



Chemical & Physical Sciences

UNIVERSITY OF TORONTO

MISSISSAUGA

Colloquium Seminar Series

Wednesday, December 11, 2024

3:15PM in CC3150

## From Surface to Depth: Unraveling the Labrador Sea's Climate Secrets

featuring Romina Piunno

PhD Student, Moore Group

CPS, University of Toronto Mississauga

The Labrador Sea is one of the few global locations where surface and deep oceans mix, making it crucial for Earth's climate system by redistributing heat and ventilating the oceans. Since the ocean is heated from above by the Sun, deep mixing will only occur if the surface is cooled sufficiently to cause the surface to become more dense than the waters below. The Labrador Sea is cooled by cold winds which blow off Canada during winter. Using a model, we study how atmospheric cooling affects the Labrador Sea's mixing, focusing on the North Atlantic Oscillation (NAO) and the Icelandic Low (IL). The NAO, defined by the pressure difference between Iceland and the Azores, influences local wind speed and direction, affecting cooling rates. A strong NAO drives effective cooling winds from the North-West, while the IL's variable winds are less effective at triggering mixing despite its proximity to the Labrador Sea.

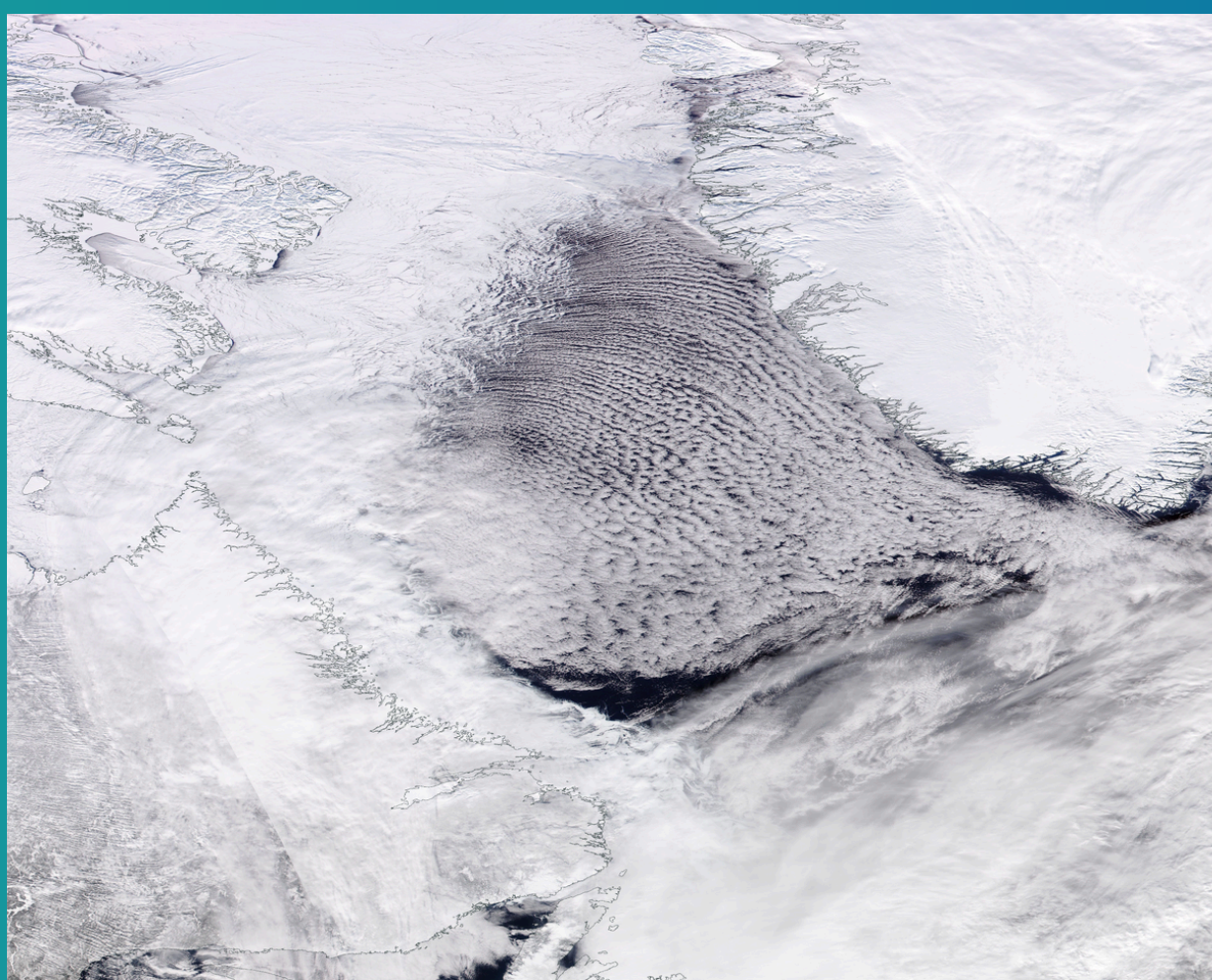


Photo credit: NASA Worldview 2023 Feb 22

## Quantitative Separation of Pharmaceutical Compounds by Chromatography

featuring Sarah Quail

PhD Student, Kanelis Group

CPS, University of Toronto Mississauga

The CPS Teaching Fellowship Program is designed to allow graduate students to develop new material for undergraduate courses. For my project, I am developing a new laboratory exercise for the second year analytical course, CHM211. In the lab, students will receive an unknown medication, the identity of which will be determined by separating the components of the unknown using column chromatography. The individual components of the medication will be identified using thin-layer chromatography and the concentration of each will be determined with the use of UV-Visible absorbance spectroscopy or a back-titration. During this presentation, I will present the experimental plan for this exercise and the work I have done so far in developing this experiment.

