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Simulating severe upper air turbulence over Greenland

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Unique observations of upper tropospheric turbulence, associated with gravity waves over Greenland are presented and compared to numerical simulations. The results show that increasing the horizontal resolution from 27 km to 9 km improves the representation of the turbulence and that the improvement is even greater when the flow is simulated with a horizontal grid of 3 km. The results indicate very strongly that operational high-resolution simulations of orographically generated turbulence is beneficial for the safety of air traffic.