



Observations of the Bergen Orographic Shelter

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The wind climate of Bergen, Norway, has been studied using 5 yrs of automatic weather station (AWS) observations from the city centre and the top of the nearby mountain of Ulriken (600 m). In contrast to the freely situated AWS of Ulriken, the winds in the city centre are found to be clearly affected by the surrounding Bergen mountains, which is seen both as a reduction in wind speed and a channeling effect steering the wind along the valley's local N/NNW - S/SSE direction. The reduction in wind speed is, as expected, most evident for wind directions across the valley. In these wind sectors, differences on the order of 15 m/s between Ulriken and the city centre wind speeds are not uncommon, thus yielding a significantly sheltered Bergen valley. The atmospheric stability, obtained using temperature and pressure from the two AWSs, is generally positively correlated with the strength of the described shelter.