Geophysical Research Abstracts,
Vol. 11, EGU2009-4883, 2009
EGU General Assembly 2009

Fire model coupled with HadCM3LC – the principles

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This paper presents an overview of the new fire model that is coupled with the Met Office Hadley Centre GCM (HadCM3LC). Based on weather conditions (calculated by the GCM) and soil properties (land surface scheme) fire risk is calculated. Next, taking into account the vegetation cover (from dynamic vegetation model), the burnt fraction of grid cell is calculated.

Based on the calculated burnt fraction and literature parameters the release of CO2 is then calculated. Other outputs of the fire model are: immediate loss of vegetation (due to burning), postponed loss of vegetation (due to post-fire mortality) and temporal change of soil albedo. All of these outputs are coupled with appropriate subroutines of HadCM3LC, thus the impacts of fires on climate interactions and feedbacks can be investigated.