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Precession and dynamos

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We know from observations that the Earth is precessing and thus have to wonder what motion the precession is driving in the fluid core. It will be shown that the precession driven flow is too large to be ignored, even if the geodynamo is powered by convection. In addition, it will be shown numerically that precession driven flow in a spherical container is a dynamo on its own. All calculations are performed in a frame of reference attached to the boundaries. In this frame, the rotation axis of the fluid executes a periodic motion with a period equal to one day, whereas the magnetic dipole moment undergoes slower variations interrupted by reversals.