Geophysical Research Abstracts,
Vol. 11, EGU2009-4865-1, 2009
EGU General Assembly 2009

Optimisation of a fire model coupled with Hadley Centre coupled climate-carbon cycle model

T. Kasikowski (1), P. Falloon (1), B. Poulter (2), R. Betts (1), O. Boucher (1), and S. Venevsky (3)

(1) Hadley Centre, Met Office, Fitzroy Road, Exeter, EX1 3PB, United Kingdom (tomekkasikowski@yahoo.com), (2) Potsdam Institute for Climate Impact Research, Earth System Science, PO Box 601203, D-14412, Potsdam, Germany, (3) School of Geography, University of Leeds, Leeds LS2 9JT, United Kingdom

The objective of this work was to improve the fire model coupled to Hadley Centre General Circulation Model GCM - HadCM3LC. Equations which are different to those in the initial model have been proposed and tested. During this study the simple off-line model (not coupled with GCM) has been developed (performing much faster than GCM). It has been found, that results from off-line fire model and from GCM are in good agreement, and the off-line approach could successfully be employed in the process of fire-module development and optimisation.
The process of optimisation based on maximising the correlation coefficient between computed and observed burnt fraction: GFED (Global Fire Emissions Database). The final verification of optimal parameters found in off-line model has been done by their implementation to GCM. In effect of presented researches the correlation coefficient between improved fire model and observed burnt fraction has been increased from R=0.1549 (initial model) to R=0.4032 (modified one). Computed burnt area has been validated against other product of burnt area (L3JRC).