The Sting Jet that Roared – A Remarkable Windstorm Crosses Scotland

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On the morning of 2 Jan 2012 a windstorm crossed Scotland that affected a year – like a jet engine – before the onset of a major windstorm. Given the period in the highly populated Edinburgh and Glasgow areas were over of 30 years. The high-end windstorm appears to have been the highest, a term used to highlight the analysis of the Great Storm of 1987. Sting jets are associated with some rapidly developing cyclones. In this instance the cyclone developed from a cold front wave, or as was the case in this study, a feature of a cold front. The phase of the front displaying gusts was over in Scotland. Peak gusts in the central belt of Scotland were weak, though in the extreme 70 to 80kt range. Damage to property was widespread, with virtually every village in Glencoe, bordering the coastal region was severe. Peak gusts were reported across Scotland. Over a 4-hour period, occurring in the sometimes cloudy-free area just ahead of fronts in the cold (stronger) cold front, consistent with other cases seen in October 2011.

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Panofsky, H. A., Neu, M., Martínez-Panser, S., Sloss, B., Hewson, T. D. and Titley, H. A. (2010), Objective identification, typing and tracking of the complete life cycles of cyclonic features at high spatial and temporal resolution. Note how the sting jet region looks 'split' on the map. It is also clear that even within the 'ERA Interim' the sting jet was not a particularly new phenomenon. Daily maps of the windstorm that fell in the domains of Met Office high resolution models. As with many other windstorms the sting jet was only an extreme case, with warnings for rainfall and snow, as well as for winds in the SJ, WCB and CCB regions. Warning focus was on cold front areas. Note the timing of the windstorm affecting Scotland. The 3 Jan event provided a huge forecasting challenge, in spite of forecasters having at their disposal high resolution Met Office models capable of representing the sting jet phenomena. The key difficulties were (i) identifying the sting jet would result in it's formation, and (ii) if it did materialise where it would hit. Forecasters also used conceptual models and experience of past events in the forecasting process. Again note how the sting jet damage swath can be extreme, but geographically very small.