Geophysical Research Abstracts, Vol. 7, 00997, 2005
SRef-ID: 1607-7962/gra/EGU05-A-00997

Uncertainties in future extreme heat events for Europe and North America

R. Clark and S. Brown
Met Office (robin.clark@metoffice.gov.uk)

Quantification of uncertainties in changes of heat extremes with increased CO2 is essential for assessing risk. These uncertainties can arise from three main areas: emissions, natural variability and modelling. Modelling uncertainties can be sub-divided into structural, stochastic and parameterisation. We quantify the latter for heat extremes using a new large physics ensemble. This ensemble, using the global HadAM3 model coupled to a 50m slab (non-dynamic) ocean consists of 53 members each created by perturbing parameters identified as the most important for climate sensitivity. Uncertainties will be shown to be roughly half the size of the magnitude of expected changes in intensity, frequency and duration of heat events.

Anomalously large changes in extreme heat events, compared to changes in average conditions, as well as changes to long duration events will also be shown. Possible mechanisms behind these results, for example the effects of soil moisture on air temperature will be discussed.