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Title : ENVIRO-HIRLAM: on-line integrated system
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Abstract

The on-line integration of meso-scale meteorological models and atmospheric aerosol and chemical transport models gives a possibility to utilize all the 3D meteorological fields at each time step and to consider feedbacks between air pollution (e.g. urban aerosols) and meteorological processes. This very promising way for future atmospheric simulation systems will lead to a new generation of models for environmental and "chemical weather" forecasting. ENVIRO-HIRLAM is developing as an on-line integrated system with a possibility of the off-line coupling as well. The system realization includes the following steps:
(i) nesting of models for high resolutions,
(ii) improved resolving boundary and surface layers characteristics and structures,
(ii) 'urbanisation' of the model,
(iii) improvement of advection schemes,
(iv) implementation of chemical mechanisms,
(v) implementation of aerosol dynamics,
(vi) realisation of feedback mechanisms,
(vii) assimilation of monitoring data.

The model is to be used for operational as well as research purposes and will comprise aerosol and gas transport, dispersion and deposition, aerosol physics and chemistry as well as gas-phase chemistry. The presentation will include current status of the system and evaluation against the ETEX-1 experiment and the Chernobyl accident. Results from two experiments investigating the differences between online and offline models and the importance of feedbacks will also be considered.