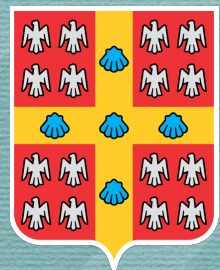




CanICE Project

Gabrielle Alix
Canadian Cryospheric Information Network/
Polar Data Catalogue
University of Waterloo, Ontario

BREA Results Forum
Inuvik, NWT
25 February 2015



UNIVERSITÉ
LAVAL

RYERSON UNIVERSITY

Why CanICE?

Canadian Ice Service has **over four decades** of ice information in its archive...



Weekly sea ice charts

Ship and airplane observations

Satellite imagery

Sea ice analysis

Photos

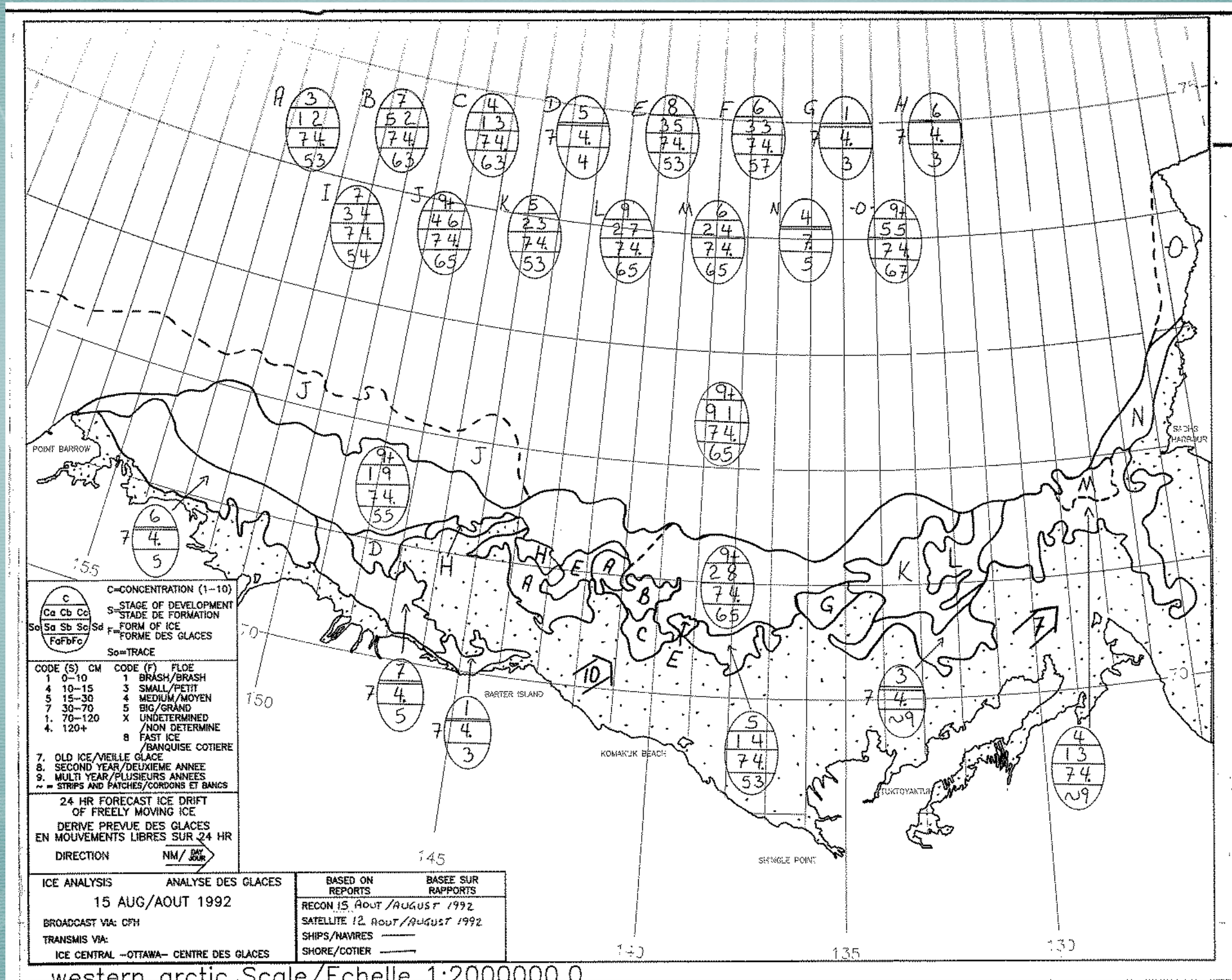
Daily sea ice charts - high resolution

Lake ice data

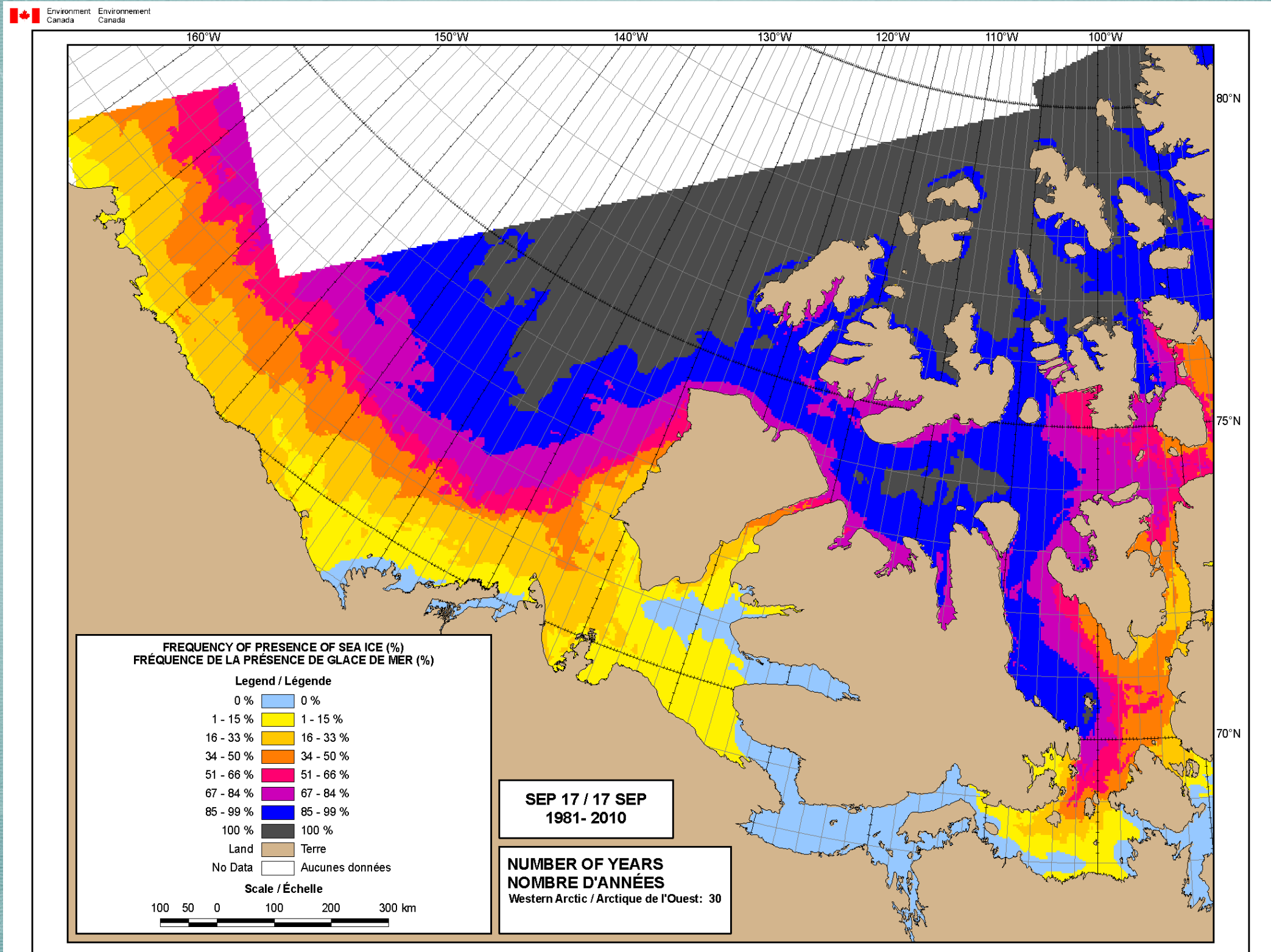
Information on ice ridging, ice floes, icebergs over the years

...but a lot of it is not readily available!

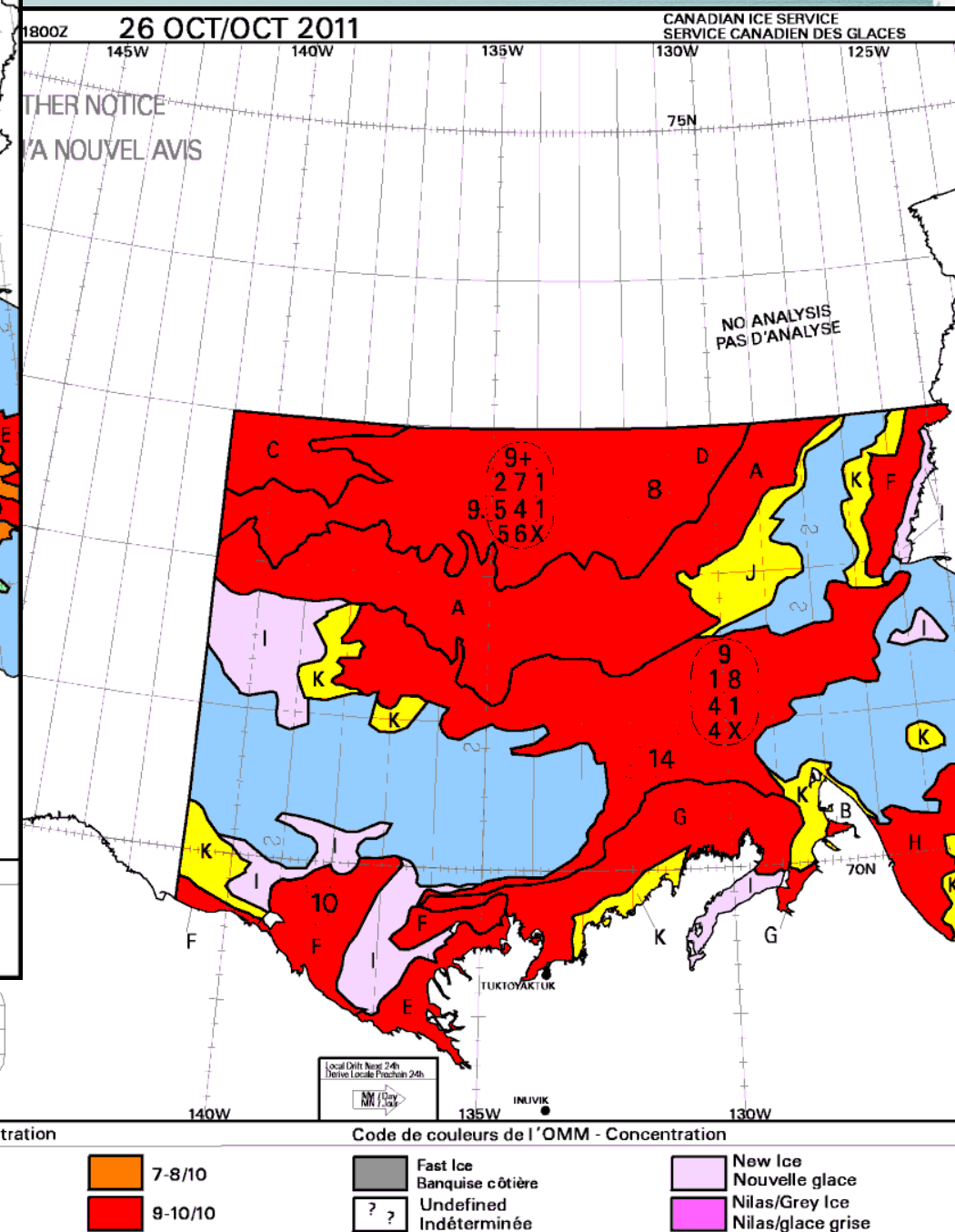
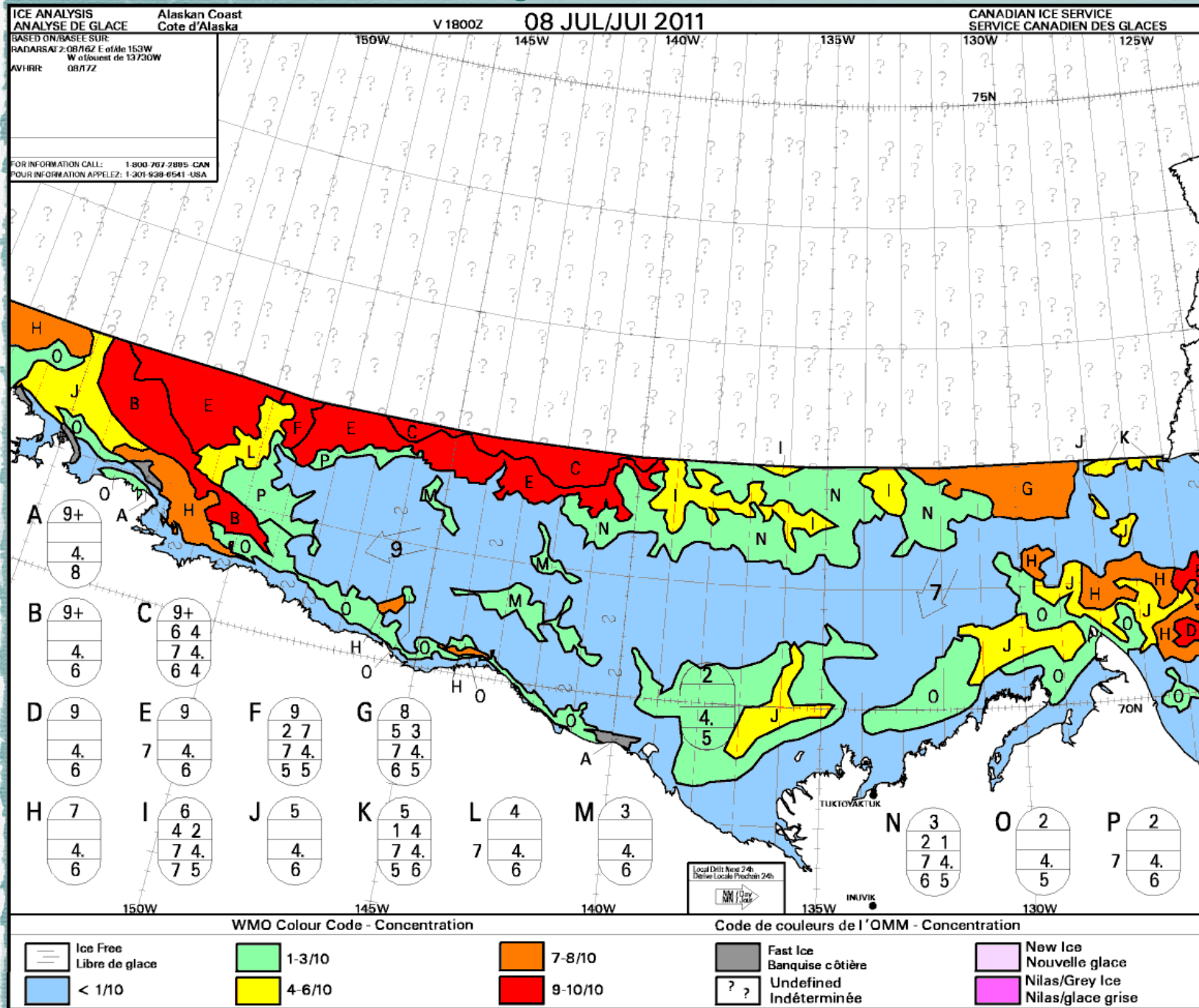
Historical Ice Charts



Sea Ice Averages



Daily Sea Ice Charts



PAS D'ANALYSE
NO ANALYSIS

A

9+
8 2
9. 4 1
3 X

 B

9+
7 3
4 1
3 X

 C

9+
6 4
9. 4 1
3 X

 D

9+
5 5
4 1
3 X

 E

9+
4 6
4 1
3 X

 F

9+
4 2 4
9.5 4 1
6 5 4

 G

9+
2 8
4 1
3 X

 H

9
1
X

CanICE

- ▶ Sea ice is changing in the Beaufort region, affecting people's lives
- ▶ Development, shipping, and tourism activities are becoming more common
- ▶ CanICE project aims to **get all the CIS sea ice information from the Beaufort Sea online** for:
 - ▶ Northern organizations
 - ▶ Northern residents
 - ▶ Industry
 - ▶ Regulators
 - ▶ Researchers, forecasters, modellers
 - ▶ Public

CanICE

CanICE project tasks:

- ▶ **Build a database** at CIS to hold the sea ice data and information
- ▶ **Develop a web portal** (in the Polar Data Catalogue) to share the old and new data with the world
- ▶ **Create online tools** for analyzing and displaying the data and information

...so that the old and new data may find new uses



Members



- ▶ **Canadian Ice Service**, Environment Canada - Lina Assad, PI, Darlene Langlois, Ziquang Ou, Steve McCourt
- ▶ **University of Waterloo**, Canadian Cryospheric Information Network/Polar Data Catalogue - Ellsworth LeDrew, Julie Friddell
- ▶ **Université Laval**, Research Centre on Geomatics - Yvan Bédard, Sonia Rivest, Michelle Fortin
- ▶ **Ryerson University**, Geomatics Engineering - Songnian Li, Xintao Liu

...plus numerous other technical staff and students



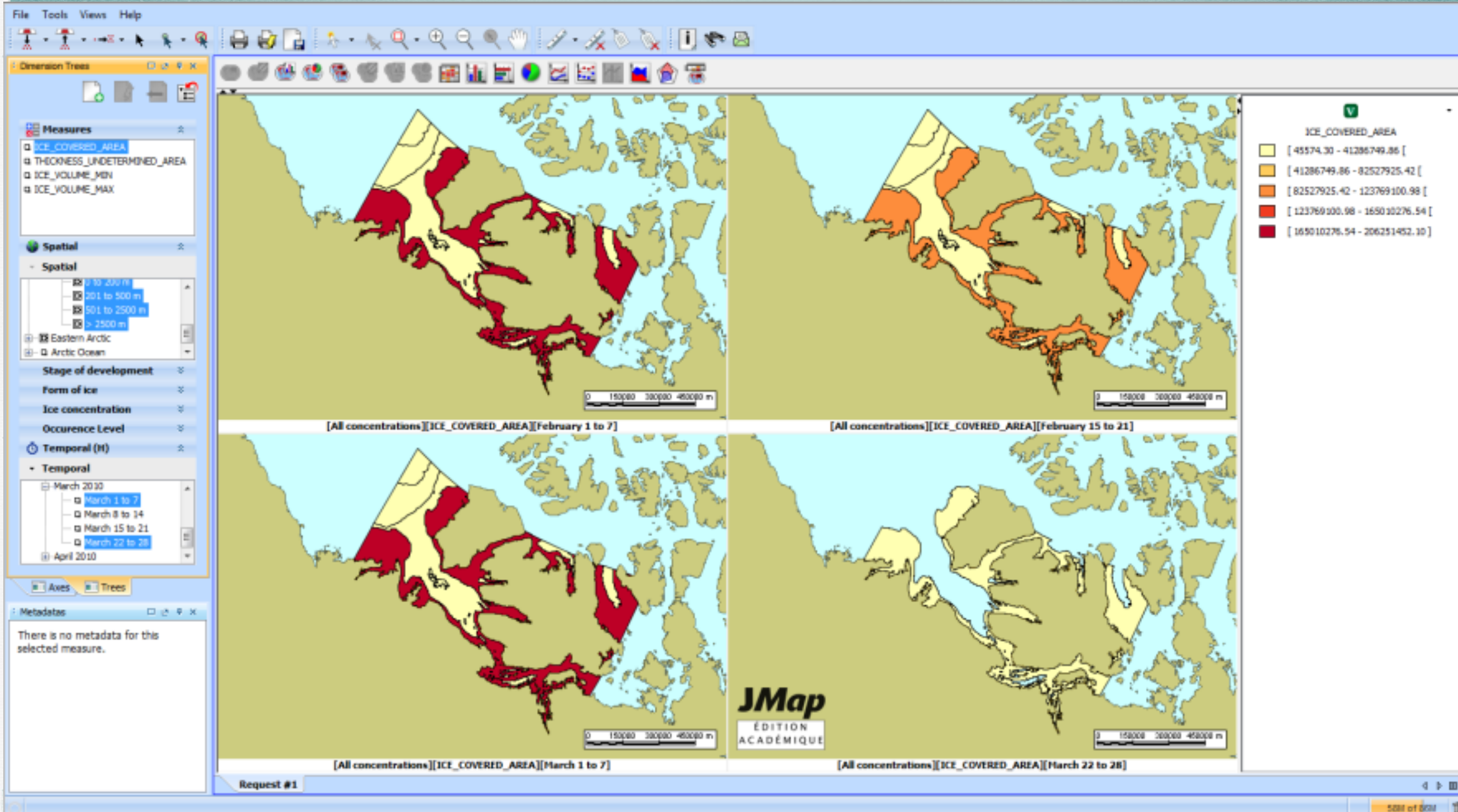
UNIVERSITÉ
LAVAL

RYERSON UNIVERSITY

Progress

- ▶ **Laval** has developed web tools (SOLAP datacubes) for analysis of the CIS sea ice charts and has made them available on the PDC servers (only for private access now)
- ▶ **Ryerson** has made map (GIS) tools to display, analyze, and download the sea ice data and maps
- ▶ **Canadian Ice Service** has built the BREa sea ice database (for storing sea ice data and information)
- ▶ Over 200,000 old paper and microfilm ice charts have been scanned as images (jpeg) and are being geo-referenced as maps

Ice Analysis Tool



Map Tools



CanICE: A Portal for Canadian Ice Service Archive v2.0.1

RYERSON UNIVERSITY

Charts IceGraph Download



[Help](#) | [Feedback](#) | [Sign out](#) | [Other Ice Info](#) | [Disclaimer](#)

Welcome!

What is the service?

Welcome to Canadian Ice Information Service! Use this service to get up-to-date and useful ice information and knowledge about sea and lakes in Canada, such as:

- Daily ice charts
- Weekly ice charts
- Thematic and base maps
- Ice bar graphs
- Ice data tables
- Data download

Feedback?

Help us improve this service and the data by providing feedback. Use the feedback link in the

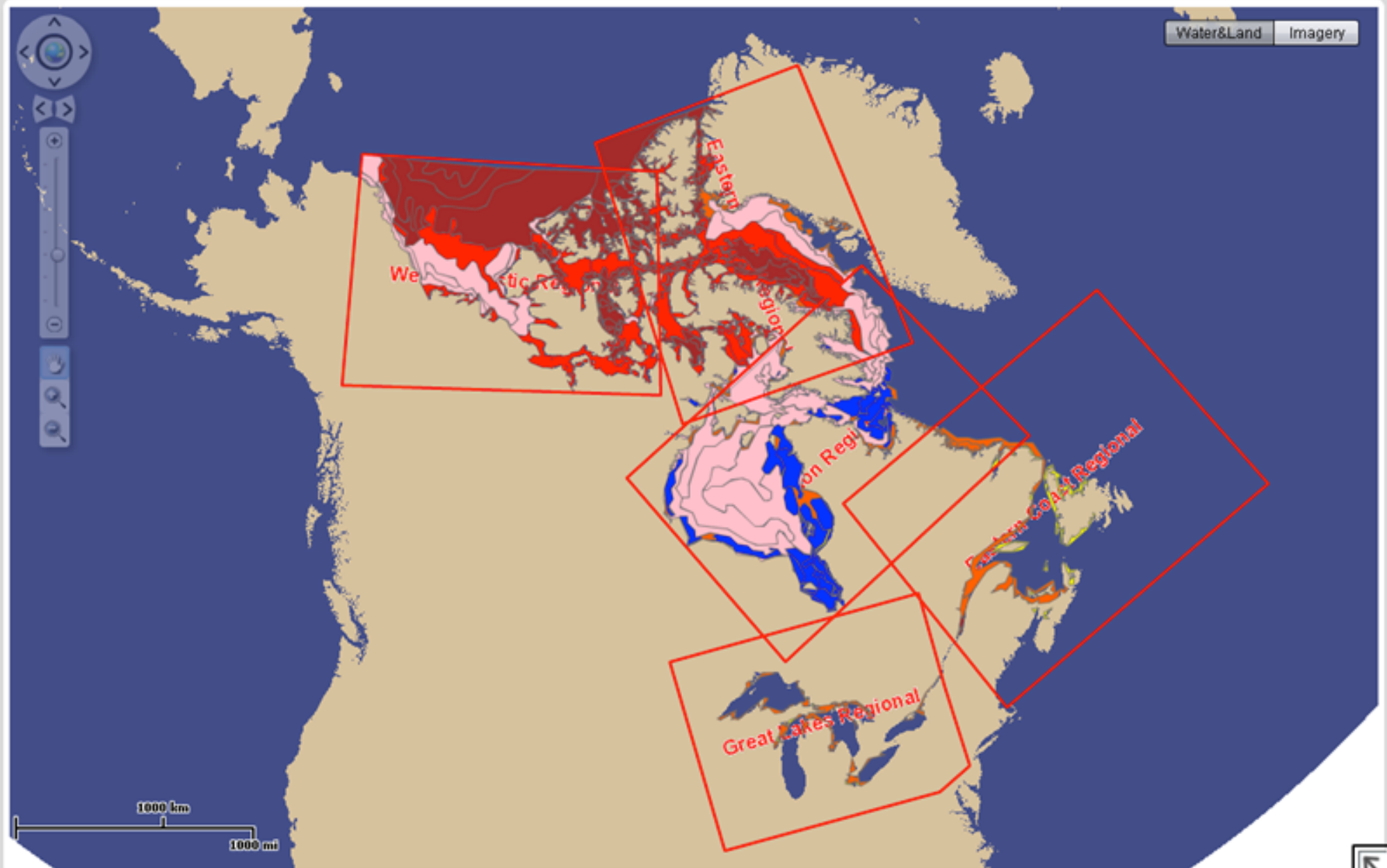
Ice Charts

Thematic >>

- ☒ Latest Weekly Regional Charts (Polygon) ?
- ☐ Latest Weekly Regional Charts (Point) ?
- ☐ Latest Daily Charts ?
- ☐ IceGraph Pre-defined Regions ?
- ☐ Archived Daily Charts Regions ?

Basemaps


- ☒ Regional Areas of Interest ?
- ☐ Longitudes and Latitudes ?
- ☐ Small Lakes ?
- ☐ Small Islands ?



Progress

- ▶ **CIS** and **UWaterloo** have set up the connection from the CIS database to the Polar Data Catalogue
- ▶ **UWaterloo** has made the initial charts and maps available for display and download in the online PDC Search tool
- ▶ The new **CIS** sea ice chart production system (for the entire Canadian Arctic) will be compatible with the BREa database

CIS Search - PDC

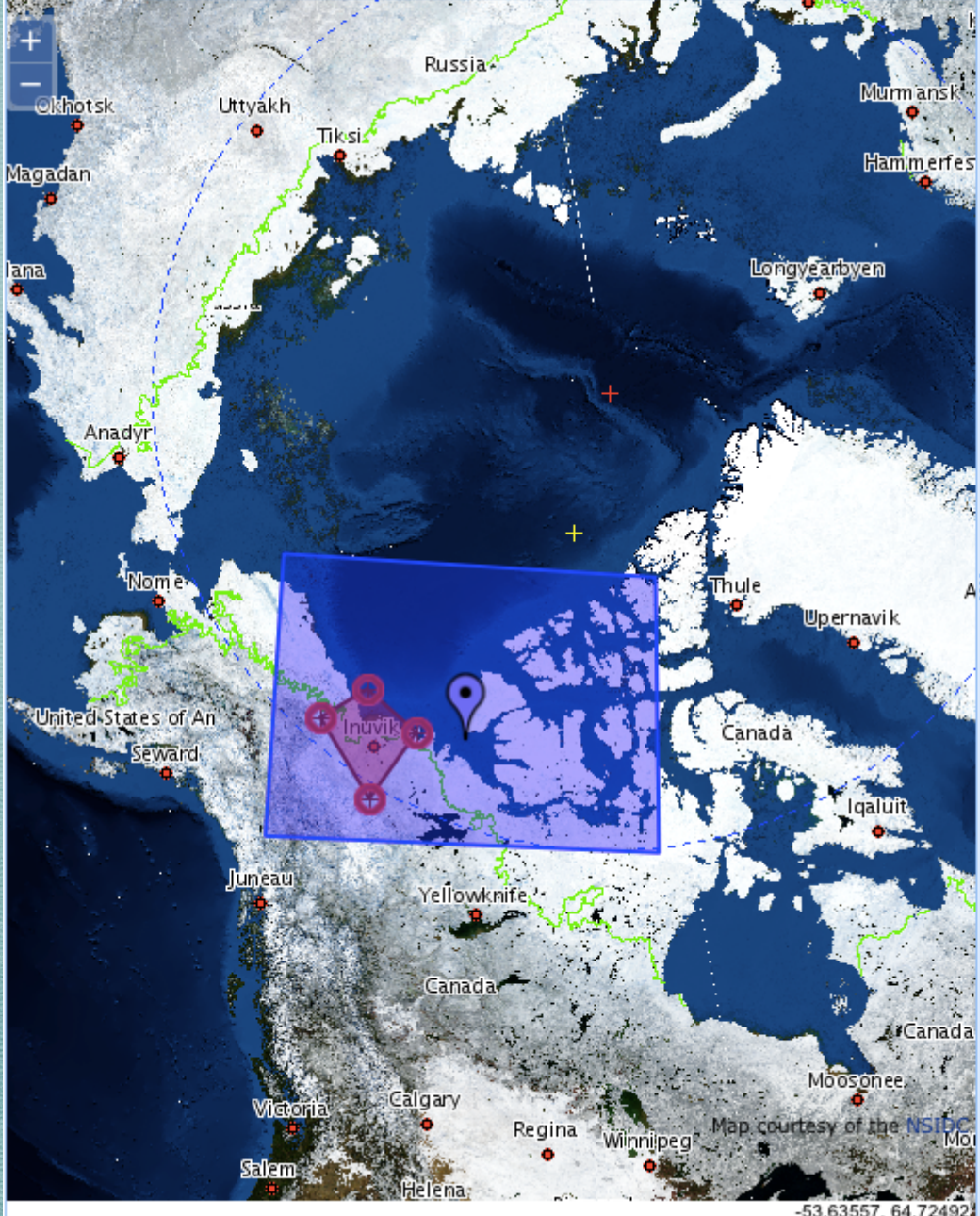


POLAR DATA
CATALOGUE

Polar Data Catalogue Geospatial Search

Home | Help Manual | PDC Lite Low-bandwidth Search v. 4.1.2

Arctic Antarctic GIS



Map showing the Arctic region with various locations marked, including Russia, Canada, and the United States of America. The map displays sea ice charts and a zoomed-in view of a specific area in the Western Arctic.

CIS Search Results Metadata Data

CIS Sea Ice Charts search results

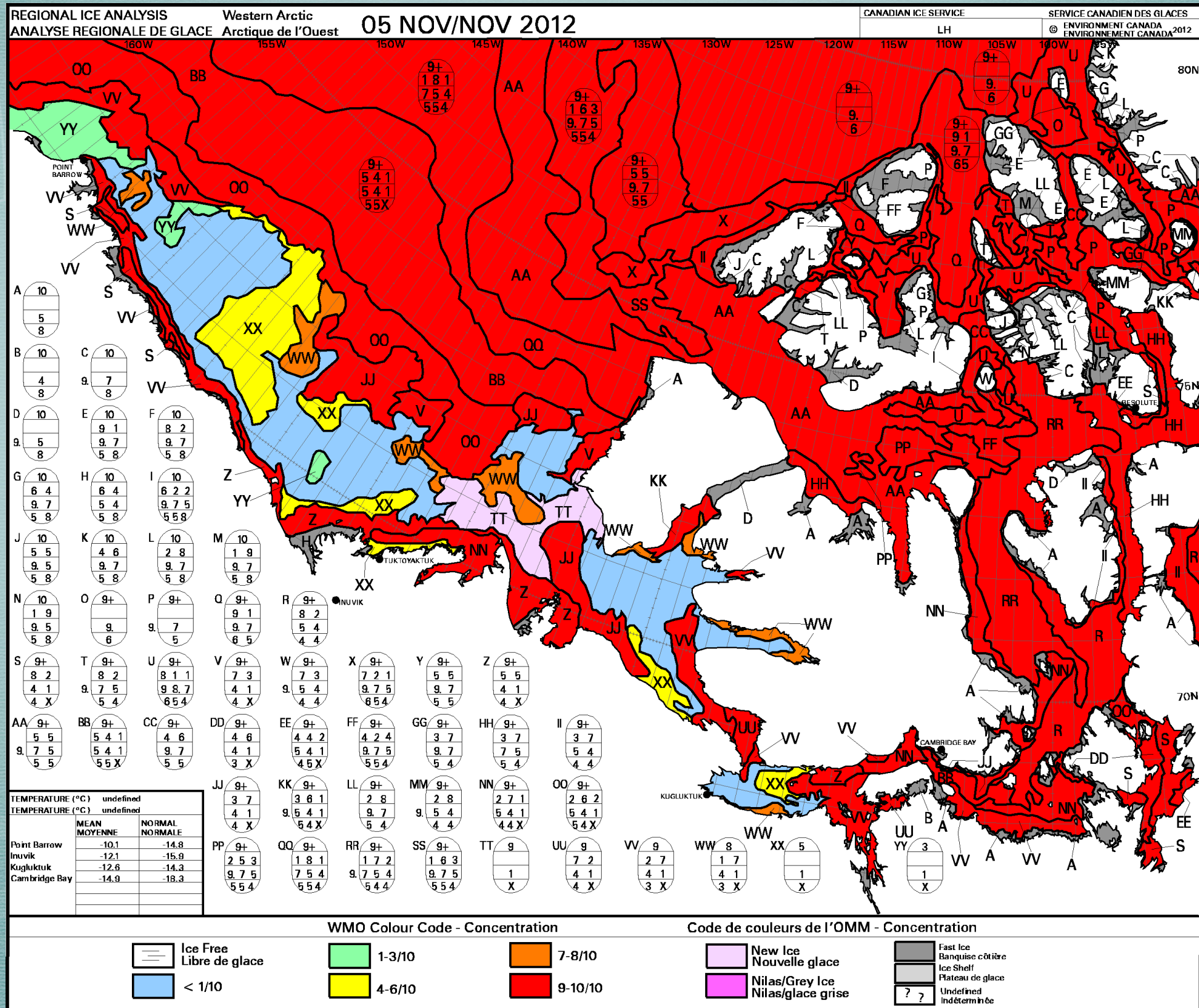
Hide All

Title	Date	Show/Hide	Download
WArcticR_CT_24feb2014_1800_S	20140224	Show	DATA
WArcticR_SD_24feb2014_1800_S	20140224	Hide	DATA
WArcticR_CT_17feb2014_1800_S	20140217	Show	DATA
WArcticR_SD_17feb2014_1800_S	20140217	Show	DATA
WArcticR_CT_10feb2014_1800_S	20140210	Show	DATA
WArcticR_SD_10feb2014_1800_S	20140210	Show	DATA
WArcticR_CT_03feb2014_1800_S	20140203	Show	DATA
WArcticR_SD_03feb2014_1800_S	20140203	Show	DATA
WArcticR_CT_27jan2014_1800_S	20140127	Show	DATA
WArcticR_SD_27jan2014_1800_S	20140127	Show	DATA
WArcticR_CT_20jan2014_1800_S	20140120	Show	DATA
Projection: LAMBERT CONFORMAL CONIC File size (KB): 1405 Region: Western Arctic			
WArcticR_SD_20jan2014_1800_S	20140120	Show	DATA
WArcticR_CT_13jan2014_1800_S	20140113	Show	DATA
WArcticR_SD_13jan2014_1800_S	20140113	Show	DATA
WArcticR_CT_06jan2014_1800_S	20140106	Show	DATA
WArcticR_SD_06jan2014_1800_S	20140106	Show	DATA

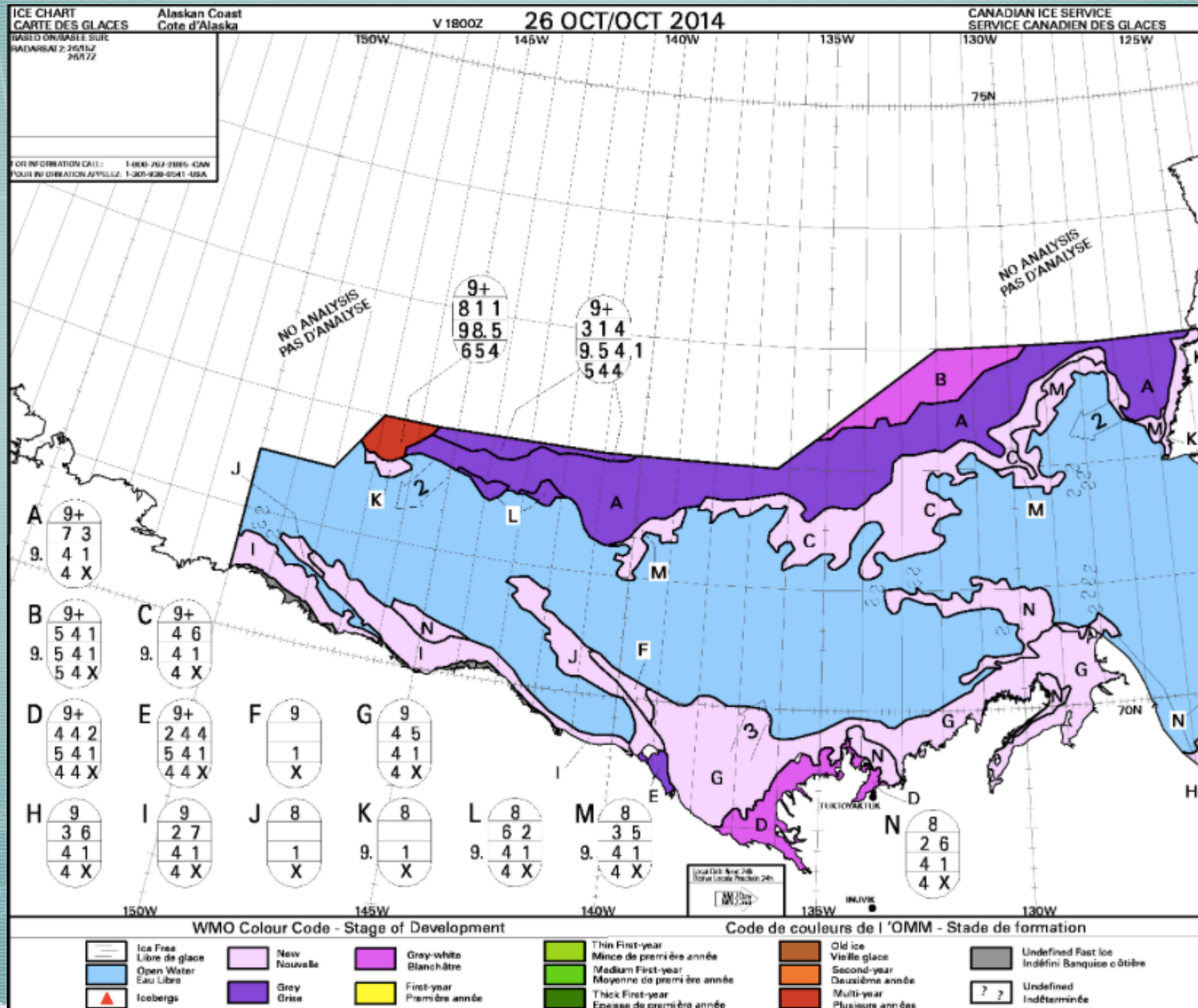
Page 1 of 37

Displaying CIS charts 1 - 25 of 903

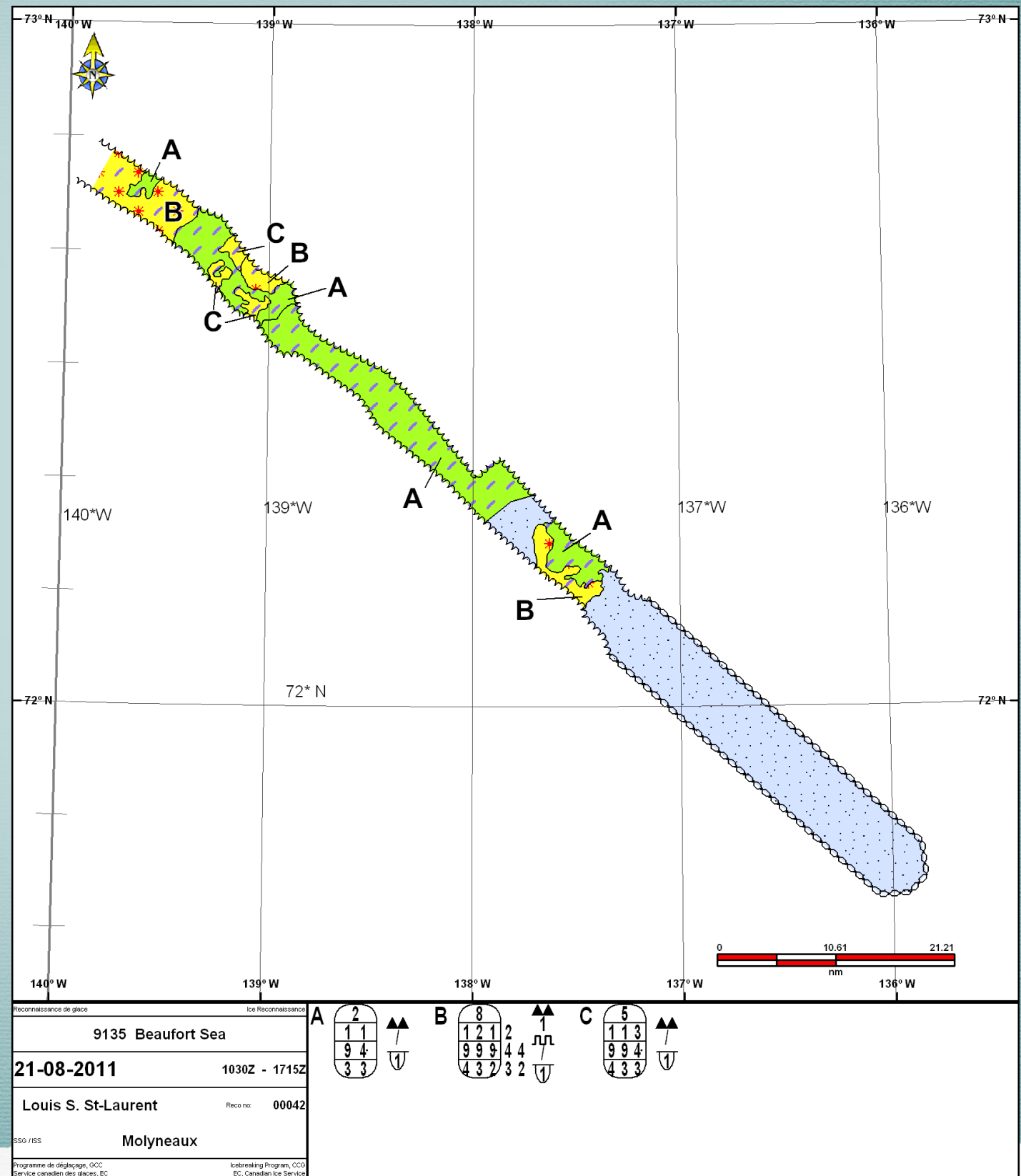
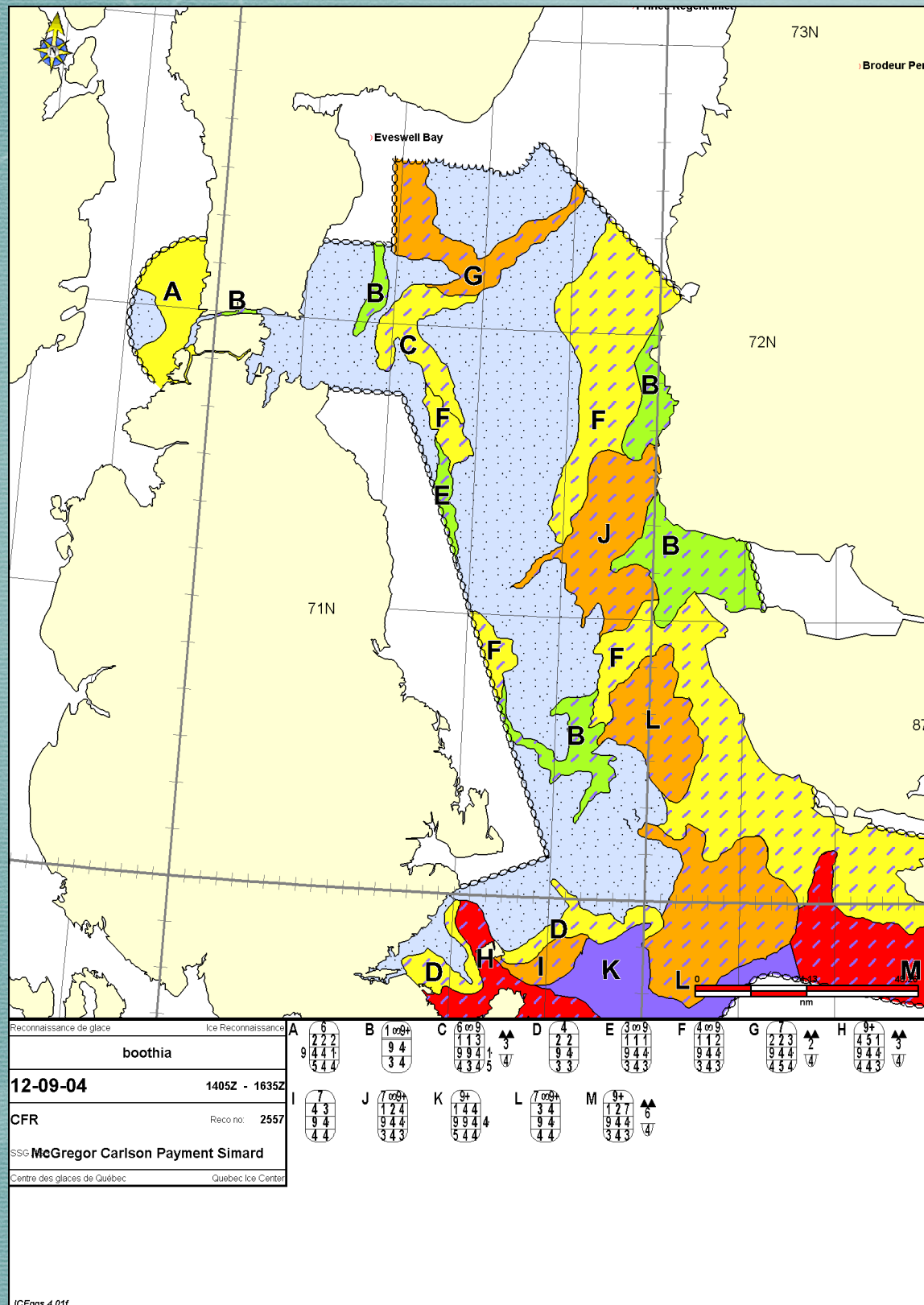
Weekly Ice Charts



Ice Analysis



Aircraft & Ship Charts



Ongoing Work

- ▶ **CIS** continues to populate the sea ice database, seeking funding to hire a technician for entering charts for the entire Canadian Arctic
- ▶ **CIS** is upgrading their map software to improve the connection to **PDC**
- ▶ **PDC** has developed new search capability to make more **CIS** sea ice charts available, to be tested summer 2015 and put online soon after
- ▶ **Laval** is modernizing their ice analysis tool software, then it will be made available to the public in the PDC website

Thank you!

Beaufort Sea

Please contact us with
questions or ideas!

Gabrielle Alix
gabrielle.alix@uwaterloo.ca
1-519-888-4567, extension 37572

50 km

Image credit: <http://earthobservatory.nasa.gov/>