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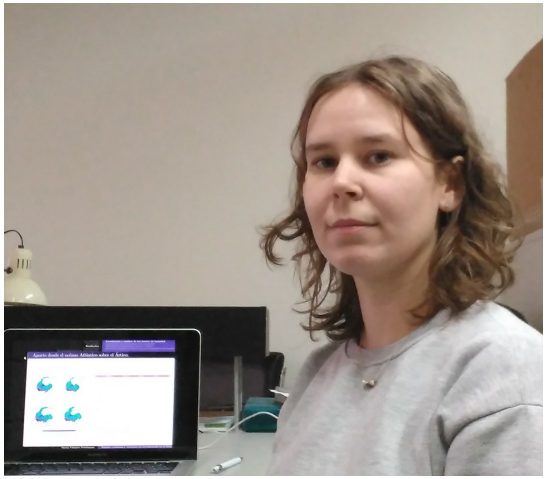
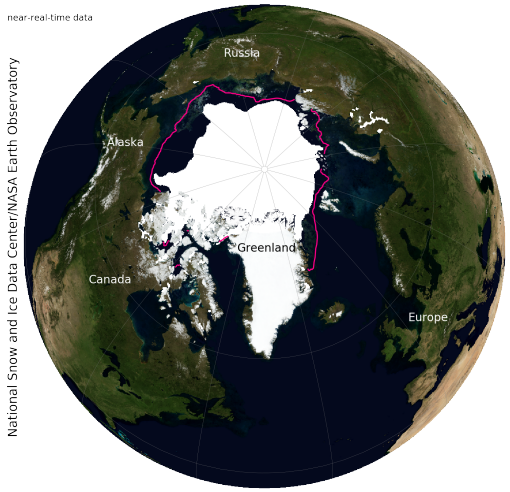
Nationality: Spanish
Date doctoral degree: 16/01/2018

Orientation: Ocean Observation and Global Change
Specialization Area: Ocean Observation
Research Line: 1.1 Physical Oceanography

DO★MAR
PHD PROGRAM IN MARINE SCIENCE, TECHNOLOGY AND MANAGEMENT





September 2017 Total extent = 4.9 million sq km
median ice edge 1981-2010

PhD project: **Oceanic and terrestrial sources of precipitation in the Arctic: New goals and orientations from a Lagrangian approach.**

Supervisors: Dr. Luis Gimeno Presa (University of Vigo)
Dr. Raquel-Olalla Nieto Muñiz (University of Vigo)

Summary: In this work, a characterization of the transport of moisture in the Arctic has been made through a Lagrangian perspective and an attempt has been made to relate this transport with the thaw observed in the region. The study of the transport of moisture in the Arctic is motivated by the recent changes observed in this region, which have an important implication in the atmospheric branch of the hydrological cycle. Knowing their climatological behavior constitutes a first step in the study of these implications as well as the causes of the observed changes.

The body of this work consists of a total of five articles published in specialized journals.

They analyze the transport of moisture in two directions: transport from the main sources of moisture to the Arctic, in order to study its influence on the region, and transport from the Arctic itself, to analyze the possible implications of the changes suffered in it in the last four decades. This analysis has been carried out through the Lagrangian FLEXPART model, by means of which the trajectory of the atmospheric particles can be traced in order to locate those regions where they take or lose moisture. Thus, taking into account the change in the specific humidity of the total of the particles, we can consider as sources those regions where total evaporation exceeds precipitation and as sinks to the opposite situation, when precipitation exceeds evaporation.