



Environment
Canada

Environnement
Canada

Canada



Canadian Ice Service



**Ice Analyst Workshop 3
Copenhagen
Darlene Langlois
Canadian Ice Service
June 14, 2011**

Contents

- Organization
- Data Acquisition and processing
- Output products
- Short term and long term forecasts
- Regular publications
- Contact info
- Sample material



Organization

- Areas covered
 - All ice infested Canadian Oceans, the Great Lakes and the new METAREAS XVII and XVIII

Arctic Ocean

JUN 07 / 07 JUIN
2011

Western
Arctic

Eastern
Arctic

East
Coast

Hudson
Bay

Great
Lakes

ICE IN CANADIAN
WATERS

GLACES DANS
LES EAUX CANADIENNES

Legend / Légende

Less Than 500	Moins de 500
1 - 500	1 - 500
2 - 500	2 - 500
3 - 500	3 - 500
4 - 500	4 - 500
5 - 500	5 - 500
6 - 500	6 - 500
7 - 500	7 - 500
8 - 500	8 - 500
9 - 500	9 - 500
10 - 500	10 - 500
Land	Terre
No Data	Aucune donnée

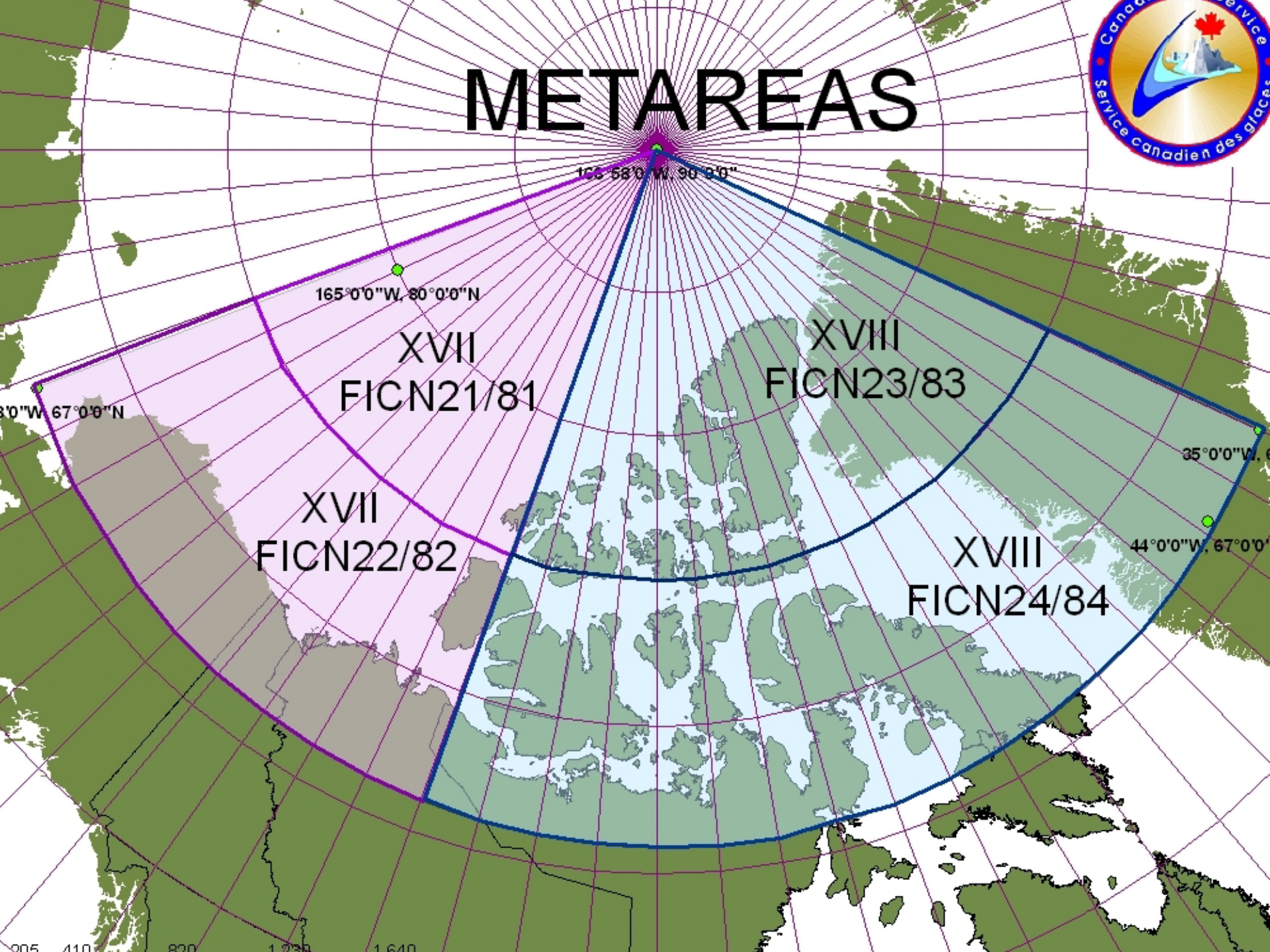
Scale / Echelle

0 100 200 300 400 500 km

0 100 200 300 400 500 km



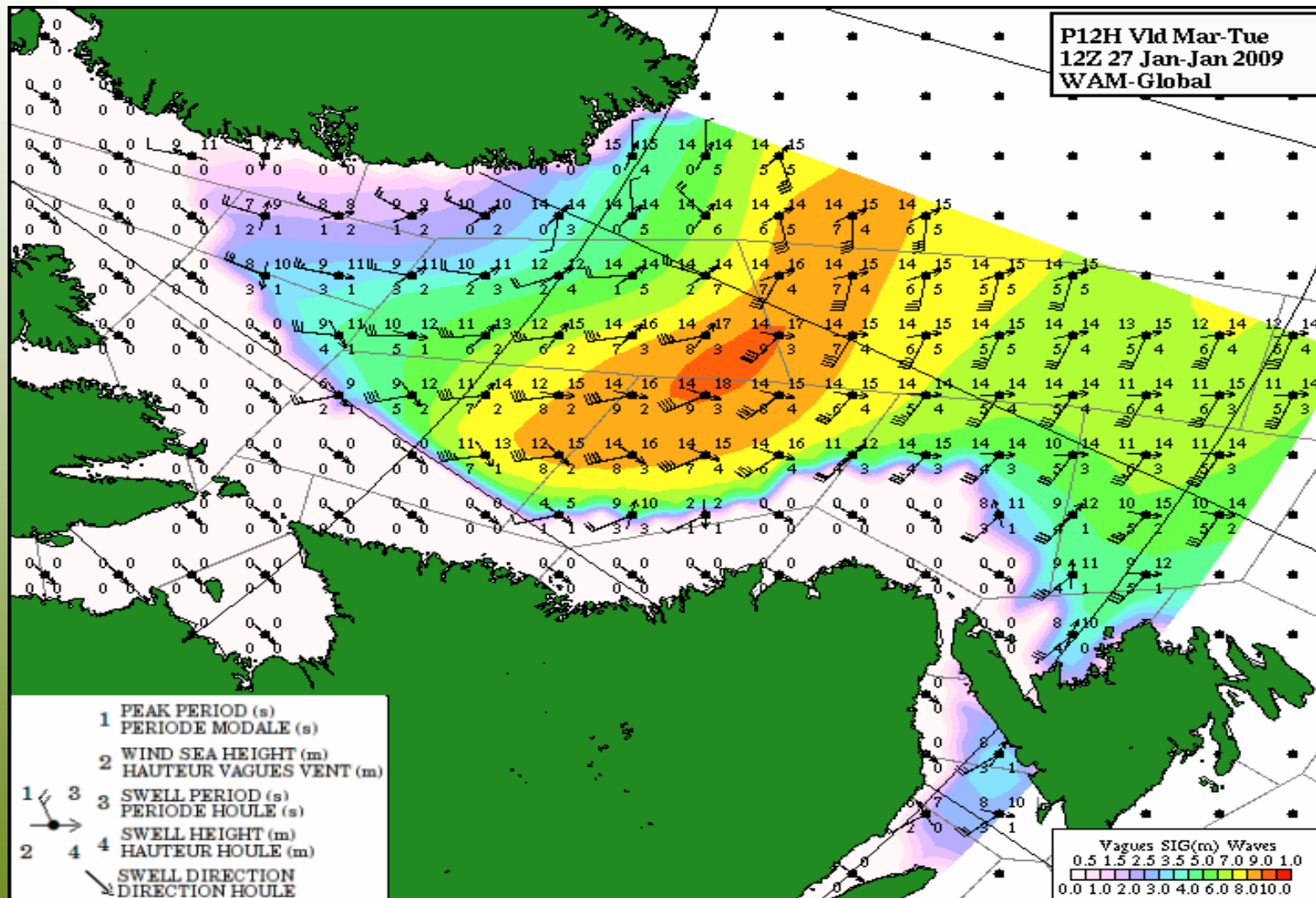
METAREAS



Organization

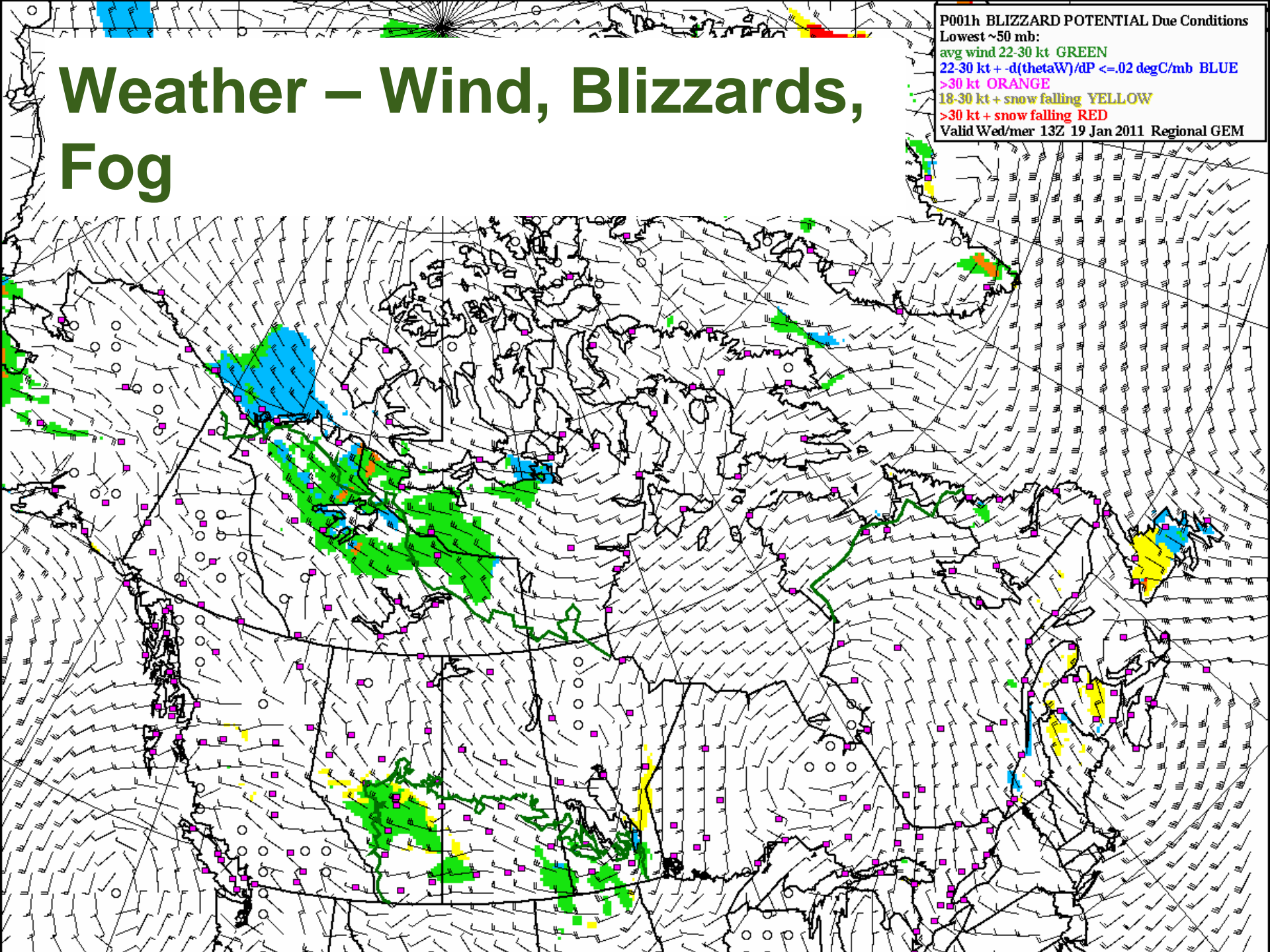
- Involvement in GMDSS preparation service
 - The CIS is working with the marine section of the Meteorological Service of Canada to develop a joint ice, weather and wave bulletin
 - Canada is a issuing service for MSI

Wave Model Products



Weather – Wind, Blizzards, Fog

P001h BLIZZARD POTENTIAL Due Conditions
Lowest ~50 mb:
avg wind 22-30 kt GREEN
22-30 kt + $-d(\theta)/dP < -0.02$ degC/mb BLUE
>30 kt ORANGE
18-30 kt + snow falling YELLOW
>30 kt + snow falling RED
Valid Wed/mer 13Z 19 Jan 2011 Regional GEM

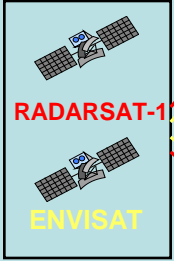


Data Acquisition and processing

- General schema of information system and data flows



**RADARSAT
Order
Desk**



PASS



Anik



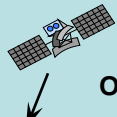
**GSS
(CDPF)**



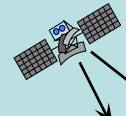
RADARSAT-1



ASF



**DMSP
OLS, SSM/I**



**NOAA
AVHRR**

Envisat Images



**CCRS
WAN**

Internet (ftp)

Envisat Images

RSAT Images
T1 (ITN)

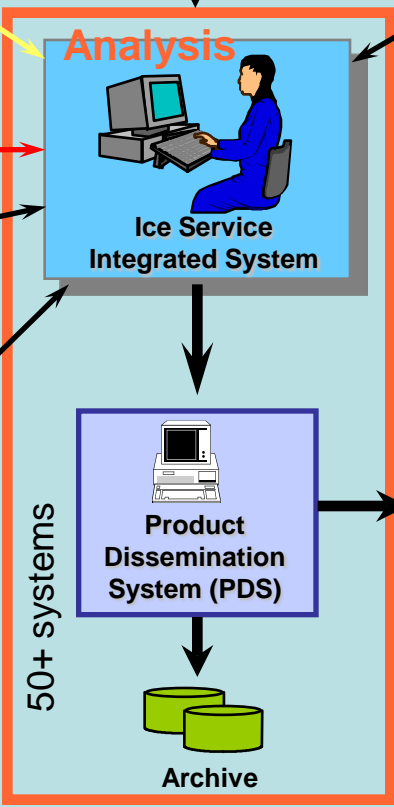
**National Ice Center
Washington**



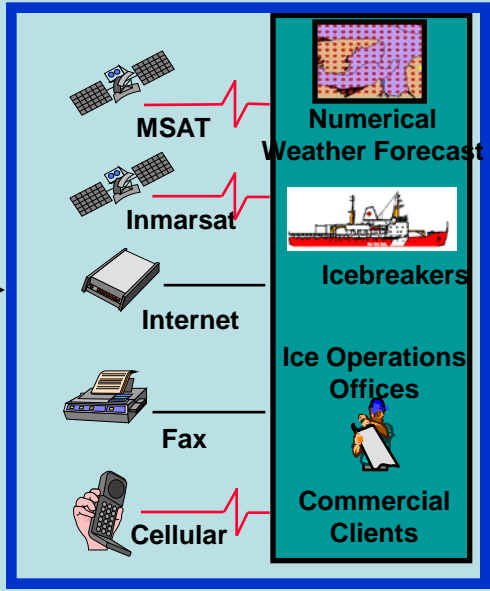
Edmonton



Halifax



**Product
Distribution**



**Ice Patrol
(currently
SLAR)**



Ships



**Iceberg
Patrol**

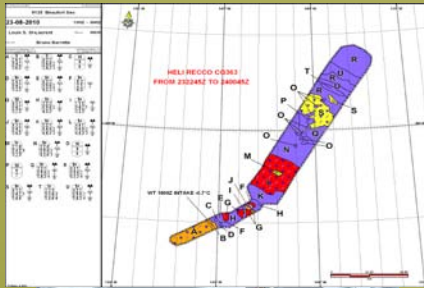


**IRDNET
Relay
Station**

Data Acquisition and processing

- General particulars for satellite imagery (type and number of scenes, software used for analysis)
 - RADARSAT-1 about 1500 scenes / year
 - RADARSAT-2 about 5000 scenes (most HH, some HH/HV)
 - Envisat – processing contract just signed. Expect about 2500 scenes /year
 - Modis – 500 m resolution - about 125 /day
 - NOAA AVHRR – about 175 /day
 - SSM/I – about 7 /day
 - GOES – about 100 /day
- Use combination of ArcEdit and Imagine for analysis. In process of developing a new ice chart production system. Expected to be ready for testing Feb 2012.

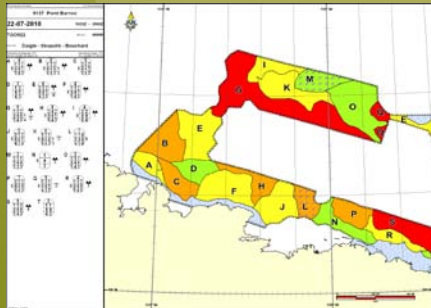
Daily Ice Chart production



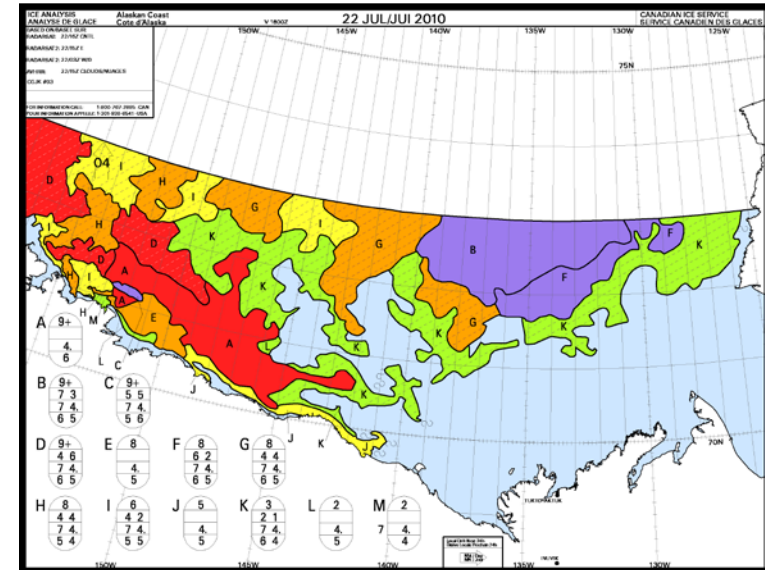
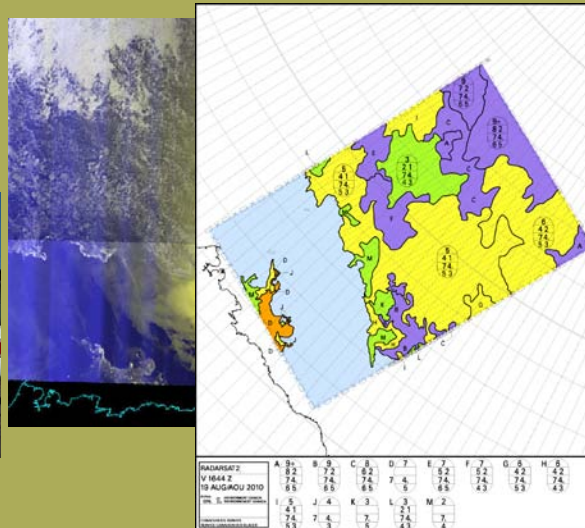
Modis

**NOAA
AVHRR**

RADARSAT Image Analyses



Dash 7

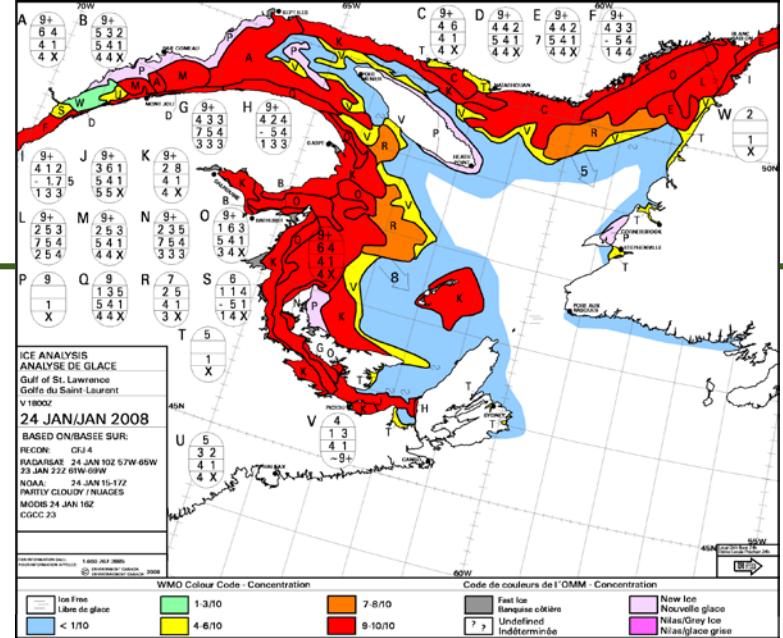
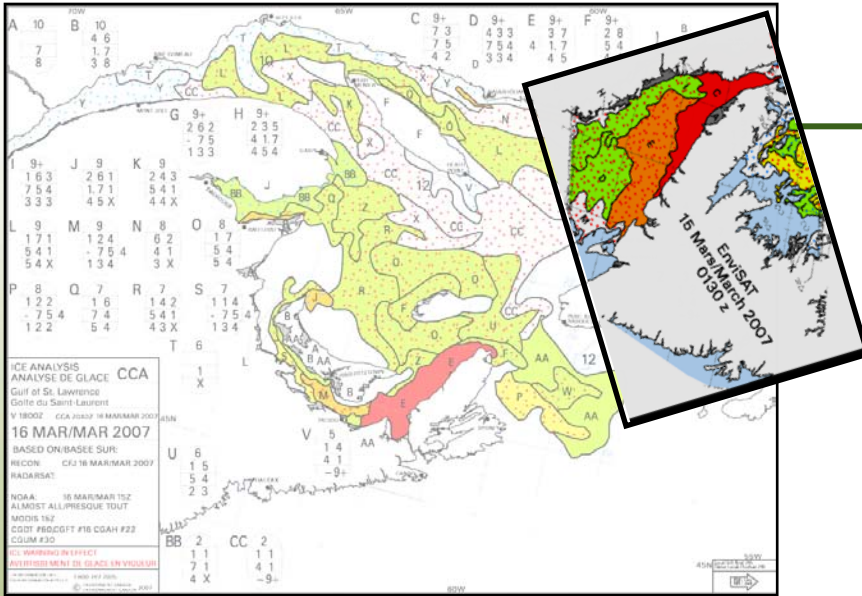


Daily ice chart

Output products

- Ice charts particulars and other binary products (software used production, reference projection, import/export formats)
 - E00 (Arcinfo coverage)
 - Sigrid3 (WMO standard)
 - Grid (dex –custom format for use in computer models)
 - GIF (paper chart in picture format)
 - IMG
 - Mr Sid (for sending imagery to ships)

Ice charts

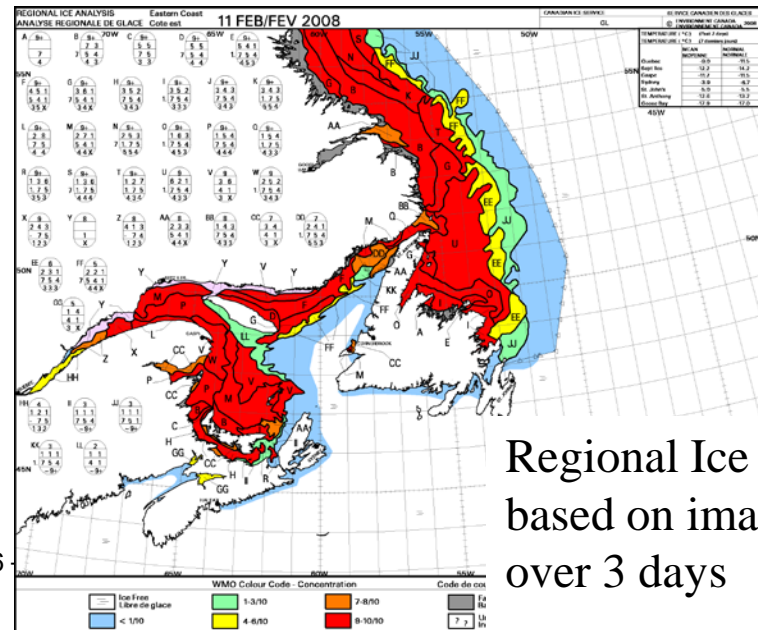


Daily Ice Chart – may not have recent data

Image Analysis Charts

High level of detail

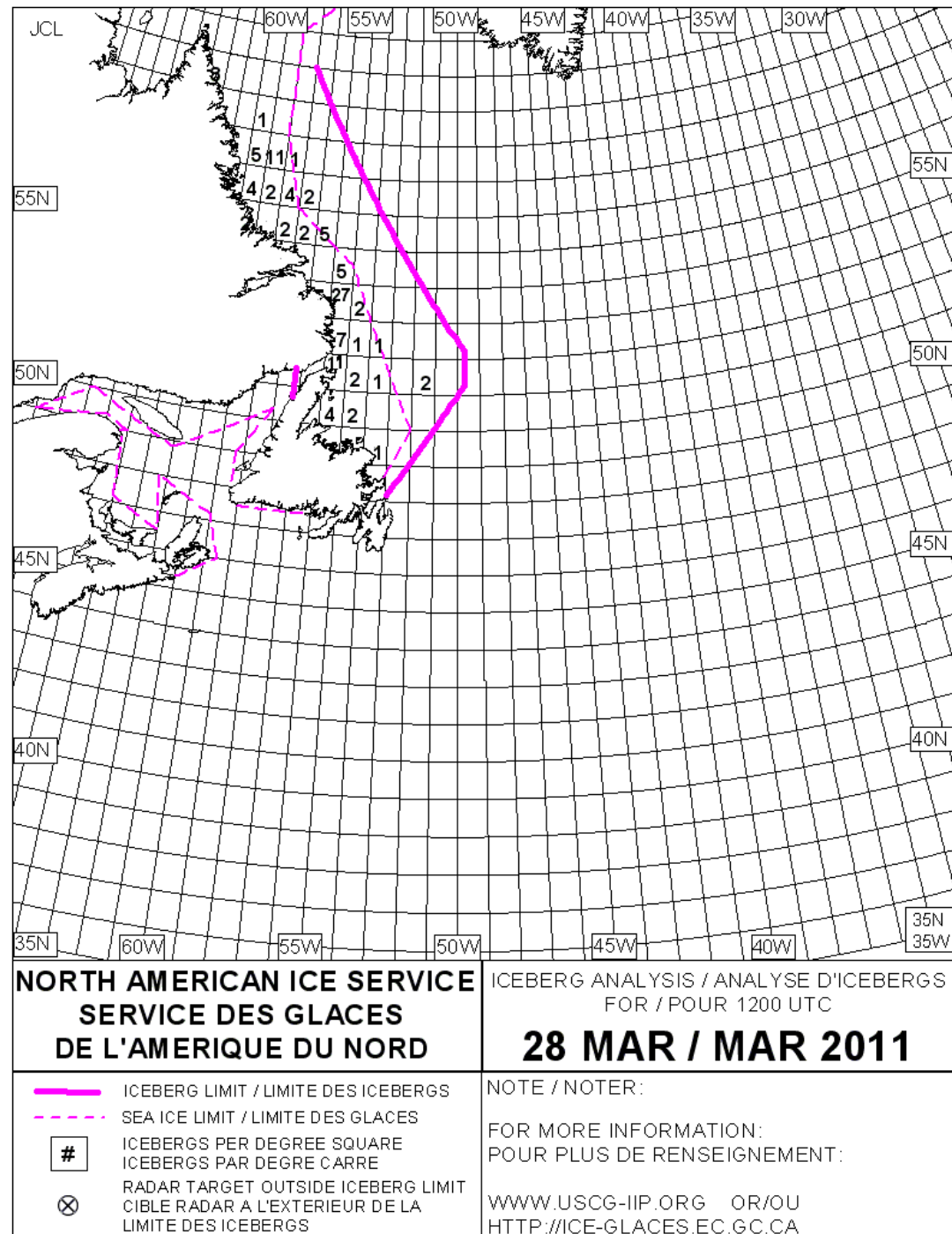
Issued within a few hours of the image acquisition.



Regional Ice chart – based on imagery over 3 days

Iceberg Charts

Joint product
with the
International
Ice Patrol



Environment
Canada

Environnement
Canada

Output products

- Plain text information including schedule of SafetyNET and NAVTEX bulletins
 - Daily ice forecasts for 3 large areas of the Arctic.
 - Ice edge
 - General description of the ice; warnings
 - Active when shipping in area
 - SafetyNET bulletins
 - ice edge
 - General description of the ice; warnings
 - Issue at 03 UTC and 15 UTC

METAREAS ice bulletin example

FICN22 CWIS 041722

ICE BULLETIN FOR ARCTIC METAREA XVII SOUTH OF 75N AT 1722 UTC THU
04 MAR 2010.

SECURITE.

EDGE FM BANKS IS NR 7155N 12505W TO 7135N 12435W TO 7050N 12905W TO
7000N 12240W TO 7030N 11950W TO BANKS IS NR 7115N 12220W. ICE W AND
E OF EDGE.

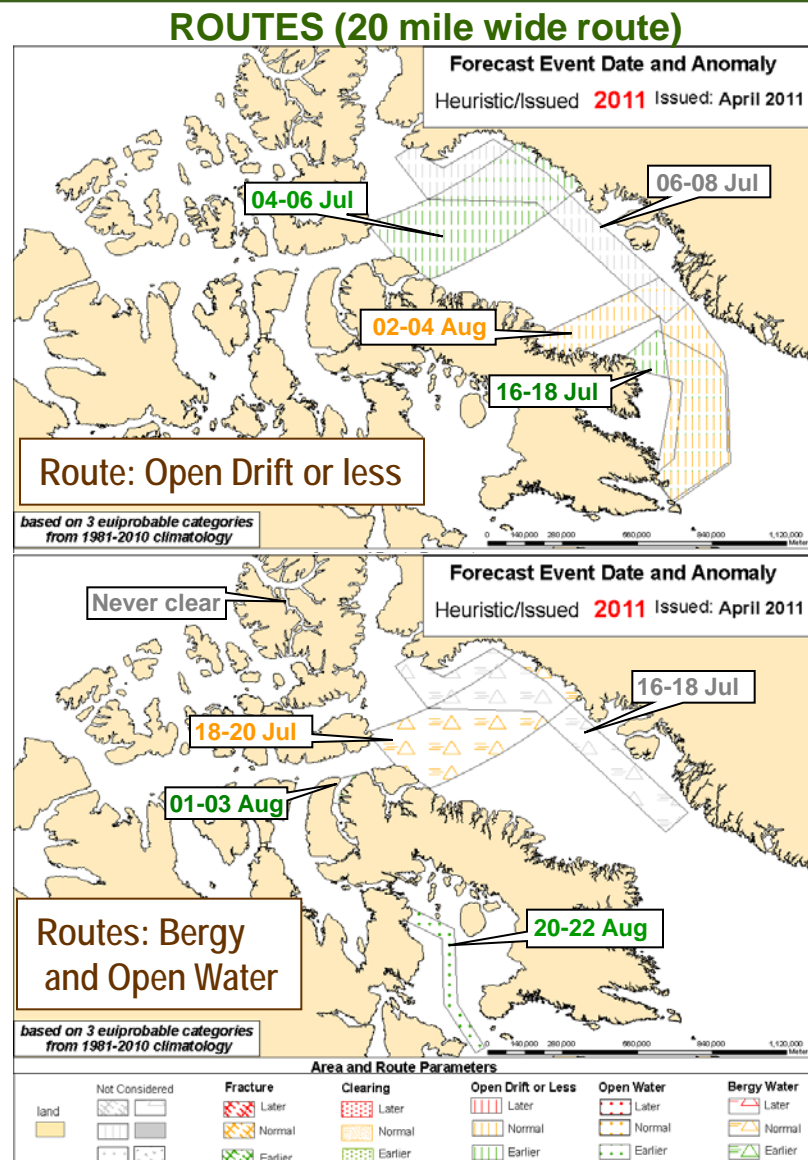
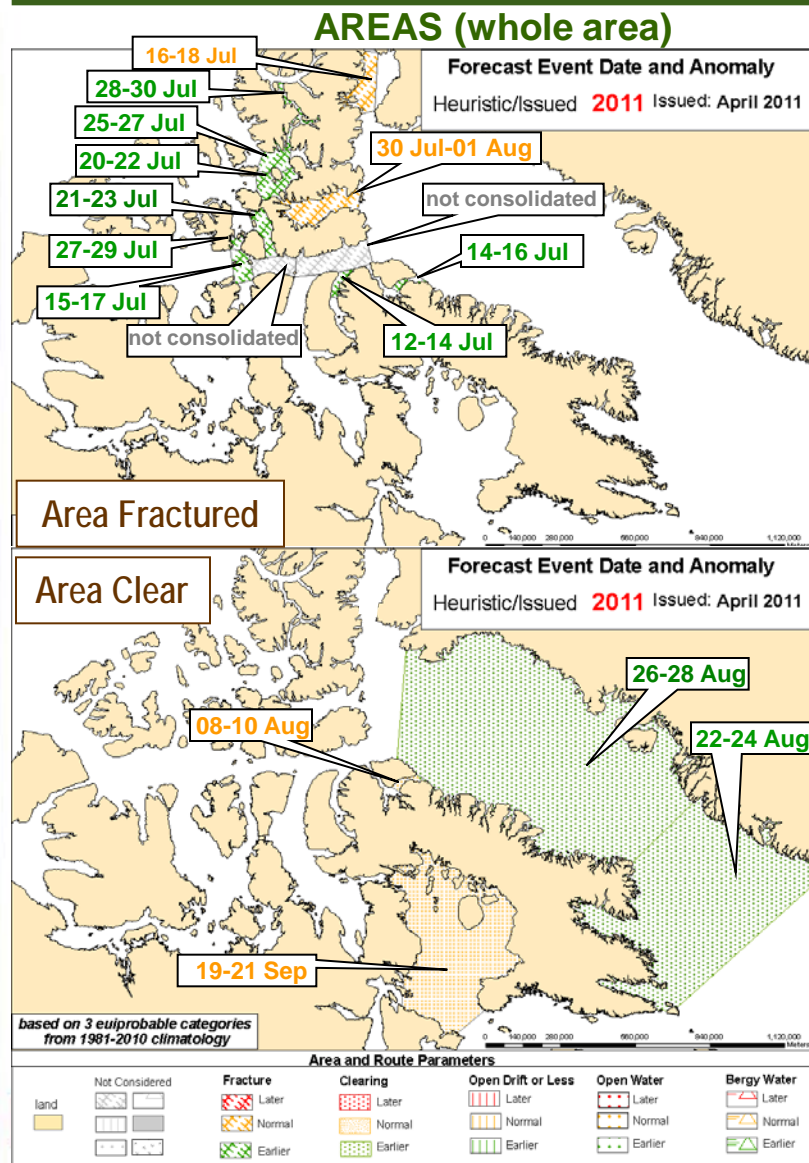
END

15Z and 03Z

Short term and long term forecasts

- Briefs for short-term numerical and longer period (ie seasonal) forecasts and forecast methods
 - 30 day forecasts
 - issued 1st and 15th of the month between May and Oct.
 - Use weather forecast
 - General description of ice conditions
 - Seasonal forecasts
 - Issued June 1
 - Use combination of models and analogue technique
 - Forecast of specific events (fracture, open drift, open water) for shipping routes and for areas

Eastern Arctic Seasonal Outlook 2011



Western Arctic Forecast - Summer 2011

Locations	Median (1981-2010)	Forecast for 2011 (categories)
Point Barrow to Cape Lisburne – open drift or less route – open water route	06 Aug 14 Aug	15-17 Jul 07-09 Aug
Amundsen Gulf – fracture – clearing	05 Jul 15 Aug	02-04 Jul 03-05 Aug
Coronation Gulf – fracture – clearing	15 Jul 30 Jul	14-16 Jul 24-26 Jul
Queen Maud Gulf – fracture	20 Jul	29-31 Jul
Taloyoak – open water route	12 Aug	07-09 Aug
Larsen Sound – fracture	28 Jul	30 Jul-01 Aug
Peel Sound – fracture	29 Jul	31 Jul-02 Aug
Breakup: red=late-----orange=normal-----green=early		

Regular publications

- <http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=08D7D137-1>
- MANICE (Manual of Standard Procedures for Observing and Reporting Ice Conditions)
- Arctic Ice Atlas (updated annually)
- 30 year climatic Ice Atlas
- Seasonal Summaries

Contact info

- Links to acting http/ftp file servers holding data collections
- CIS web site: <http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=D32C361E-1>
- CIS archive: <http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=0A70E5EB-1>





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ISTOP / SIPPS

Zoom-In Chart




Carte Zoom-In

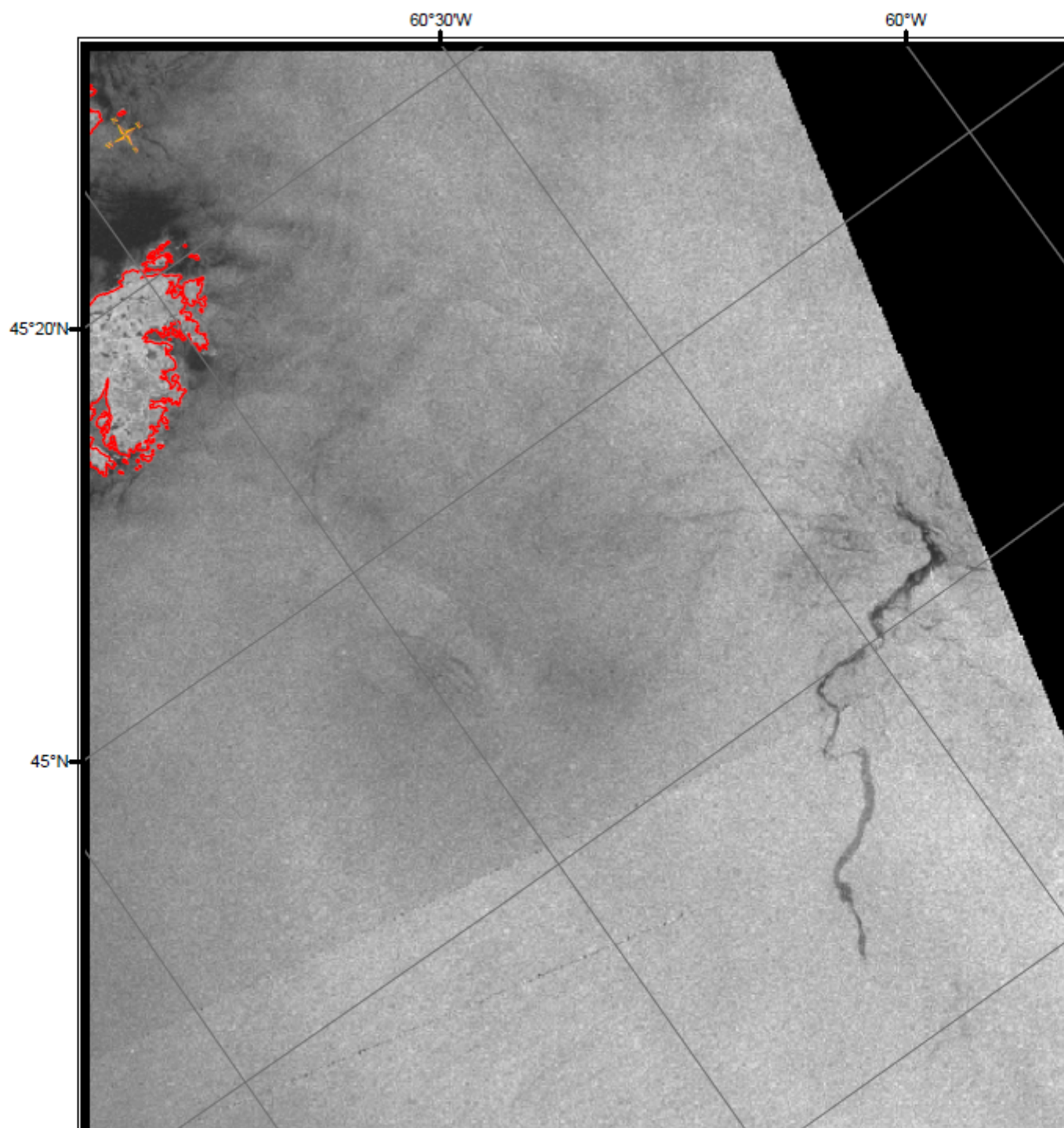
Report Date: 2010-07-17
Rapport:

Analyst: G Langlois
Analyste:

Platform/Plateforme: RSAT_IST
Instrument: SN1
Time Acq Temps: 2010-07-17
10:20 (Z)

Legend / Légende:

-  Anomaly/Anomalie
-  Target/Cible
-  50 km radius/de rayon



Any Questions?

