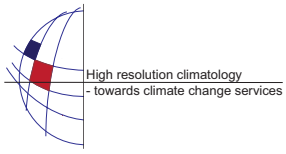
EMS Annual Meeting Abstracts
Vol. 7, EMS2010-532, 2010
10th EMS / 8th ECAC
© Author(s) 2010



The impact of climate change on severe convective storms over Europe

J. Sander (1) and N. Dotzek (1,2)

(1) DLR-IPA, Oberpfaffenhofen, Germany (julia.sander@dlr.de, Fax: +49-8153-28-1841), (2) ESSL, Wessling, Germany (nikolai.dotzek@essl.org, Fax: +49-8153-28-1841)

The impact of climate change on severe convection over Europe is assessed by deriving convection-indices on the basis of 3-dimensional meteorological fields of two simulations of the regional climate model CLM: one simulation for the past (1979-2000) and one for the future (2079-2100). Verification of the method is attained by comparing the results with sounding-derived parameters on the basis of radiosondes, ERA-40 reanalysis and severe storm reports from the European Severe Weather Database (ESWD).

Additionally, we will look at the relation between thunderstorm severity potential (TSP), Convective Inhibition (CIN), Convective Available Potential Energy (CAPE), deep-layer wind shear (DLS) and Lamb's circulation weather types (CWT) to investigate how the synoptic situation influences severe convection over continental Europe. If special circulation patterns change in the future, this might have an effect on the development of thunderstorms due to the modification in transport and advection of air mass. This study is part of the severe weather research project RegioExAKT (www.regioexakt.de).