

Iceberg Monitoring Within the North American Ice Service



Photo by Dennis Flynn (2008)



*CDR Lisa Mack
20 June 2011*



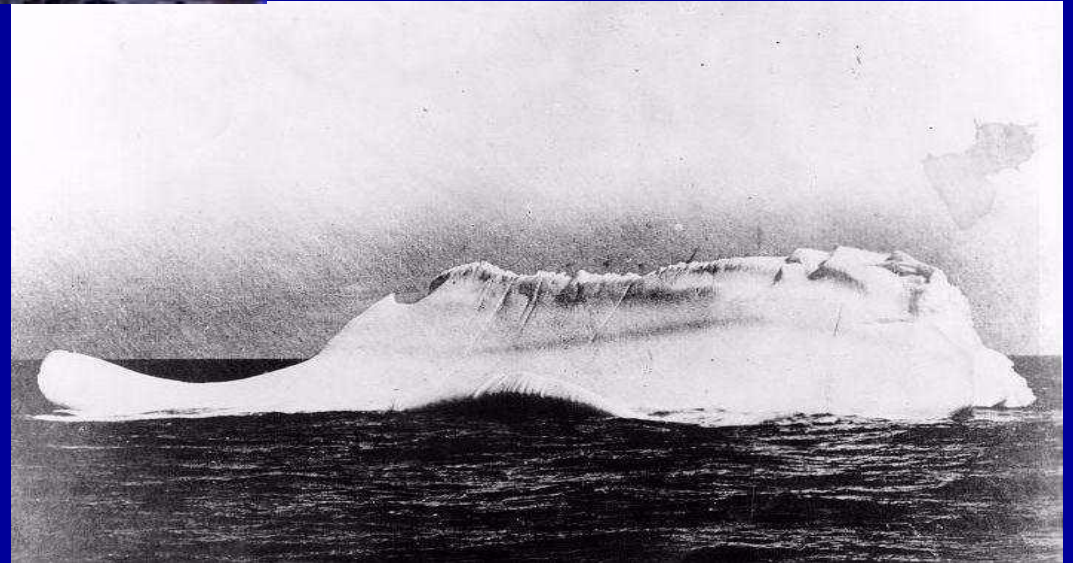


Outline



- I. *Mission overview*
 - *International Ice Patrol*
 - *North American Ice Service*
- II. *Mission execution*
 - *Reconnaissance*
 - *Products*
- III. *NAIS Initiatives*
 - *Future Customer Needs*
 - *Future Area of Responsibility*
 - *Future of Mission Execution*

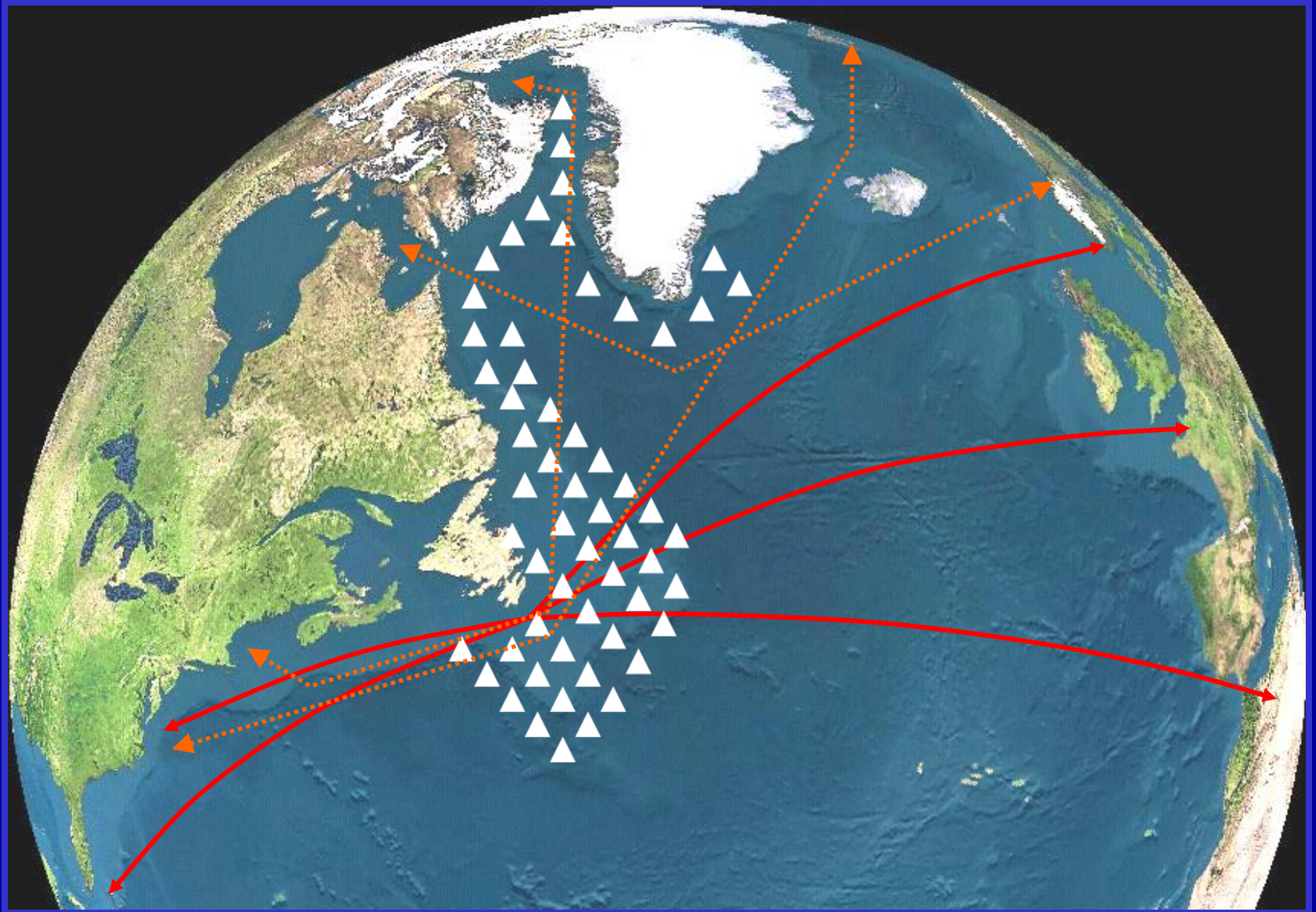
Mission History



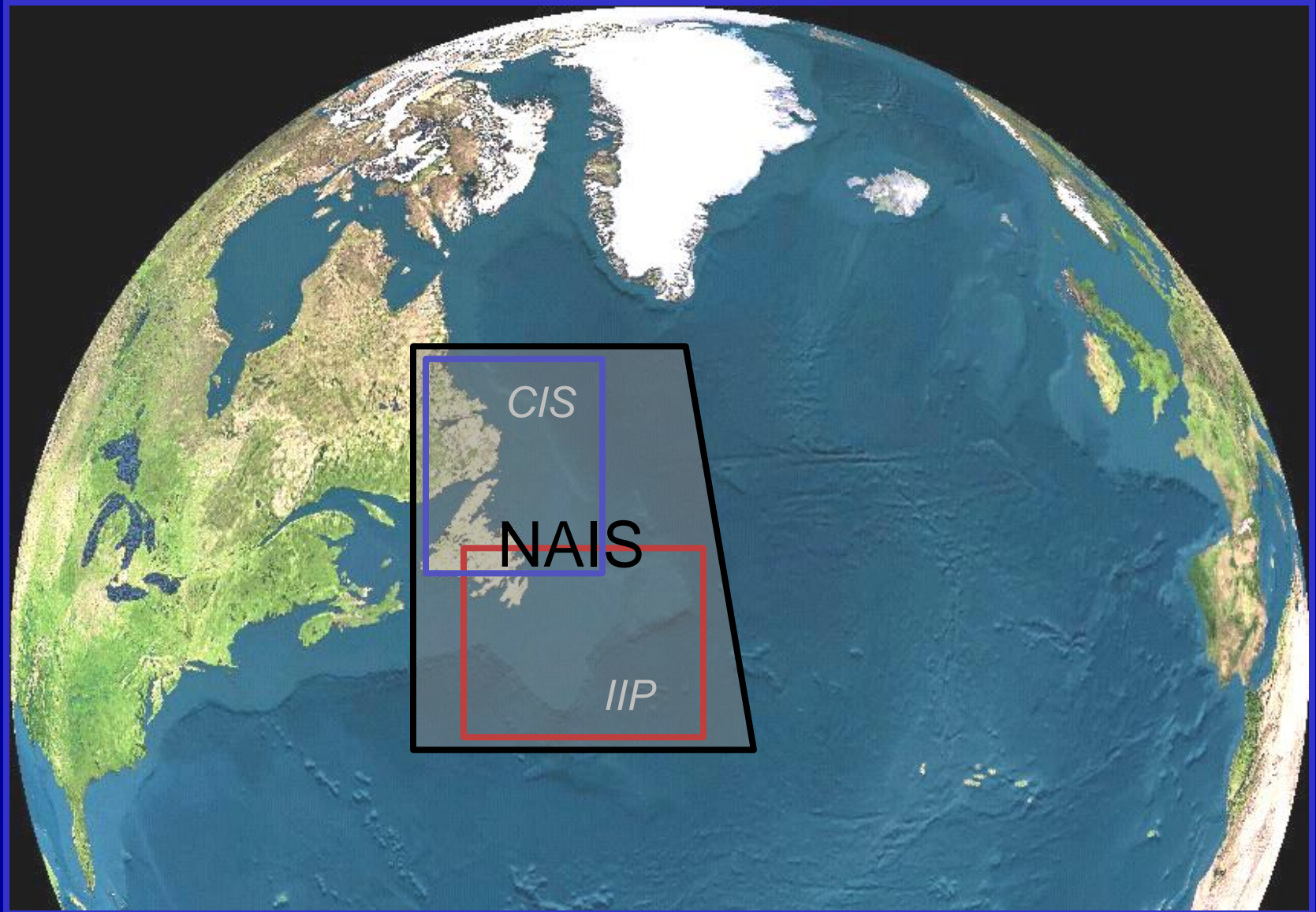
Do Modern Ships Hit Icebergs?



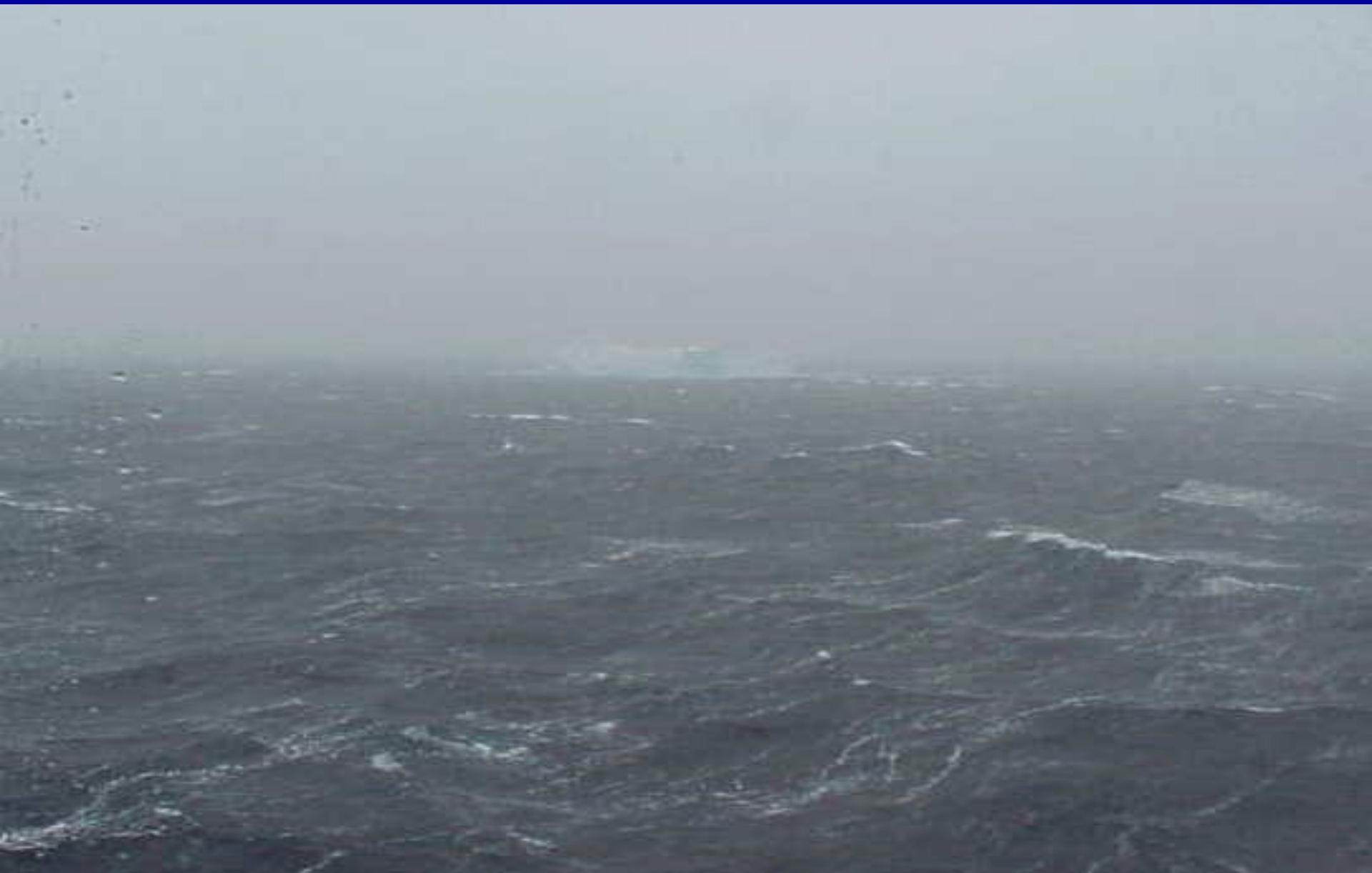
International Ice Patrol Mission: monitor iceberg danger near the Grand Banks of Newfoundland and provide the iceberg limit to the maritime community



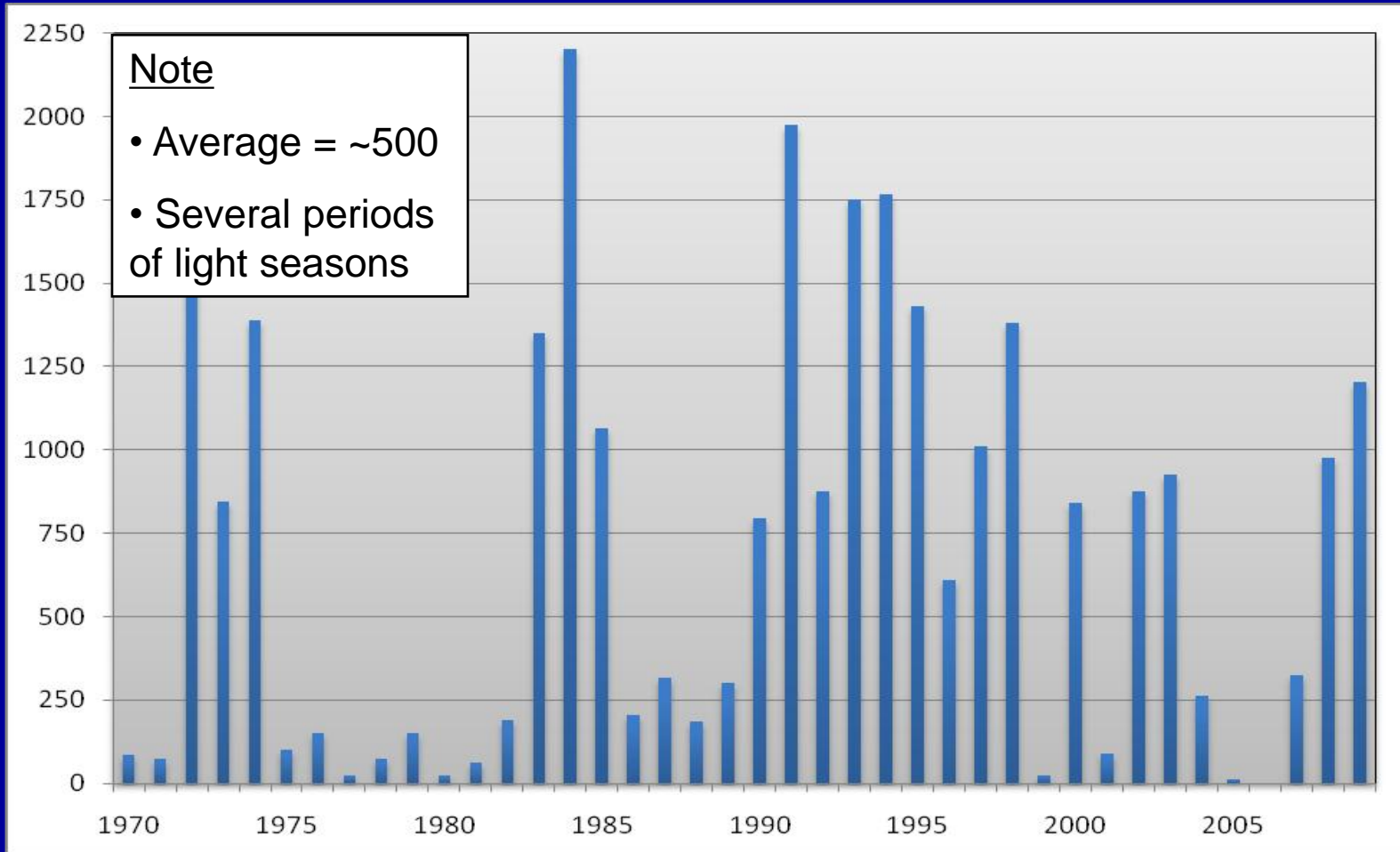
North American Ice Service Mission: transform individual organizational strengths into a unified source of ice information and meet all marine ice information needs and obligations of the U.S. and Canadian governments



Area of Responsibility



Interannual Variability

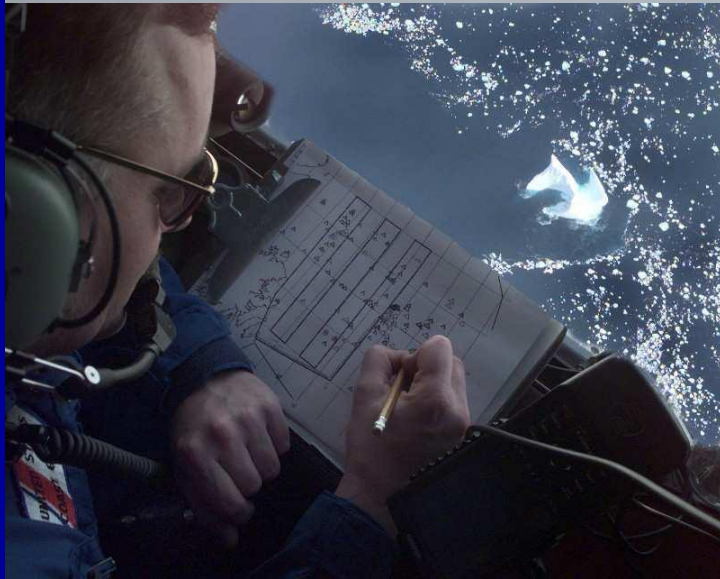


*Number of Icebergs South of 48N
(1970-2009)*

Mission Execution



Aerial Reconnaissance



Visual

Ice Observers



Radar

ELTA-2022 & APN-241

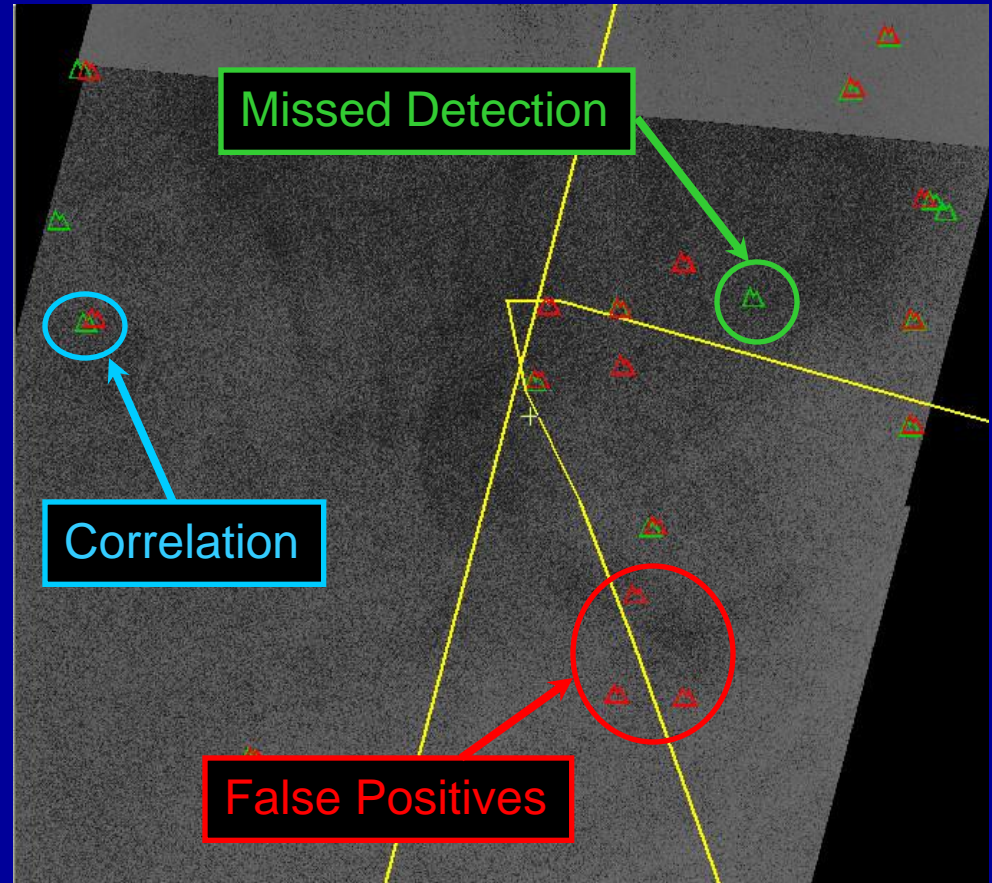
Other Sources

- *Aerial*
 - *Canadian Ice Service*
 - *Oil & gas industry*
- *Surface*
 - *Canadian Coast Guard*
 - *Mariners*

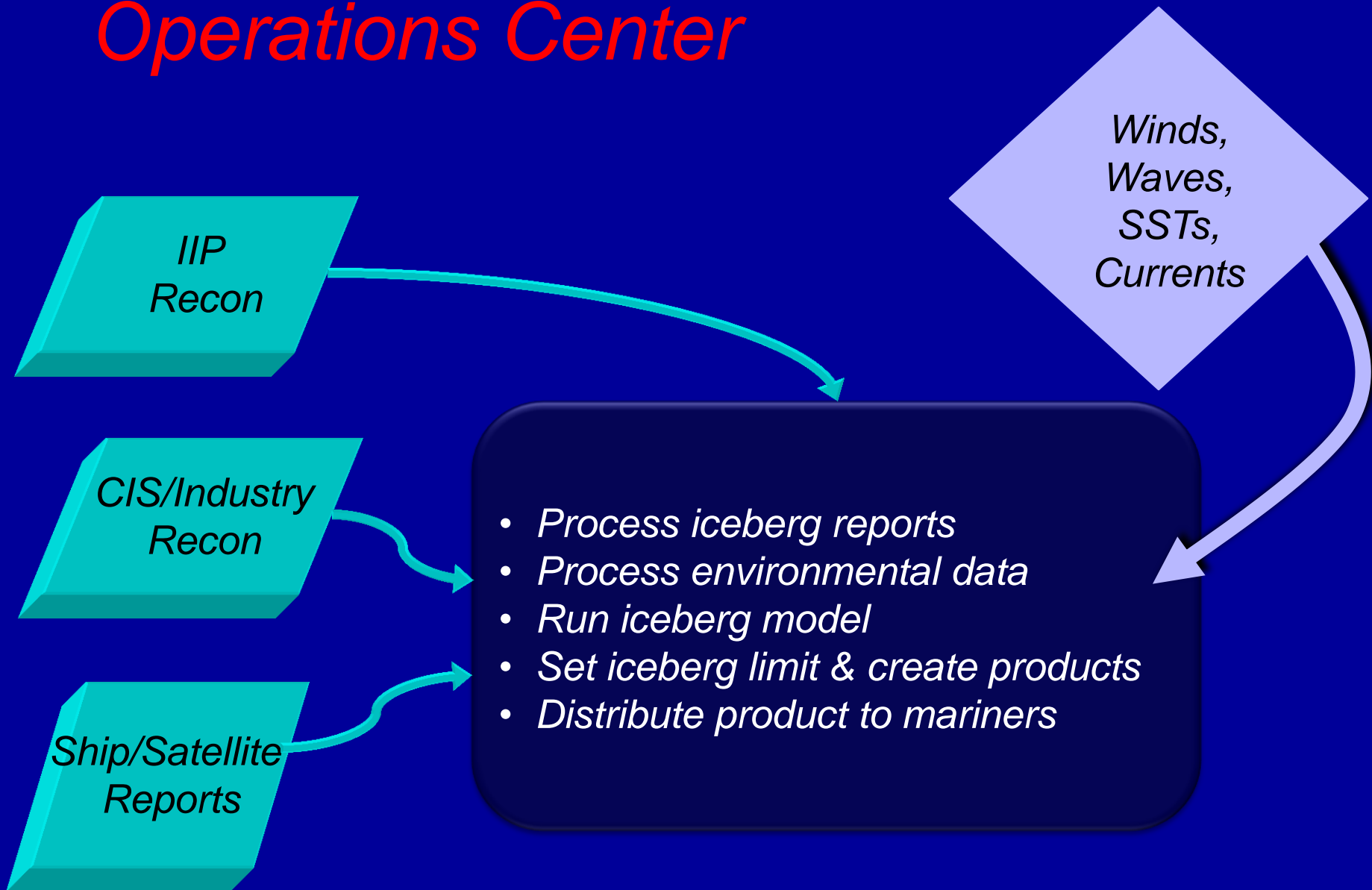


Space-Borne Reconnaissance

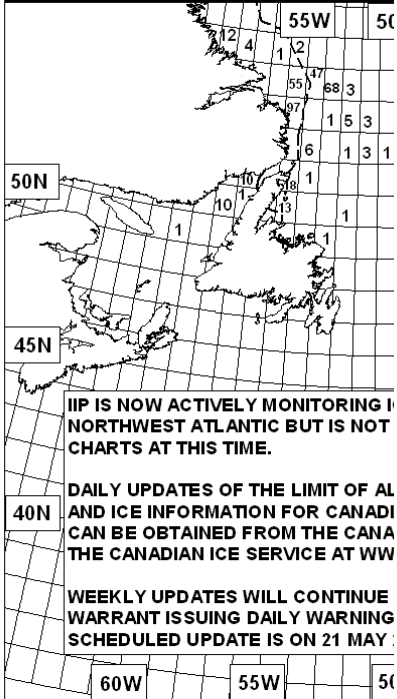
- *Challenges:*
 - *Access*
 - *Cost*
 - *Coverage*
 - *Discrimination*
 - *Resolution*
- *IIP/CIS studies in 2011*
- *NAIS evaluation in 2011*
 - *Radarsat-2 - C-CORE*
 - *TerraSar X - NIC*
 - *Underflight - IIP*



Operations Center



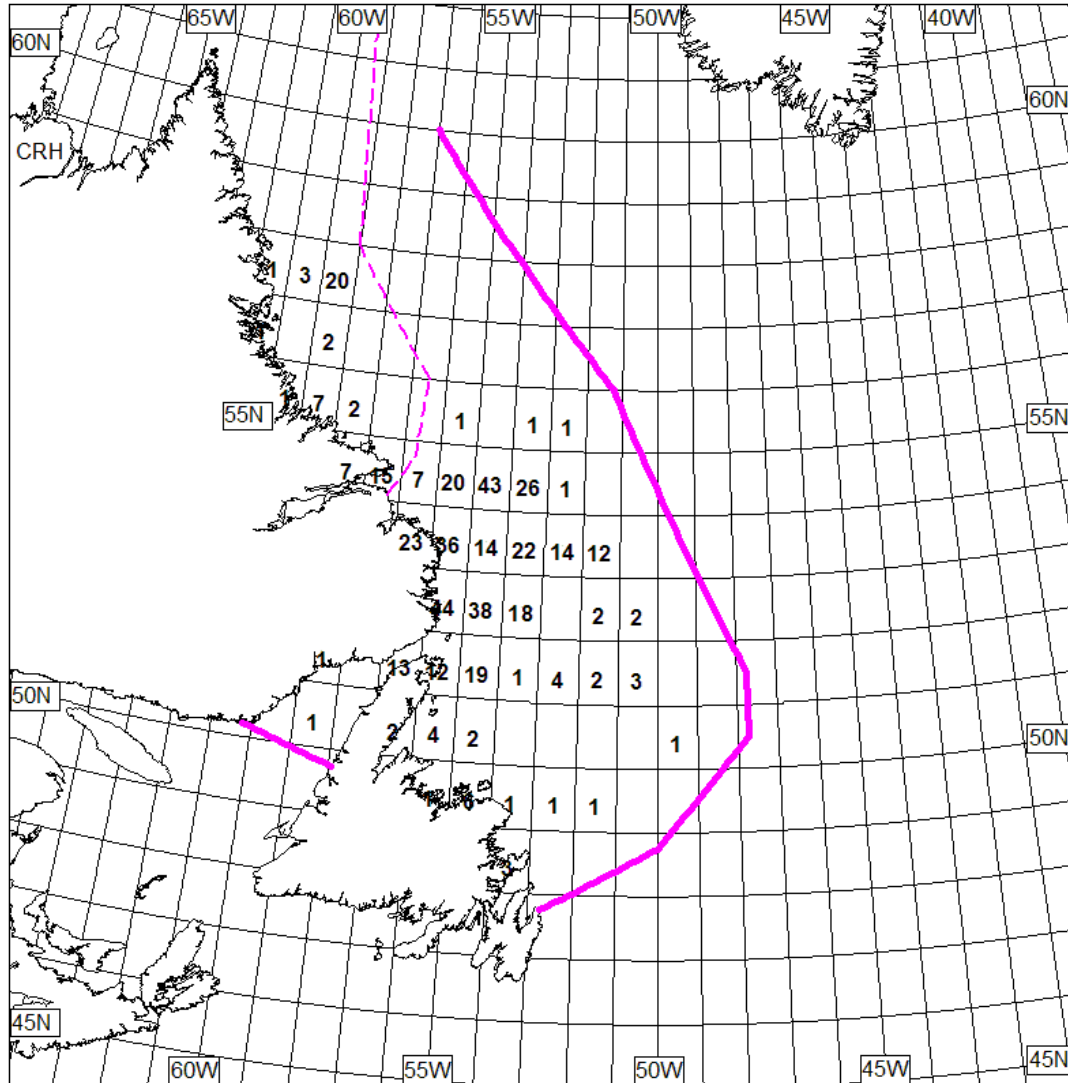
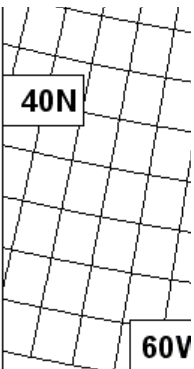
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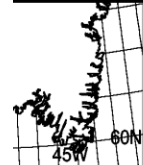
IIP IS NOW ACTIVELY MONITORING IN NORTHWEST ATLANTIC BUT IS NOT CHARTS AT THIS TIME.

DAILY UPDATES OF THE LIMIT OF AL AND ICE INFORMATION FOR CANADI CAN BE OBTAINED FROM THE CANA THE CANADIAN ICE SERVICE AT WW

WEEKLY UPDATES WILL CONTINUE WARRANT ISSUING DAILY WARNING SCHEDULED UPDATE IS ON 21 MAY



TH OF ART. 50N



NOTE: EMPTY SQUARES INSIDE THE ICEBERG LIMIT MAY CONTAIN GROWLERS OR BERGY BITS.

NOTE: LES CARRES VIDES A L'INTERIEUR DE LA LIMITE DES ICEBERGS PEUVENT CONTENIR DES FRAGMENTS D'ICEBERG OU DES BOURGUIGNONS.

**NORTH AMERICAN ICE SERVICE
SERVICE DES GLACES
DE L'AMERIQUE DU NORD**

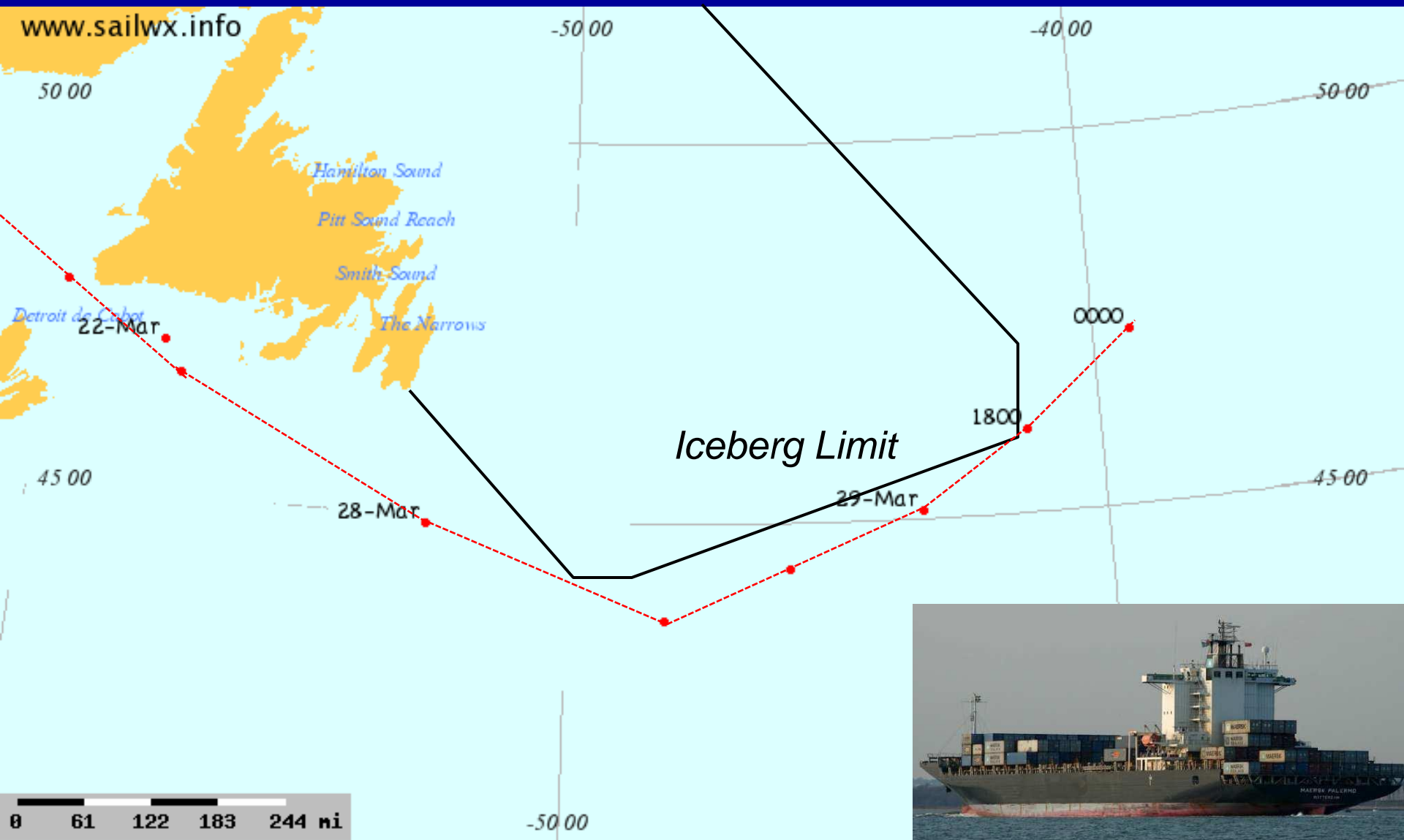
**ICEBERG ANALYSIS / ANALYSE D'ICEBERGS
FOR / POUR 1200 UTC
01 JUN / JUN 2011**

- ICEBERG LIMIT / LIMITE DES ICEBERGS
- SEA ICE LIMIT / LIMITE DES GLACES
- ICEBERGS PER DEGREE SQUARE
ICEBERGS PAR DEGRE CARRE
- RADAR TARGET OUTSIDE ICEBERG LIMIT
CIBLE RADAR A L'EXTERIEUR DE LA
LIMITE DES ICEBERGS

NOTE / NOTER:
SIGNIFICANT REDUCTION OF ICEBERG
LIMIT
REDUCTION SIGNIFICATIVE DE LA LIMITE
DES ICEBERGS



Customer Behavior





NAIS Initiatives



2011:

- *Harmonized iceberg chart*
- *Started operational evaluation of NAIS iceberg model*
- *Satellite studies (IIP/CIS)*
- *Satellite operational evaluation*

2012+:

- *Develop NAIS reconnaissance strategy*
- *Iceberg Analysis and Prediction System replacement*
- *Continue operational evaluations (model, satellite)*
- *Harmonize iceberg text products, develop ECDIS product*

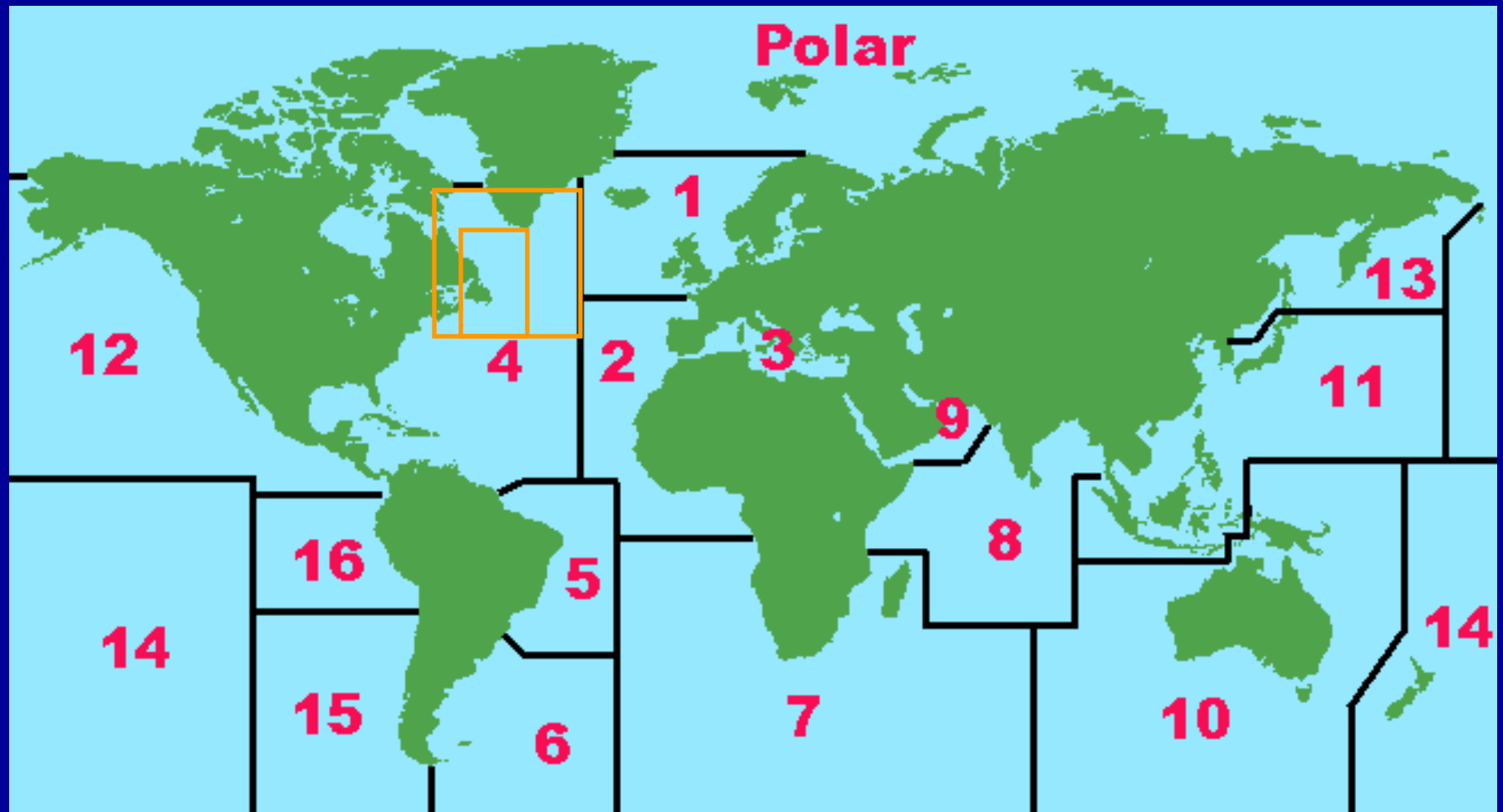
Future Customer Needs?



Transatlantic Mariners: Iceberg Limit with density remains sufficient

Subpolar Mariners: Iceberg Limit with density sufficient or will individual iceberg positions be desired/feasible?

Future Area of Responsibility?



Future of Mission Execution?

Immediate Future (2012)

Incorporate HC-144A (with HC-130J) for IIP reconnaissance

Near Future (2013-2015)

Incorporate commercial reconnaissance for IIP reconnaissance

Incorporate satellite and other data sources

Eventual Future (~2020+)

Rely primarily on satellite and other data sources

(such as AIS, ELINT, LRIT, NAFO, VMS)

Summary

- *Icebergs remain a danger to mariners within the NAIS area of responsibility*
- *The iceberg population south of 48N has historically exhibited significant interannual variability that is expected to continue*
- *NAIS customer needs may require more detailed information and/or an expanded area of responsibility in the future*
- *NAIS mission execution will depend on funding, resources, and evolving technology*
- *Moving to satellite and other data sources requires development of infrastructure and expertise for required data fusion*

Questions?

