USE OF AN OPTIMAL INTERPOLATION ANALYSIS SYSTEM WITH MM5

S. M. Leidner, T. R. Nehrkorn, R. N. Hoffman, J. M. Henderson,G. Modica, Jean-François Louis and J. Hegarty

Atmospheric and Environmental Research, Inc.
840 Memorial Drive
Cambridge, Massachusetts 02139 USA
Tel. +1.617.547.6207 • leidner@aer.com

ABSTRACT

The MM5 modeling system has become an integral part of research activities at Atmospheric and Environmental Research (AER), Inc. There are several research areas in which MM5 now figures prominently, including real-time mesoscale forecasting, high-performance computing applications and data assimilation. The integration of an Optimal Interpolation (OI) data assimilation system in the MM5 modeling system is highlighted here. The OI scheme developed at AER is called TAP, or Theater Analysis Procedures (TAP), and in the context of MM5, TAP serves as a replacement for the RAWINS module.

The primary objective of TAP is the creation of robust meteorological analyses to support the tactical user. These analysis procedures provide stable meteorological products for end users. TAP is capable of utilizing a variety of background and data sources. The function of TAP is to use the optimal interpolation technique to combine background (i.e. a priori) information with observations of diverse type, quality, and density to produce analyses of meteorological fields. The TAP analysis configurations are optimized to initialize NWP models, and examples of the use of TAP as a pre-processor to the MM5 are shown.