Scientists seek data in eye of the storm

A hair-raising landing at Edinburgh airport; below, a couple battle winds on the shore near Saltcoats; bottom, an overturned schoolbus outside Dalry

Mark Macaskill

SCIENTISTS are hoping to gain fresh insights into the anatomy of severe storms after a team flew into the eye of a cyclone as it pounded Britain with 165mph winds.

Atmospheric probes attached to tiny parachutes were dropped from an aircraft as it navigated its way through a six-mile-high cyclone, capturing data on wind speeds, temperature and humidity.

The forces that create powerful storms, known as sting jets, have been the subject of speculation among atmospheric scientists for decades. The new data, which will be analysed in the coming weeks, is expected to increase our understanding of how severe storms develop. It could improve forecasts and identify those parts of the country most likely to bear the brunt of bad weather.

Much of Scotland was immobilised when Cyclone Friedhelm swept in from the North Atlantic on Thursday.

Roofs were blown from houses and shopfronts torn apart as gusts reached up to 165mph in the Cairngorm mountains in the Highlands, the highest windspeed in Britain since the 173mph recorded in 1986.

More than 50,000 homes in Stirling, Argyll, Tayside, the northeast and the Highlands were left without power. There was severe disruption to transport, as roads and bridges closed. In Ayrshire, a wind turbine exploded.

Though less severe in England and Wales, winds gusted at up to 100mph. Cross-Channel ferry services were disrupted, while in Cumbria a lorry was blown on to its side and motorists were stranded in floods.

Although most flights were grounded, a team of scientists from the universities of Reading, Manchester, Leeds and East Anglia took off from Exeter, in Devon, and headed straight for the storm over Scotland. Their mission was to investigate the composition of atmospheric cloud bands that appear to be a consistent feature of sting jets.

One theory is that melting ice "speeds up" the descent of air. When microscopic particles of snow and ice fall from clouds and evaporate, the air is cooled and its density increases. It is thought that fast-moving currents from the higher reaches of a storm are pushed downwards, creating strong winds near the surface of the Earth.

Data was collected from 17 sensors that were dropped into the storm. Among the information they relayed to the Met Office's headquarters in Exeter was the shape and size of microscopic ice particles, which it is thought may influence the formation of sting-jet cyclones.

Dr Laura Baker, of Reading University's meteorology department, who was on the flight, said: "The idea is that once you know the anatomy of a sting-jet storm, you can improve forecasts. Last week, strong winds were predicted but their magnitude was harder to gauge. At present, it's also difficult to say when and where localised sting-jet gusts will occur."

After the Great Storm of 1987 in southeast England, scientists observed that the most damaging winds had emanated from the evaporating tip of cloud head on the souther flank of the cyclone. This ti hooked like a scorpion's ta was called a sting jet.

It is estimated that about third of the 100 worst wint cyclones over the North Atlant in the past 20 years were caus by sting-jet cyclones.

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