

Anomalous diffusion in sea ice dynamics

Ice floe diffusion in winds and currents

observations from GPS data:

Jennifer Lukovich, Jennifer Hutchings,
David Barber, *Ann. Glac.* 2015

- On short time scales floes observed (buoy data) to exhibit Brownian-like behavior, but they are also being advected by winds and currents.
- Effective behavior is purely diffusive, sub-diffusive or super-diffusive depending on ice pack and advective conditions - **Hurst exponent**.

modeling:

Huy Dinh, Ben Murphy, Elena Cherkaev,
Court Strong, Ken Golden 2022

floe scale model to analyze transport regimes in
terms of ice pack crowding, advective conditions

Delaney Mosier, Jennifer Hutchings, Jennifer Lukovich,
Marta D'Elia, George Karniadakis, Ken Golden 2022

learning fractional PDE
governing diffusion from data

