*Forecasting the weather
- ensemble techniques
in probabilistic weather prediction*

Quality assessment of heterogeneous surface radiation network data

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The national radiation measurement network comprises 82 automatic sites ("moderate quality" according to WMO classification), 29 manned sites with shaded and unshaded pyranometer ("good quality") and the BSRN station at Lindenberg ("high quality").

The quality assessment routinely applied takes into account the basic astronomical and empirical considerations as well as some interdependencies like total to diffuse flux relation and cross checking with sunshine duration. A more advanced approach attempts to routinely utilise timeseries of clear sky radiative transfer simulations for every site. For that purpose a link to cloud coverage obtained from Meteosat second generation geostationary satellite data, highly resoluted in time and space, was established. Longer-term (with respect to the predefined calibration cycle of 30 month for automatic stations) analysis allows for the detection of sensor degradation or local disturbances of operational service. Furthermore using satellite cloud mask enables the identification of larger clear sky regions characterised by similar atmospheric conditions. Thus, in a regionalisation step correction or recalibration of moderate quality data to a higher level can be considered.

The intended presentation shall provide an overview of DWD surface radiation network and the current activities to improve automatic quality assessment using remotely sensed data and clear sky modelling for the upgrading of radiation data.