

Abstract Submitted
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Introducing an experimental split-cylinder to study flows with geophysical interest: First steps and first results¹ JESUS O. RODRIGUEZ-GARCIA, JAVIER BURGUETE, Universidad de Navarra — A new experimental setup has been developed in order to study rotating flows. Our research is derived from the experiments carried out in our group relating to this kind of flows, and the setup is inspired by the simulations performed by Lopez & Gutierrez-Castillo [JFM 800, 666–687, 2016] using a split-cylinder flow. In their work they study the different bifurcations taking place into the flow, among others, finding inertial waves in different configurations of the movement of the split-cylinder. Our setup consists in a split-cylinder in which each half can move in co-rotation or in counter-rotation. Moreover, we can set the rotation velocity of each half independently in order to study these different configurations of the flow. The aspect ratio defined as $\Gamma = H/R$ can be modified, where H is the internal length of the cylinder and R is its radius. With this setup, we study the flow developed inside the split-cylinder depending on the Reynolds number like the different symmetry-breaking that should appear according to Lopez & Gutierrez-Castillo. To obtain the experimental data we use both laser Doppler velocimetry (LDV) and particle image velocimetry (PIV) techniques. The firsts results got are in the co-rotation case rotating one half faster than the other.

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