



Arctic influence and month-to-season scale predictability over northern Europe

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For climate change scenarios, it is widely believed that the sea-ice plays an important role through various feedbacks. But it is not yet established whether elements such as sea-ice have systematic effects that can be utilised for monthly and seasonal prediction. Seasonal prediction skills are low for northern Europe, but state-of-the-art models have not yet been incorporated a proper representation of sea-ice. The degree of seasonal predictability in northern Europe that can be attributed to Arctic sea-ice conditions, snow cover, and the state of the stratosphere is examined in addition to more traditional quantities such as the north Atlantic sea level pressure, sea surface temperature, and 2-meter temperature. Both coupled ocean-atmosphere general circulation models (GCMs) and empirical-statistical methods are used to identify possible teleconnection patterns. Empirical-statistical prediction models which incorporate a stochastic dimension are developed by randomly sub-sampling the calibration data or by employing boot strapping techniques in combination with persistence models. Empirical-statistical methods can also be used to compare teleconnection patterns in the observations with those in the GCMs. Results obtained so far will be presented. The predictability analysis will mainly focus on the temperature, but will also include precipitation and cyclone statistics.