



Sting jets in intense winter North-Atlantic windstorms

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Extratropical cyclones dominate autumn and winter weather over western Europe. The strongest cyclones, often termed windstorms, have a large socio-economic impact due to the strong surface winds and associated storm surges in coastal areas. Here we show that sting jets are a common feature of windstorms; up to a third of the 100 most intense North Atlantic windstorms over the last two decades (identified from ERA-Interim data) satisfy conditions for sting jets. The sting jet is a mesoscale descending airstream that can cause strong near-surface winds in the dry slot of the cyclone, a region not usually associated with strong winds. Despite their localised transient nature these sting jets can cause significant damage, a prominent example being the storm that devastated southeast England on 16 October 1987. We present the first regional climatology of windstorms with sting jets. Previously analysed sting jet cases appear to have been exceptional in their track over northwest Europe rather than in their strength.