



Trapped lee waves measured downstream of Snæfellsnes peninsula, Iceland

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On 20 October 2016 lee waves were produced by the orography in western Iceland as strong southwesterly flow impinged upon the island. Upper air measurements showed a strong upstream inversion at 4000 ft. The Snæfellsnes peninsula (~3000 ft) has a west-east orientation and is a barrier for low level flow. The wave pattern downstream of the peninsula was composed of lee waves produced by the peninsula as well as by the Snæfellsnesjökull glacier (~4500 ft) at its western tip. Measurements were conducted with the Facilities for Airborne Atmospheric Measurements (FAAM) aircraft. At 8000 ft the wind speed was 25 m/s from the southwest. Three lee waves were measured with relatively constant vertical velocity amplitude (+/-3 m/s) that remained quasi-constant during the mission. On the other hand the potential temperature magnitude diminished with time. Operational forecasts with the numerical model HARMONIE (2.5 km horizontal resolution) capture the first lee wave well but not the position of the latter waves. Simulations with the numerical model WRF (2 km and 400m resolutions) are underway in order to investigate this further.