



## **The atmospheric wake of Madeira Island: i-WAKE Campaign**

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The 57 km long and 22 km wide NW-SE oriented island of Madeira lies in the western Atlantic, 950 km SW from the southern tip of Portugal. The highest island peak, Pico Ruivo, reaches 1862 m above sea level (ASL). Due to its size, atmospheric stability structure and winds upstream, wake formation in the downstream region of this mountainous island is expected, in particular in summer when the most sustained winds below the trade wind inversion come from NE, the direction perpendicular to the island orientation.

In situ and remote sensing measurements were obtained during the i-WAKE airborne campaign (Aug-Sep 2010) in Madeira. SAFIRE's ATR 42 research aircraft collected data both upstream and downstream of the island. Presented herein will be the first documented data analysis of the Madeira's atmospheric wake from a number of i-WAKE missions, combining meteorological in situ data, remote sensing data and attendant WRF simulations. The i-WAKE results will be discussed in relation to previous laboratory and numerical experiments as well as theoretical characterizations of the atmospheric wake phenomena.