HAY, R.F.M. - LAING J.

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The Storm of 31st January–1st February, 1953

By R. F. M. Hay, M.A. and Miss J. Laing
(Marine Branch, Meteorological Office)

A widespread NW–N gale affected the north and east of the British Isles and most of the North Sea on 31st January, 1953. It was accompanied by serious loss due to floods on the east coast and in the Low Countries and a large number of shipping casualties among which the foundering of the M.V. *Princess Victoria* with heavy loss of life near the entrance to Belfast Lough was the most serious peacetime shipping casualty in home waters for many years. A representative of the Marine Branch of the Meteorological Office gave evidence at the formal investigations into the loss of the M.V. *Princess Victoria* and the loss of the motor trawler *Guava*. Other trawlers and coasters owned in the United Kingdom which were lost in the same night were the *Sheldon*, *Michael Griffiths* and *Yew Valley* and formal investigations into the losses of these vessels remain to be heard. About the same time many other ships were missing, believed lost, in the North Sea, including the Dutch vessels M.V. *Catherina Duyvis*, M.V. *Salland* and M.V. *Westland* and the Swedish vessel S.S. *Aspo*. It is likely that the full circumstances in which these tragic losses occurred will never be fully determined.

The depression responsible for this gale formed as a warm front wave which broke away from a quasi-stationary depression near the Azores and it was first

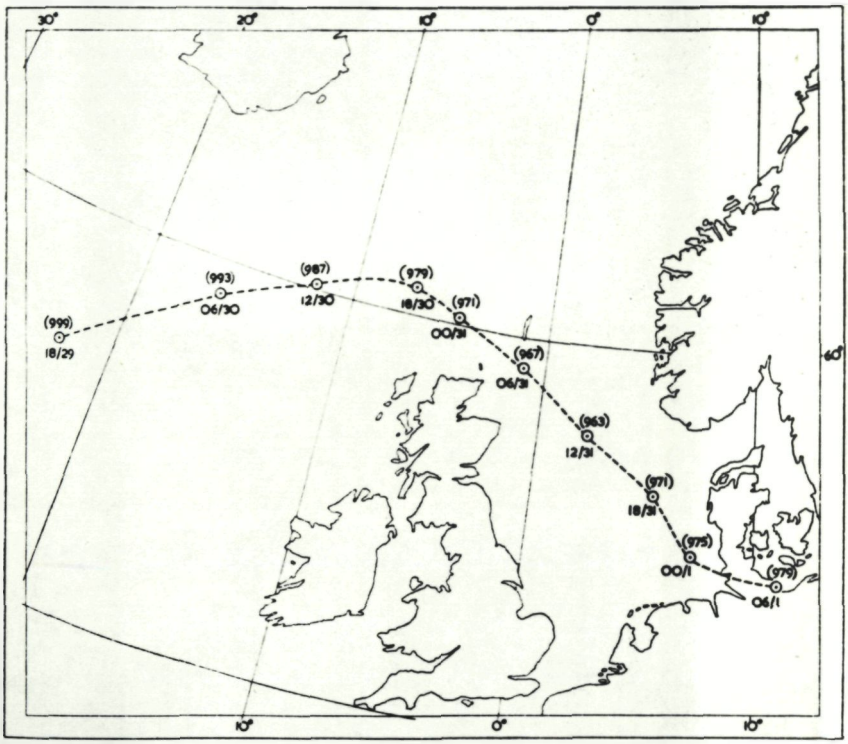

Fig. 1. Track of depression showing successive positions of centre, and pressure at the centre in millibars.

shown on the chart for 1200 G.M.T. 29th January at 54½° N 27° W with a central pressure of 1003 mb. Its subsequent track and the pressures at its centre are shown in Fig. 1. Shortly after 1800 G.M.T. 30th the centre began to move in a SE'ly direction from just south of The Faeroes towards the North Sea, while pressure was still falling there. The cold front had crossed Scotland by midnight and the centre had become occluded about this time. Meanwhile a rapid intensification of the anticyclone to westward occurred and this, together with the intensity of the depression, was responsible for the exceptionally steep northerly gradient which developed over the north and east of the British Isles and most of the North Sea. The synoptic situations at 1200 G.M.T. 30th, 0001 G.M.T. 31st and 1200 G.M.T. 31st January are shown in Figs. 2, 3 and 4.

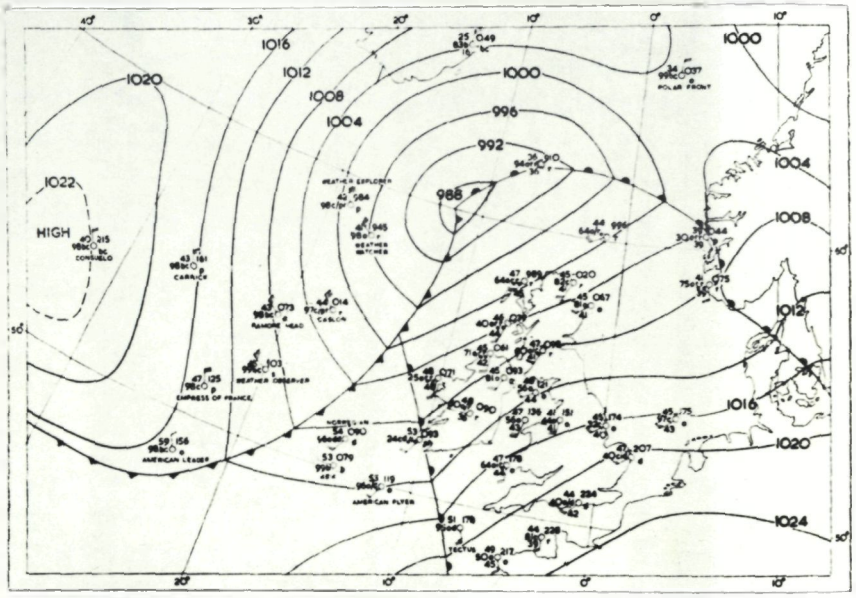

Fig. 2. Synoptic chart for 1200 G.M.T. 30th January, 1953.

Although the gale affected a wide area, and later attained exceptional severity in the extreme NE of the British Isles and parts of the North Sea, the severity reached off the north-west seaboard, which was one of the first areas to be affected, was by no means unusual. At several stations in S.W. Scotland and the Irish Sea a storm of greater severity had occurred only six weeks earlier, on 17th December, 1952, and a search through the records for the previous 15 years showed that severer gales had happened on several occasions.

Conditions in the Atlantic near ocean weather station "India" were described as follows by the Meteorological observer on *Weather Explorer*.

"30th January, 1953. Position 58° 53'N, 18° 48'W.

At 1330 G.M.T. a squall was observed approaching from the NW. The wind then was 320° (T), at 28 kt and the sky was broken. As the squall came nearer the wind rose rapidly to 50 kt with gusts to 65 by 1345 G.M.T.; light sleet began to fall but the pressure remained steady at 998·2 mb. By 1400 hours the wind was averaging 60 kt and gusting to 70. It then increased to a steady 65–70 kt and occasionally it reached 70–75 kt with gusts to 80 kt until 1500 G.M.T. The sky was overcast throughout with 7/8 scud and 8/8 Cb and Ns above. At this point the barometer fell slightly then suddenly rose 2 mb in approximately 10 minutes. Thereafter a few breaks were seen and the wind eased to force eleven and there was a gradual improvement to broken skies by 1600 with showers

of hail. The sea during this period averaged between 15 and 20 ft at first and later 20–25 ft with turbulent precipitous waves and driving spray which reduced the visibility at times to ½ mile. The direction of the swell was approximately 320°(T), but a cross swell from 020° could be observed but it was not possible to time it or estimate the height with any accuracy. From 1600 G.M.T., there was a gradual lessening in wind speed until by 1800 it was 40–50 kt gusting to over 60. The swell lengthened and became 25 to 30 ft in height, period 7 sec and more regular than previously. The pressure had by then risen 18 mb since 1500 G.M.T."

In the extreme N and NE of Scotland, according to C. K. M. Douglas, the storm was very exceptional. Not long before this time the Electrical Research Association had installed an electric cup generator anemometer on top of a 500 ft hill in Orkney. This instrument recorded mean winds of near 100 m.p.h. (87 kt) between 0800 and 0840 G.M.T. 31st with a gust up to 125 m.p.h. (107 kt) during the morning. A Dines anemometer at Grimsetter nearby with a standard exposure recorded a mean wind of over 60 kt through the morning with gusts up to the limit of the anemometer at 107 m.p.h. (93 kt). On and near our north-east coasts as a whole a WNW to NW gale got up quickly between 0300 and 0700 G.M.T., subsequently there was a veer to N and an increase to force 10 which occurred later at various east coast stations as far south as Yorkshire while force 9 was recorded as far south as Felixstowe.

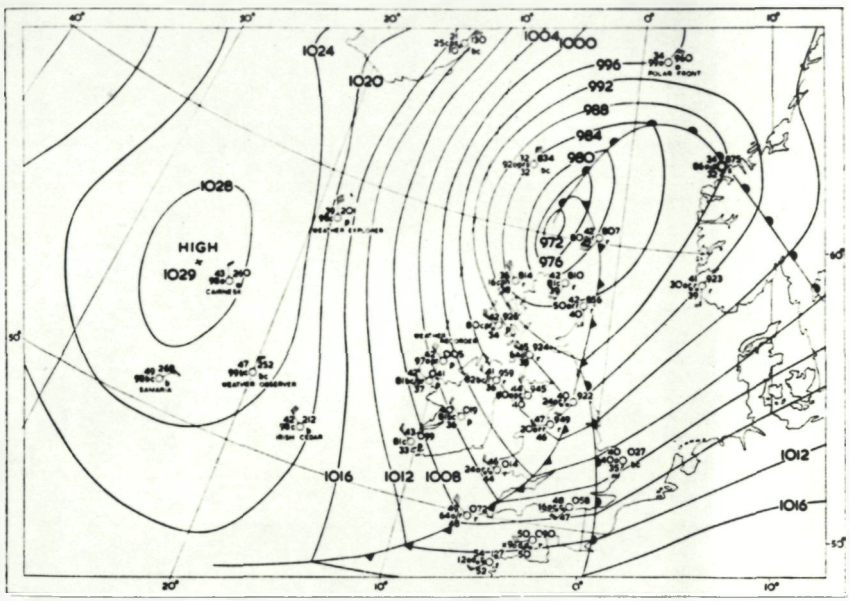

Fig. 3. Synoptic chart for 0001 G.M.T. 31st January, 1953.

Pressure gradients in these areas were also very remarkable, the geostrophic wind reaching 140–150 kt in a belt 100 miles wide off North Scotland at 0600 G.M.T. and off NE Scotland at 1200 G.M.T. The values of extreme winds published for stations on the northeast and extreme north coasts of Britain leave no doubt that this storm gave the worst gale on record in these areas from a NW to N direction. The destruction of timber in N.E. Scotland was widespread and there is abundant evidence that it has not occurred on such disastrous scale for at least half a century. All the available evidence also goes to show that the gale over the western and middle North Sea was of a record-breaking character.

The height of the waves produced during the storm were not outstanding in the Atlantic. *Weather Recorder* in position 54° 30′N, 11° 48′W encountered 29 ft waves at 1200 G.M.T. 31st and the destroyer H.M.S. *Contest* proceeding to the assistance of the *Princess Victoria* was forced to reduce speed by waves reported as 25–30 ft high which were encountered in the North Channel around 1200 G.M.T. on 31st. The estimated wave height in the North Channel at 1500 31st was 26 ft. It is likely that the period of these waves was less than that of waves of the same height in the open Atlantic, which would imply that the waves in the North Channel were steeper and more dangerous than the corresponding waves in the Atlantic.

In the North Sea the following wave heights were recorded by the steamships *Tasso* and *Tinto*.

		Position	Wave heights (ft)	Wind Dirn.	Force
S.S. *Tasso*	1200 G.M.T. 1st Feb.	56° 04′N 02° 45′E	30	360°	11–12
	1800 G.M.T. 1st Feb.	56° 21′N 02° 52′E	30	360°	11–12
S.S. *Tinto*	1200 G.M.T. 1st Feb.	56° 40′N 04° 20′E	30	360°	9–10
	1800 G.M.T. 1st Feb.	55° 30′N 03° 20′E	30	360°	8–9

These seas were quite exceptionally high for the North Sea and their shortness would have made them more dangerous than waves of comparable height but greater length met in the North Atlantic. It will be remembered that the trawler M.V. *Guava* was missing after this storm and when she was contacted for the last time at 2210 G.M.T. 31st her position was approximately 53° 30′N, 03° 00′E.

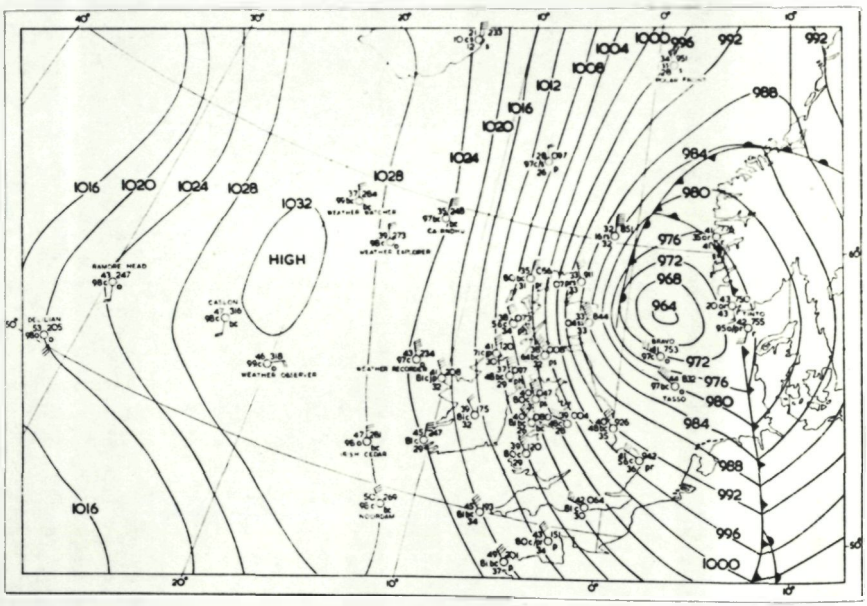

Fig. 4. Synoptic chart for 1200 G.M.T. 31st January, 1953.

No account of the storm of 31st January would be complete without a description of the last voyage of the ill-fated *Princess Victoria* which was a twin screw motor-driven ferry boat built for the carriage of passengers, motor-cars and general cargo by Messrs. William Denny in 1946. Her gross tonnage was 2,694. When the ship sailed at about 0745 31st January a severe gale warning for the area had been in

force since 0255 G.M.T. and the wind was already blowing NNW force 8–9 with gusts to force 11; during the morning and early afternoon of that day they were NNW or N force 9–10 with gusts to force 12. A glance at the Admiralty Chart for the Irish Sea shows that winds from NW to NNW have a nearly unlimited fetch since these directions are open to the Atlantic. At some time around 0900 G.M.T. after the ship had gained the open water outside Loch Ryan she was struck by a heavy sea. As a result the ship took in water and sustained damage to her stern doors which could not be closed again, a shift of cargo occurred then or soon after, and the ship took a list to starboard.

An SOS message was broadcast at 1032 G.M.T. after which numerous radio messages were exchanged with shore radio stations and other rescue craft, but although the destroyer *Contest* was alerted at an early stage and proceeded from Greenock at full speed she was not in time to render assistance before the ship had sunk. The *Princess Victoria*, on her beam ends at the last, finally sank about 1415 G.M.T., a bare 5 miles NE of the Copeland Islands, her heroic wireless operator continuing to send out messages up to the last. The few survivors were picked up by various vessels and shore lifeboats.

This article has naturally emphasised the sea aspect of these disasters caused by this storm. The loss of life caused ashore by the breaking of the sea defences along hundreds of miles of coast in the east of Britain and Holland and Belgium, was on a far greater scale and was greater than in any other similar disaster for centuries. The great public concern shown over the disaster led to the holding of an enquiry, as a result of which the Government has set up a Flood Warning System whereby the Central Forecasting Office, Dunstable, and the Hydrographic Branch of the Admiralty, are made jointly responsible for the issue of flood warnings to local authorities. The idea behind the system is to divide the coast into districts, so as to make certain that any area in which there is considered to be a serious risk of flooding from an abnormal rise of sea level is given a few hours' warning, while at the same time the number of unnecessary warnings is reduced to a minimum. The great storm of 31st January has certainly shattered an illusion that has tended to become prevalent in recent years, that in these days of swift travel and scientific achievements man has had little to fear from the sea; on the contrary the forces of nature demand from him an unceasing vigilance.

SELECTED SHIPS IN THE CARIBBEAN

The following is an extract from a letter received from Dr. F. W. Reichelderfer, Chief of the U.S. Weather Bureau.

" A total of 365 radio weather messages from British vessels in Eastern Caribbean waters (03° N–30° N, eastward of 60° W) were addressed to " Observer Washington " in July, 1953. Of this number, 119 observations were taken at 0000 G.M.T., 44 at 0600 G.M.T. 120 at 1200 G.M.T., and 82 at 1800 G.M.T. You will be interested to learn that the total number of weather messages received during July from ships of all nations plying routes in the area was 887.

" We are grateful for your efforts in arranging for the co-operation of your vessels in furnishing messages to us."

THE NORTH SEA FLOODS

A breach in the sea-defences at Sutton-on-Sea, Lincs., about 300 yds. long, the widest to be made in this country during the storm of 31st January, 1953.

Opposite page