Geophysical Research Abstracts, Vol. 8, 06451, 2006
SRef-ID: 1607-7962/gra/EGU06-A-06451

Sensitivity of global climate to perturbations in ocean DMS emissions

J. Gunson

Hadley Centre for Climate Prediction, Met Office (jim.gunson@metoffice.gov.uk)

The production of dimethylsulphide (DMS) by ocean phytoplankton is hypothesized to form part of a feedback process on global climate. Changes in the DMS flux to the atmosphere cause changes to aerosols for cloud formation, leading to changes in the amount of radiation reaching the ocean, and hence on the planktonic production of DMS. This hypothesis has been investigated using a coupled ocean-atmosphere general circulation model (COAGCM) that includes an ocean ecosystem model and an atmospheric sulphur cycle. Ocean DMS concentrations are parameterised as a function of chlorophyll, nutrient and light. The results of several sensitivity experiments, where ocean DMS emissions are perturbed, show a small negative feedback from climate change onto ocean DMS production. The behaviour of this feedback and its implications are discussed.