= Braer Storm of January 1993 =

The Braer Storm of January 1993 was the most intense extratropical cyclone on record for the northern Atlantic ocean . Developing as a weak frontal wave on January 8 , 1993 , the system moved rapidly northeast . The combination of the absorption of a second low @-@ pressure area to its southeast , a stronger than normal sea surface temperature differential along its path , and the presence of a strong jet stream aloft led to a rapid strengthening of the storm , with its central pressure falling to an estimated 914 hPa (914 mb ; 27 @.@ 0 inHg) on January 10 . Its strength was well predicted by forecasters in the United Kingdom , and warnings were issued before the low initially developed .

Gale @-@ force winds covered the far northern Atlantic between Western Europe and Atlantic Canada , due to the intensity of this storm , with hurricane @-@ force winds confined near its center of circulation . After reaching its peak intensity , the system weakened as it moved into the far northeast Atlantic , dissipating by January 17 . This storm caused blizzards across much of Scotland and led to the final breakup of the oil tanker MV Braer , which had been stranded in rocks off the Shetland Islands by a previous storm nearly a week beforehand .

= = Meteorological history = =

A weak frontal wave , a low @-@ pressure system forming along a weather front with very strong temperature contrast , developed on the afternoon of January 8 to the southeast of Newfoundland with a central pressure of 1 @,@ 008 hPa (29 @.@ 8 inHg) The system moved at a quick pace to the east @-@ northeast at around 110 km / h (68 mph) , deepening slowly . As the storm tracked more northeasterly , development accelerated , and early on the morning of January 9 its central pressure had fallen to 988 hPa (29 @.@ 2 inHg) . A new low pressure area formed along the system 's cold front to its south . By noon , the forward motion of the main cyclone accelerated to nearly 150 km / h (93 mph) and its central pressure began to bomb , then down to 974 hPa (28 @.@ 8 inHg) as it passed through the far northern Atlantic . This strengthening was enhanced by a strong jet stream with measured winds of 440 km / h (270 mph) , and a stronger than normal sea surface temperature gradient along its path from the Grand Banks of Newfoundland towards Iceland .

The new low south of the main low strengthened quickly , and its central pressure dropped to 982 hPa (29 @.@ 0 inHg) . During the evening of January 9 , the main cyclone to the north continued to bomb out , with a central pressure down to 958 hPa (28 @.@ 3 inHg) . Soon afterwards , it absorbed the deepening low to its south and this merger caused a period of extreme intensification . By early morning of January 10 , the pressure at the strong cyclone 's center had fallen to 926 hPa (27 @.@ 3 inHg) northwest of Great Britain as it slowed its northeast motion . Hurricane @-@ force winds of 122 km / h (76 mph) were recorded at a weather ship just to its southeast . Towards sunrise , the center of the cyclone lay 300 km (190 mi) south @-@ southeast of Iceland . The system continued to slow as it turned north @-@ northeast , reaching its estimated lowest pressure of 914 hPa (27 @.@ 0 inHg) later that morning . Weather buoys in the region with identifiers of 44746 and 64043 were not designed to read pressures below 925 hPa (27 @.@ 3 inHg) , so when their pressures dropped to that reading , they stayed there until the storm moved away .

The system 's strongest winds were within 280 km (170 mi) of its center , and the pressure difference within that region implied that sustained wind speeds of 190 km / h (120 mph) were possible . Early during the afternoon of January 10 , a tremendous pressure differential existed between the center of the cyclone and a high @-@ pressure area over Spain , which had a central pressure of 1 @,@ 035 hPa (30 @.@ 6 inHg) . This caused an extensive area of gale @-@ force winds which stretched from Newfoundland to Spain , and northeastward between Greenland and northern Norway . A large area of hurricane @-@ force winds existed within this area of gales . The center of the low transcribed a loop before resuming a slow northeast motion into the far northeast Atlantic . However , the system began to weaken , and by the evening of January , 10 its central pressure had risen to 920 hPa (27 inHg) . By the evening of January 12 , its central pressure rose

to 952 hPa (28 @.@ 1 inHg) . During the evening of January 13 , its central pressure rose to 961 hPa (28 @.@ 4 inHg) while located in the far northeast Atlantic . Within four days , the low dissipated west of Norway .

= = Preparations and impact = =

The strength of this storm was well forecast by the British Met Office global weather forecast model as far as 84 hours in advance , which allowed forecasters in the United Kingdom to issue warnings related to the storm on the morning of January 8 , before the cyclone had initially developed . The sign of the North Atlantic oscillation switched from positive to weakly negative during the lifetime of this storm , which caused colder conditions to prevail in the Eastern United States and Western Europe by the time the system was dissipating . The British Isles saw their pressures fall as low as 957 hPa (28 @.@ 3 inHg) during the mid @-@ afternoon of January 11 in Lerwick . Winds gusted to 194 km / h (121 mph) at two locations : the weather ship Cumulus and North Rona , north of Scotland . Wind gusts of over 190 km / h (120 mph) were measured across northwest Scotland . The highest precipitation amount recorded with this system across Great Britain was 37 @.@ 2 millimetres (1 @.@ 46 in) at Cilfynydd in South Wales .

Periods of rain impacted the British Isles early in the morning of January 10 , progressing from west to east . Wet and windy weather was seen across the region during the day , with a wintry mix of precipitation falling across northern sections of Britain . Within the area of wintry mix , the wind combined with the ongoing snowfall led to blizzards across most of Scotland . Precipitation became more showery in nature during the evening hours . Thunderstorms were observed despite the near @-@ freezing temperature readings . Wind and waves associated with this storm were too much for the tanker MV Braer , which had become lodged on rocks in the Shetland Islands nearly a week beforehand . The tanker broke up and her remaining cargo of 84 @,@ 500 tons of light crude oil spilled into the ocean surrounding the islands . The rough conditions caused by this storm led to the rapid breakup of visible oil slicks .

= = Record set = =

This cyclone was slightly stronger than an intense low pressure area which moved near Greenland on December 14 ? 15 , 1986 , which was the strongest extratropical cyclone known to occur across the northern Atlantic ocean at that time . Only three prior extratropical storms across the north Atlantic , and two since , have attained central pressures below 930 hPa (27 @.@ 46 inHg) .