Geophysical Research Abstracts,
Vol. 11, EGU2009-6102, 2009
EGU General Assembly 2009

The seasonal cycle of northern Hemisphere teleconnection patterns

R. Faulwetter
Universität Leipzig, Institut für Meteorologie, Leipzig, Germany (faulwett@rz.uni-leipzig.de)

A method to calculate the seasonal dependence of circulation patterns is presented. The core of this method is a ”pattern matching algorithm”, which is able to match sets of circulation patterns from adjacent intervals of the seasonal cycle without subjective visual inspection, and to detect and bridge periods, where patterns are contaminated by mixing with other patterns. By applying the pattern matching algorithm to the EOFs calculated for each interval of the seasonal cycle a criterion for selecting appropriate EOFs for the calculation of rotated EOFs is formulated. The standard approach to use the N leading EOFs turns out to be only appropriate with N = 8.

The pattern matching algorithm is applied to the rotated EOFs, too, in order to obtain seasonal cycles of teleconnection patterns. A large number of runs is performed with various parameter choices. Some of the resulting seasonal cycles of rotated EOFs appear to be robust against parameter changes. These patterns resemble well-known teleconnection patterns. It is found that some teleconnection patterns should be interpreted as representatives of a continuum of similar patterns.