



The role of the daily time scale on anti-correlated centers of action in the Northern Hemisphere

C. C. Raible (1,2)

(1) University of Bern, Climate and Environmental Physics, Bern, Switzerland (raible@climate.unibe.ch, +41 31 631 8742),
(2) Oeschger Centre for Climate Change Research, University of Bern, Switzerland

The climate variability of the atmospheric circulation is characterized by a number of preferred patterns, the so-called teleconnection patterns. These patterns, like the North Atlantic Oscillation (NAO) or the Pacific North American (PNA) pattern, are defined by anti-correlated centers of action based on monthly seasonal means. However, the origin of the season-to-season (or month-to-month) anti-correlation is still not fully understood. Thus, in this study we focus on the role of the daily time scale and its contribution to this anti-correlation. Therefore, teleconnectivity of the 1000-hPa and 500-hPa geopotential height is estimated in daily and low-pass filtered ERA-40 data.

Preliminary results show that anti-correlated centers of action based on daily data are located at similar positions as yearly geopotential height anomalies during years with an extreme negative phase of the NAO, whereas during years with an extreme positive phase, the correspondence between anti-correlation patterns and geopotential height anomalies is less pronounced. Applying different low-pass filters to the data does not improve the correspondence during years with an extreme positive phase of the NAO, suggesting that the high-frequency atmospheric dynamics during years with a negative phase of the NAO is important of the season-to-season (or month-to-month) anti-correlation.