



Impact of chemistry on forecasting weather using WRF-Chem and FIM-Chem

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Integrated modeling systems have been developed and used by the research community since the 1990's. Climate modeling centers have gone to an Earth system modeling approach that includes atmospheric chemistry and oceans. However, NWP centers, as well as entities responsible for air quality forecasting, are only now beginning to discuss whether an online approach is important enough to justify the extra cost. The earliest recognition of the importance of online chemistry for NWP models may have been given by the European Center for Medium Range Weather Forecasting. In this paper we will update on recent developments of integrated modeling systems at NOAA/ESRL. These modeling systems include WRF-Chem as well as the global icosahedral FIM model. We will present results from studies that look at the impact of chemistry on weather forecasts using both, non-hydrostatic cloud resolving and hydrostatic global resolution simulations.