Barcelona Supercomputing Center
Pablo Ortega
pablo.ortega@bsc.es

Climate impacts of Arctic Sea Ice minima based on observational analysis

The objective is to characterizing the sea ice minimum in spring 2018 to investigate its link with subsequent climate extremes over Europe.

Observational Products used in the study included:
(1) Sea Ice Concentrations from CERSAT,
(2) HadISST Geopotential at 500hPa (z500) from Japanese 55-year Reanalysis, and
Surface Air Temperature from EOBS v19.

Analysis included (Fig. 1)
(1) 6 analogous events to the Bering sea ice minima in 2018 are identified
(2) Composites maps averaging their related anomalies in z500 and SAT at subsequent months are computed
(3) Non coherent signals across the individual events are stippled

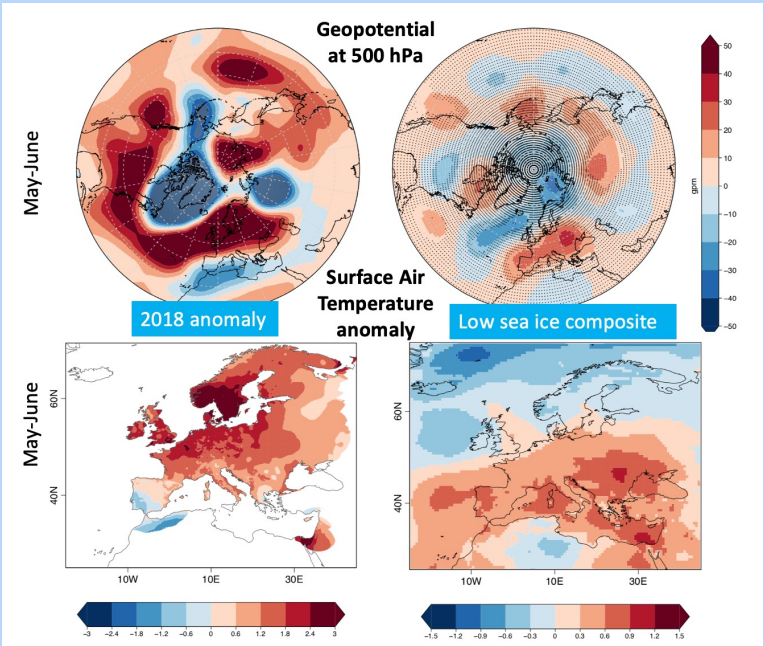

Figure 1. Anomalies in the z500 Geopotential and Surface Air Temperature

Main results: **Warm anomalies** in western Europe during **May-June** and later might be associated to **sea-ice driven** changes in the atmospheric circulation. The identification of climatic responses in Europe to extreme events in sea ice can be useful for companies from different economic sectors like agriculture, tourism or energy production.

Reference:
Francis, J. A., and S. J. Vavrus, Geophysical Research Letters, 39 (6), doi:10.1029/2012GL051000, 2012

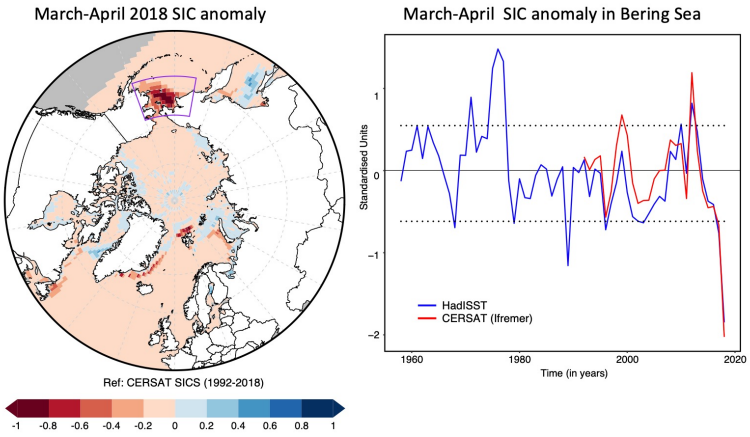

Figure 2. The 2018 anomaly in SIC and SAT

Contributors: F. López, J. Acosta, S. Wild, M. Donat and P. Ortega

INTAROS has received funding from EU's Horizon 2020 research and innovation programme - Grant Agreement No 727890