



Recent developments in the WegenerNet high-resolution climate station network

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The Feldbach region in southeast Austria, characteristic for experiencing a rich variety of weather and climate patterns, has been selected as the focus area for a pioneering weather and climate observation network at very high resolution: The WegenerNet comprises 151 meteorological stations measuring temperature, precipitation, and other parameters, in a tightly spaced grid within an area of about $20 \text{ km} \times 15 \text{ km}$ centered near the city of Feldbach (46.93°N , 15.90°E). With its stations about every 2 km^2 , each with 5-min time sampling, the network provides regular measurements since January 2007. Quality-controlled station time series and gridded field data (spacing $200 \text{ m} \times 200 \text{ m}$) are available in near-real time (data latency less than 1–2 h) for visualization and download via a data portal (www.wegener.net). Detailed information is available in the recent description by Kirchengast et al. (2014) and via www.wegcenter.at/wegener.net.

The network is set to serve as a long-term monitoring and validation facility for weather and climate research and applications. Uses include validation of nonhydrostatic models operated at 1-km-scale resolution and of statistical downscaling techniques (in particular for precipitation), validation of radar and satellite data, study of orography–climate relationships, and many others.

The poster gives a brief introduction to the WegenerNet design and setup, its processing system and its data products, with a focus on recent developments. The latter include calibration of weather radar data (by calculating the reflectivity–rain rate transfer function of each single radar image), derivation of soil moisture from matric potential data (for inclusion in the International Soil Moisture Network), and the development of a versatile semi-automatic maintenance system. Also some example results are shown, including extreme weather events and climate variability over the 8-yr period from 2007 to 2014.

Reference: Kirchengast, G., T. Kabas, A. Leuprecht, C. Bichler, and H. Truhetz (2014): WegenerNet: A pioneering high-resolution network for monitoring weather and climate. *Bull. Amer. Meteor. Soc.*, 95, 227–242, doi:10.1175/BAMS-D-11-00161.1.