Geophysical Research Abstracts,
Vol. 10, EGU2008-A-09163, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-09163
EGU General Assembly 2008

Estimates of Fixed SST-forcing in the \\20th Century ENSEMBLES Stream One Simulations

E. Kaas (1), J-F Royer (2), H Huebener (3), F. Niehörster (3), J-L Dufresne (4), T. Johns (5), J. Lowe (5), P. Good (5), E. Roeckner (6), M. Esch (6)

(1) NBI, University of Copenhagen, Denmark, (2) CNRM Météo France, Toulouse, France, (3) Freie Universität, Berlin, Germany, (4) Lab. Météo. Dynamique (LMD/IPSL), Paris, France, (5) Met Office Hadley Centre, Exeter, UK, (6) Max-Planck Institut für Meteorologie, Hamburg, Germany

The motivation behind this work is to improve the understanding of differences between the general 20th century global warming simulated with five different ENSEMBLES global climate models.

The document describes estimations of climate forcings in the 20th century actually "seen" by five different European models which are all being used and further developed in the EU-project ENSEMBLES. The fixed sea surface temperature (SST) forcing approach has been used for all the models to enable intercomparisons of the results and - for some models - to allow for estimation of the second indirect aerosol forcing.

The estimated forcings are compared with the simulated evolution in global mean temperature over the 20th Century for the different models. It is found that there is a resonable relationship between the simulated climate evolution and the underlying forcing. This relationship is, however, less obvious when the known differences in transient climate sensitivity of the individual models is considered.

For one of the models the fixed SST forcing has been calculated independently for well mixed greenhouse gases, for the effects of sulphate aerosols, and for the combined case. The quasi linearity or additivity in different types of forcing found in some earlier studies is not as evident in the simulations reported here.