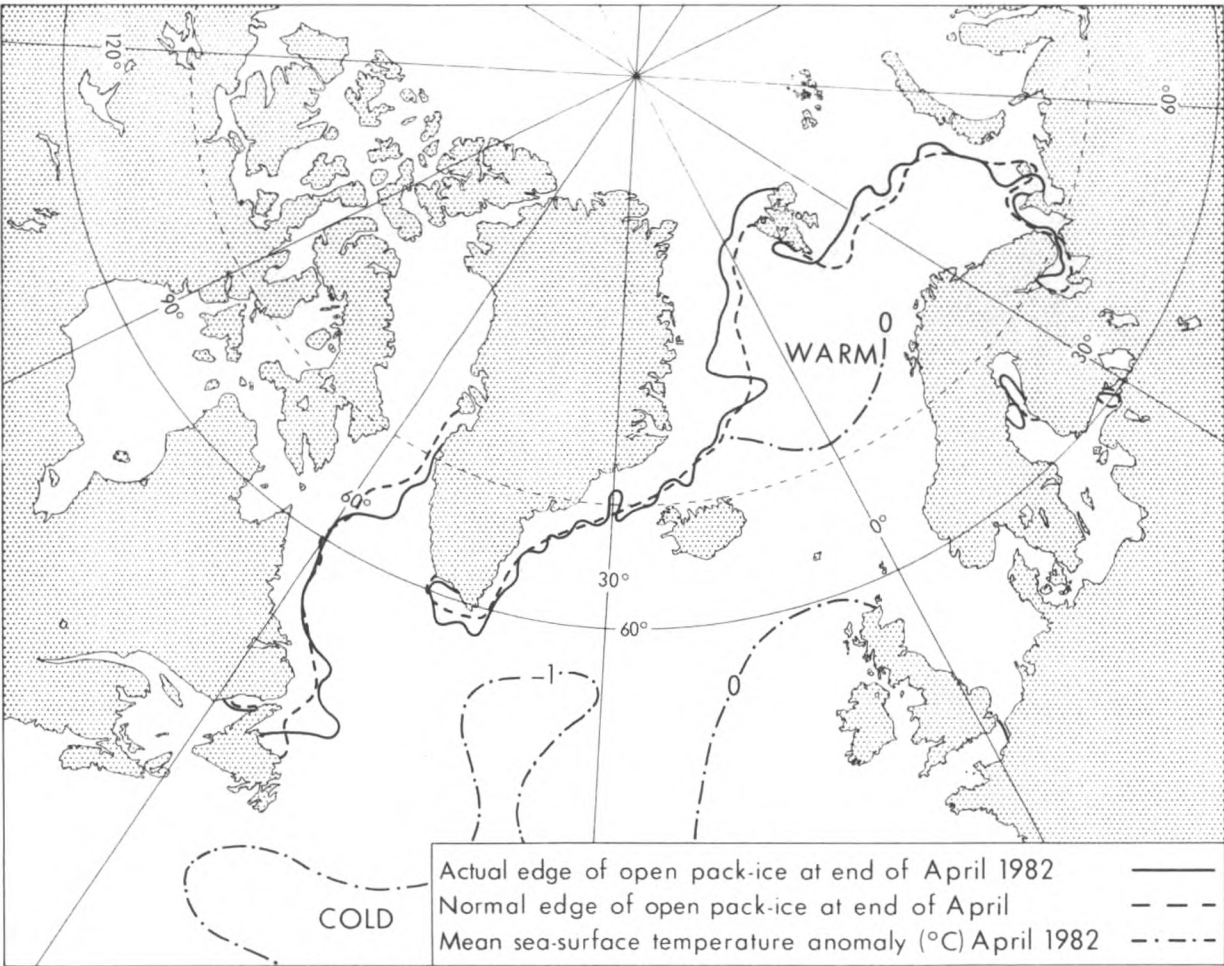
STATION	MARCH					APRIL					MAY							
	LENGTH OF SEASON		ICE DAYS		NAVIGATION CONDITIONS	ACCUMULATED DEGREE DAYS	LENGTH OF SEASON		ICE DAYS		NAVIGATION CONDITIONS	ACCUMULATED DEGREE DAYS	LENGTH OF SEASON		ICE DAYS		NAVIGATION CONDITIONS	ACCUMULATED DEGREE DAYS
	A	B	C	D	E	F	G	H	I	A	B	C	D	E	F	G	H	I
Luleå	1	31	31	31	0	0	31	0	—	1	22	22	16	6	5	10	1	—
Skellefteå	1	31	31	31	0	0	31	0	—	1	27	27	6	10	0	22	0	—
Bredskär																		
(Vaktaren)	1	31	31	14	17	24	7	0	—	1	27	27	0	9	8	0	0	—
Sundsvall	1	31	31	31	0	31	0	0	—	1	20	20	8	5	6	0	0	—
Sandarne	1	31	31	31	0	20	11	0	—	1	26	26	16	9	26	0	0	—
Oxelösund	1	26	23	1	22	20	0	0	—	0	0	0	0	0	0	0	0	—
Kalmar	1	27	27	20	7	27	0	0	—	0	0	0	0	0	0	0	0	—
Stockholm	1	31	31	14	0	31	31	0	—	1	19	19	0	15	15	0	0	—
Helsinki	1	31	31	0	30	0	31	0	—	1	5	5	0	0	0	4	0	—
Turku	1	31	31	31	0	0	31	0	—	1	6	6	1	5	0	6	0	—
Mariehamn	1	31	0	0	21	8	0	0	—	0	0	0	0	0	0	0	0	—
Mäntyluoto	1	31	15	11	4	0	15	0	—	1	21	17	0	17	0	17	0	—
Vaasa	1	31	31	31	0	0	31	0	—	1	29	29	29	0	0	29	0	—
Norrskär	1	31	31	31	0	0	31	0	—	1	29	29	17	12	0	29	0	—
Oulu	1	31	31	31	0	0	31	0	—	1	30	30	29	1	0	30	0	—
Roytta	1	31	31	31	0	0	0	31	—	1	30	30	30	0	0	0	30	—
Leningrad	1	31	31	7	22	5	16	0	—	1	23	15	0	8	8	0	0	—
Vyborg	1	31	31	31	0	0	31	0	—	1	30	30	25	4	0	25	0	—
Tallin	1	31	31	31	1	30	6	25	0	1	6	6	0	6	3	0	0	—
Riga	1	25	4	0	3	0	0	0	—	1	6	6	0	6	3	0	0	—
Pärnu	1	31	31	31	0	0	0	31	—	1	30	30	8	22	7	15	8	—
Ventspils	3	11	3	0	3	1	0	0	—	0	0	0	0	0	0	0	0	—
Klaipeda	1	25	5	0	5	0	0	0	—	0	0	0	0	0	0	0	0	—

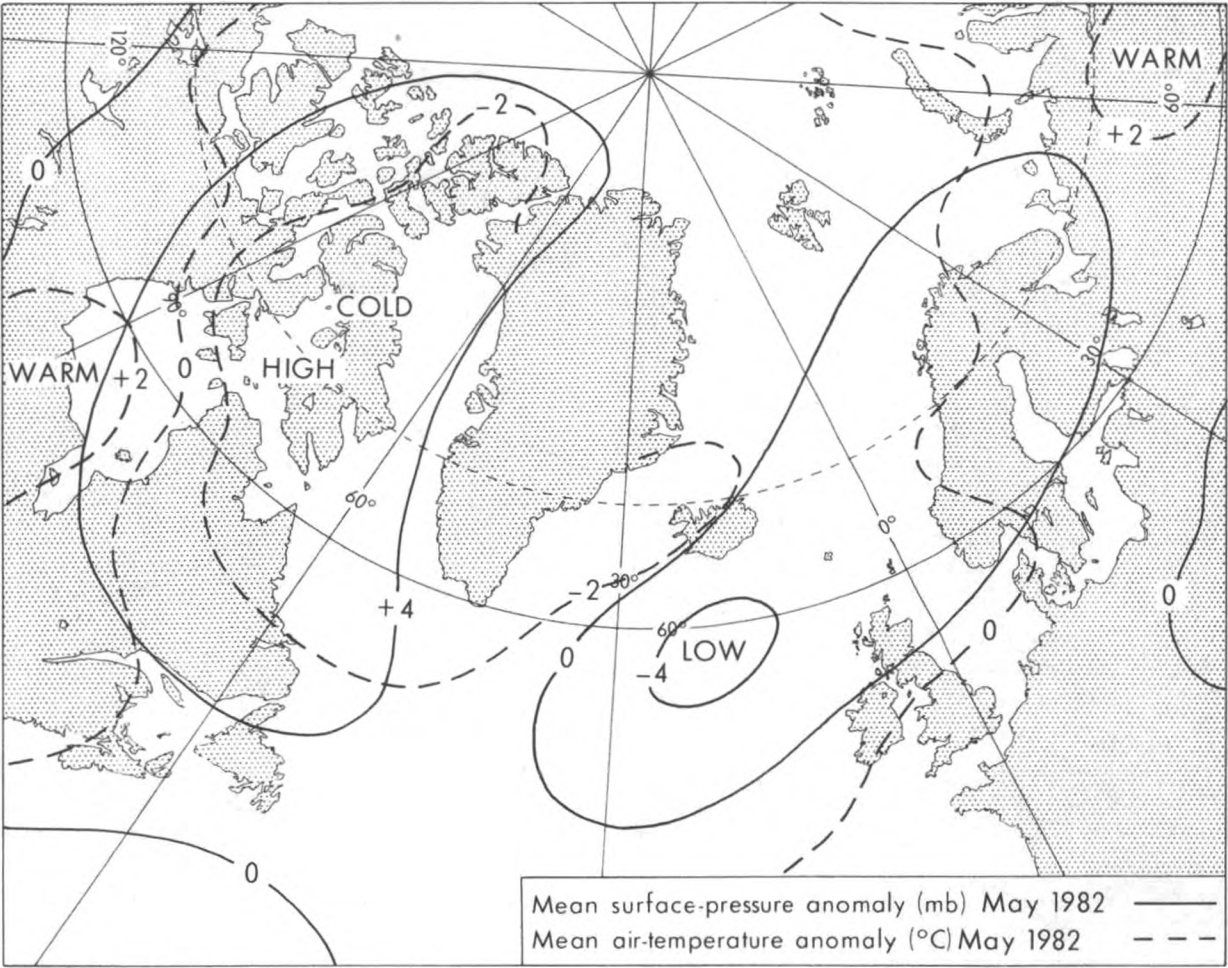
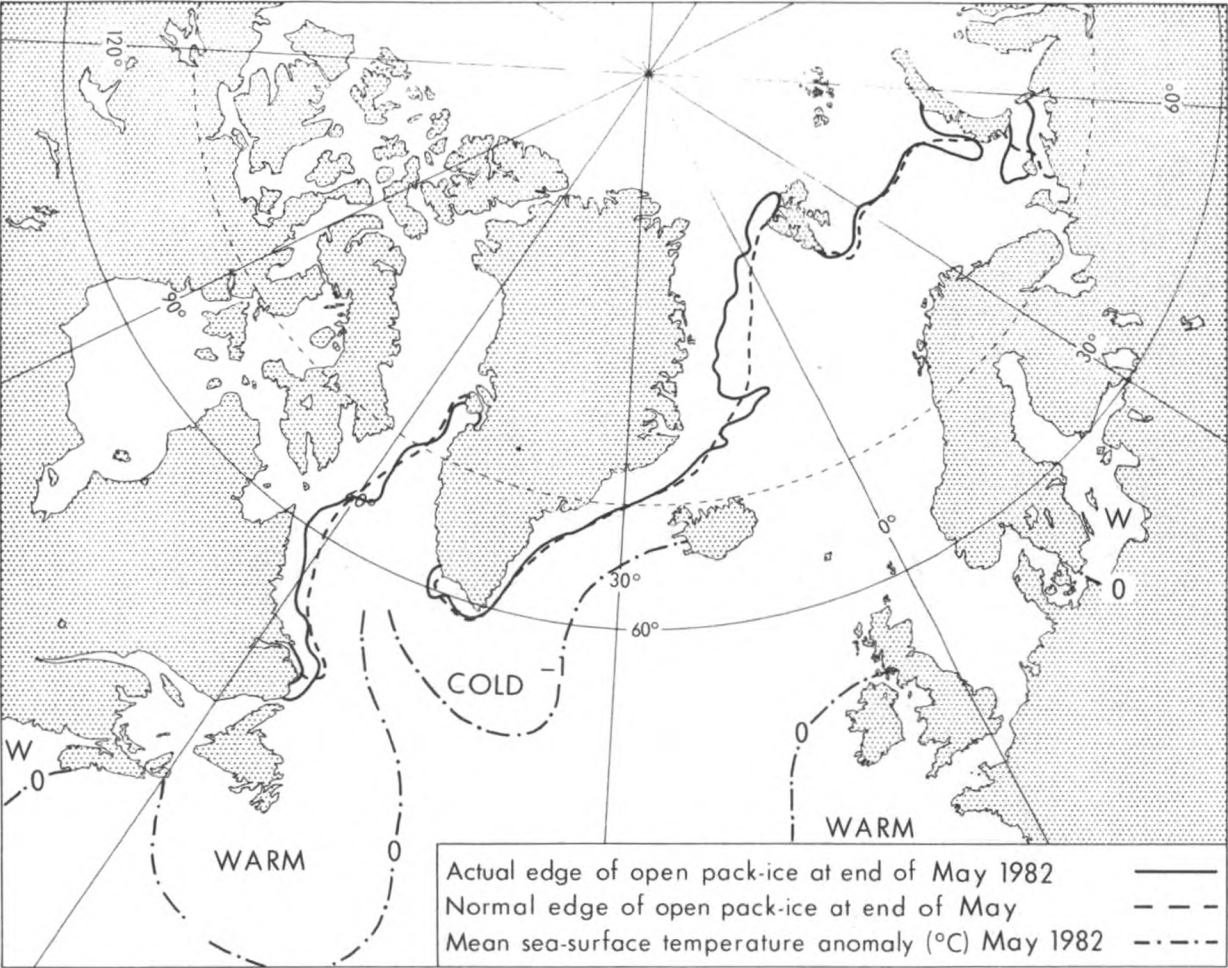
CODE

- A First day ice reported.
B Last day ice reported.
C No. of days when ice was reported.
D No. of days continuous land-fast ice.
E No. of days of pack ice.
F No. of days dangerous to navigation, but assistance not required.
G No. of days assistance required.
H No. of days closed to navigation.
I Accumulated degree-days of air temperature (°C) where known.*

* These figures give a rough measure of the first probability of the formation of sea ice, and later the progress of the growth and its thickness. They are derived from daily averages of temperature (00+06+12+18 GMT) and are the sum of the number of the degrees Celsius below zero experienced each day during the period of sustained frost.







PERSONALITIES

OBITUARY.—It was with very great regret that we heard of the tragic death on 29 May 1982 of CAPTAIN I. H. NORTH, Master of the *Atlantic Conveyor*, during the recent hostilities in the South Atlantic.

Ian Harry North was born in 1925 at Hatfield in Yorkshire. On leaving school he was apprenticed to Andrew Weir and Company and obtained his 2nd Mate's Certificate in 1944. He then served as a junior officer with Anglo Saxon Petroleum Company—now known as Shell (UK) Limited—and Bullard King and Company. He obtained his Master's Certificate in 1949 and Part 1 of the Extra Master's Certificate in 1951. In early 1952 he joined Port Line Limited as 2nd Officer. He was promoted to Chief Officer in September 1952 and to Master in December 1959, his first command being the *Port Saint John*. Later he commanded the *Act 2* on her maiden voyage at the inception of the container trade with Australia. In 1973 he was appointed to command in the Atlantic Container Line ships on the North Atlantic trade and thereafter commanded *Atlantic Causeway*, *Atlantic Prosper* and *Atlantic Conveyor*.

Captain North was a Liveryman of the Honourable Company of Master Mariners, a founder Member of the Nautical Institute and, for a time, served on the Council of the Mercantile Marine Service Association.

Captain North sent us his first meteorological logbook from the *Umtali* in 1951. Thereafter we received a further 36 logbooks bearing his name. He received Excellent Awards in 1965, 1967, 1968 and 1981. In recent years he was also well known to our Ship Routeing Service.

We extend our sincere condolences to his family.

OBITUARY.—It is with very great regret that we record the death on 16 June 1982 of Mr. J. D. W. Brown who, until he retired on medical grounds last March, was a Nautical Officer in the Marine Division of the Meteorological Office in Bracknell.

John David Walton Brown—David to all his friends—was born in South Shields in 1924 and was educated at South Shields Grammar School. Between 1942 and 1946 he served his apprenticeship with Blue Funnel Line—later to become part of Ocean Fleets Limited. After obtaining his 2nd Mate's Certificate he served as a junior officer with various companies until he gained his 1st Mate's Certificate. He then rejoined Blue Funnel Line as 3rd Officer and on obtaining his Master's Certificate, was promoted to Chief Officer.

David Brown joined the Meteorological Office in November 1971 as an Assistant Scientific Officer and was posted to the Port Meteorological Office in London. In October 1973 he was transferred to RAF Acklington in Northumberland where he served on the meteorological observing staff. In June 1974 he was regraded to Nautical Officer and was posted to the Marine Division at Meteorological Office Headquarters, Bracknell. Over the next 8 years he was mainly engaged in ensuring that British voluntary meteorological observing ships were adequately equipped with meteorological instruments and also in assessing and acknowledging many of the ship's meteorological logbooks received during this period. From time to time he also wrote articles for this journal. Over these years David Brown's name became well known not only to many Masters and Officers of observing ships but also to the Marine Superintendents and Management of all the major British shipping companies together with a number of Port Meteorological Officers in Commonwealth and foreign countries. Unfortunately, during 1981 he became seriously ill and as a result had to take medical retirement in March this year.

David Brown was held in very high esteem not only by his colleagues and all with whom he worked in the Meteorological Office but also by many within the Shipping Industry as a whole. He will be sadly missed. We extend our sincere condolences to his widow, two daughters and family.

RETIREMENT.—MR P. E. D. HARRIS, Radio Officer was made redundant on 5 March 1982 after serving nearly 40 years at sea.

Peter Edwin Derek Harris joined the Marconi International Marine Company in December 1942 and was appointed 3rd Radio Officer onboard the *Inverilen*. On 3 February 1943 the vessel was sunk by enemy action but fortunately Mr Harris was rescued and landed in Ireland. In June 1957 he was appointed to the s.s. *Sarah Bowater* and remained with the Bowater Company until October 1963 when they commenced supplying their own Radio Officers. Thereafter Mr Harris sailed in various vessels and when he was Radio Officer in the passenger liner *Akaroa* there was a fire onboard and afterwards the Marconi Company received a letter from the ship's owner detailing the exemplary manner in which Mr Harris performed both his normal duties and his other efforts during the emergency.

We received the first meteorological logbook bearing Mr Harris' name from the *Avonmoor* in 1956. Since then he has sent us a further 9 books of which 4 were classed as Excellent. He received an Excellent Award in 1957.

We wish him a long, healthy and happy retirement.

RETIREMENT.—MR J. KELLY, Radio Officer was made redundant on 9 March 1982 after serving nearly 30 years at sea.

James Kelly joined the Marconi International Marine Company as a trawler Radio Officer in August 1952 after serving 10 years in the Royal Air Force. After four years uneventful service he voluntarily resigned without giving reason but was re-appointed five months later. Mr Kelly transferred to the deep-sea staff in 1960 and served in vessels of the Ellerman Wilson Line until 1964. For much of the remainder of his career since 1971 he has served in vessels of the Ben Line.

Mr Kelly's name has appeared in 21 meteorological logbooks since a book bearing his name was received from the *Rialto* in 1962. He received Excellent Awards in 1969 and 1977.

We wish him a long and healthy retirement.

Notice to Marine Observers

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Captain P. B. Hall.

Captain C. A. S. Borthwick.

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