

Abstract Submitted  
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**Precessional states in a laboratory model of the Earth's core<sup>1</sup>**  
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University of Maryland — A water-filled three-meter diameter spherical shell built  
as a model of the Earth's core shows evidence of precessionally induced flows. We  
identified the flow to be primarily the spin-over inertial wave mode, i.e., a uniform  
vorticity flow whose rotation axis is not aligned with the container's rotation axis.  
The mode's amplitude dependence on the Poincaré number is in qualitative agree-  
ment with Busse's laminar theory (*JFM* **33**:739-751, 1968) while its phase differs  
significantly, perhaps due to topographic effects. At high rotation rates free shear  
layers concentrating most of the kinetic energy of the mode have been observed.  
Comparison with previous computational studies and implications for the Earth's  
core are discussed.

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