



## **The Freysnes downslope windstorm – a warm bora**

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A violent windstorm downstream of the mountain of Öräfajökull in SE-Iceland is studied with the help of observations from automatic weather stations and high-resolution simulations. In this windstorm, there is at the same time a strong downslope acceleration of the flow as well as an acceleration at the edge of the mountain. The downslope windstorm is associated with a low level stable layer and active wave breaking below a reverse wind shear in the lower troposphere. The meso- to synoptic scale flow of the Freysnes windstorm resembles the conditions during bora windstorms, but unlike the bora, there is warm air at the surface. The Freysnes windstorm is therefore suggested as a generic term for a warm bora-type downslope windstorm. The downslope wind speed is underestimated a few km downstream of the mountain, while the speed of the surface flow in the corner wind coming from the edge of the mountain is successfully reproduced by the numerical model. The method of Brasseur is applied for calculating the gusts, giving reasonably accurate gust factors. The study indicates that a reverse vertical windshear is a general characteristic of easterly windstorms in Iceland. Consequently, mountain wave breaking may also be more frequent than in many other windy places in the world.