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Zonal winds generated by tides MICHAEL LE BARS,
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TILGNER, University of Goettingen — The fundamental role of tides
in geo and astrophysics has been the subject of multiple studies for sev-
eral centuries. Beyond the well known quasi periodic flows of ocean
water on our shores, tides are also responsible for phenomena as varied
as the intense volcanism on the Jovian satellite Io, or the synchronization
of the Moon spin on its rotation around the Earth. We describe here a
new phenomenon of zonal wind generation by tidal forcing. Following
a recent theoretical and numerical analysis of Tilgner [1], we present
the first experimental evidence that the nonlinear self-interaction of a
tidally forced inertial mode can drive an intense axisymmetric flow in a
rotating sphere. These results are relevant for zonal wind generation in
planets and stars. [1] A. Tilgner, Zonal wind driven by inertial modes,
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