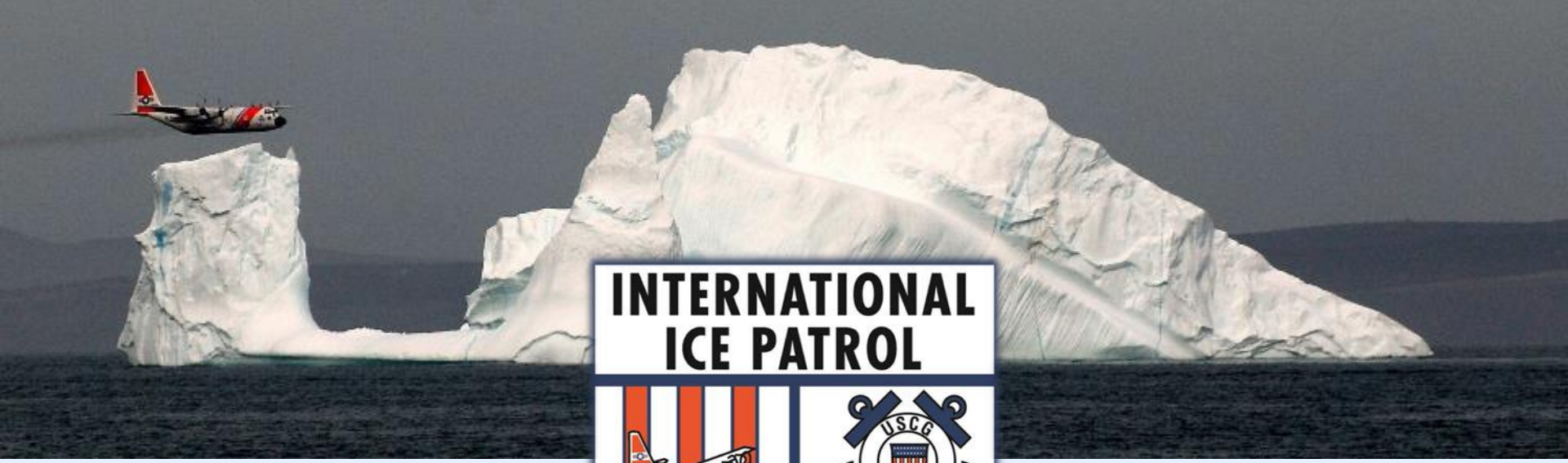


INTERNATIONAL ICE PATROL

Mr. Mike Hicks
United States Coast Guard

DoD Arctic S&T Synchronization Workshop

Arctic Maritime Operations Panel

16 May 2018

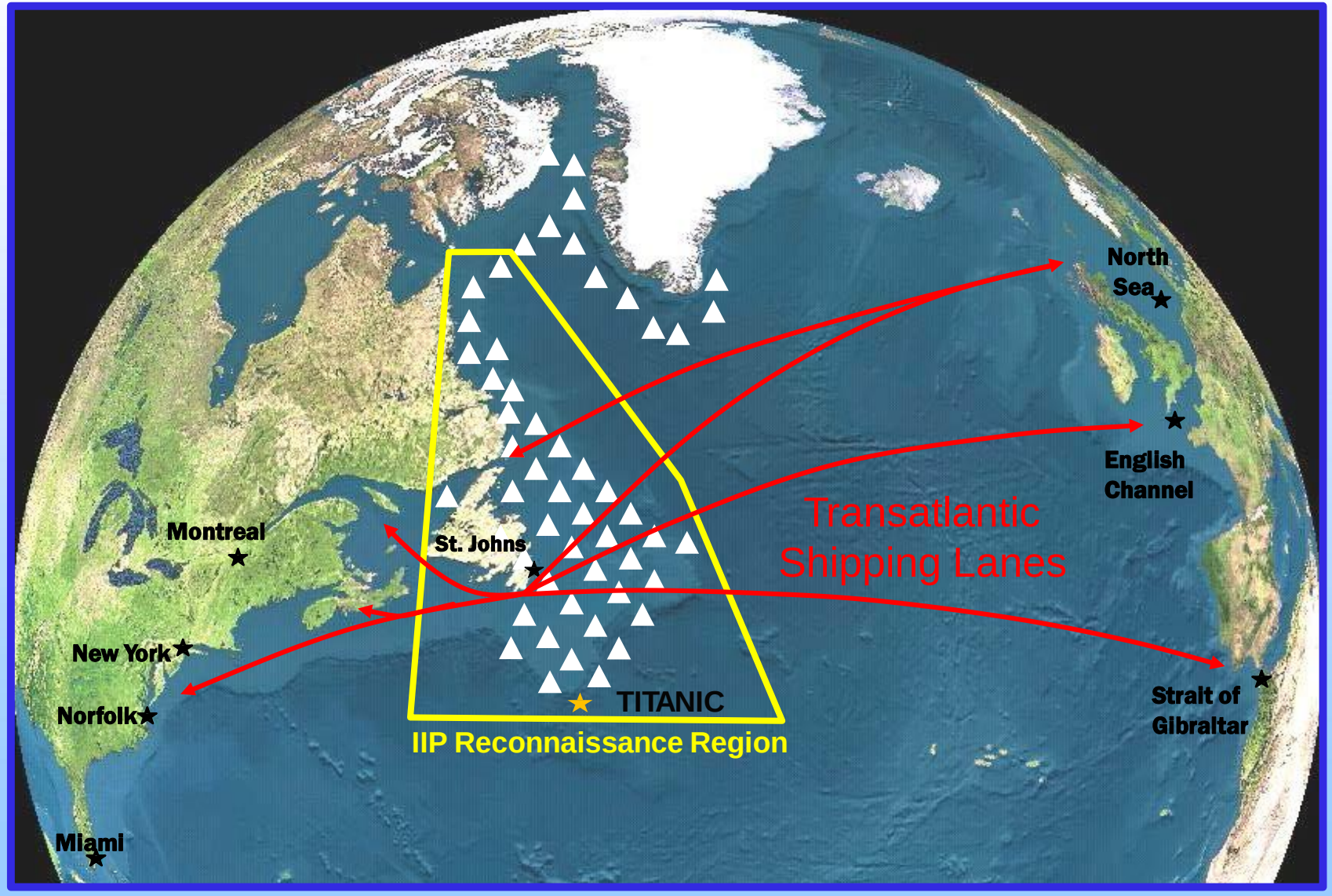
IIP Background

- In 1914, the International Convention for the Safety of Life at Sea (SOLAS) established IIP in response to the sinking of TITANIC on 15 April 1912.

- IIP Mission:

  Monitor iceberg danger in the North Atlantic Ocean and provide relevant ***warning*** products to the maritime community.

IIP Mission – Iceberg Reconnaissance

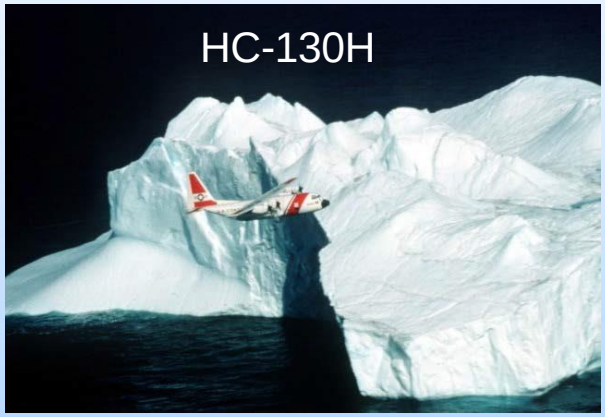


The Evolution of Iceberg Reconnaissance

From ships (1913-1950)

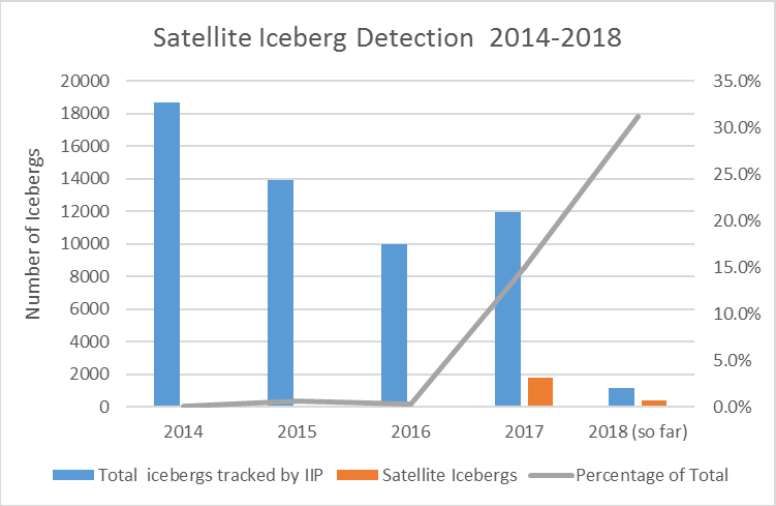
… to aircraft (1946-present)

to satellites (2017 and beyond)

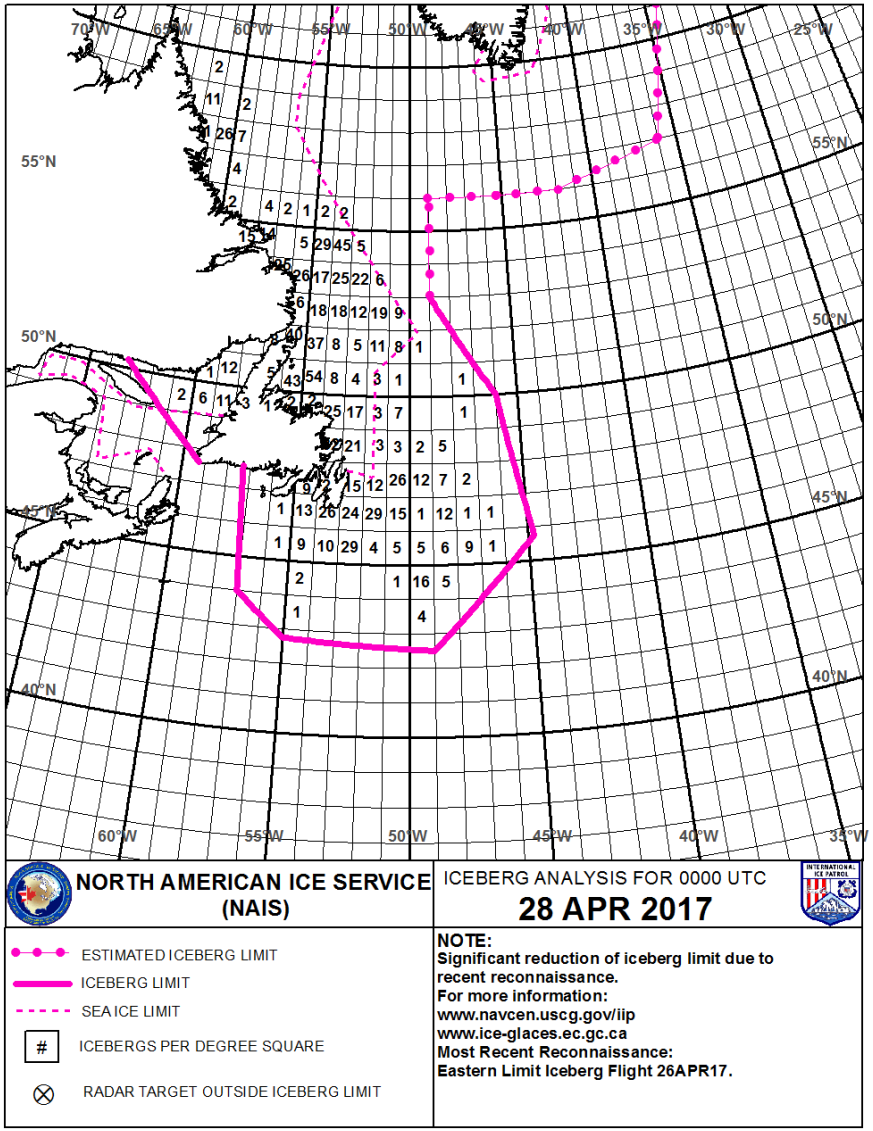


Satellite Remote Sensing of Icebergs

- Prior to Sentinel-1 a & b routine use of satellites was cost-prohibitive
- IIP began operational use of Sentinel-1 data in 2017:
  - High resolution data available at no-cost
  - Predictable orbits and modes allow operational planning
  - Tremendous increase in icebergs detected by satellite (mostly Sentinel-1)



IIP Mission – Iceberg Warnings



IIP is a small US Coast Guard organization which:

- Receives reports on 1000s of iceberg in New London, CT Operations Center
- Employs mathematical models to forecast iceberg drift and deterioration
- Provides a daily depiction of iceberg limit and distribution by various means

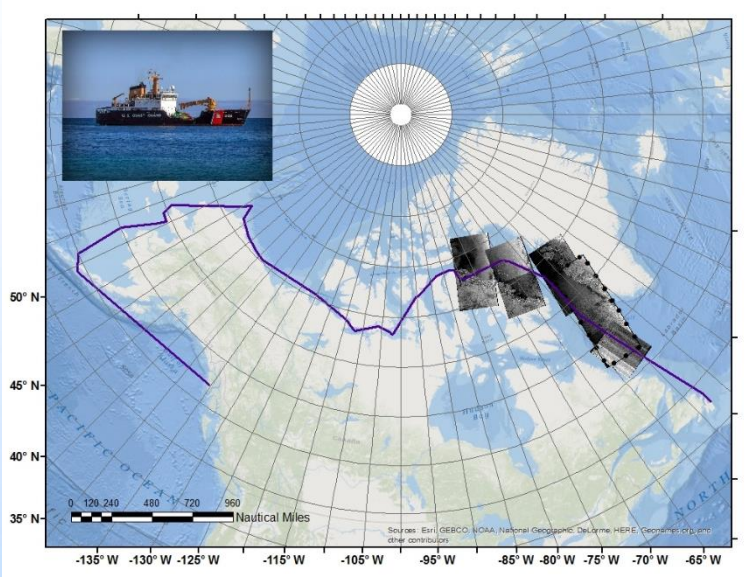
Not a single ship, heeding IIP's warnings has struck an iceberg since its inception in 1914

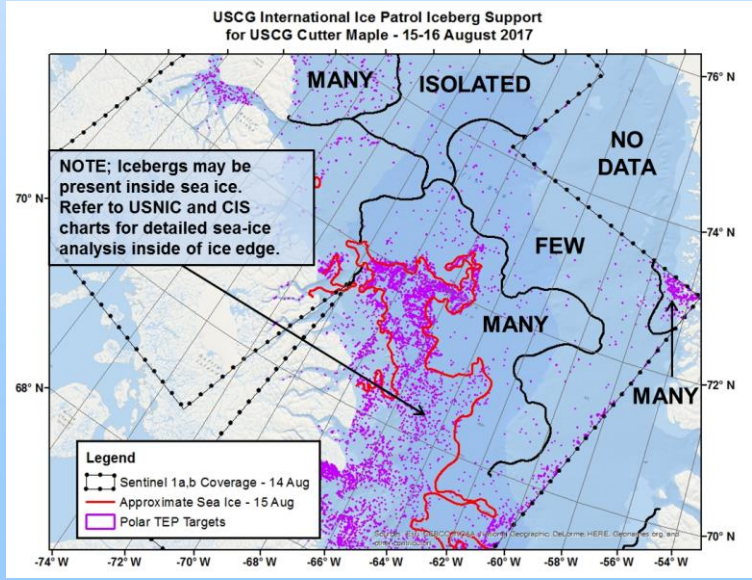
Example iceberg warning graphic distributed daily by IIP

The North American Ice Service (NAIS)

- An international partnership between the Canadian Ice Service, USNIC, and IIP.
- Danish Meteorological Institute and NWS, Alaska are NAIS "Observers"
- Mission: to leverage the strengths of these organizations to monitor and provide the highest quality, timely, and accurate ice analysis to meet the needs of the maritime interests of the US and Canadian governments in support of:
  - Safe and efficient maritime operations;
  - Weather and environmental modelling;
  - National and environmental security;
  - Research and climate understanding; and
  - International treaty obligations

NAIS Support of USCGC MAPLE





- Ice information support - an outstanding example of NAIS partnership:
  - USNIC leadership and daily sea ice analysis product
  - CIS analyst advice as MAPLE transited Canadian archipelago
  - IIP iceberg support after NW passage transit
- IIP developed iceberg density product based entirely on remote sensing (Sentinel-1)

IIP Iceberg density product for 15-16 August 2017

Questions?