

On the connection between Arctic sea ice and Eurasian snow in relation to the winter NAO

Master internship - María Santolaria Otín

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Many recent studies have revealed that sea-ice concentration (SIC) anomalies over the eastern Arctic, namely Barents-Kara Seas, and snow cover extent (SCE) anomalies over central Eurasia in autumn, i.e. in October-November, can influence the atmospheric circulation and surface climate variability in the following Northern Hemisphere winter. In particular, they may represent predictability sources of the North Atlantic Oscillation (NAO), which is the leading atmospheric variability mode in the Euro-Atlantic sector. The subject of the internship is to advance understanding of the connection between the two potential drivers/predictors.

Satellite-derived SIC and SCE together with re-analysis atmospheric datasets will be used to explore the predictability of the winter NAO and to study the associated dynamical processes. The target period is 1979-2015. Maximum Covariance Analysis, Empirical Orthogonal Functions and regression techniques will be employed. A focus on temperature and humidity advection terms will be undertaken. If time allows, similar analysis would be performed upon recent climate simulations with EC-EARTH3.1.

The internship frames within the MINECO-funded RESILIENCE project. The student is carrying out a Master on Meteorology at the UB, and has a good background in atmospheric dynamics, statistical analysis and bash programming.