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High resolution meteorology
- applications and services

The use of a high resolution model in a private environment.

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The commercial organisation MeteoGroup uses high resolution modelling for multiple purposes. MeteoGroup uses the Weather Research and Forecasting Model (WRF®1). WRF is used in the operational environment of several MeteoGroup companies across Europe.
It is also used in hindcast studies, for example hurricane tracking, wind climate computation and deriving boundary conditions for air quality models.
A special operational service was set up for our tornado chasing team that uses high resolution flexible WRF data to chase for super cells and tornados in the USA during spring.

Much effort is put into the development and improvement of the pre- and post-processing of the model. At MeteoGroup the static land-use data has been extended and adjusted to improve temperature and wind forecasts. The system has been modified such that sigma level input data from the global ECMWF model can be used for initialisation. By default only pressure level data could be used. During the spin-up of the model synoptical observations are nudged. A program to adjust possible initialisation errors of several surface parameters in coastal areas has been implemented.

We developed an algorithm that computes cloud fractions using multiple direct model output variables.
Forecasters prefer to use weather codes for their daily forecasts to detect severe weather. For this usage we developed model weather codes using a variety of direct model output and our own derived variables.

1 WRF® is a registered trademark of the University Corporation for Atmospheric Research (UCAR)