Geophysical Research Abstracts, Vol. 7, 07554, 2005
SRef-ID: 1607-7962/gra/EGU05-A-07554

Impacts on European property losses caused by severe storm events under climate change

G.C. Leckebusch (1), U. Ulbrich (1), and L. Fröhlich (2)

(1) Institut für Meteorologie, Freie Universität Berlin, (2) Institut für Geophysik und Meteorologie, Universität zu Köln (gcl@met.fu-berlin.de)

Severe wind storms are one of the most relevant meteorological extreme events over Europe. This was impressively demonstrated e.g. by the storm series of 1990, and most recently by the winter storms of 1999 (Lothar, Martin, and Anatol). Whether the frequency or intensity of such storm events has changed over the last decades is a matter of actual scientific research, although there are some hints of an increasing storm activity over the Northeast Atlantic and European region.

In this study we focus on the potential future conditions leading to property losses due to wind storms. Thus, we applied a simple damage model to coupled global climate models under climate change conditions (HadAM3, HadCM3). The damage model is based on the fact that property damages are caused by maximum wind speeds exceeding a certain threshold. Here we used the 98th percentile of the daily maximum wind speed.

The estimation of losses is calculated on an annual basis with NCEP Reanalysis data, and fitted to historical records from the German Insurance Association and the Association of British Insurers by linear regression. The application to climate model simulation reveals an increase of the potential damages over several regions in Western Central Europe in the SRES A2 scenario period (2070-2099) compared to nowadays climate conditions. This effect is more pronounced if no adaptation to changing conditions is taken into account.