

## **Observations and simulations of severe turbulence in the wake of SE-Iceland**

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On 18 November 2008 a commercial aircraft encountered severe turbulence while flying in westerly flow across the wake of SE-Iceland and descending from 8.000 ft down to the ground. The situation is reproduced with the WRF model at horizontal resolutions down to 1 km.

The simulations show a Type 1 rotor (Hertenstein & Kuettner, Tellus 2005), which is in agreement with the vertical profile of wind and temperature. Very strong shear-turbulence is reproduced in the lee-wave and inside the rotor. The lee-waves and the turbulence patterns are not stationary and as the upstream vertical windshear increases, the lee-wave becomes less steep, but the turbulence increases.

From a forecasting perspective, this event could have been foreseen quite accurately, but not with the NWP tools that are currently in use for aviation forecasts. Their resolution is typically of 9 to 27 km and even more, and that is simply not adequate. This event underlines the urgency of delivering products from fine-scale simulations over complex terrain to pilots.