



WegenerNet climate station network region Feldbach/Austria: a view on local climate and extremes at 1 km-scale resolution

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The WegenerNet climate station network region Feldbach (WegenerNet) is a pioneering weather and climate observation experiment at very high resolution in Eastern Styria near the city of Feldbach, Austria. The network comprises 151 meteorological stations, which measure temperature, humidity, precipitation, and other parameters with high accuracy. Data is provided every 5 minutes in a tightly spaced grid (one station per $\sim 2 \text{ km}^2$; $\sim 1.4 \text{ km} \times 1.4 \text{ km}$ grid within an $\sim 20 \text{ km} \times 15 \text{ km}$ area).

The WegenerNet project so far spanned a pilot and a demonstration phase. The pilot phase, October 2005 – December 2007, covered the construction of the in situ station and the data base infrastructure. Since January 2007 regular measurements from the entire grid are provided as part of an automatic processing system including data transfer, quality control, preparation, and visualization. The demonstration phase, January 2008 – December 2009, introduced weather and climate data products on various temporal scales (from 5 minutes to annual) for single stations as well as interpolated regular grids. Gridded data sets are realized for the main parameters (temperature, humidity, precipitation) in UTM (1 km x 1 km) and latitude/longitude ($0.01^\circ \times 0.01^\circ$) coordinates. Furthermore, the quality control system has been improved by an inter-station comparison scheme and maintenance procedures have been advanced. For application purposes, all data is available for visualization and download via the WegenerNet data portal (www.wegenernet.org).

The presentation demonstrates the benefits of the highly resolved WegenerNet data to capture variations in local climate conditions. Also, selected small-scale extreme events are analyzed tracking their spatial and temporal development based on the standard WegenerNet visualization tools.