

## **Dr Philip Livermore: 2020 Price Medal for Geophysics**

Dr Philip Livermore, Associate Professor at the University of Leeds, receives the Price medal for recognition of the impact of his work on the flows in Earth's liquid core, in particular the identification in the secular variation of the signature of a high-latitude jet-stream.

This identification, subsequently confirmed by other studies and methods, combined novel mathematical modelling of core flow with field models fitting data of unprecedented quality from the European Space Agency's (ESA) Swarm satellite constellation, and was one of the first deep-Earth discoveries made possible by Swarm mission.

The jet flow is three times faster than typical core-flow velocities, and has varied considerably over time; modelling these changes provides a new probe of variations in deep-Earth structure and processes.

This work has had strong scientific impact and, equally importantly, has stimulated significant public interest, with features in national and international press, due to the substantial influence of the jet on the position of the north magnetic pole. The advance depended not only on the new data, but crucially on the application of Dr Livermore's experience and ability in mathematical modelling to its investigation.

For these reasons, Dr Livermore is awarded the Price medal.

### **Short citation**

Dr Philip Livermore is awarded the 2020 Price Medal for his work on integrating dynamical modelling of the core with field models that fit high-resolution magnetic field data provided by modern dedicated satellite missions. It demonstrates the value of data from those missions for deep-Earth studies and increases understanding of the short-term dynamics of the outer core. It has also driven public involvement and understanding of science through its implications for the movement of the magnetic north pole.