



## **An accelerating high-latitude jet in Earth's core**

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Observations of the change in Earth's magnetic field, the secular variation, provide information on the motion of liquid metal within the core that is responsible for its generation. The very latest high-resolution observations from ESA's *Swarm* satellite mission show intense field change at high-latitude localised in a distinctive circular daisy-chain configuration centred on the north geographic pole. Here we explain this feature with a localised, non-axisymmetric, westwards jet of 420 km width on the tangent cylinder, the cylinder of fluid within the core that is aligned with the rotation axis and tangent to the solid inner core. We find that the jet has increased in magnitude by a factor of three over the period 2000–2016 to about 40 km/yr, and is now much stronger than typical large-scale flows inferred for the core. The current accelerating phase may be a part of a longer term fluctuation of the jet causing both eastwards and westwards movement of magnetic features over historical periods, and may contribute to recent changes in torsional wave activity and the rotation direction of the inner core.