

Geophysical Research Abstracts,
Vol. 10, EGU2008-A-06861, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-06861
EGU General Assembly 2008
© Author(s) 2008



Land Use and Climate Change, historic simulations with EC-EARTH

M.K. van der Molen, B.J.J.M. van den Hurk and W. Hazeleger
KNMI, Royal Dutch Meteorological Institute, De Bilt, The Netherlands
(michiel.van.der.molen@knmi.nl)

Simultaneously with the rise of CO₂ concentrations from about 1850, changes in land took place, particularly the conversion of forest into crops and pasture in large parts of Eurasia, India and N-America. Rising CO₂ concentrations and deforestation have opposite radiational effects: rising CO₂ concentration increases the longwave radiative flux towards the earth's surface, slightly, but 24/7 and globally. Deforestation decreases the absorption of shortwave radiation, strongly (from about 13% to 20%), but only during daylight and locally. The European Center's atmospheric model (EC-EARTH) has been used to simulate these effects on the atmospheric circulation. These simulations are performed as part of the LUCID experiment (Land-Use and Climate, IDentification of robust impacts), where results from similar simulations with different models are intercompared. Here we present the first results of 150 year simulations with EC-Earth.