



Fall Seminar Series

Thursday, October 16th @ 3 pm

Room 200, Oceanography & Physics Building

Or Via Zoom

Dr. Hilde Oliver

Woods Hole Oceanographic Institution

Title

**Rethinking Antarctic Polynya Productivity: The Impact
of Ice-Adjacency Effects on NPP Estimates Along Icy
Coasts**

ABSTRACT

Ocean color-based estimates of Antarctic net primary productivity (NPP) have indicated low nearshore productivity in ice-adjacent waters, contrasting with coupled physical–biogeochemical models. To understand this discrepancy, we assessed satellite records of polynya NPP by comparing field data with two satellite imagery datasets derived using different processing schemes. Our results indicate historical underestimation of chlorophyll for imagery obtained using default atmospheric correction processing within approximately 100 km of ice-covered coastlines due to adjacency effects. Using radiative transfer modeling, we find that biases in ocean color polynya observations due to adjacency effects correspond to the high albedo of ice and snow. When applying an atmospheric correction processing scheme more robust to adjacency contamination, estimates of NPP more than doubled in 65% of polynyas, especially smaller eastern Antarctic polynyas. Adjacency effects should therefore be accounted for when analyzing spatial and temporal trends in Antarctic coastal primary productivity.

Zoom: Contact OES Admin- OESadmin@odu.edu