MM5 Pre- and Post-Processing Software Adapted for WRF Application

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1. INTRODUCTION

In this paper we are going to introduce two pieces of software that we hope to help MM5 users who will be making the transition to the WRF modeling system. The software covers the pre- and post-processing of the forecast model.

2. PRE-PROCESSOR

We are adapting the VINTERP program from the WRF SI to read MM5's pressure-level analysis from either REGRID or RAWINS/LITTLE_R and to output data that have an identical format as that from the WRF SI (see figure below). This will allow users to have access to many historical datasets that are available to the research community, and to perform an objective analysis if they so choose. It will also allow users to carry out comparison studies of the MM5 and WRF models using identical input.

This new program is envisioned to run as a stand-alone program from the current SI program.
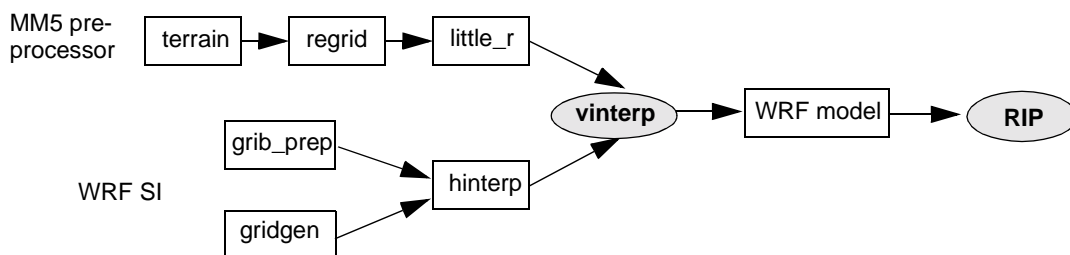
3. A GENERALIZED RIP

Mark Stoelinga of the University of Washington and author of the MM5 RIP program has revamped the program to process either MM5 binary or WRF netCDF output data. The generalized RIP will be able to handle any vertical coordinate, such as the MM5 sigma, and WRF eta coordinates. The generalization is achieved by pro-

viding height and pressure fields from the pre-processing program, RIPDP, to the plotting program, RIP. For MM5 applications, the users will see an executable *ripdp_mm5*, instead of *ripdp*. For users working with the WRF mass model, the preprocessor's name is *ripdp_wrf*. After RIPDP is run, there is virtually no difference to run RIP itself.

The new RIP tar file is currently being provided from the WRF Users' page: *http://www.mmm.ucar.edu/wrf/user_main.html* as a beta release. The program is developed for the mass-coordinate WRF model only. The RIP user guide has been updated to reflect this new development, and can be found in the program tar file, as well as on *http://www.mmm.ucar.edu/wrf/users/wrf-post.html.* The near-future plan includes adding a capability to process wrfinput, new WRF SI netCDF output files, and idealized 3D and 2D WRF datasets.

4. SUMMARY

The two pieces of software (as shown below in the shaded ellipses) are designed to help MM5 users to make the migration to the WRF modeling system. The RIP software has been provided from the WRF Users' download page. We will be releasing the new RIP to the MM5 community as a replacement for the current RIP program. We plan to release the new VINTERP program that works with MM5 pressure-level data in the summer.