Geophysical Research Abstracts
Vol. 14, EGU2012-2655, 2012
EGU General Assembly 2012

Arctic Cyclone Climatology: Present and Future

T. Spengler (1) and A.P. Ballinger (2)

(1) University of Bergen, Geophysical Institute, Mathematics and Natural Sciences, Bergen, Norway (thomas.spengler@gfi.uib.no, + 47 55 58 98 83), (2) Atmospheric and Oceanic Sciences Program, Princeton University, Princeton, New Jersey, USA

The Arctic waters and coastal areas have always been prone to severe weather due to high impact cyclone events, such as polar lows or major cold air outbreaks. Here we present a climatology of cyclones obtained with the University of Melbourne cyclone tracking routine. The data used is from a high-resolution model currently under development at GFDL, namely the cubed sphere global model. The model is run with a resolution of 50 km and with a full suite of physical processes in the atmosphere.

In a first step the model data and its cyclone climatology for the current climate is compared to the interim reanalysis from the European Centre for Medium Range Weather Forecast (ERA Interim). Cyclone strength, position and tracks are investigated for systematic differences and the capabilities of the model to represent the current cyclone statistics are discussed.

In a second step model data for two 10 years slices, 2026-2035 and 2086-2095, are analyzed. Changes in strength, location and tracks of the cyclones compared to the current climatological values are investigated. A comparison of dynamical processes sheds light on the nature of the changes and highlights potential reasons for the identified shifts.