

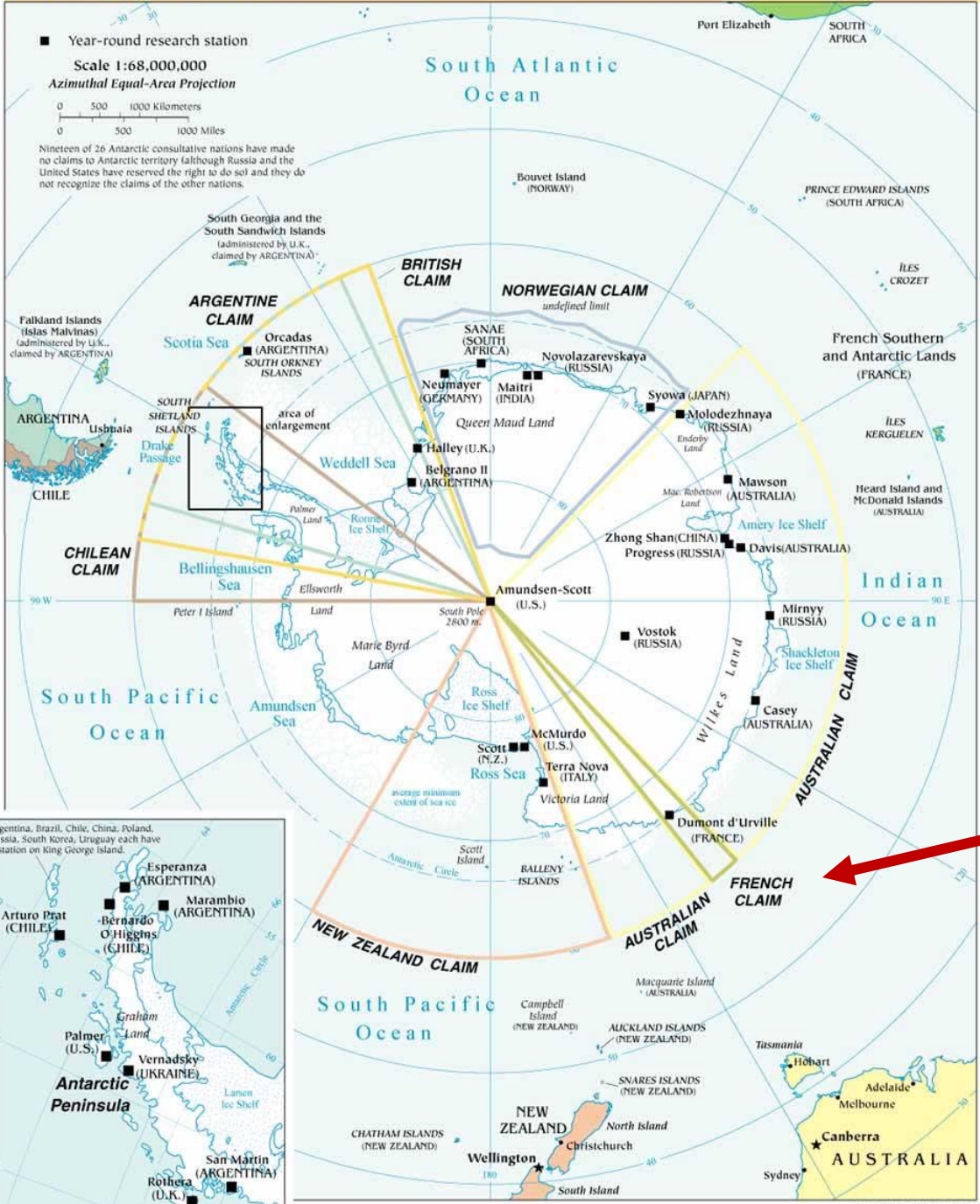
# AIS-ENC Maps: IHO WENDWG February 2019 Meeting

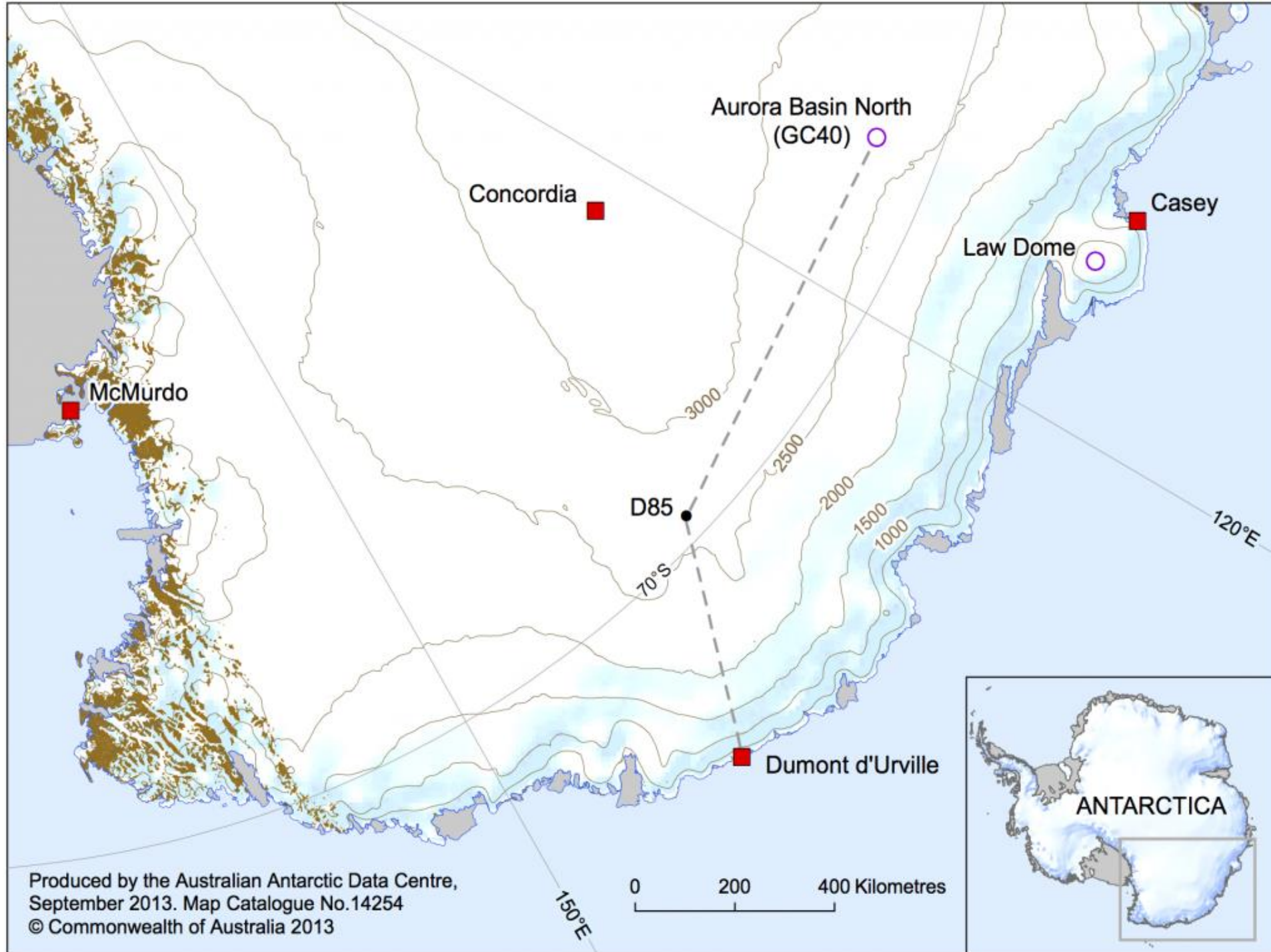
21 February 2019

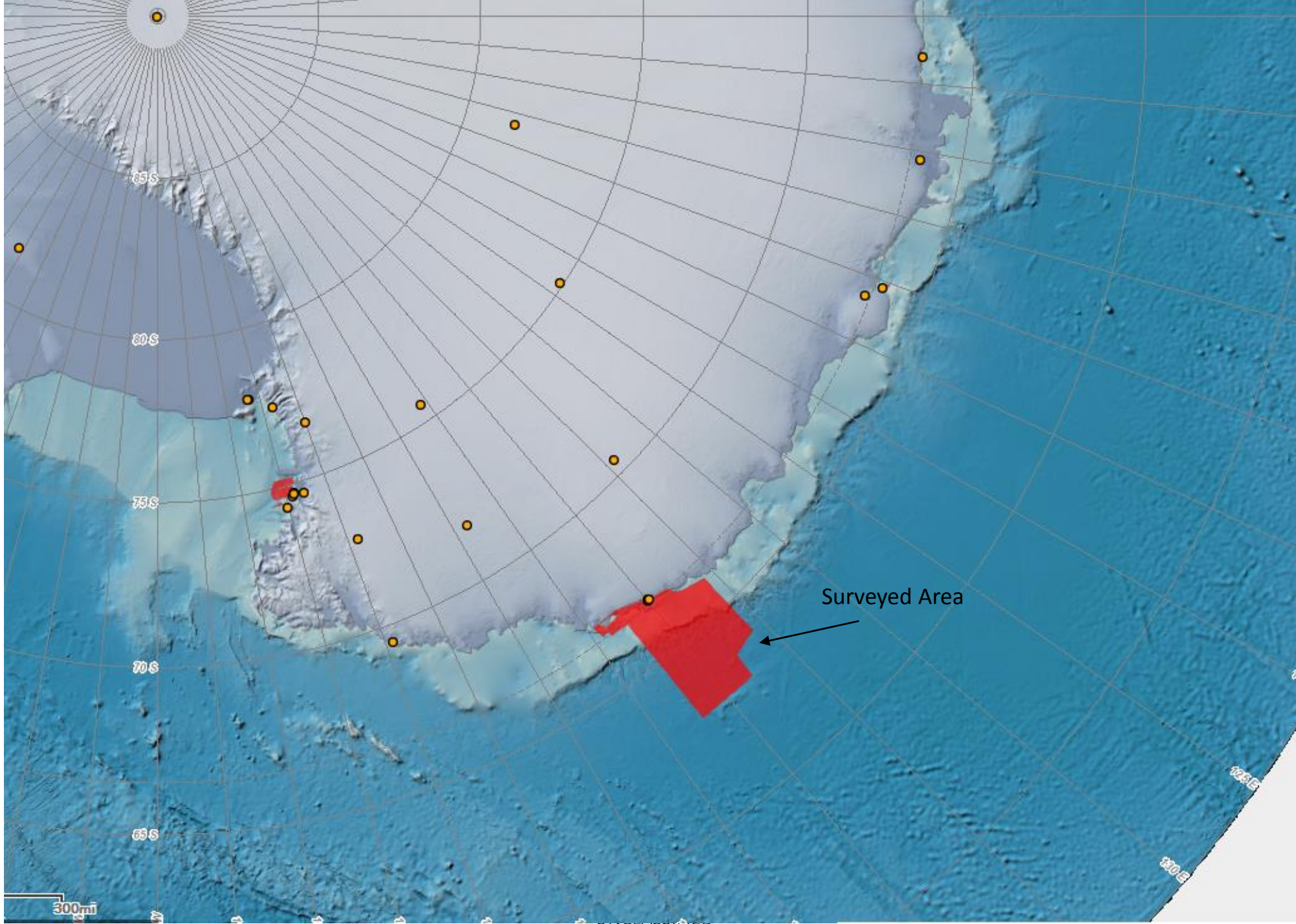
# Antarctica as Proof of Concept Case

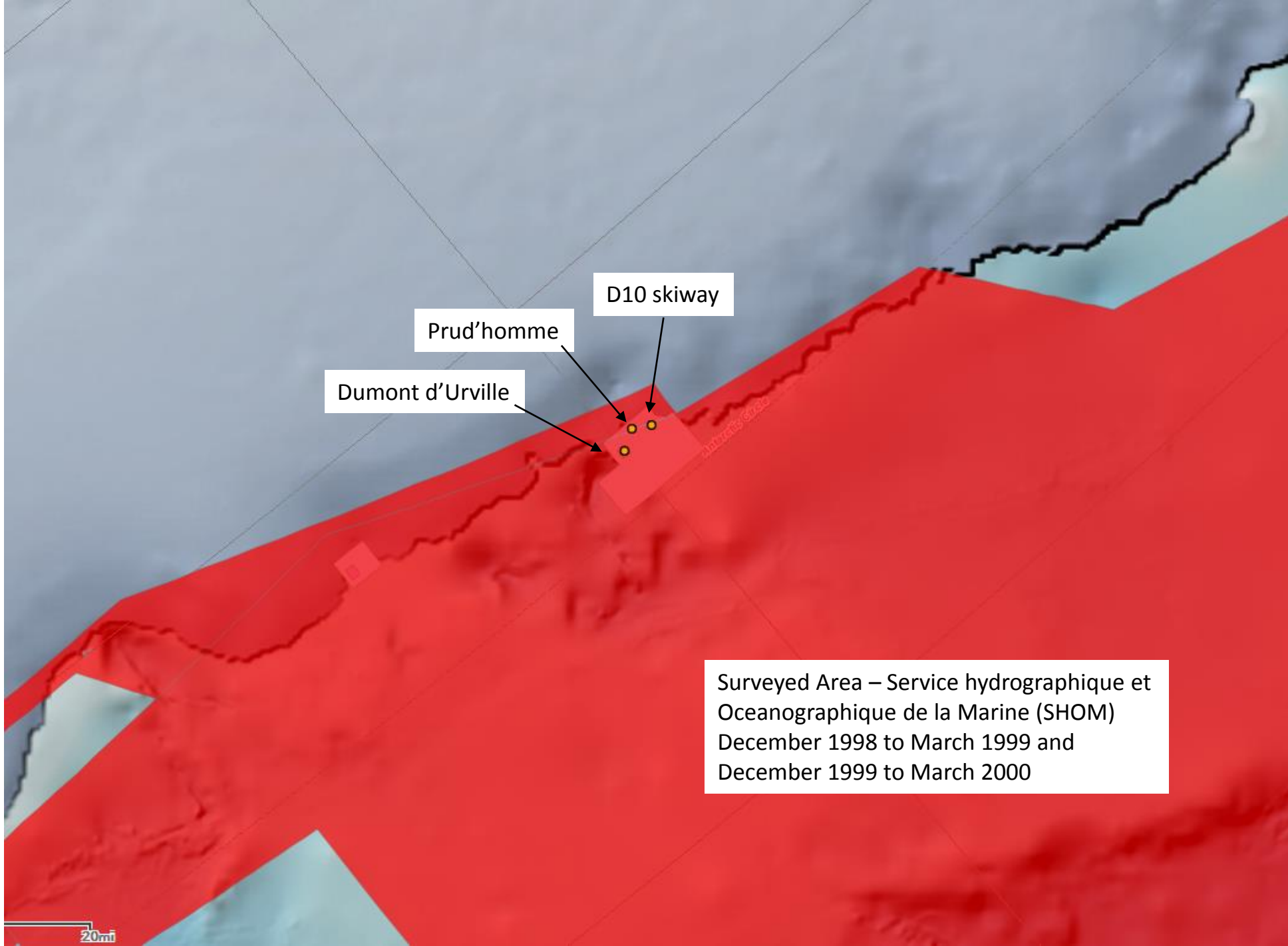
- Current effort: summarize vessel traffic at ENC coverage in Antarctica
- Antarctica proof of concept is advantageous:
  - Relatively small data sizes
  - International coverage
  - Data share interests in the remote region
- France coverage in the following slides is an example

# ANTARCTIC REGION









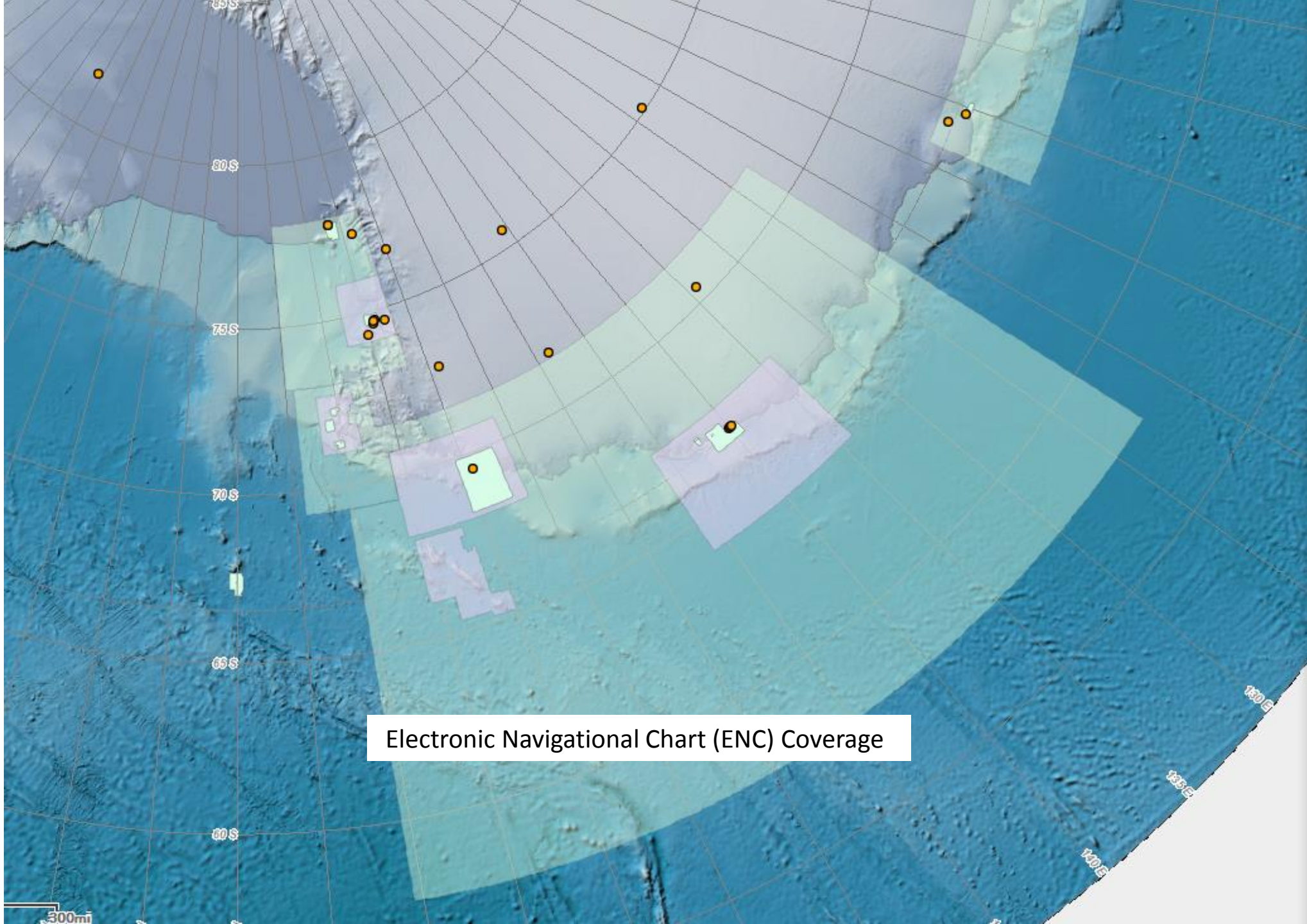
Dumont d'Urville

Prud'homme

D10 skiway

Surveyed Area – Service hydrographique et  
Oceanographique de la Marine (SHOM)  
December 1998 to March 1999 and  
December 1999 to March 2000

20mi



Electronic Navigational Chart (ENC) Coverage

300mi

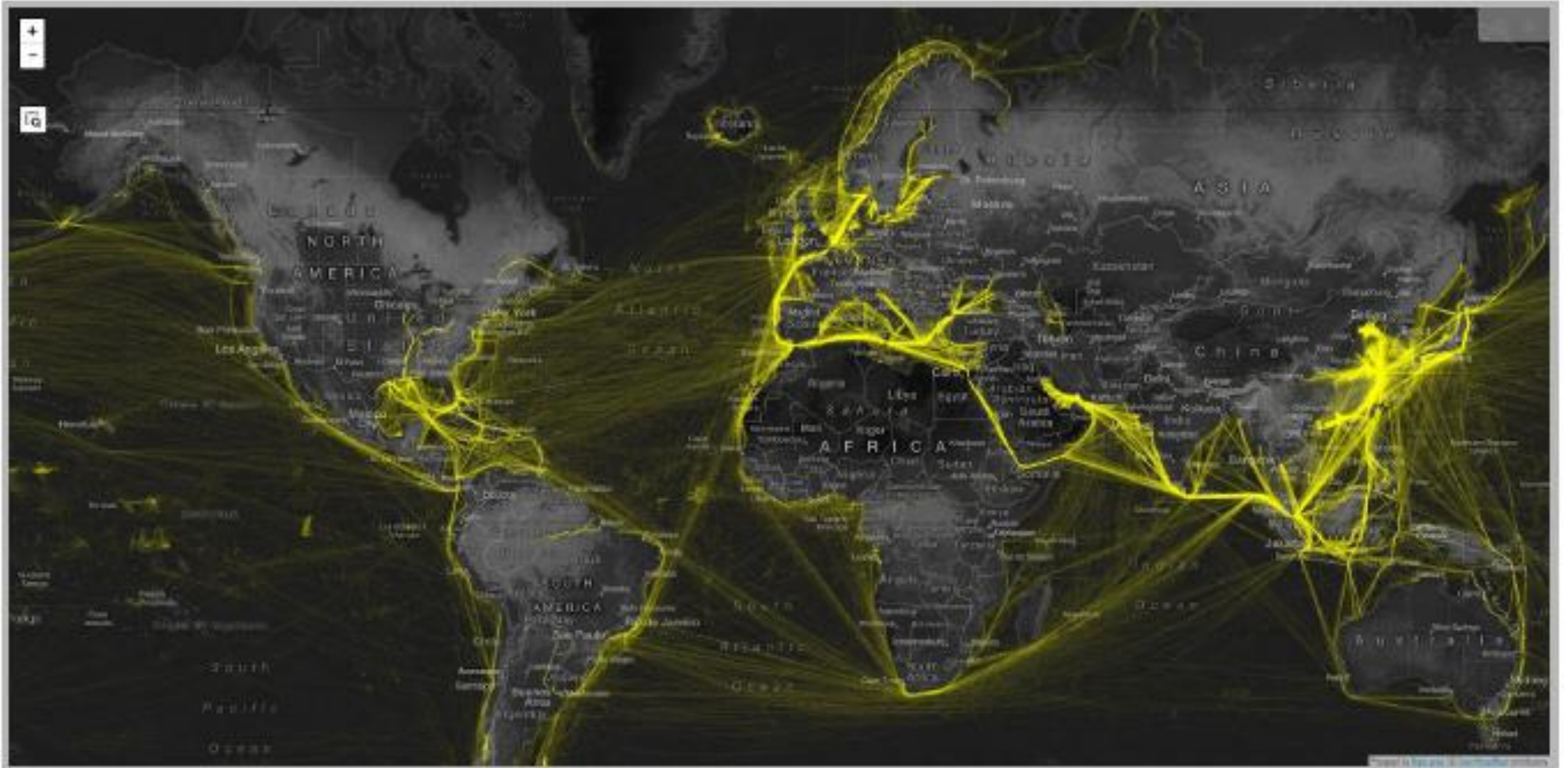
## Antarctic Maritime Traffic Analysis



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**Mark Carhart, [mark.carhart@spire.com](mailto:mark.carhart@spire.com), 703-868-6308**  
**Adam Dunbar, [adam.dunbar@spire.com](mailto:adam.dunbar@spire.com), 720-643-2250**



# Global Satellite-based AIS



# ANTARCTIC MARITIME AIS ANALYSIS DATA & ENVIRONMENT OVERVIEW

## ● Data

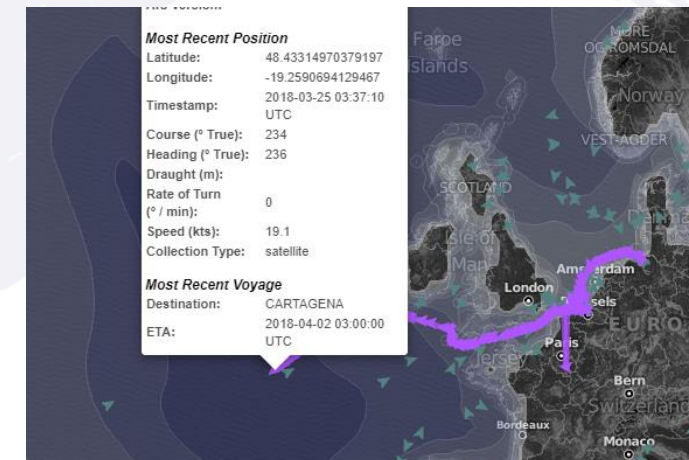
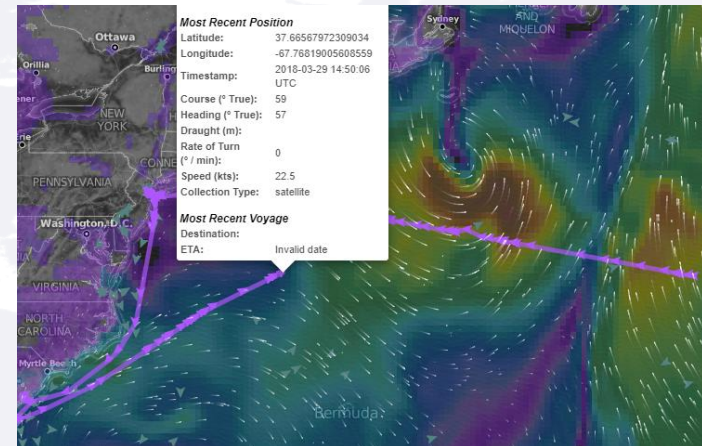
- Satellite and Terrestrial AIS data obtained from Spire's Vessels API
- Date Range: March 7, 2018 to Feb 3, 2019
- Data Pulled at -40deg Lat and lower
- Contains ~15,500 vessels

## ● Environment

- Data analysis and visualization powered by MapLarge
- Rendered in WGS84 projection with Cesium API for the 3D globe

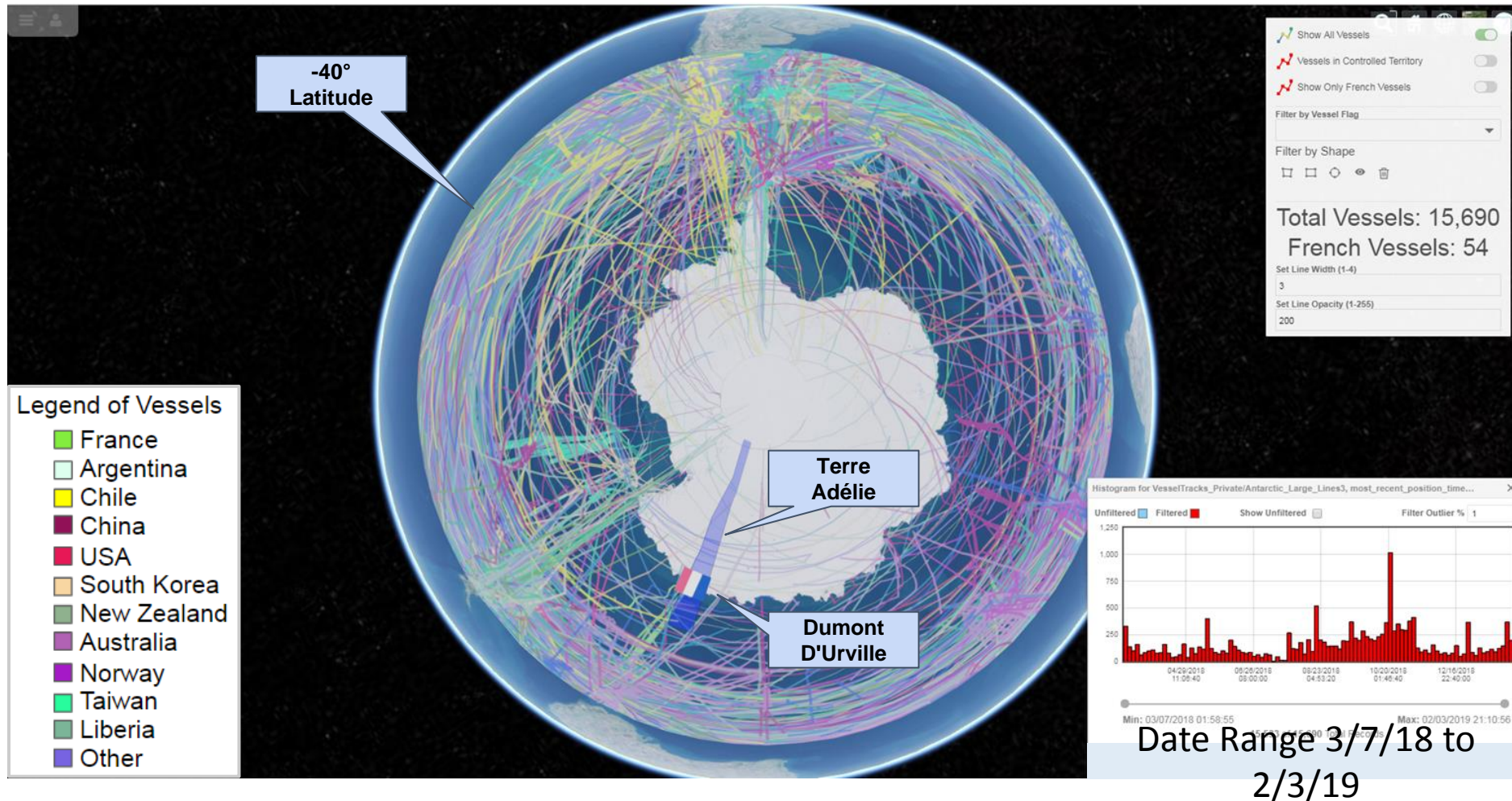
## ● Methodology

- Created Ship Tracks (Linestrings) based on the Point data for each unique MMSI
- No 'long linestring' or 'land masking' applied
- Very little outlier elimination



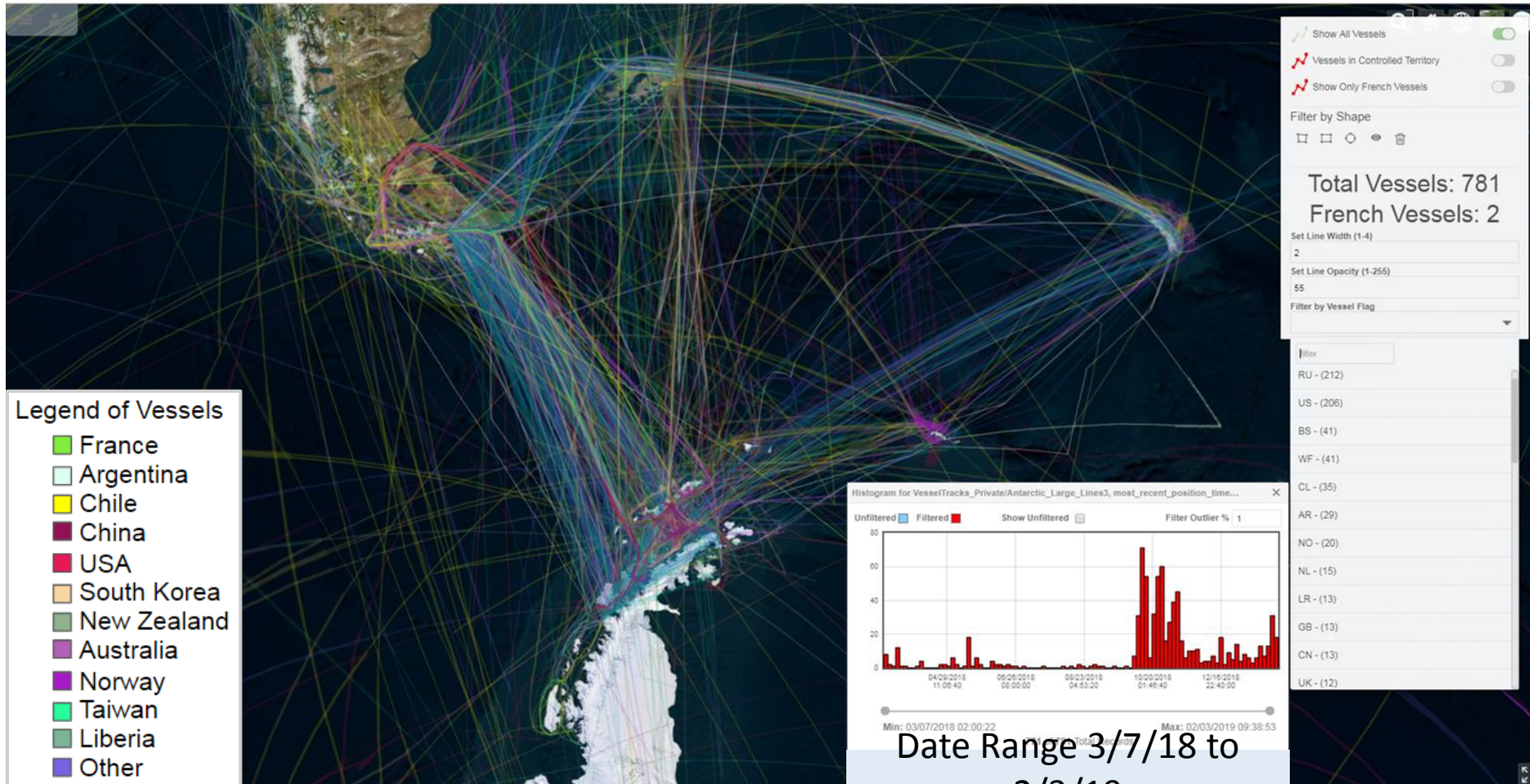
# Antarctic Overview

## 15,000+ Vessels Over ~11 Months

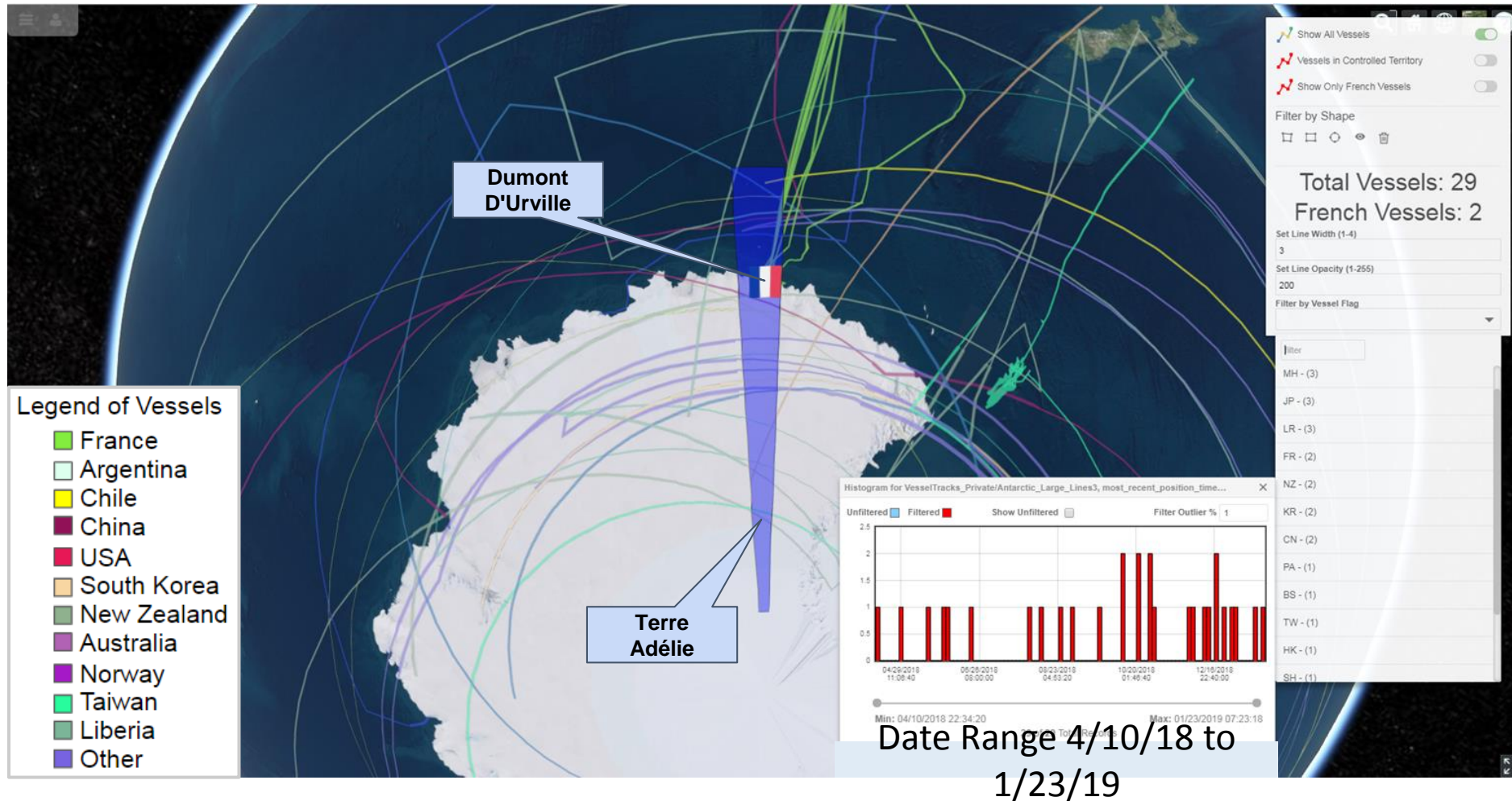


# Antarctic Peninsula

## Crowded MultiNational Waterways

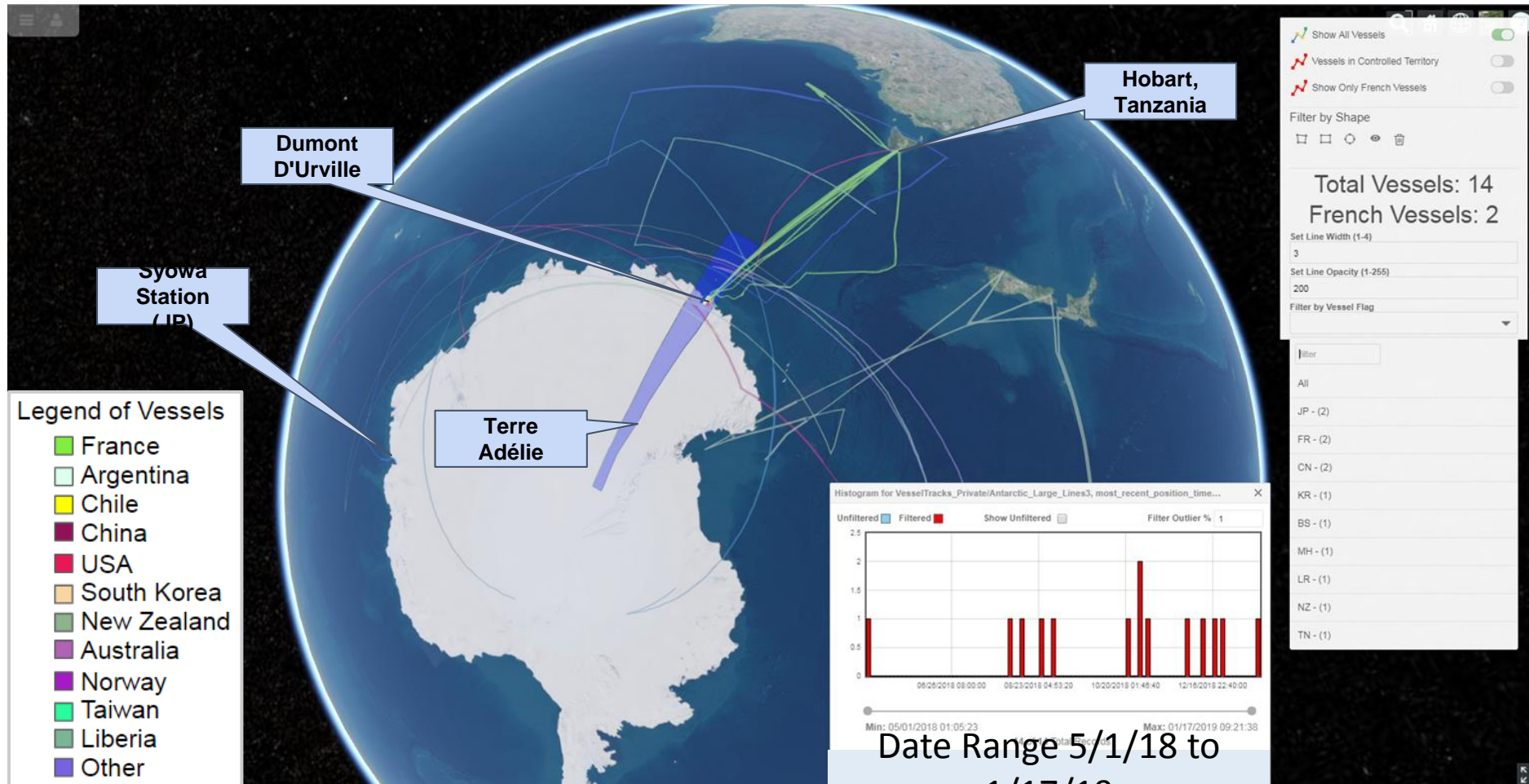


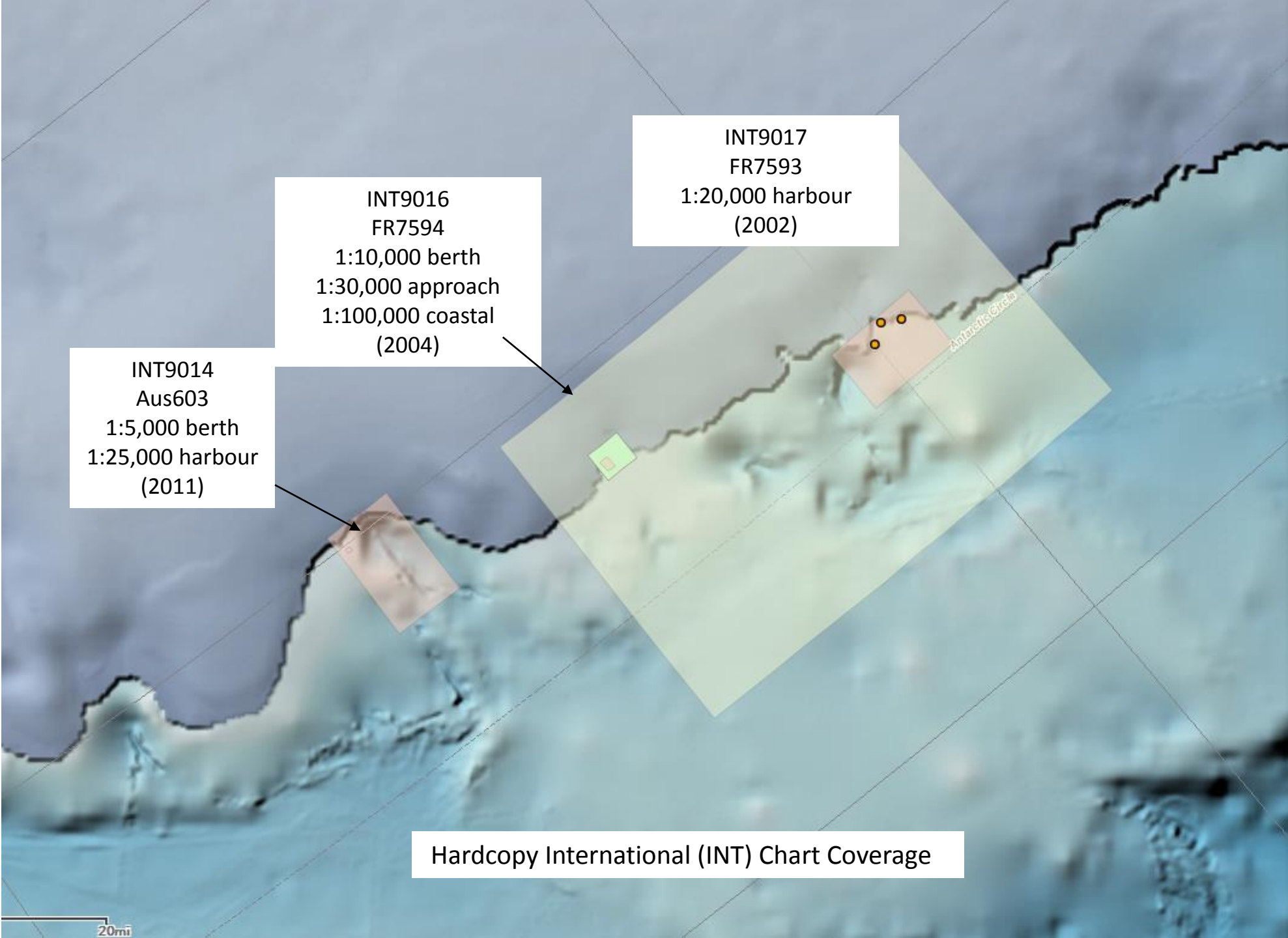
# Dumont D'Urville/Terre Adelie Traffic Entering/Exiting the Territory



# Dumont D'Urville/Terre Adélie

## Tighter Polygon Search Around Dumont D'Urville





INT9014  
Aus603  
1:5,000 berth  
1:25,000 harbour  
(2011)

INT9016  
FR7594  
1:10,000 berth  
1:30,000 approach  
1:100,000 coastal  
(2004)

INT9017  
FR7593  
1:20,000 harbour  
(2002)

Hardcopy International (INT) Chart Coverage

# Next steps for IHO

- Develop analysis that summarizes ENC traffic density based on ENC cells
- Develop appropriate overlay for IHO INTOGISII
- Consider scaling to other regions and ENC holdings including member states and regional commissions