



On the link between the subseasonal evolution of the North Atlantic Oscillation and East Asian climate

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This talk will discuss the impact of the North Atlantic Oscillation (NAO) on the climate of East Asia at subseasonal time scales during both winter and summer. These teleconnections have mainly been investigated at seasonal and longer time scales, while higher-frequency links are largely unexplored. The NAO is defined using extended empirical orthogonal functions (EEOFs) on pentad-mean observations, which allows to elucidate the oscillation's spatial and temporal evolution and clearly separate the development and decay phases. The downstream dynamical imprint and associated temperature and precipitation anomalies are quantified by means of a linear regression analysis. It is shown that the NAO generates a significant climate response over East Asia during both the dry and wet seasons, whose spatial pattern is highly dependent on the phase of the NAO's life cycle. Temperature and precipitation anomalies develop concurrently with the NAO mature phase, and reach maximum amplitude 5-10 days later. These are shown to be systematically related to mid and high-latitude teleconnections across the Eurasian continent via eastward-propagating quasi-stationary Rossby waves instigated over the Atlantic and terminating in the northeastern Pacific. These findings underscore the importance of rapidly evolving dynamical processes in governing the NAO's downstream impacts and teleconnections with East Asia.