



The Sea Breeze in South-Iceland: Observations with an unmanned aircraft and numerical simulations

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Sea breeze events, 19-20 July 2009, observed during the international field campaign MOSO, at the southcoast of Iceland, have been investigated using high resolution numerical simulations. Thanks to the use of a small unmanned aircraft system (UAS), SUMO, the wind and temperature aloft could be observed at a high resolution in both space and time. Simultaneously with the UAS operations, conventional platforms were used to obtain surface measurements. The observations show a distinct sea breeze circulation with an onset at around noon and a final decay around 19:00 UTC. At the maximum, the sea breeze layer reached a height of appr. 400 m, marked by a capping wind minimum. When compared to the flow aloft, the sea breeze layer was found to exhibit relatively low temperatures and an expected turn from an off-shore to an on-shore flow. Overall, the agreement between the observations and simulations are relatively good. The simulations suggest a horizontal extent of the circulation some 20-30 km off-shore, but only around 5 km on-shore.