

Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

Development of ice floe tracker algorithm to measure Lagrangian statistics in the eastern Greenland coast¹ ROSALINDA LOPEZ, MONICA M. WILHELMUS, Univ of California - Riverside, MICHAEL SCHODLOK, JIFRESSE, Univ of California- Los Angeles and JPL/Caltech, PATRICE KLEIN, JPL/Caltech and Ifremer — Sea ice export through Fram Strait is a key component of the Arctic climate system. The East Greenland Current (EGC) carries most of the sea ice southwards until it melts. Lagrangian methods using sea ice buoys have been used to map ice features in polar regions. However, their spatial and temporal coverage is limited. Satellite data can provide a better tool to map sea ice flow and its variability. Here, an automated sea ice floe detection algorithm uses ice floes as tracers for surface ocean currents. We process Moderate Resolution Imaging Spectroradiometer satellite images to track ice floes (length scale 5-10 km) in the north-eastern Greenland Sea region. Our matlab-based routines effectively filter out clouds and adaptively modify the images to segment and identify ice floes. Ice floes were tracked based on persistent surface features common in successive images throughout 2016. Their daily centroid locations were extracted and its resulting trajectories are used to describe surface circulation and its variability using differential kinematic parameters. We will discuss the application of this method to a longer time series and larger spatial coverage. This enables us to derive the inter-annual variability of mesoscale features along the eastern coast of Greenland.

¹Supported by UCR Mechanical Engineering Departmental Fellowship

Rosalinda Lopez
Univ of California - Riverside

Date submitted: 01 Aug 2017

Electronic form version 1.4