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**Geoscientific
Model Development
Discussions**

Interactive comment on "The Meteorology-Chemistry Interface Processor (MCIP) for the CMAQ modeling system" *by* T. L. Otte and J. E. Pleim

Anonymous Referee #1

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The reviewed manuscript presents as scientific paper a very important part of a broadly exploited air quality modeling system, namely the US Environmental Protection Agency's Community Multiscale Air Quality (CMAQ) modeling system. The described Meteorology-Chemistry Interface Processor (MCIP) is the software that links the various meteorological models' output to the Chemical Transport Model of CMAQ (CCTM). As far as main purpose of the meteorological models is to produce weather forecast data, its use for air pollution modeling needs special processing. In this respect, MCIP's functions are to read the meteorological model output data in its specific format, to perform respective coordinate transformations, to calculate additional atmospheric parameters and prepare the meteorological fields in a form required by CCTM.

In this processing special attention must be paid to consistency requirements, to account for the physical options in the meteorological model and many other important issues.

The reviewed paper is quite important for all CMAQ user community because the detailed descriptions of MCIP are quite few and often published in special reports, i.e. not easily accessible. As user, experienced enough in exploiting MCIP, my impression is that this piece of software is build in a so user-friendly manner that one is using it without being fully aware of the complexity and the scientific content of the program. The reviewed manuscript fulfils some gaps in fully understanding the scientific background of this interface software.

The reviewer has indicated some small bugs, namely:

- Pages 1464-5: the "-" sign in Eq. (11) disappears in Eq.(12)
- Page 1454, "windowing" paragraph: There is no explanation of "dot point ? cross point" conversion leading to decrease of maximal CMAQ domain with 3 cells (not two) regarding meteorological model domain.
- Page 1472, row 17: "to" omitted in ".... model to CMAQ ....."
- Page 1486, fig.2: I would recommend the Arakawa E grid to be added, as far as it is referred in Sect.8 (page 1473, row 11).

Interactive comment on Geosci. Model Dev. Discuss., 2, 1449, 2009.