Geophysical Research Abstracts,
Vol. 11, EGU2009-3228, 2009
EGU General Assembly 2009

Impact of tropical diabatic heating variability on extratropical regional predictions

H. Lin
Meteorological Research Division, Environment Canada (hai.lin@ec.gc.ca)

An important task in a seamless approach is to improve the forecast skill on the intraseasonal time scale. Two examples are presented in this talk to demonstrate the importance of tropical signals in extratropical regional predictions.

Firstly, global teleconnections associated with the Asian summer monsoon convective activities are discussed, based on monthly data of 29 Northern Hemisphere summers. Two distinct teleconnection patterns are identified that are associated respectively with the Indian summer monsoon and the west North Pacific summer monsoon. A global primitive equation model is utilized to assess the cause of the global circulation anomalies. It is shown that the tropical diabatic heating variability associated with the monsoon has a far-reaching connection in both hemispheres. Secondly, the influence of the Madden-Julian Oscillation (MJO) on extratropical weather is analyzed. Time-lagged composites of the North Atlantic Oscillation (NAO) index for different phases of the MJO reveal statistically significant connections between the NAO and the tropical convection of the MJO. This process is responsible for a significant change in surface air temperature in Canada. The teleconnections associated with the tropical diabatic heating variability provide a useful information for extratropical regional extended-range forecast.