VOS

Voluntary Observing Ship Scheme

Port Met Officers

6th Session – virtual Meeting – 16 and 18 March 2021

Operational Ice Services at the U.S. National Ice Center

4.1 Ocean Prediction Centre (NOAA)

Kevin Berberich

NOAA/Ocean Prediction Centre

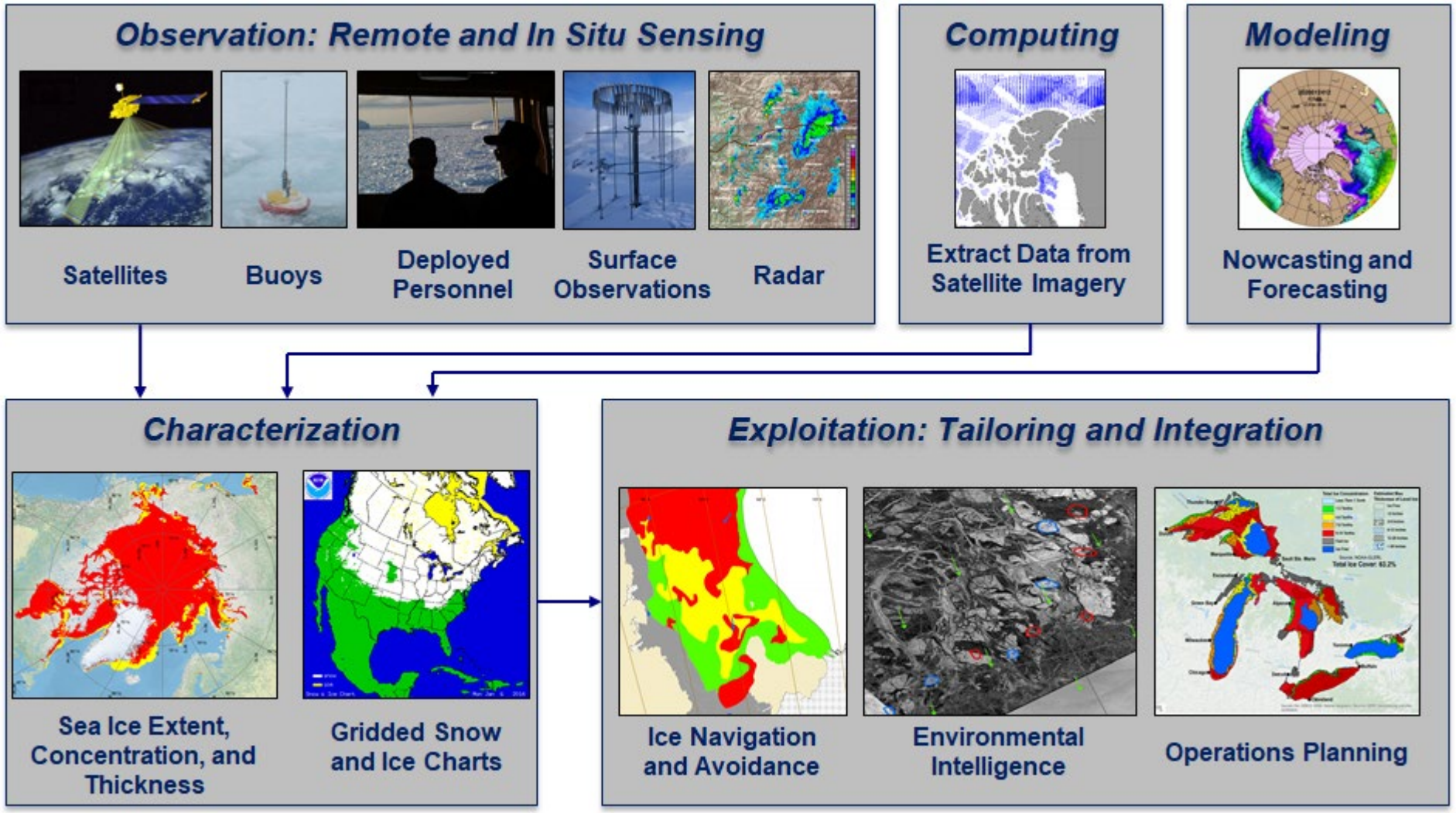
Kevin.Berberich@noaa.gov

VOS Voluntary Observing Ship Scheme
Port Met Officers

Mission Statement

The U.S. National Ice Center provides global to tactical scale ice and snow products, ice forecasting, and related environmental intelligence services for the United States government.

Domain Awareness



- Global area of responsibility
- Strategic to tactical scale support
- Reliance on in-situ information via buoys or ship obs
- Characterization of snow cover: surface observations used/highly valuable

Acquired Ice Observations – OPS Usage

- Information Source:
  a) Ice reports provided by U.S. Government icebreakers or other Government affiliated vessels [primary]
  b) Ice reports provided by commercial or non U.S. Government vessels
  c) Shoreline station reports
  d) Ice RECON flights
- Frequency of receiving ice observations: Daily
- Received via email [Account: nic_analyst@noaa.gov]
- Coverage Area: Arctic, Alaskan Waters, Great Lakes, and occasionally Antarctic
- Application: Verify ice location, concentration, and stage of development (thickness)
  a) Ice observations applied within chart production, and also
  b) Verification work

USCGC Polar Star enters the marginal ice zone during OPS Deep Freeze, 2018

Great Lakes Ice Observations

- **Source:** U.S. Coast Guard, Canadian Coast Guard vessels and shore stations
- **Frequency:** 1-3x daily during height of ice season
- **Application:** Directly used within ice charting and collaboration process shared by U.S. National Ice Center and the Canadian Ice Service for the Great Lakes region

Left Graphic: U.S. Coast Guard utilizes a variety of vessels for winter ops over the Lakes. Ice obs are accepted from any height above the water.

Right Graphic: Great Lakes Domain for ice charting responsibilities by both U.S. National Ice Center and Canadian Ice Service.

Great Lakes Ice Observations (Examples)

ICE REPORT 25FEB21 CGC MORRO BAY

1. Ice report: Cleveland to South East Shoal.
A. Location and time of observation: 41°36.595'N 081°55.836'W 1230
B. Visibility: 10 NM
C. Wind direction and speed: 243 @ 5 KTS
D. Air temperature: 35°F
E. Coverage (tenths): 2/10
F. Thickness and Method: 1-2IN; visual
G. Ice Description: Rotten plate ice
H. Notes: ICECON 2. Drifting plate ice with occasional windrows.

1. Ice report: South East Shoal to Detroit River Light
A. Location and time of observation: 41°51.268'N 082°33.417'W 1830
B. Visibility: 10 NM
C. Wind direction and speed: 218 @ 9 KTS
D. Air temperature: 30°F
E. Coverage (tenths): 7/10
F. Thickness and Method: 6-8IN; visual
G. Ice Description: Plate ice.
H. Notes: ICECON 3. Deteriorating plate ice with occasional small windrows.

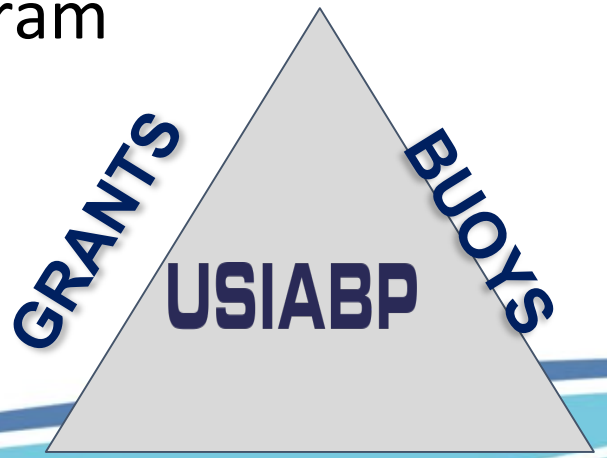
Above: Example ice report from the U.S. Coast Guard Cutter Morro Bay.

USCG Cutter Morro Bay.

Ice report from the Straits of Mackinac sent to the Canadian Ice Service and shared with U.S. National Ice Center.

Buoy Observations – Polar Regions

- Provides real-time data for operational requirements and research purposes
- U.S. National Ice Center incorporates buoy data within their analysis to assess forecast ice drift and QC modeled ice drift
- U.S. National Ice Center contributes to the International Arctic Buoy Program via the U.S. Interagency Arctic Buoy Program



Buoy Observations - International Arctic Buoy Program (IABP)

Co-manager

Co-manager

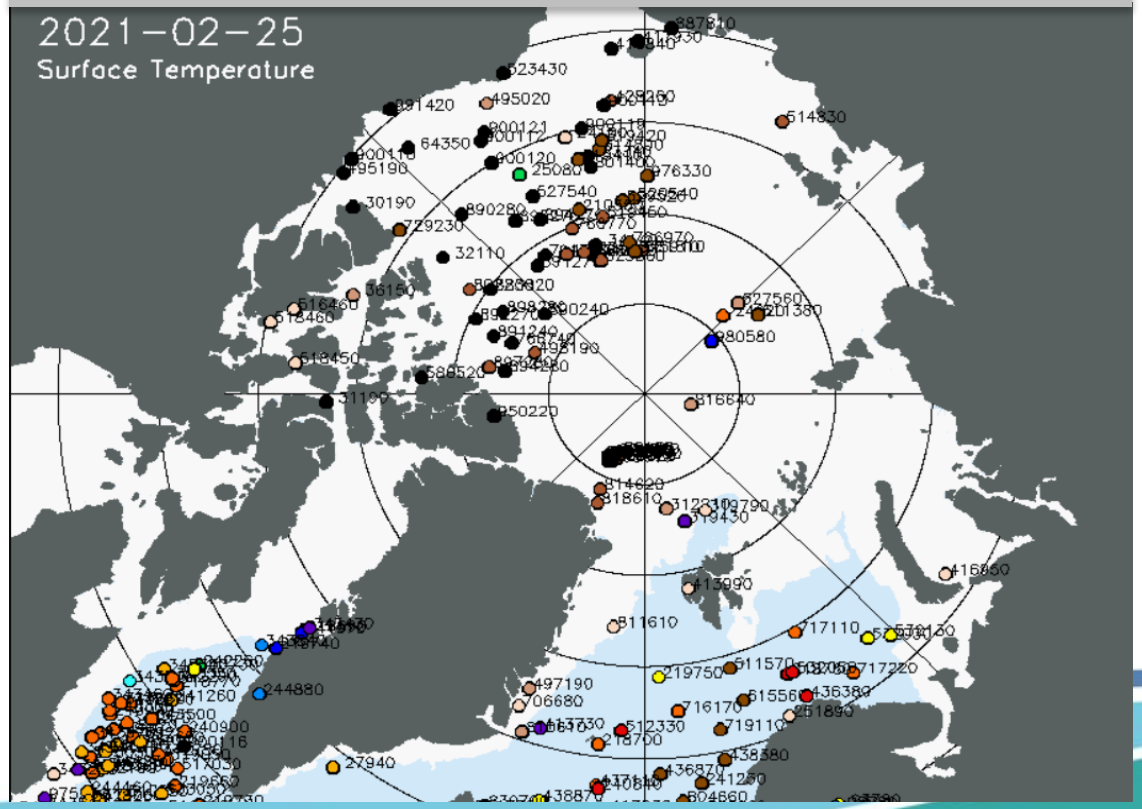
U.S. Interagency Arctic Buoy Program (USIABP)

IABP

Canada, China, France, Germany, India, Japan, Norway, Russia, Scotland, South Korea, Switzerland & USA

Buoys are vital for:

- In situ observations
- Initialization and forcing of NWP models
- Validation of satellite-derived environmental data
- Identifying trends in the polar environment



Questions and Comments

Command Duty Officer
nic.cdo@noaa.gov
nic.cdo@navy.smil.mil

Operations Floor: (301) 817-3975
CDO: (301) 943-6977

https://usicecenter.gov