1116-86-1087 **Jennifer K Hutchings***, jhutchings@coas.oregonstate.edu, and **Andrew Roberts**, **Cathleen A Geiger** and **Jacqueline Richter-Menge**. *Spatial scaling of sea ice deformation.*

Horizontal deformation, divergence and shear, modifies the sea ice thickness distribution through ridging and lead opening. Hence it has profound effects on the survivability of pack ice in summer. We demonstrate the scaling properties of sea ice deformation with an array of drifting buoys in the Beaufort Sea.. Deformation is a multi-fractal process, and is scale invariant over spatial scales of 10-1000 km and temporal scales of hours to a day. However there is coupling between spatio-temporal scaling. Sea ice deformation displays coherence between scales of roughly 100 to 1000 km and synoptic time scales of days to weeks. The transition from a winter to spring ice pack is observed as a loss of coherence at greater than synoptic time scales, and changes in coherence are related to weather. At smaller spatiotemporal scales coherence is lost, with deformation tending to a white noise process. The lack of coherence at small scales suggests it is inappropriate to think of sea ice deformation as having a decorrelation length scale. Localization of deformation is observed to retain its character over the winter-spring transition. This has implications for model parameterization of thickness redistribution. (Received September 16, 2015)