

Sea Ice in Alaska's Arctic

Hajo Eicken

International Arctic Research Center, University of Alaska Fairbanks

heicken@alaska.edu

- Data & further information: sizonet.org; seaice.alaska.edu/gi/data; eloka-arctic.org/sizonet; seaiceatlas.snap.uaf.edu
- Chapter on Sea Ice Hazards in Ellis et al. (2015) *Coastal and Marine Hazards, Risks, and Disasters*, Elsevier, pp. 381-401



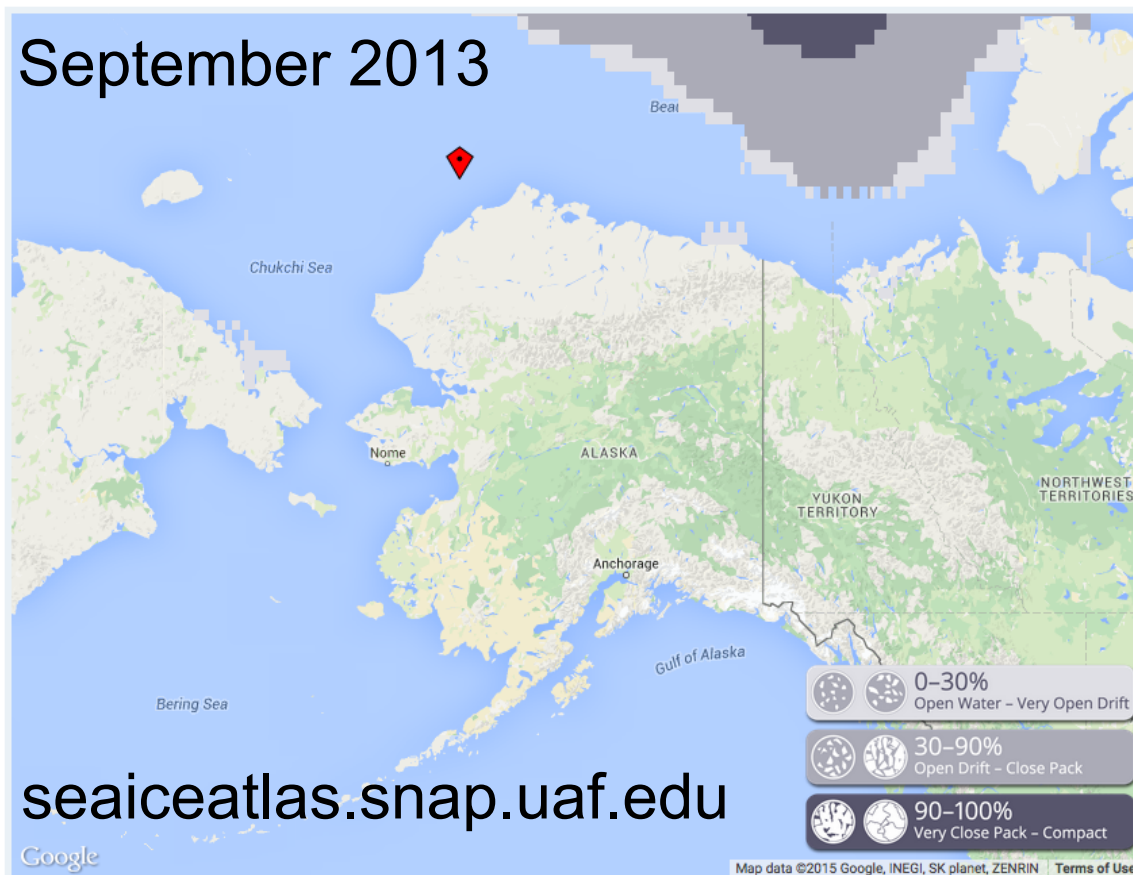
ARCTIC DOMAIN
AWARENESS CENTER
A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE



September 1852



September 2013



Reduced summer ice extent

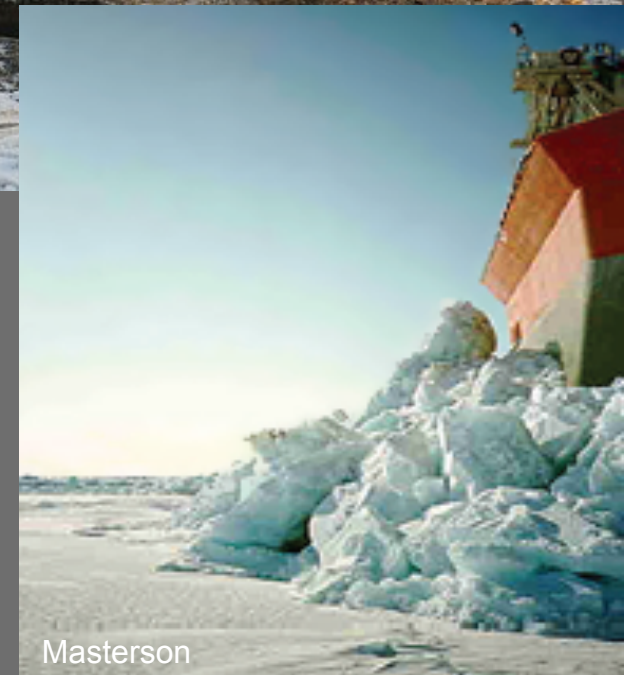
- Increased fetch & solar heating of surface ocean
- Greater wave heights & coastal heat transfer
- Impacts on coastal dynamics & retreat
- Reductions in multiyear ice

Sea-ice services, hazards & ice use

- Sea ice provides important services that have been disrupted, increased risks from hazards & exposure
- Slow onset
 - Climate regulation
 - Coastal protection
 - Geologic agent
 - Subsistence activities
- Rapid onset
 - Marine & coastal hazard
 - Transportation corridor
 - Platform

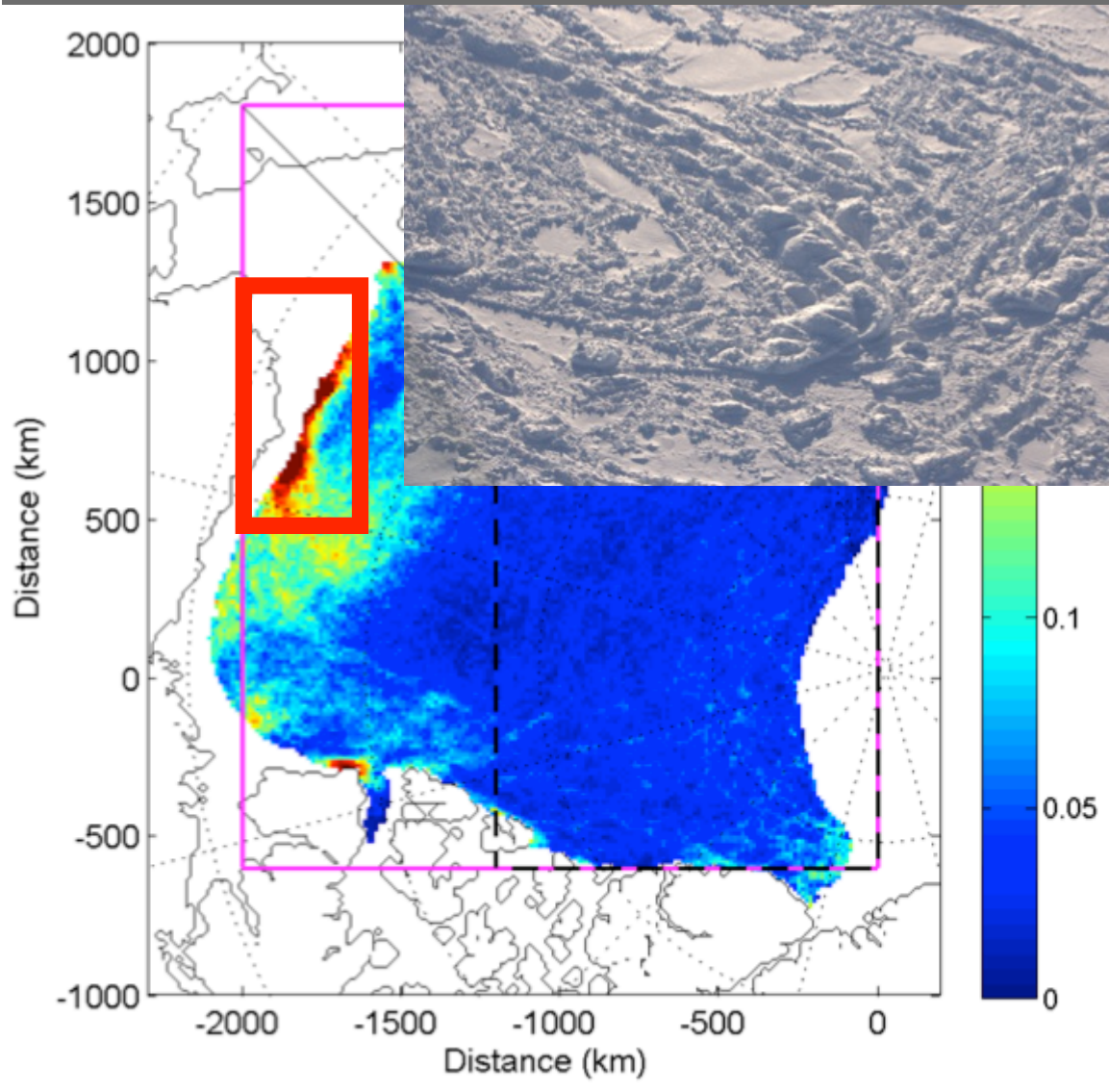


C. Nayokpuk, Shishmaref



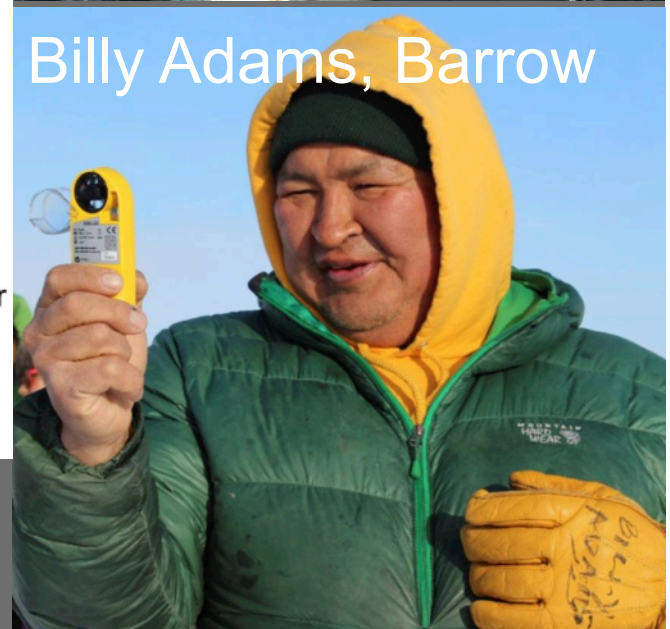
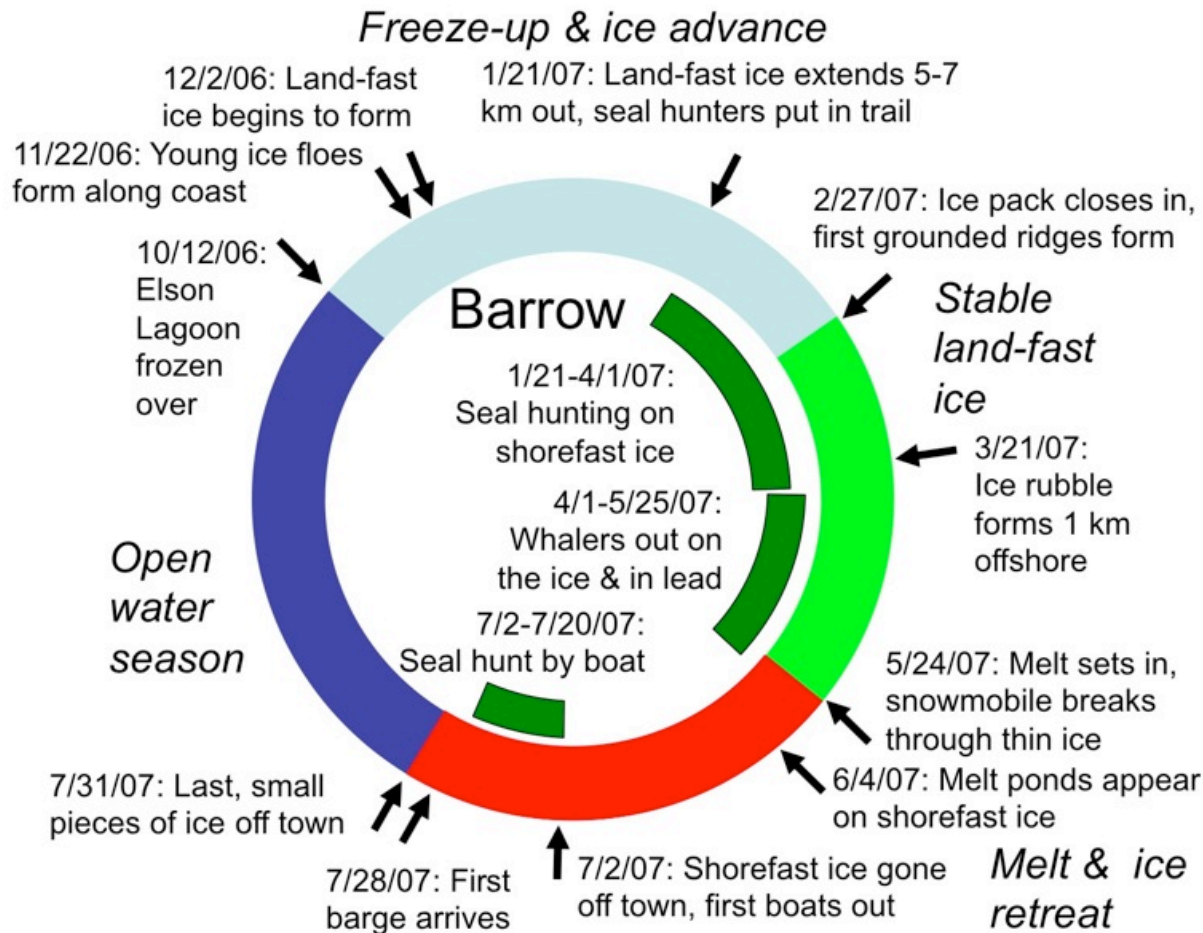
Masterson

AK Ice is more mobile & highly deformed



- Ice speed increased by factor more than a third since 1990s
- Old & deformed ice continues to drift into AK waters from higher Arctic
- Highly deformed sea ice is a key ice hazard – oil & gas exploration leases downstream

Alaska Indigenous ice experts: Changes in seasonal ice cycle – later freeze-up, earlier break-up, ice less stable



Community expert observations (>5000 daily logs)
<https://eloka-arctic.org/sizonet>

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