

Cecilia

Peralta-Ferriz

University of Washington

John D. Guthrie, University of Washington

Astrid Pacini, University of Washington

Craig Lee, University of Washington

Oral

Davis Strait – located between Baffin Island and Greenland at about 67°N – is 330 km wide and has a 640m deep sill. From 2004 to 2017, the Davis Strait observing program collected physical, chemical and biological measurements in the region as part of an international collaboration between institutions from the US, Canada, and Denmark. This international, multi-year effort resumed in 2020. Davis Strait is typically characterized by northward flow on the eastern side, and southward flow on the western side. While the net oceanic flow is predominantly southward, wind-driven events have been observed to cause full reversals of the flow sustained for various weeks, resulting in significant increases of oceanic heat fluxes from the south. In this study, we use in situ observations of ocean bottom pressure (OBP) in eastern and western Davis Strait from 2020-2022 to estimate horizontally-averaged transport through the strait using a simple pressure differential approach. Even though this method only accounts for the barotropic component of the flow through the strait, it still offers relevant information on the drivers of the flow variability at various timescales. By combining Davis Strait OBP records with one year of OBP data at the North Pole (2022-2023); three years of OBP data in the Canada Basin (2020-2023); Arctic and Sub-Arctic -wide satellite OBP data from GRACE-FO; and atmospheric reanalysis products from NCEP and ERA5, we will explore how Davis Strait transport is linked to atmosphere and ocean circulation in the wider Arctic and Sub-Arctic Seas.

Presentation file

[peraltaferriz-cecilia.pdf](#)

Meeting homepage

[GRACE-FO 2025 Science Team Meeting](#)

[Download to PDF](#)