**Atmospheric
Chemistry
and Physics
Discussions**

Interactive
Comment

Interactive comment on "Technical Note: Coupling of chemical processes with the Modular Earth Submodel System (MESSy) submodel TRACER" *by* P. Jöckel et al.

P. Jöckel et al.

We thank the anonymous referee very much for her/his positive perception of our manuscript and we especially appreciate very much her/his effort of thoroughly correcting the supplement. We certainly agree with all recommended changes and will incorporate them into the revised manuscript.

Here are the answers to the specific questions:

- p. 17087, line 15-17: It was not our intention to logically connect these two sentences. Nevertheless, the comment is well justified. The treatment of the different data instances for the family mode depends on the specific meaning of these instances, and therefore in turn on the applied time integration scheme of the base-

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

model. For the specific choice of three instances as described in section 2.2 (i.e., time step t, tendency and time step $t - \Delta t$) the conversion procedure is described in section 3. For other choices, the conversion routines need to be adapted. We will add a clarifying sentence to the summary of the revised manuscript.

- "Does the implementation of tracer families ...": The type-1 families are indeed designed as "transport families" and the calculation of the respective transport process (e.g., advection) is not required for the family members. Whether this is taken into account depends on the implementation of the transport algorithm, i.e., if the tracer meta-information is used. The tracer-to-family conversion of type-1 families correctly sets the meta-information, e.g., the transport is switched off for the family members. This meta-information switch can then be used to skip the family (type-1) members in the respective transport algorithm (as for instance implemented in ECHAM5/MESSy).
  For type-2 families it is required that the family and its members are treated in the same way by all processes, as explained in section 3.2.

- Fig. 1: There is actually nothing special about rank 5. It can be regarded as a spare rank for future use, e.g., for representations which require 4 indices. We will add a note to the revised figure caption.

- Fig. 3: The dashed box and the arrows indicate that TRACER is a "generic MESSy submodel", which means that it is itself coded as an ordinary submodel (i.e., split into SMCL and SMIL), but provides a part of the MESSy infrastructure (BMIL) and therefore can be used (in the Fortran95 sense) directly by ordinary submodels. Thus, the SMCL and SMIL of TRACER are shifted to the SMIL and to the BMIL, respectively. We will clarify this in the revised figure caption.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 17069, 2007.