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# Objectives of the THORPEX working group on data assimilation and observing strategies for high impact weather forecast improvements

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THORPEX: a Global Atmospheric Research Programme was established in 2003 by the Fourteenth World Meteorological Congress as a ten-year international research and development programme to accelerate improvements in the accuracy of high-impact weather forecasts. THORPEX establishes a framework that addresses weather research and forecast problems whose solutions will be accelerated through international collaboration among academic institutions, operational forecast centres, and users of forecast products.

One of the goals of THORPEX is to build an interactive forecasting system in which the uncertainty of the analysis and of future forecasts is assessed. This estimation leads to the development of a flow and situation dependent assimilation system. In particular, the use of targeted observations where and when extra information is crucially needed is envisaged. Enhancements to the observation usage in the "sensitive" regions of the atmospheric flow leads in turn to a reduction in forecast error.

Major field experiments have been conducted and will continue to be organised, during which many ideas can be tested and new observations can be assimilated.

The objectives of the working group on data assimilation and observation strategy are:

* to assess the impact of observations in order to provide guidance for observation campaigns and for the configuration of the Global Observing system

* to assess various targeting methods

* to set-up an optimal framework for the assimilation of targeted observations, using flow dependent background error covariances and quality control

* to extend and improve the use of satellite data, in particular with an adaptive thinning and with adequate observation error specification

* to make better use of key dynamical information, for instance of the tropopause (height and temperature)

* to assess improvements in large scales by downscaling with a mesoscale model

Tools developed in the community and data from field experiments could be used to investigate further these main issues. A broad participation to this group is welcome. Collaboration between academic researchers and weather centres is encouraged.