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Simulations of the Bergen Orographic Shelter

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Atmospheric flow in the complex terrain of Bergen in western Norway is simulated at different resolutions and modifications of different parts of the terrain. A comparison between model results and point observations of wind in the centre of Bergen and on the nearby mountain top of Ulriken (600m), shows a general improvement in the model results with increased horizontal resolution. A similar improvement is achieved when a higher resolution topography dataset is used together with more realistic landuse data. The simulations illuminates the role of the Bergen mountains in creating a wind shelter around the city as removal of the two dominating massives results in a significant wind speed increase in the city centre.