



Analysis of North Atlantic Polar Lows by Two Tracking Methods

L. Xia

GKSS Research Center, Germany (lan.xia@gkss.de)

L. Xia, M. Zahn, F. Feser, H. von Storch

Institute for Coastal Research, GKSS Research Center, Geesthacht, Germany

K.I. Hodges

University of Reading, Reading, England

Abstract:

In this study we investigate the climatological features of North Atlantic polar lows by two different cyclone tracking methods. The first method by Zahn et al. (2008) is based on the digital bandpass filtered MSLP-fields in the spatial range 200~600km and is especially designed for polar lows. The second method is of Hodges (1995) also uses a bandpass filter in the same spatial range but based on the discrete cosine transforms (DCT) and applied to MSLP and vorticity fields. The latter was originally designed for cyclones in general and has been adapted to polar lows for this study. Both algorithms are applied to the same RCM output fields gained from dynamical downscaling the NCEP/NCAR reanalysis data. Temporal and spatial distribution of North Atlantic polar lows by these two methods are compared based on statistics of tracks, life time and intensity. Reasons of differences are discussed. Dynamical links between these features of polar lows and large scale pressure patterns will also be studied.