Institut für technisch-wissenschaftliche Hydrologie GmbH

HANNOVER | DRESDEN | FLENSBURG | NÜRNBERG

Principle and Added Value of Radar Data in Urban Drainage and Water Management

Radar data provide precipitation information in high temporal and spatial resolution. They are a valuable data basis for water management tasks in urban drainage.

Radar data can, for example, be used to improve the quality of precipitation runoff simulations. In areas without ground based observations, a rainfall runoff simulation is only made possible by radar data.

Activity Focus

The event-specific processing of historical radar data is possible for each of the 17 weather radars of the German Weather Service (5-minute DX product). In general radar data are available for Germany since 2001.

In addition, depending on the radar product type (radar reflectivity in polar coordinates), it is possible to process data from different national weather services. Experiences exist for data from Météo France and IMGW (Poland).

The radar data processing includes the following correction procedures:

- Conversion of radar reflectivity into rain intensity using algorithms for the correction of radome and radar signal attenuation as well as for the removal of false echoes.

- Adjustment of radar measurements to ground observation data.

- Generation of 1-minute radar images by spatio-temporal interpolation using motion vectors derived by optical flow techniques.

- Georeferencing of radar data according the coordinate reference of the sewer system.

Service

We prepare radar data and provide rainfall information in various formats according your requirements:

- Cartesian precipitation grids and radar precipitation time series for any areas and radar raster elements, e.g. for further use in the itwh software HYSTEM-EXTRAN or geoinformation systems.

- Classification of radar data according to KOSTRA-DWD 2010 for any radar pixel and duration level (extreme value statistics).

- Cartographic representations of precipitation heights and extreme value statistics as well as animations.

- Reports for processed rainfall events with and technical recommendations for the use of radar data for rainfall runoff modelling with HYSTEM-EXTRAN.

Would you like to do the radar data processing yourself? Use NVIS (NVIS is currently only

available in German).