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On Zonal Flow Formation in Plasmas and Fluids: Probing the Drift-Rossby Analogy M.J. BURIN, CSU San Marcos, CMTFO, G.R. TYNAN, UCSD, CMTFO, H. JI, Princeton University, CMTFO, E. EDLUND, E. GILSON, PPPL, P. DANG, Princeton University, R. EZETA, University of Twente — A well-recognized isomorphism exists between the equations describing drift waves within magnetized plasmas and Rossby waves on rotating planets. Both systems also exhibit large-scale zonal flows that arise due to nonlinear energy transfer from smaller, turbulent motions. While such energy transfer has been recently characterized in plasmas (via Reynolds' stresses), similar data from geophysically relevant flows has been lacking. We report on a new experimental effort to characterize large-scale flow generation within a laboratory fluid. Results are discussed with the aim of better quantifying the analogy.

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