9TH EUROPEAN
CONFERENCE ON
9th EMS Annual Meeting
Applications of Meteorology
High resolution meteorology
- applications and services

High-resolution dispersion modeling input based on ALADIN model data, station data and profile measurements

K. Baumann-Stanzer, S. Stenzel, and T. Haiden

Central Institute for Meteorology and Geodynamics, Dep. of Environmental Meteorology, Vienna, Austria
(k.baumann-stanzer@zamg.ac.at)

INCA (Integrated Nowcasting through Comprehensive Analysis), an observation-based analysis and forecasting system (up to 6 hours) developed at the Central Institute for Meteorology and Geodynamics (ZAMG) is used to create the meteorological input for dispersion modeling in the local to regional scale.

ALADIN forecasts are used as first guess fields and down-scaled to 1 km horizontal resolution (operationally) taking into account high resolution terrain data and on-line available meteorological measurements. The meteorological parameters analyzed with INCA include wind, temperature, humidity, precipitation and cloudiness.

For air pollution assessment studies in the local and regional scale, 3-dimensional INCA wind and temperature fields are recalculated with enhanced resolution (e.g. 125 m) and including additional station observations as well as Sodar/RASS profiles. These data can be used as input to dispersion modeling (e.g. LASAT) and for trajectory analyses. Most dispersion model applications in the local scale are based on the input of one more or less representative meteorological station. The benefit of using several observations for the wind and concentration field calculations is demonstrated. Selected results are presented.