

5th INTERNATIONAL ICE ANALYST WORKSHOP



Navigating Sea Ice and Icebergs of Antarctica

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Icebreaker and Buoy Tender Chief,
Office of Cutter Forces (CG-751)



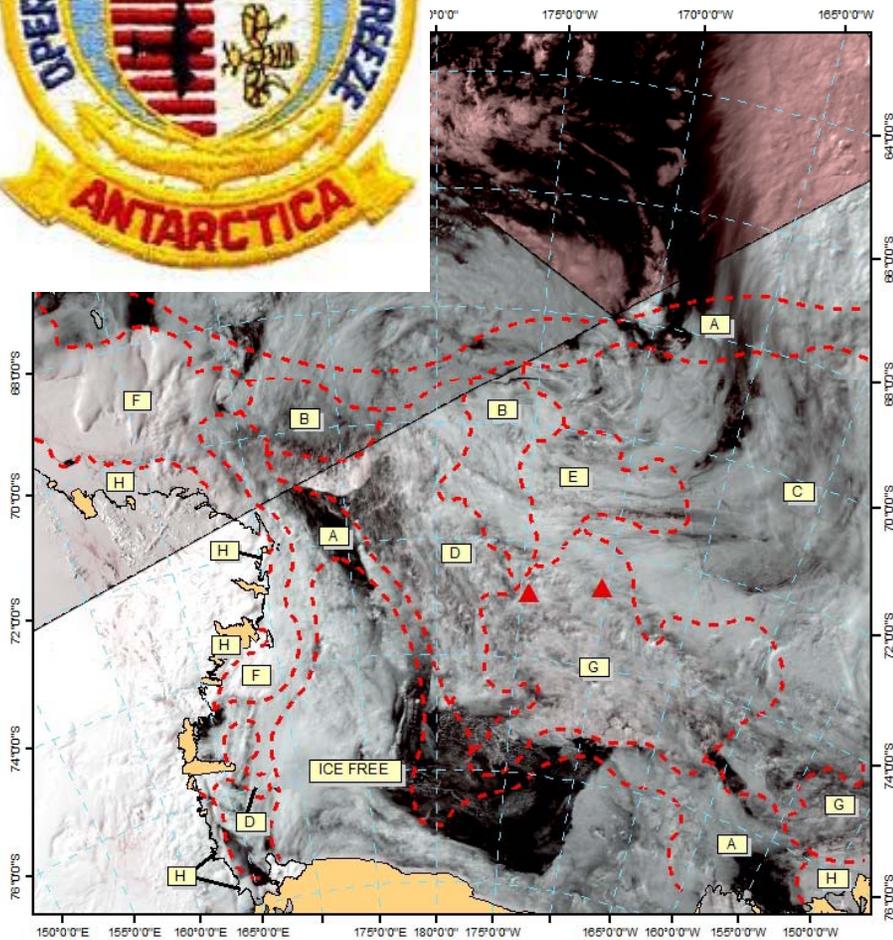
USCGC POLAR STAR (WAGB 10)



POLAR STAR Crew



Operation DEEP FREEZE



**U.S. National Ice Center
Operation Deep Freeze
04 February 2015**

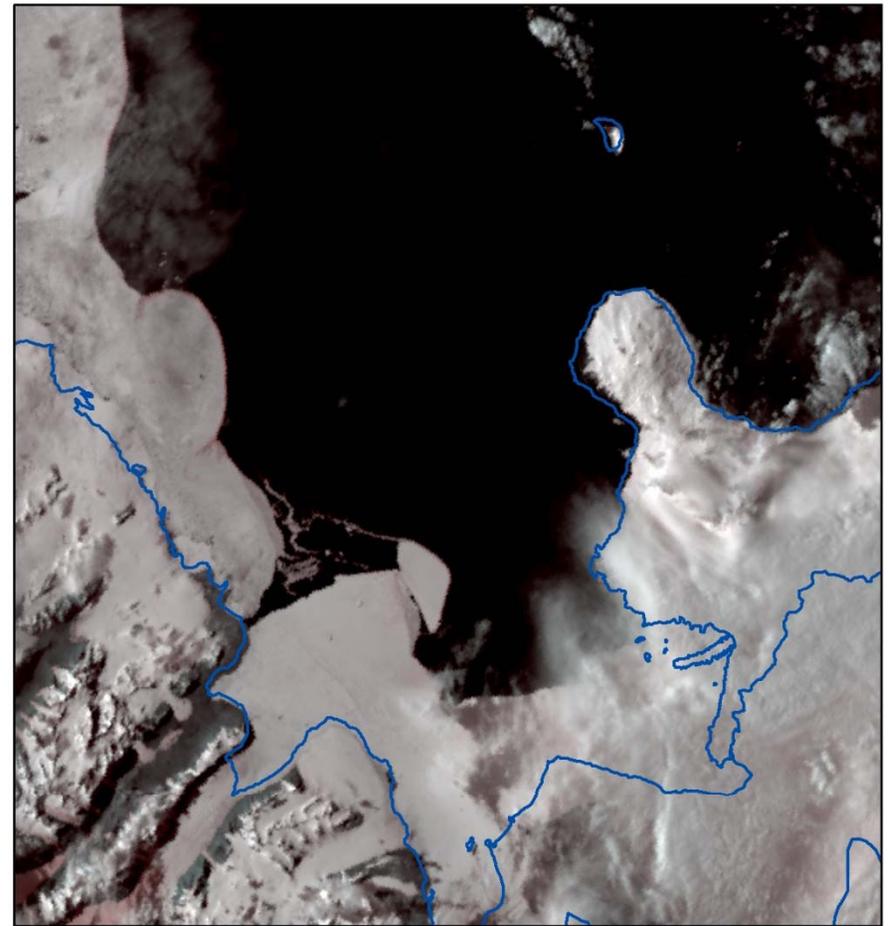
MODIS.....04 Feb 2015

— = Analyzed
- - = Estimated

LAND ICE SHELF

A = 1-3 tenths.....	First Year Ice
B = 4-6 tenths.....	First Year Ice
C = 4-6 tenths.....	Multi-Year Ice and First Year Ice
D = 6-8 tenths.....	First Year Ice
E = 6-8 tenths.....	Multi-Year Ice and First Year Ice
F = 8-10 tenths.....	First Year Ice
G = 8-10 tenths.....	Multi-Year Ice and First Year Ice
H = 10 tenths.....	Fast Ice

*All areas considered to contain a trace of iceberg
▲ = Iceberg of significant size



McMurdo Zoom

No analysis provided for this increased zoom.

Image provided as a courtesy

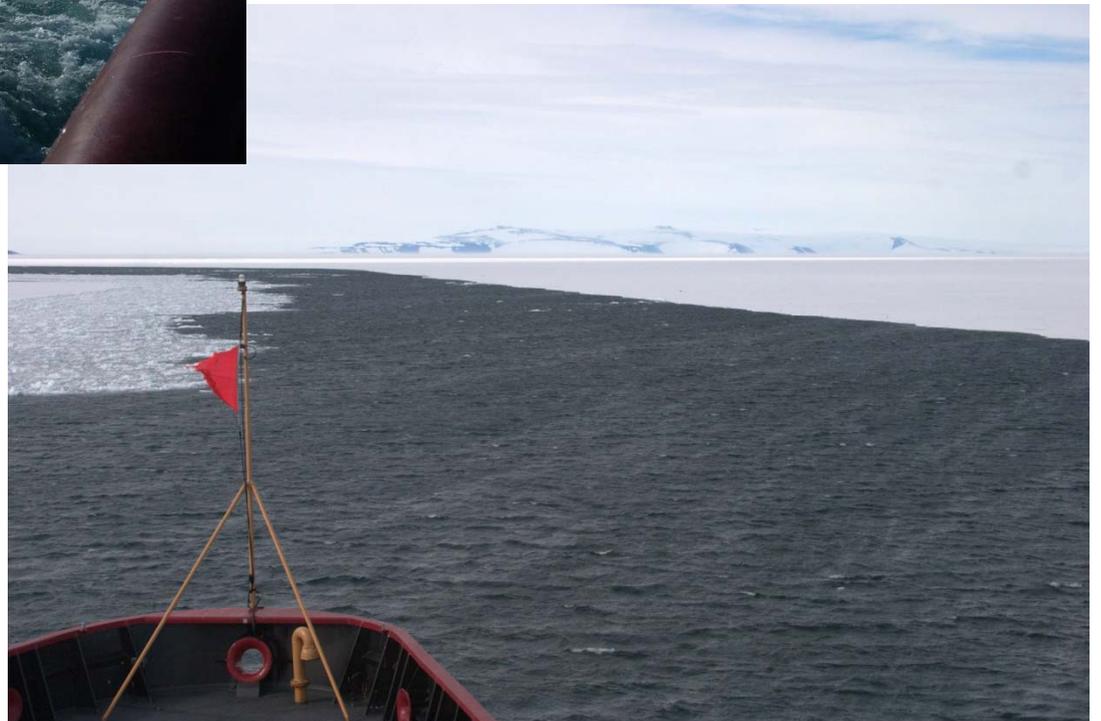
U.S. NATIONAL ICE CENTER

Operation Deep Freeze Support
31 January 2015

MODIS.....31 JAN 2015 1405Z

Operation DEEP FREEZE

McMurdo Break In, January 2015



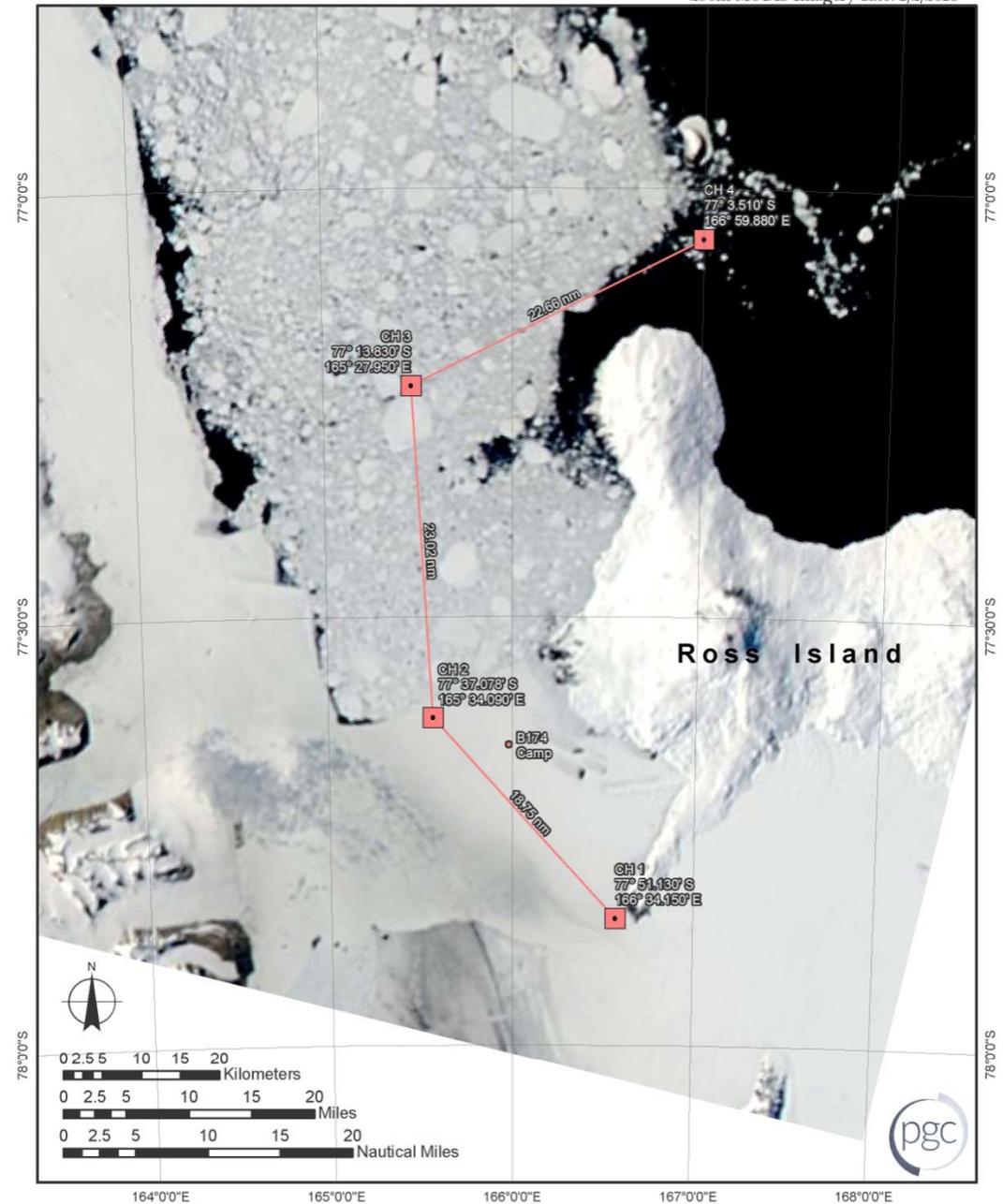
Beginning Turning Basin



Operation DEEP FREEZE McMurdo Shipping Channel

Shipping Channel Monitoring Sites
2014-2015

January 8, 2015
Map Author: Cole Kelleher
250m MODIS Imagery date: 1/2/2015



McMurdo Shipping Channel



Close Ice Escort, M/V OCEAN GIANT



Operation DEEP FREEZE

McMurdo Station, February 2014

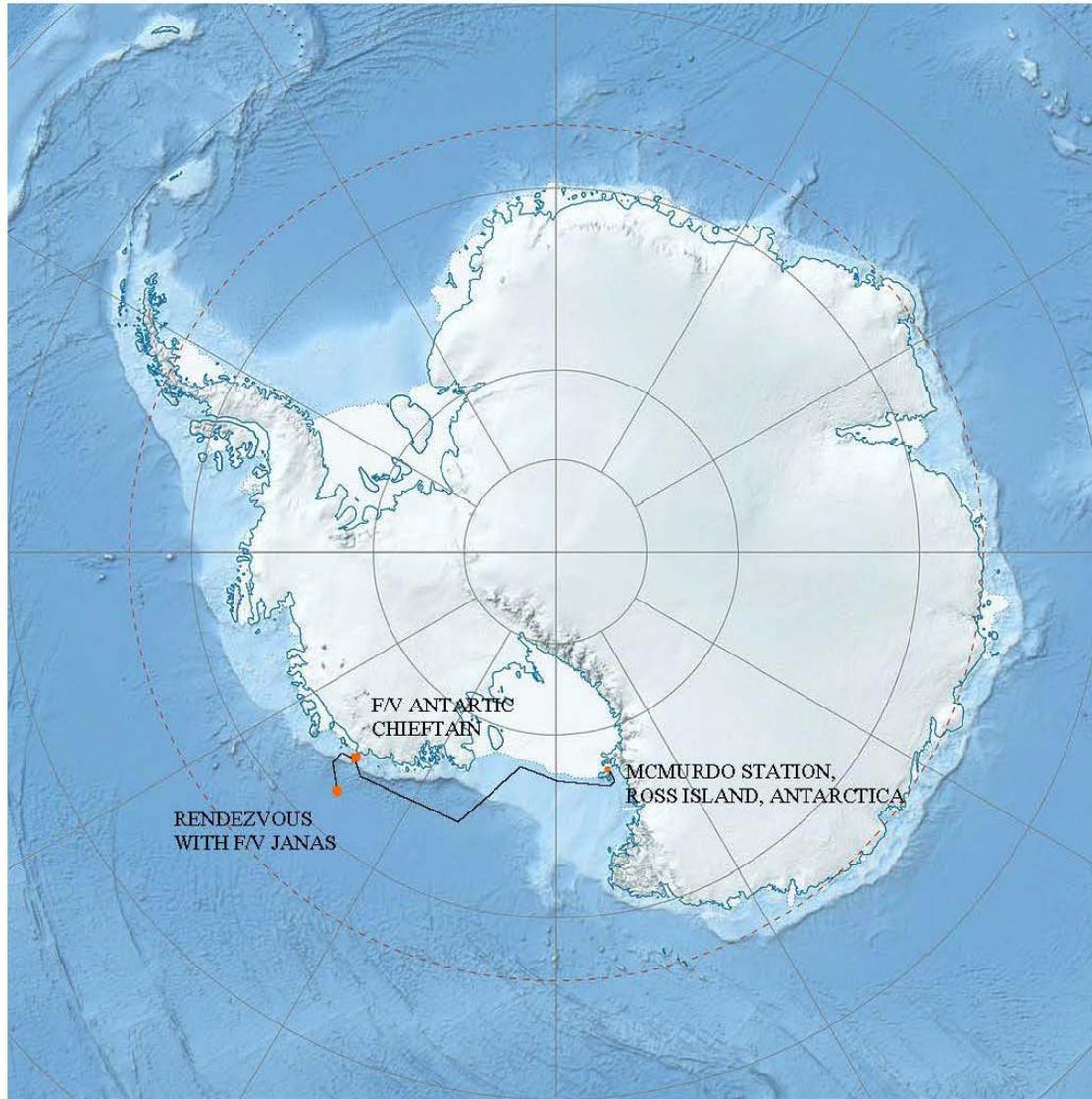


Operation DEEP FREEZE

Marble Point, February 2014

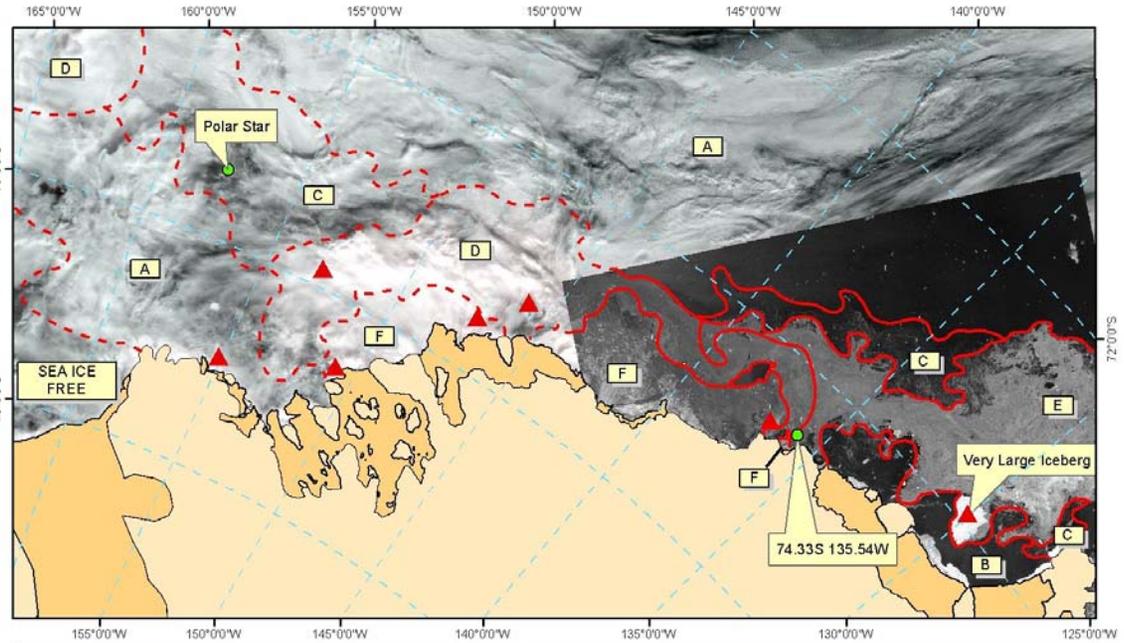
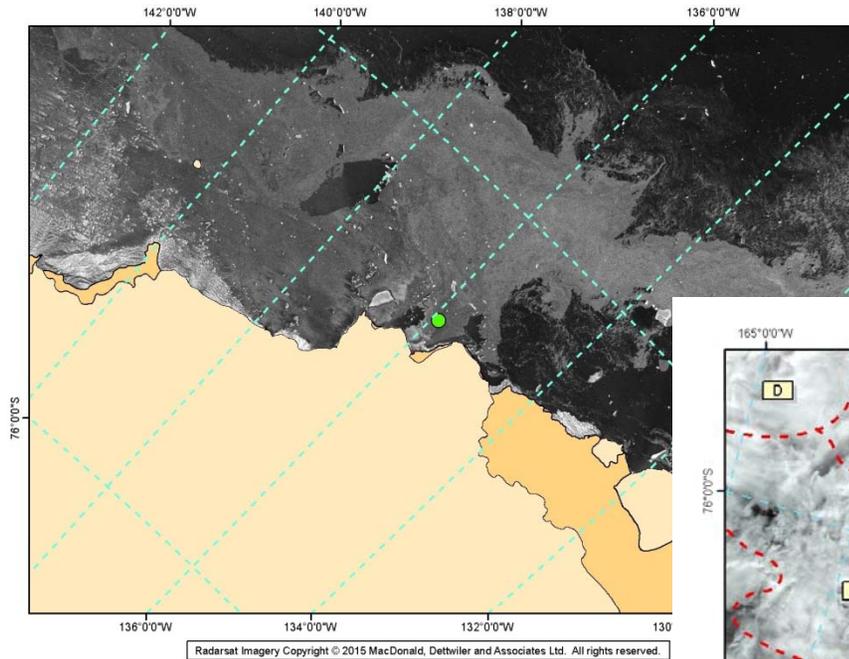


Search And Rescue



11 February 2015

11FEB-0603Z- Diverted, position
74-14 S 164-35 W



**U.S. National Ice Center
Polar Star SAR
11 February 2015**

MODIS.....11 Feb 2015
RADARSAT-2.....11 Feb 2015

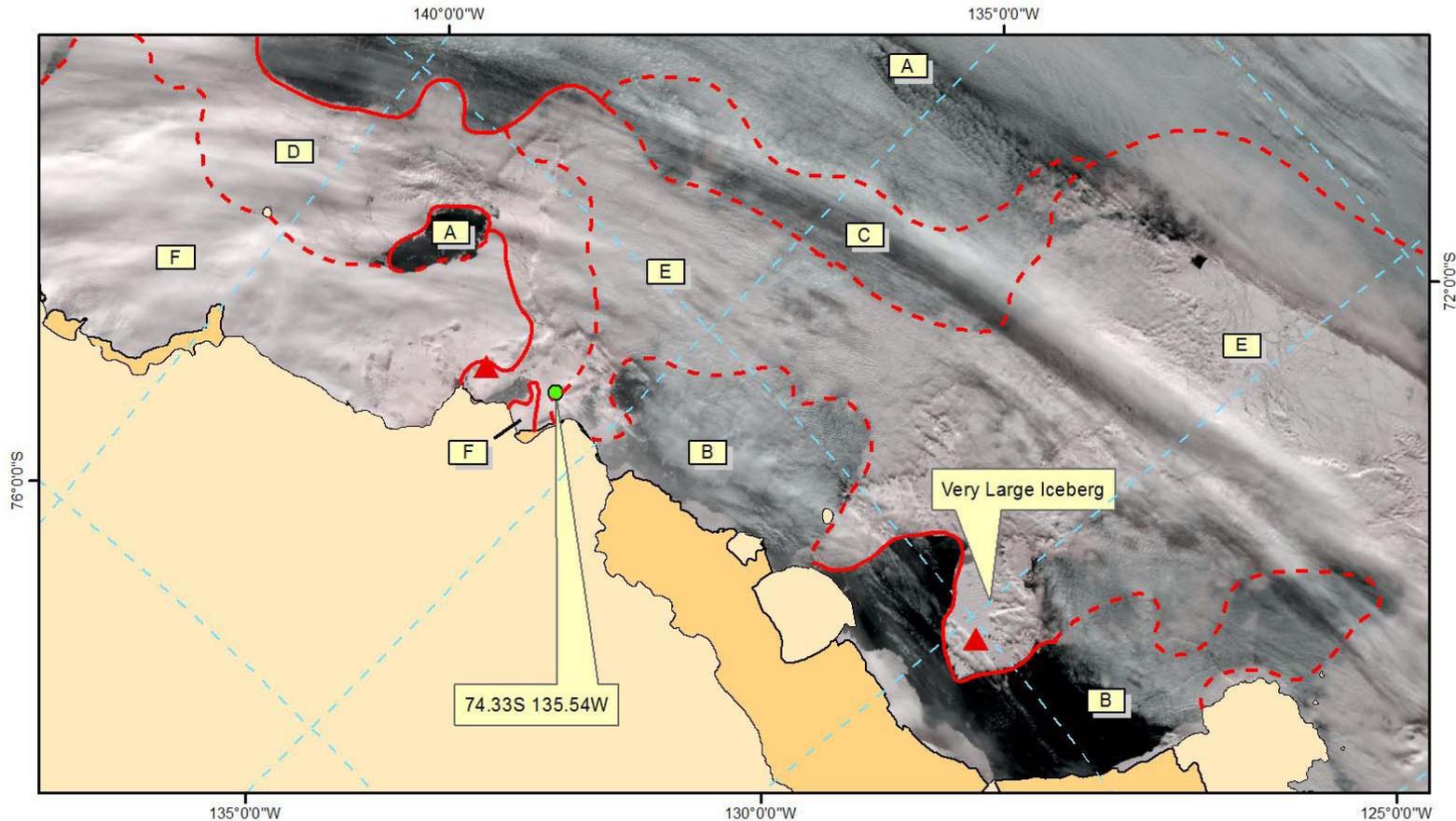
— = Analyzed
- - = Estimated

LAND ICE SHELF

A = 1-3 tenths.....	Multi-Year ice and First Year ice
B = 4-6 tenths.....	First Year ice
C = 4-6 tenths.....	Multi-Year ice and First Year ice
D = 8-10 tenths.....	Multi-Year ice and First Year ice
E = 8-10 tenths.....	First Year ice
F = 10 tenths.....	Fast Ice

All areas considered to contain at least a trace of iceberg.

12 February 2015



**U.S. National Ice Center
Polar Star SAR
12 February 2015**

MODIS.....12 Feb 2015

— = Analyzed
- - = Estimated

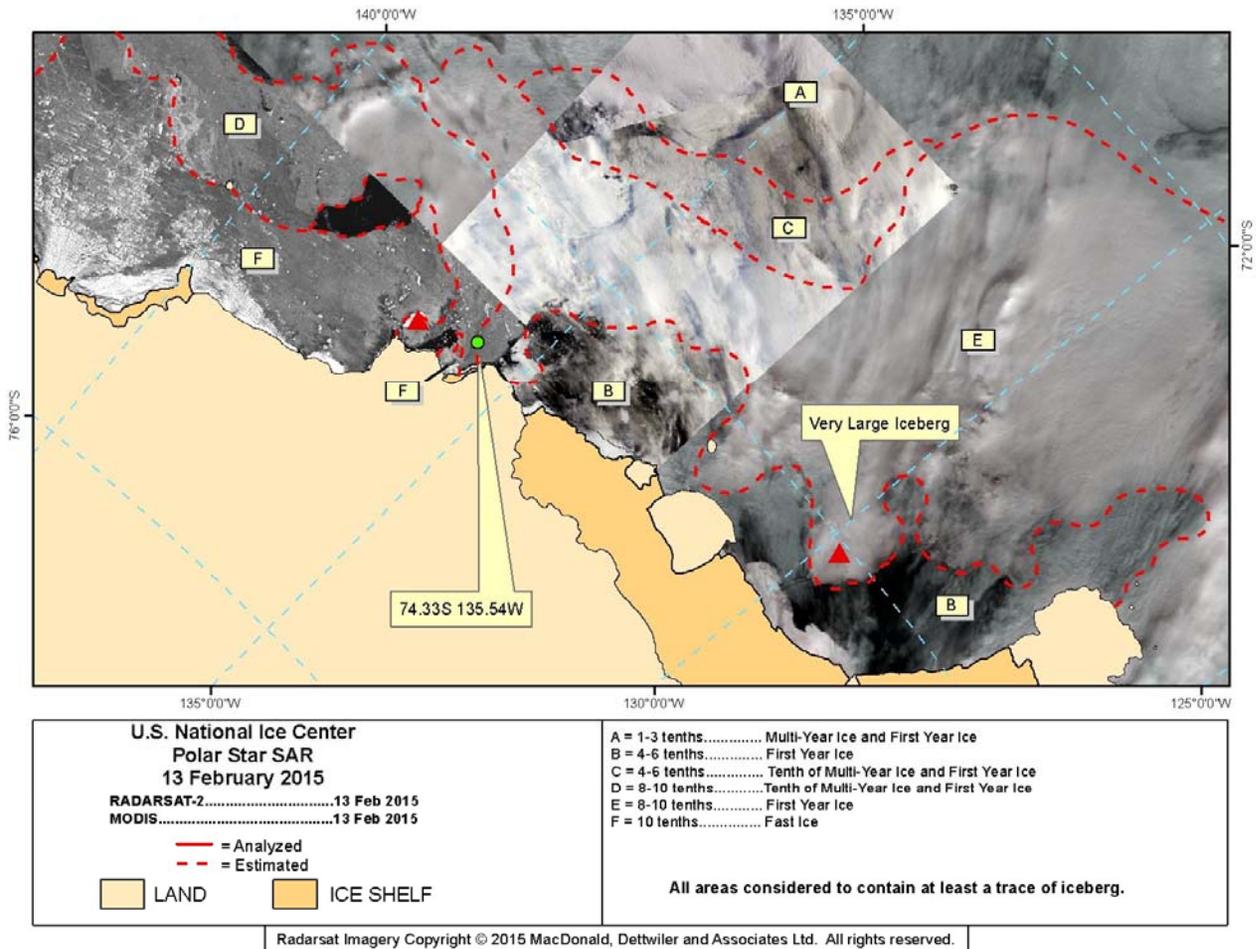
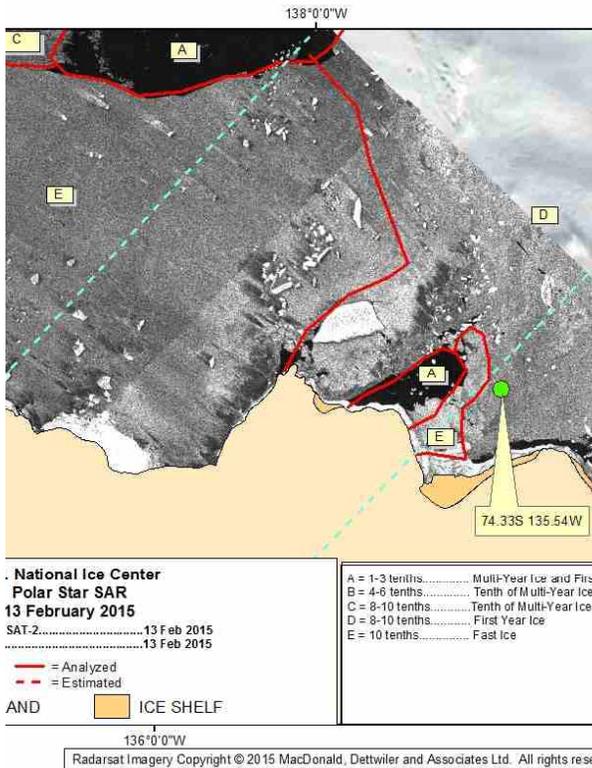
LAND ICE SHELF

A = 1-3 tenths..... Multi-Year Ice and First Year Ice
B = 4-6 tenths..... First Year Ice
C = 4-6 tenths..... Tenth of Multi-Year Ice and First Year Ice
D = 8-10 tenths..... Tenth of Multi-Year Ice and First Year Ice
E = 8-10 tenths..... First Year Ice
F = 10 tenths..... Fast Ice

All areas considered to contain at least a trace of iceberg.

13 February 2015

13FEB- 1730Z- M/V Antarctic Chieftain
 in sight, position 74:28.7'S, 135:57.2'W
 Bearing 172T



Note- Total distance traveled, Approximately 753.6 NM total, 89 NM of 10/10 M&FYT tight pack ice, 2-3' snow coverage

13 February 2015



F/V ANTARCTIC CHIEFTAIN



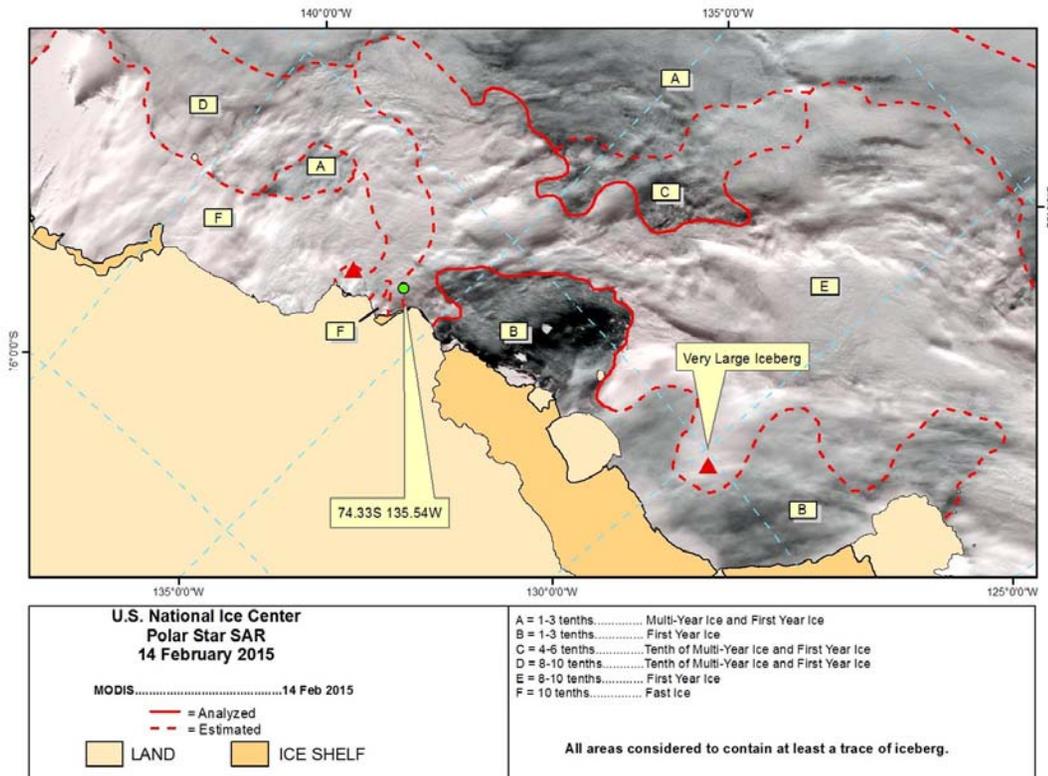
F/V ANTARCTIC CHIEFTAIN Rescue



2030Z- Moored alongside, pos
74:33.4'S; 135:54.8 W, deployed
ROV



14 February 2015



14FEB- 0313Z- Tow line connected, previous position

0416Z- Tow line parted, position 74-32.4 S 135- 50.7 W

0530Z- Tow line connected, previous position

0720Z- Tow parted, position 74:28.9'S, 135:38.9'W

1855Z- Tow connected, previous position

F/V ANTARCTIC CHIEFTAIN Rescue



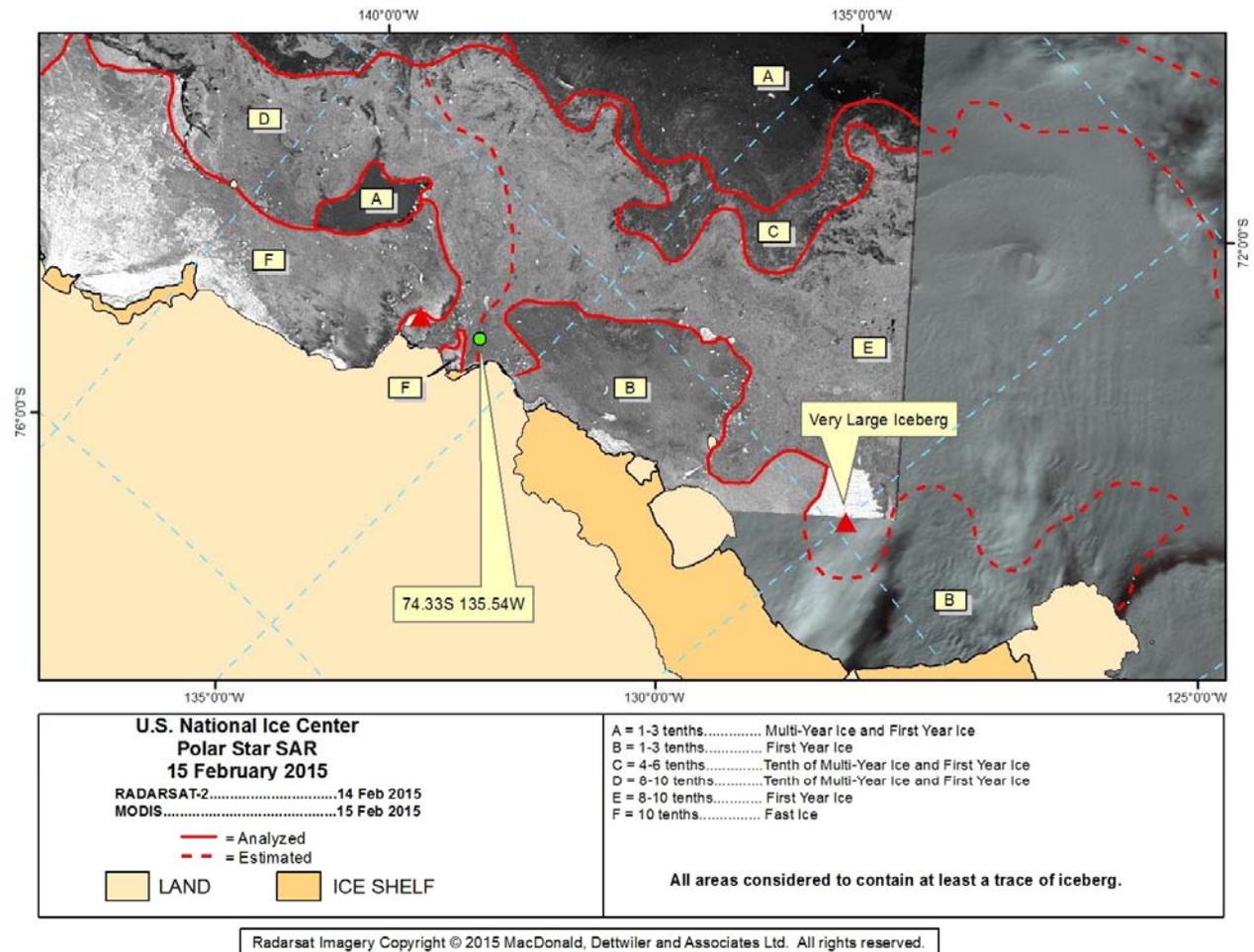
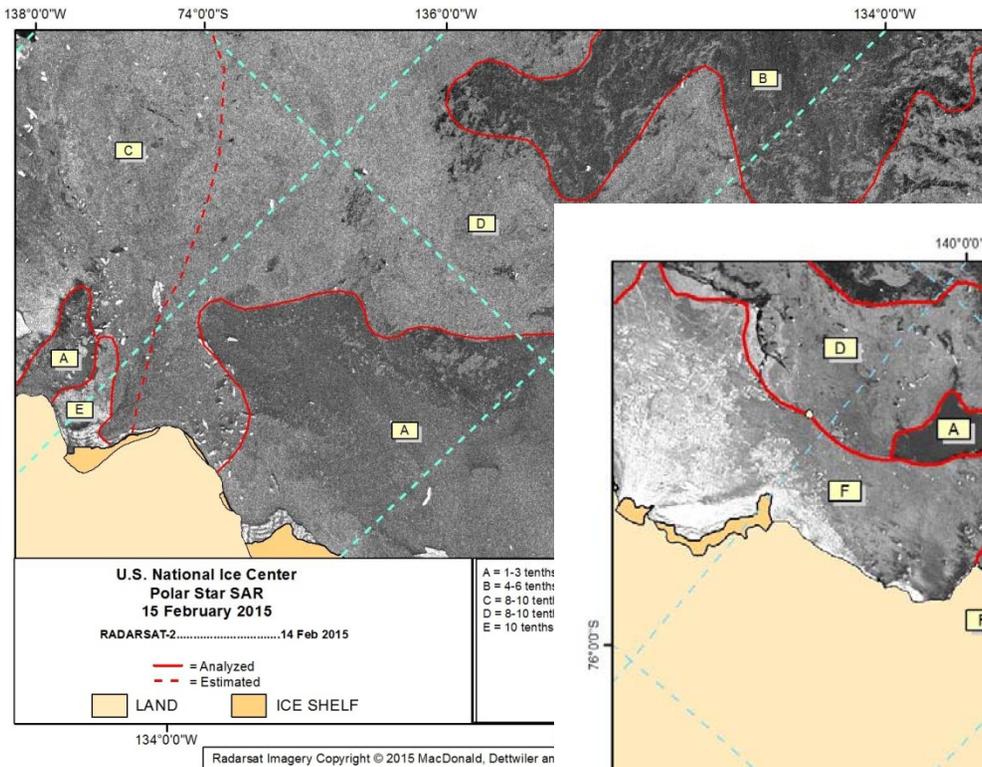
Towed F/V Antarctic Chieftain
8 NM, 10/10 FYT tight pack
ice, 1-2' snow coverage



Towed through 37 NM open water,
4.25 NM 10/10 FYT pack ice, Total
tow: 49.25 NM

15 February 2015

15FEB- 0605Z- Tow parted,
position 73-54 S 134-07 W



0615Z- Commenced
close ice escort, previous
position
Close ice escort 57.75
NM, 37 NM of 8-10/10 FY
pack ice, 20.75 NM 4-
6/10 light pack

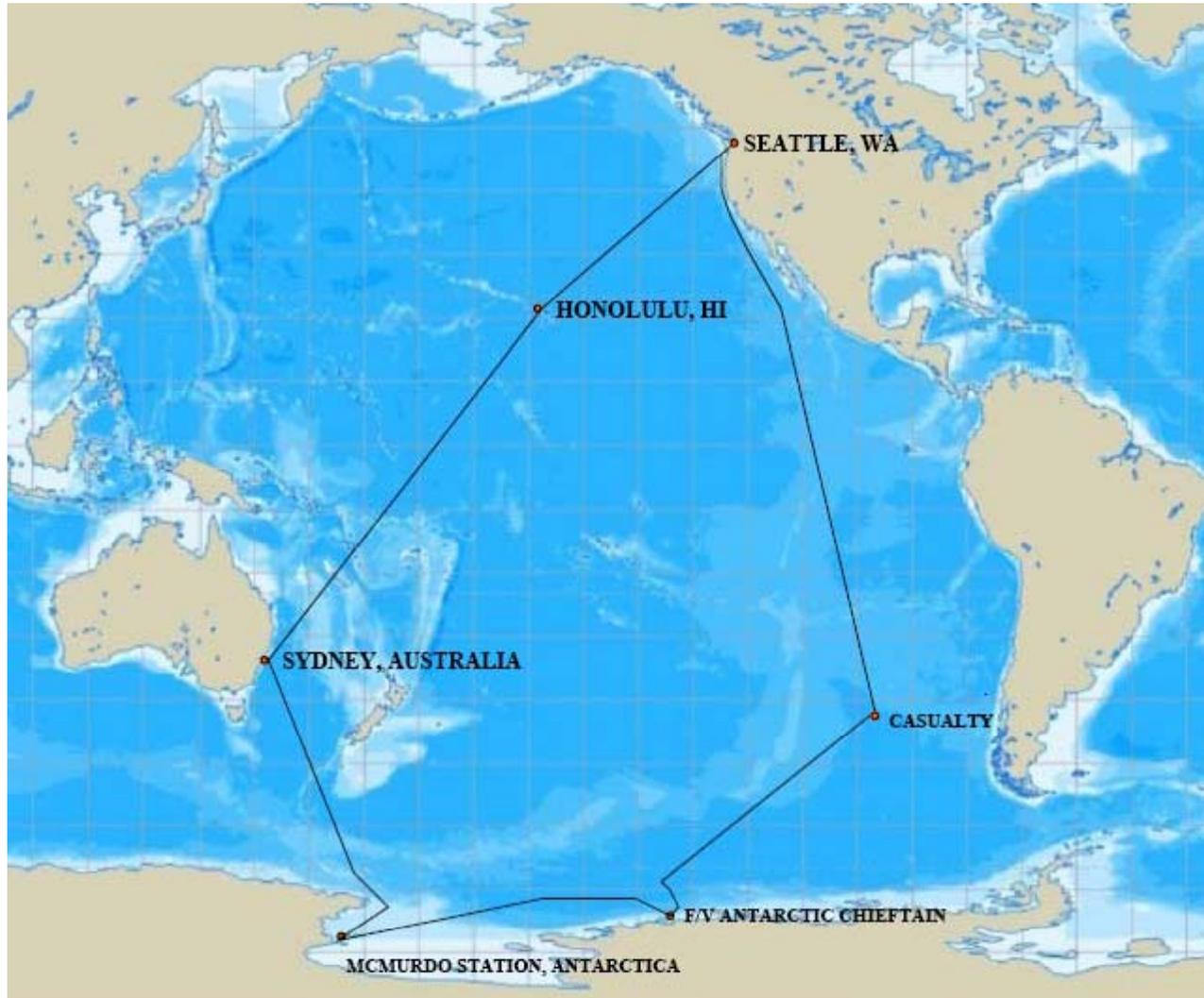
Towing Antarctic Chieftain



Towing Antarctic Chieftain



Cutter's Trackline



Any Questions?

