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Dynamo generated by the precession of a planet with an inner core.

Raphael Laguerre (1), David Cébron (2), Jérôme Noir (3), and Nathanaël Schaeffer (2)

(1) Royal Observatory of Belgium, Brussels, Belgium (raphael.laguerre@oma.be), (2) Université Grenoble Alpes, CNRS, ISTerre, Grenoble, France, (3) Institute of Geophysics, ETH Zurich, Zurich, Switzerland

Precession of planets or moons affects internal liquid layers by driving flows, instabilities and possibly dynamos.
We extend previous precession dynamo studies towards lower viscosities, at the limits of today's computers.
In the low viscosity regime, precession dynamos rely on the presence of large-scale vortices, and the surface magnetic fields are dominated by small scales.
Interestingly, intermittent and self-killing dynamos are observed.
Our results suggest that large-scale planetary magnetic fields are unlikely to be produced by a precession-driven dynamo in a spherical core.
But this question remains open as planetary cores are not exactly spherical, and thus the coupling between the fluid and the boundary does not vanish in the relevant limit of small viscosity.