**Geoscientific
Model Development
Discussions**

Interactive comment on "Coupling technologies for Earth System Modelling" *by* S. Valcke et al.

S. Valcke et al.

valcke@cerfacs.fr

Received and published: 24 October 2012

We would like to thanks Dr Linstead for his positive review of our paper. You will find hereafer a reply to his requests and comments.

Dr. Linstead mentions that he would like to see some mention of the drawbacks of the ESMF approach. To answer this request, we propose to add in the ESMF section after L19 on p.1991: "However, it is a large package that encompasses many functions and features, and users can expect a significant learning curve to master the software."

Dr Linstead's other comment is about "a brief summary of the coupled models to which each approach have been applied". We have already, in the submitted version of the paper, provided some details about the users of the different approaches in CMIP5 and we propose to complement these details as follows.

1) Use of ESMF in CMIP5 was described in the last paragraph on p.1991. We propose to add a description on how ESMF was used in the GEOS-5 model (indeed GEOS-5 uses ESMF throughout and is structured as a deeply nested hierarchy of ESMF components) as this was omitted in the submitted version. We also propose to add, before L20 on p.1991: "In all, ESMF is used for coupling in about 12 different modeling systems, totaling about 85 different components (see www.earthsystemmodeling.org/components/)."

2) For CPL7, we think it is quite clear that it is used only in CCSM4 and CESM1 and the participation of these models in CMIP5 was described (see the last paragraph on p.1993).

3) For FMS, we think it is quite clear that is is used in the GFDL coupled model only and its use in CMIP5 was extensively described in the last paragraph of the FMS section on p.1995.

4) Use of OASIS3 in different CMIP5 European coupled models was described in detail in the last paragraph on p.1996. For the (long) list of additional users, we propose to add a reference to the other paper on OASIS3 recently submitted to GMD and to the appendix therein, which provides a complete list of OASIS3 current users (see http://www.geosci-model-dev-discuss.net/5/2139/2012/gmdd-5-2139-2012.pdf).

5) Use of MCT in CCSM couplers for CMIP5 was mentioned at L13-16 on p.1998. For MCT additional users, we propose to add a reference to MCT web site where users are listed. The sentence could be: "MCT has also been used to form other coupled systems; a list is available on the MCT website (www.mcs.anl.gov/research/projects/mct/)."

6) BFG user (i.e. CIAS, where it is used to couple over 20 different Integrated Assessment model configuration) was described at L13-15 on p.2000, so we think there is nothing to add.

We hope these additions will answer Dr. Linstead's review.

Interactive comment on Geosci. Model Dev. Discuss., 5, 1987, 2012.