

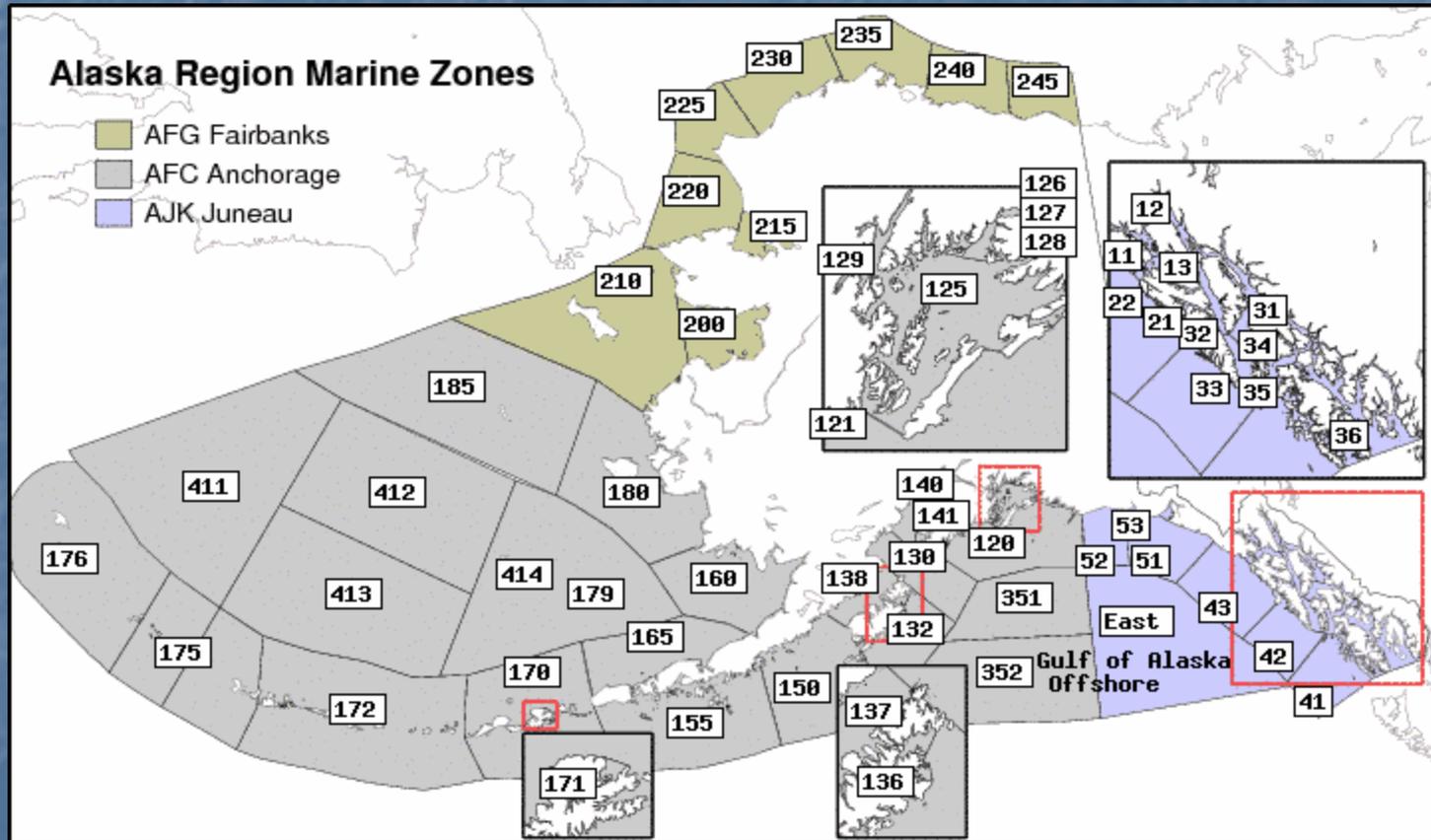


# National Weather Service Alaska Region Sea Ice Program

**Presentation to  
OCONUS GOES-R Proving Ground  
Tuesday 18 June 2013**

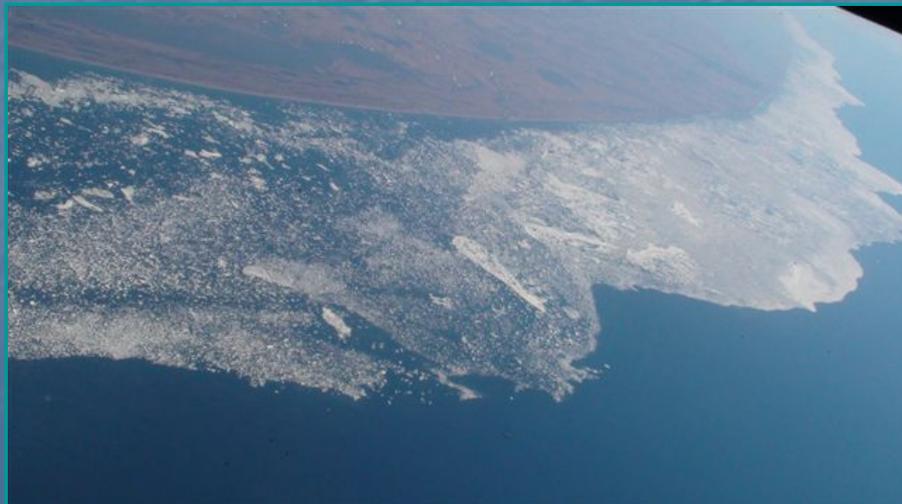
Kathleen Cole  
Alaska Sea Ice Program Leader  
Anchorage Forecast Office

# NWS Alaska Marine Zones



# ALASKA SEA ICE PROGRAM

Products aid ships navigating in and near the ice-covered waters surrounding Alaska and coastal communities existing with the annual presence of sea ice.



Shishmaref coast  
June 2009 from  
USCG overflight

- ❖ Local ice program is vital to NOAA and NWS missions in Alaska

- ❖ Maritime and coastal hazards often require 24 hour access to changing sea ice conditions

- ❖ Alaska Ice Program is well respected and appreciated by a wide range of customers including state & federal government agencies, local communities, and varied industries

# Alaska Sea Ice Customers

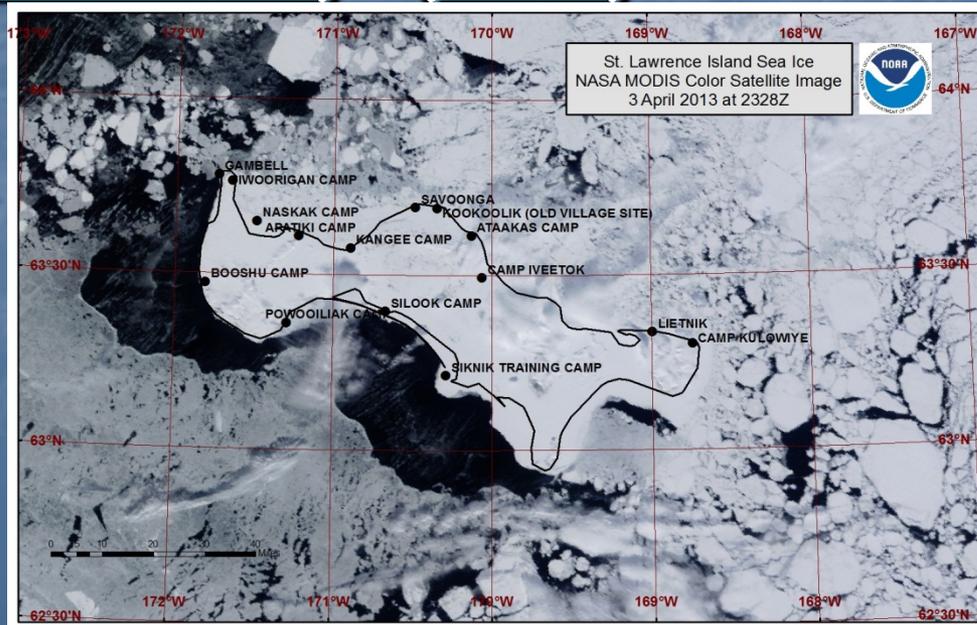
- Native Corporations
- Fishing Fleets
- Oil Industry
- Shipping
- Transportation
- Tourism
- US Coast Guard
- NWS Forecasters
- Homeland Security
- State of Alaska
- AK Fish & Wildlife
- Universities
- Other Ice Agencies
- Government Agencies



Most customers are really partners...sharing information and data (photo – Cook Inlet March 2007 from industry survey flight)

# Alaska Native Corporations

- Subsistence hunts along the ice edge and off shorefast ice
- Alaska Ice Program is consulted for timing of hunts and safety of hunting groups
- SIWO ([Facebook](#)) ([Web](#))



# Alaska Fishing Fleets

- Bering Sea Fishery (\$4 Billion)
- Ship Captains often consult the ice forecaster for immediate data on ice position and movement
- Many ships have Internet access



F/V Bering Star  
March 2008



# \$ Shipping & Transportation \$

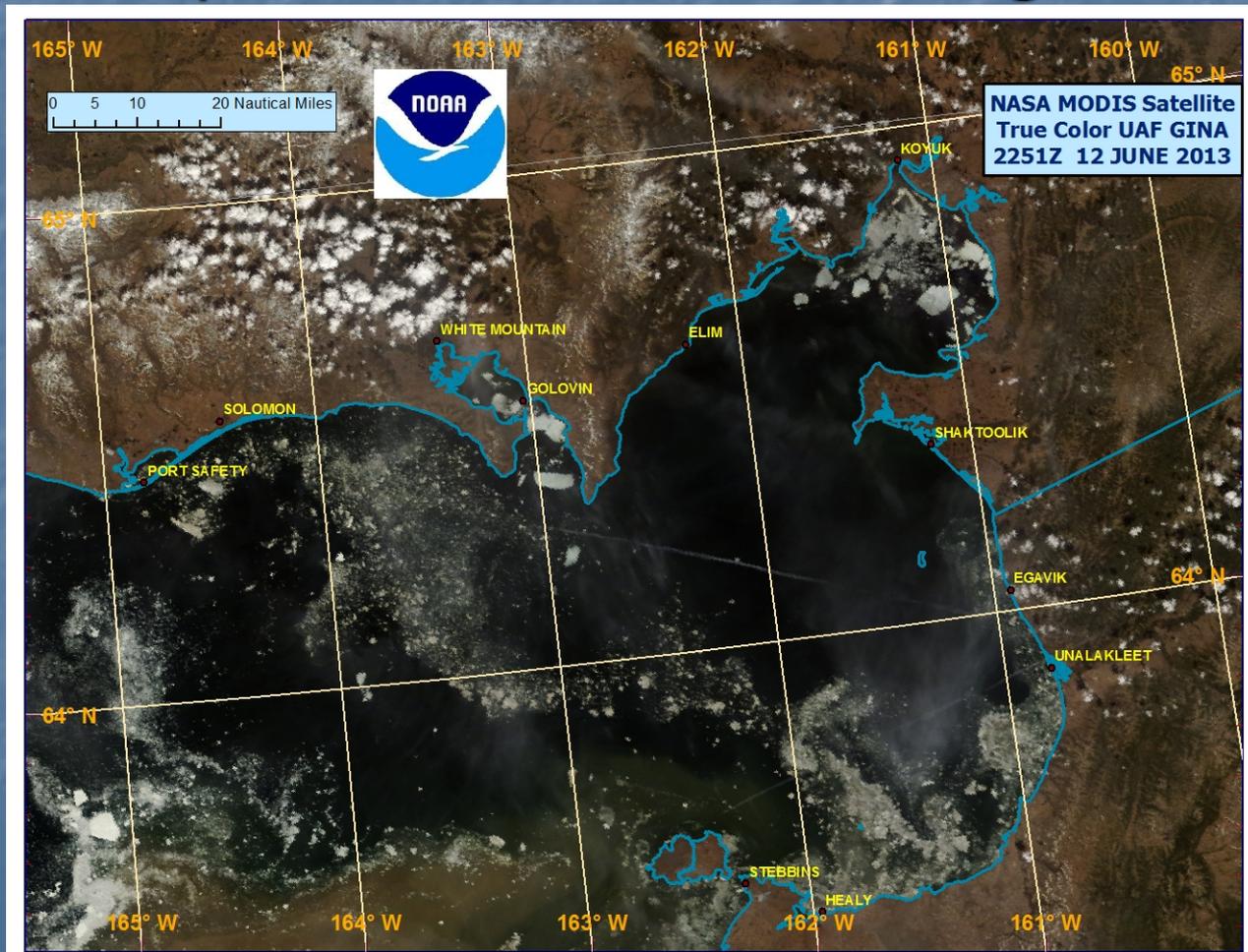
- Cook Inlet
- Bering Sea
- Bering Strait
  - access to Polar Routes
- Chukchi Sea
- Beaufort Sea

Tanker ship moving  
through ice in Cook Inlet



# ■ Summer Re-Supply

- Alaska coastal and river communities rely on Sea Ice products for summer barge deliveries



The Ice Desk provided 24 hour support to the USCG Ice Breaker Healy during its escort of the tanker Renda for an emergency fuel delivery December 2011 to January 2012



# Oil Industry

- The Ice Program is used by oil industry from development stage through production and product delivery
- Ice location and movement are critical to safe oil operations in environmentally sensitive ecosystems



# ALASKA SEA ICE PRODUCTS

Issued Monday, Wednesday and Friday

- Ice Analysis - graphic
  - 5 Day Sea Ice Forecast - graphic
  - Monthly Year Group Analysis and Outlook
- 

Issued Tuesday and Thursday

- Sea Surface Temperature Analysis

Ice Desk will be going to a 7 day schedule later this year – with daily ice and SST products

FZAK80 PAFC 162302

ICEAFC

SEA ICE ADVISORY FOR WESTERN AND ARCTIC ALASKAN COASTAL WATERS

NATIONAL WEATHER SERVICE ANCHORAGE ALASKA

310 PM ADT MONDAY JULY 16 2007

FORECAST VALID SATURDAY JULY 21 2007

CONFIDENCE...HIGH.

SYNOPSIS...HIGH PRESSURE NORTHWEST OF BANKS ISLAND WILL WEAKEN THROUGH THURSDAY THEN REMAIN STATIONARY NORTH OF ALASKA THROUGH SATURDAY. A TROUGH OF LOW PRESSURE WILL EXTEND FROM EASTERN RUSSIA ACROSS CENTRAL ALASKA BY THE END OF THE WEEK.

-ARCTIC OCEAN-

-BEAUFORT SEA-

-CHUKCHI SEA-

PKZ230-CAPE BEAUFORT TO POINT FRANKLIN-

PKZ235-POINT FRANKLIN TO CAPE HALKETT-

PKZ240-CAPE HALKETT TO FLAXMAN ISLAND-

PKZ245-FLAXMAN ISLAND TO DEMARCATION POINT-

THE ICE EDGE LIES FROM NEAR POINT BARROW TO 71.9N 156.1W TO 71.9N 163.9W TO 70.9N 160.5W TO 71N 165.8W TO 71.5N 168.9W TO 70N 169W TO 69.9N 170.4W TO 70.7N 172.6W TO 72N 174W TO 72.8N 176W TO 71.4N 175.1W TO 70.8N 176W TO 70.7N 175.5E AND CONTINUES TO THE WEST. THE EDGE IN ALASKAN WATERS IS MAINLY 3 TO 8 TENTHS FIRST YEAR THIN... FIRST YEAR MEDIUM AND YOUNG ICE. AN AREA OF OPEN WATER VERY ROUGHLY 50 TO 100 NM WIDE LIES OFF THE COAST EAST OF 146W.

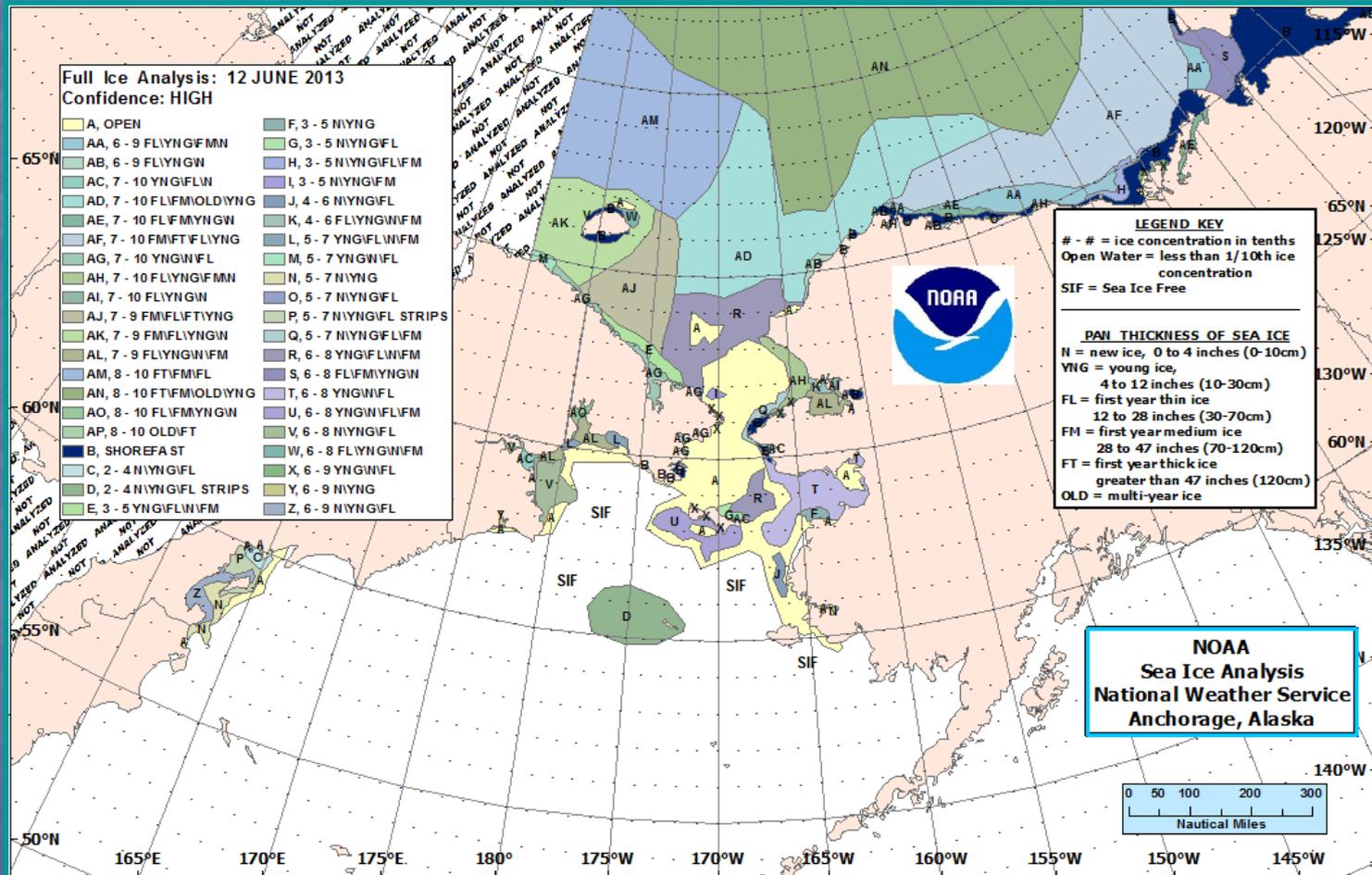
FORECAST THROUGH SATURDAY...OPEN WATER WILL EXTEND ACROSS THE ALASKA NORTH COAST BY SATURDAY. ICE IN THE CHUKCHI SEA WILL MOVE TO THE NORTH NORTHWEST 15 TO 25 NM.

KCOLE JULY 2007

# Graphic Ice Products

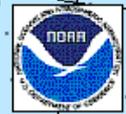
## GIS Technology

## Using ESRI ArcMap Software



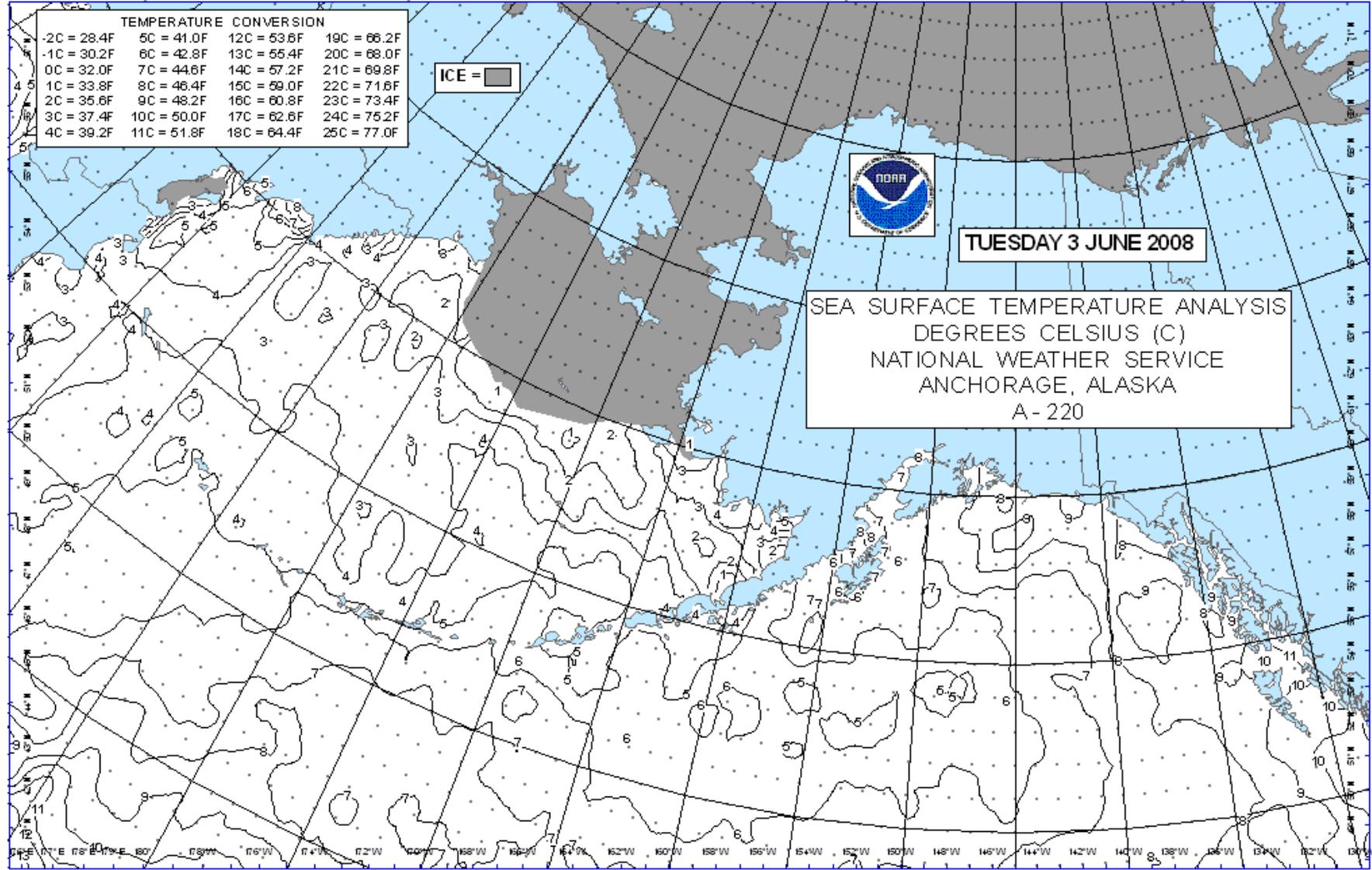
TEMPERATURE CONVERSION			
-2C = 28.4F	5C = 41.0F	12C = 53.6F	19C = 66.2F
-1C = 30.2F	6C = 42.8F	13C = 55.4F	20C = 68.0F
0C = 32.0F	7C = 44.6F	14C = 57.2F	21C = 69.8F
1C = 33.8F	8C = 46.4F	15C = 59.0F	22C = 71.6F
2C = 35.6F	9C = 48.2F	16C = 60.8F	23C = 73.4F
3C = 37.4F	10C = 50.0F	17C = 62.6F	24C = 75.2F
4C = 39.2F	11C = 51.8F	18C = 64.4F	25C = 77.0F

ICE = 



TUESDAY 3 JUNE 2008

SEA SURFACE TEMPERATURE ANALYSIS  
 DEGREES CELSIUS (C)  
 NATIONAL WEATHER SERVICE  
 ANCHORAGE, ALASKA  
 A-220



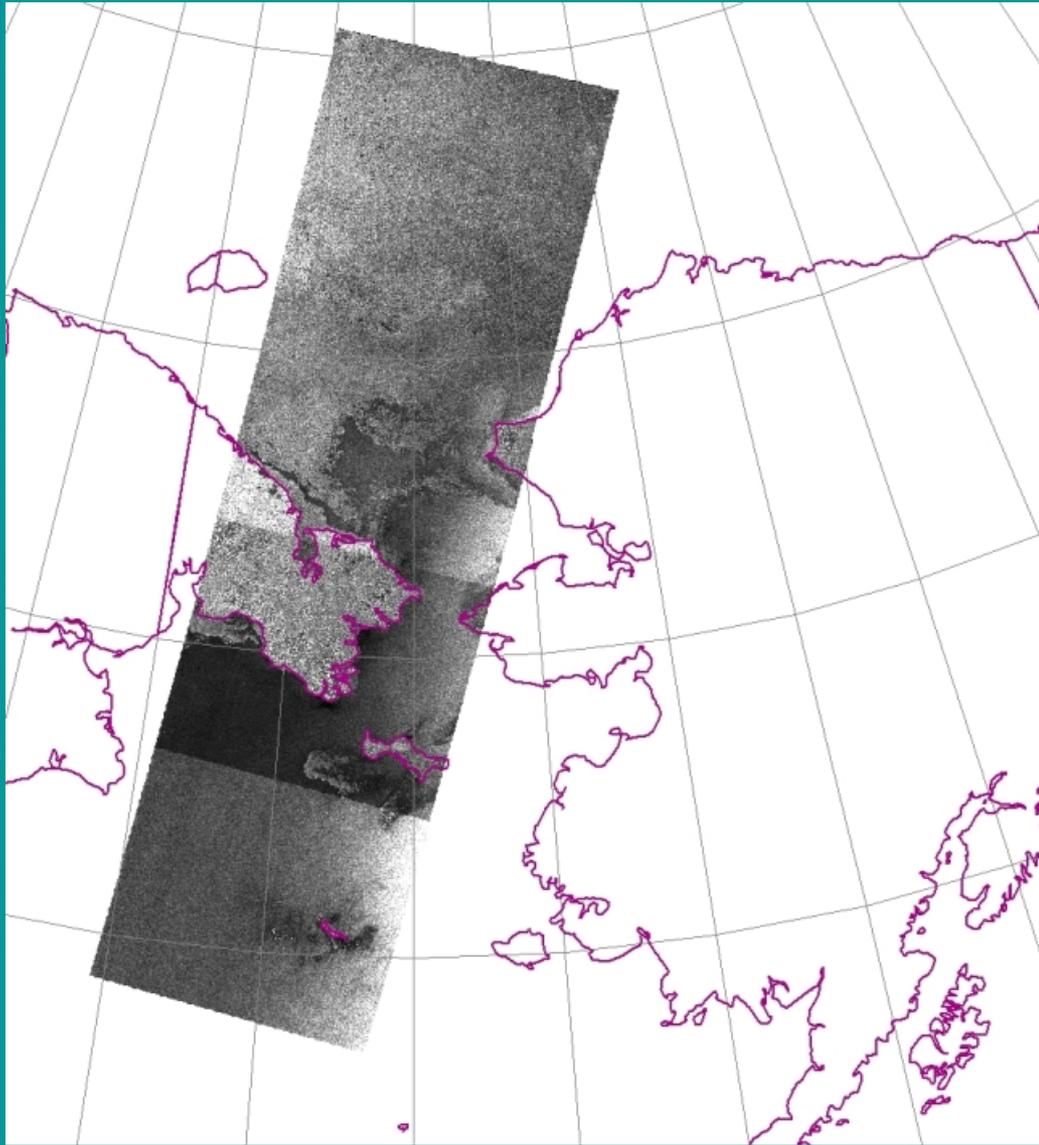
# Types of Analysis Data

- SAR – Synthetic Aperture Radar
- MODIS Satellite – high resolution
- SNPP VIIRS Satellite
- Ice Observations & digital photos
- Over Flights – USCG and others

# SAR IMAGERY

## Synthetic Aperture Radar

Combined project of  
NOAA  
NESDIS  
NIC  
ASF



National Ice Center  
SAR imagery from 10  
June 2013

Limited coverage

Limited availability

Limited location

# POES

Polar Orbiter Satellites

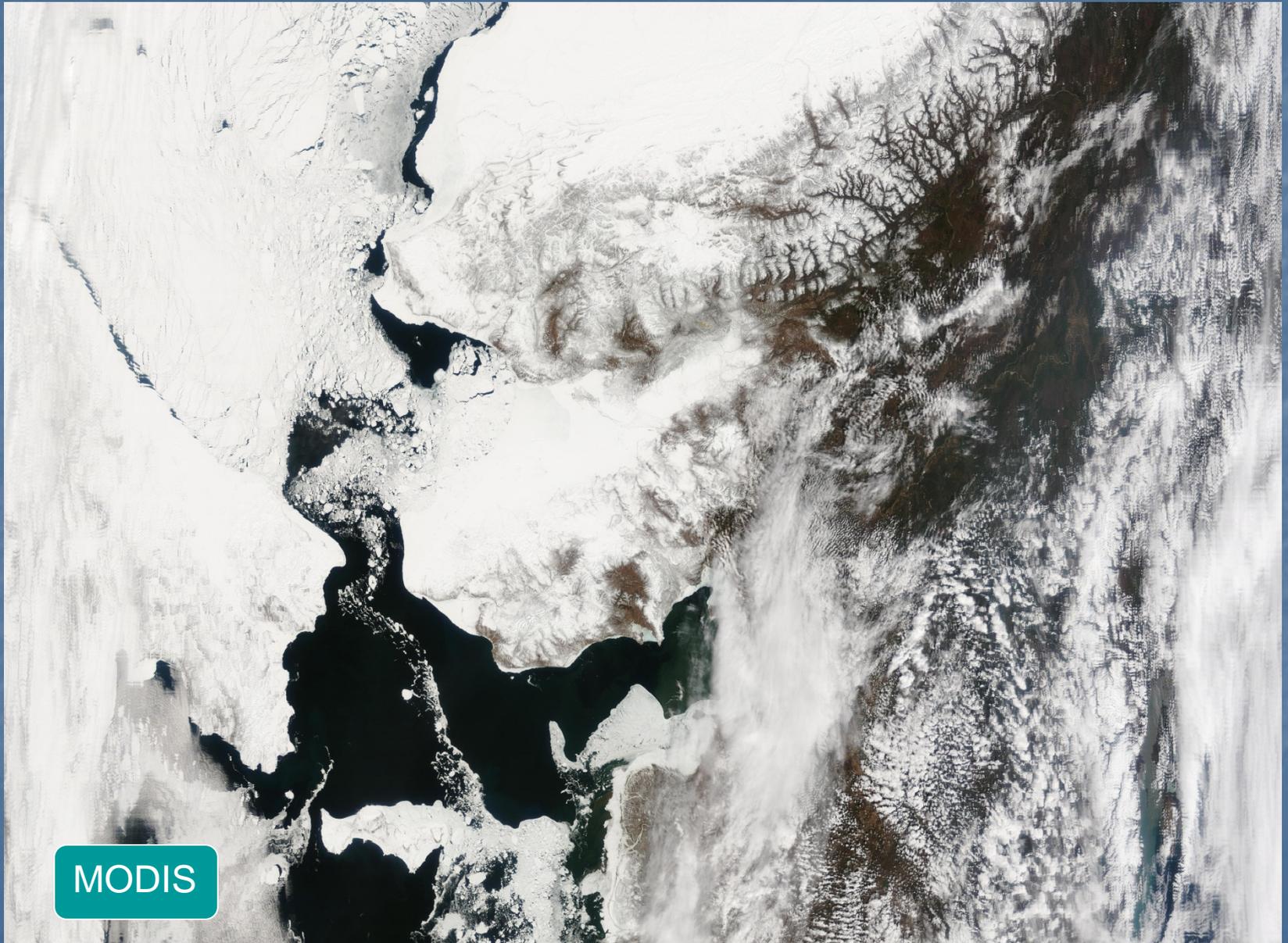
MODIS & SNPP VIIRS

Several channels

(thanks to UAF GINA...we love the Puffin!)



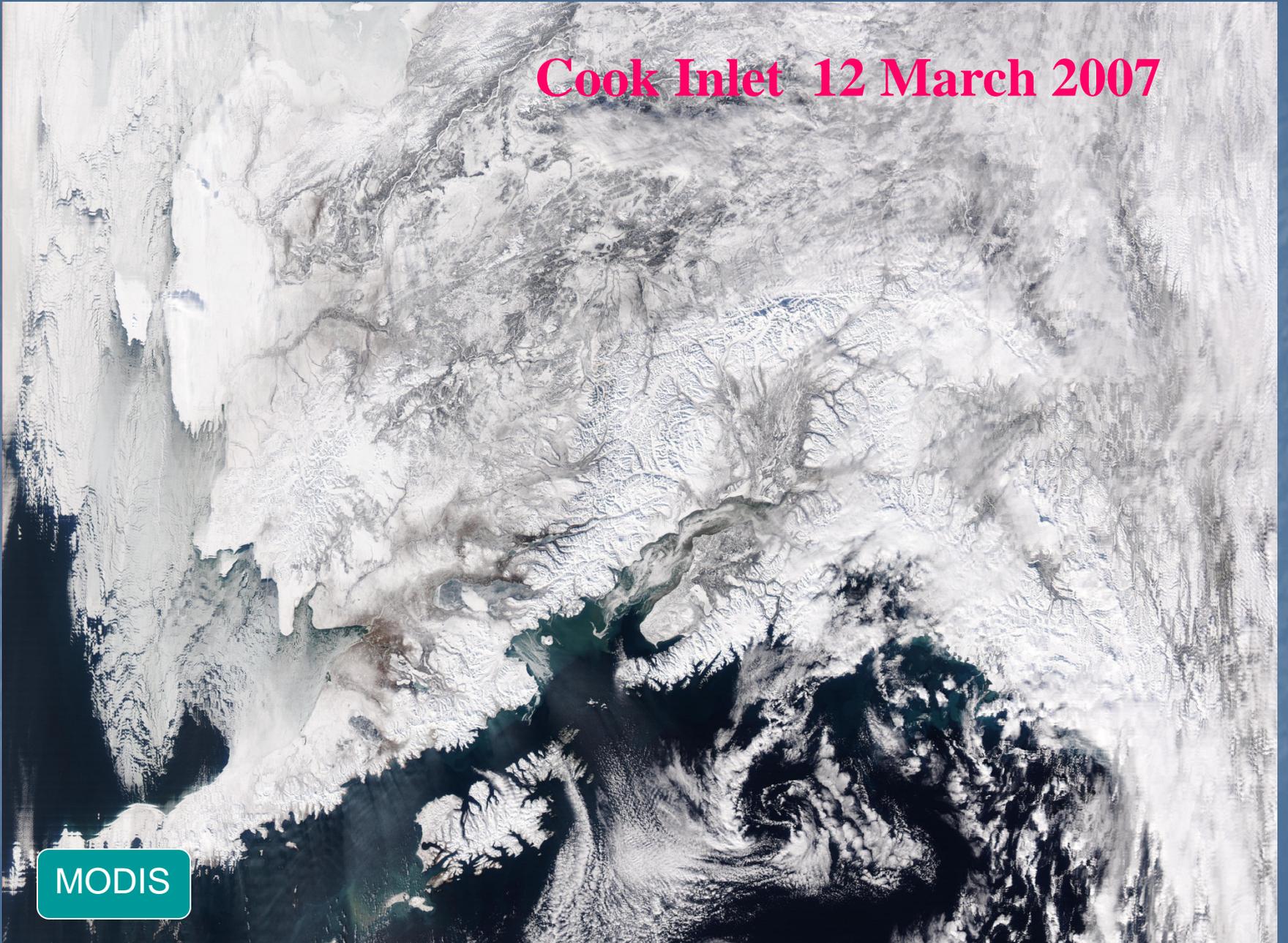
# Bering Strait Area 15May 2007

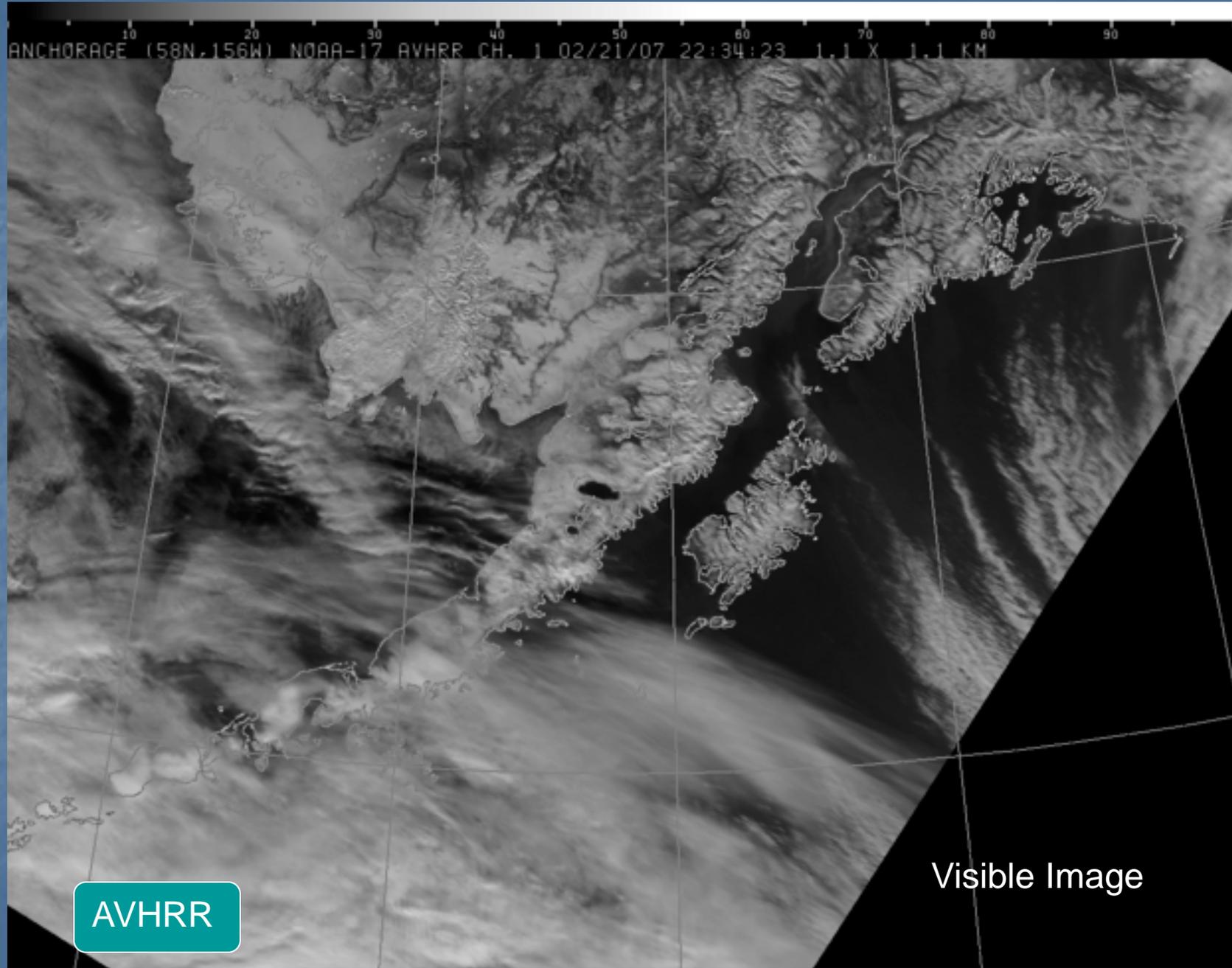


MODIS

Cook Inlet 12 March 2007

MODIS



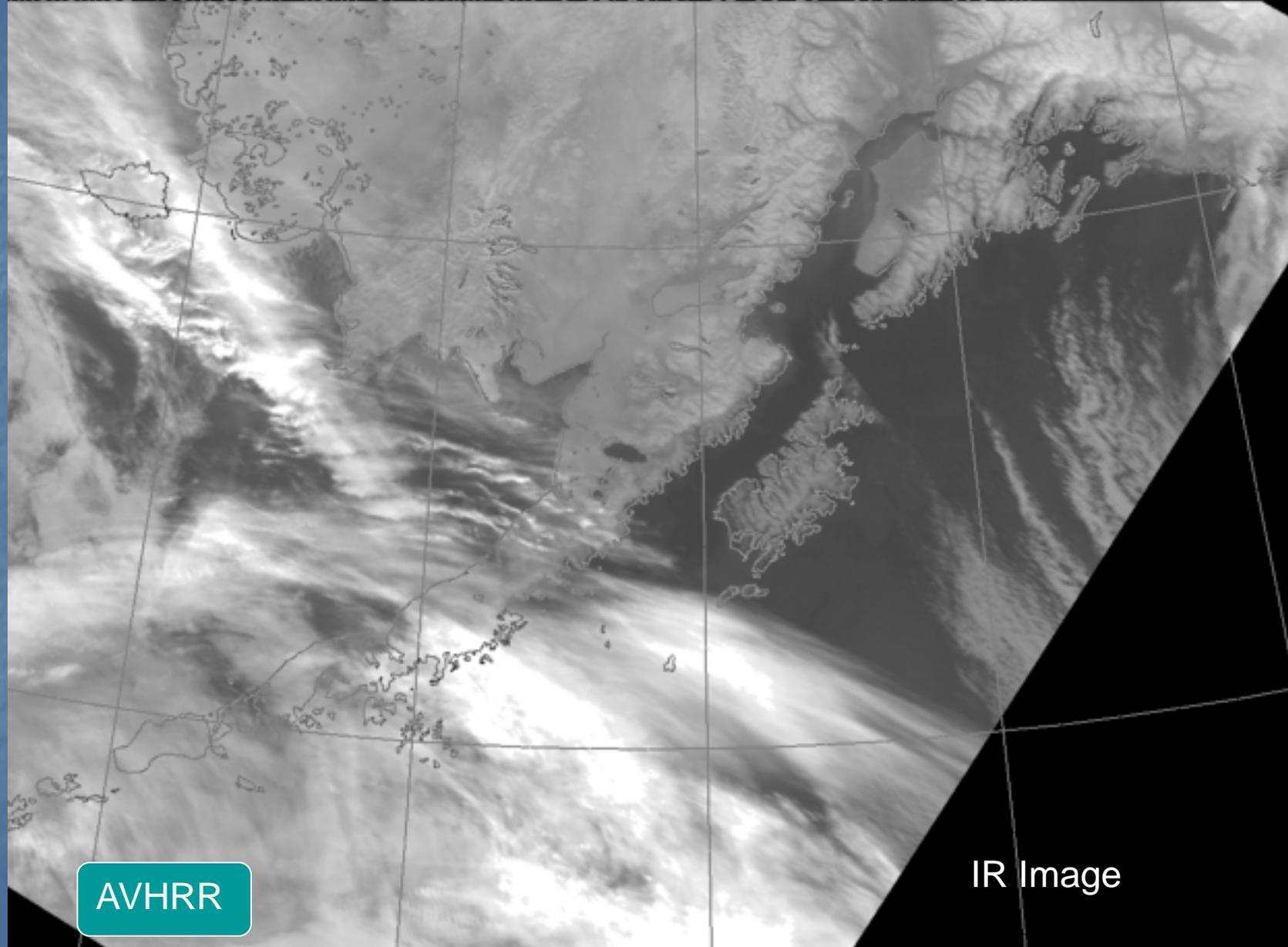


ANCHORAGE (58N,156W) NOAA-17 AVHRR CH. 1 02/21/07 22:34:23 1.1 X 1.1 KM

AVHRR

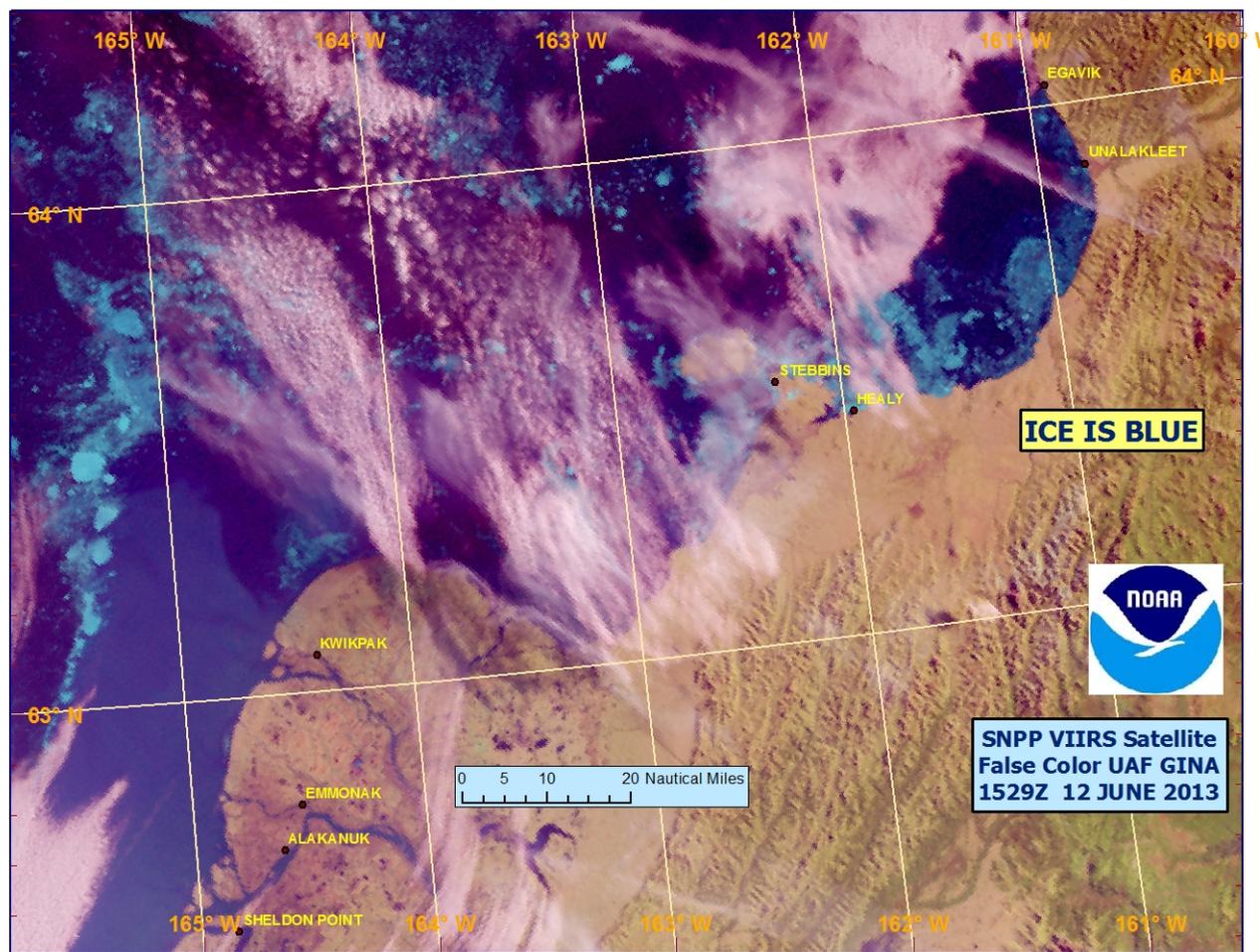
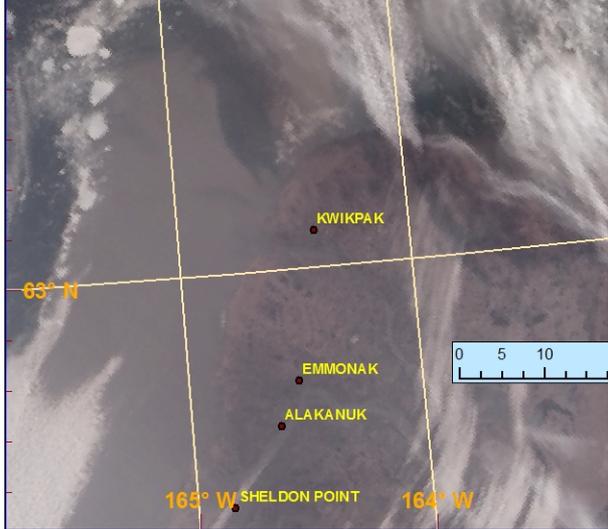
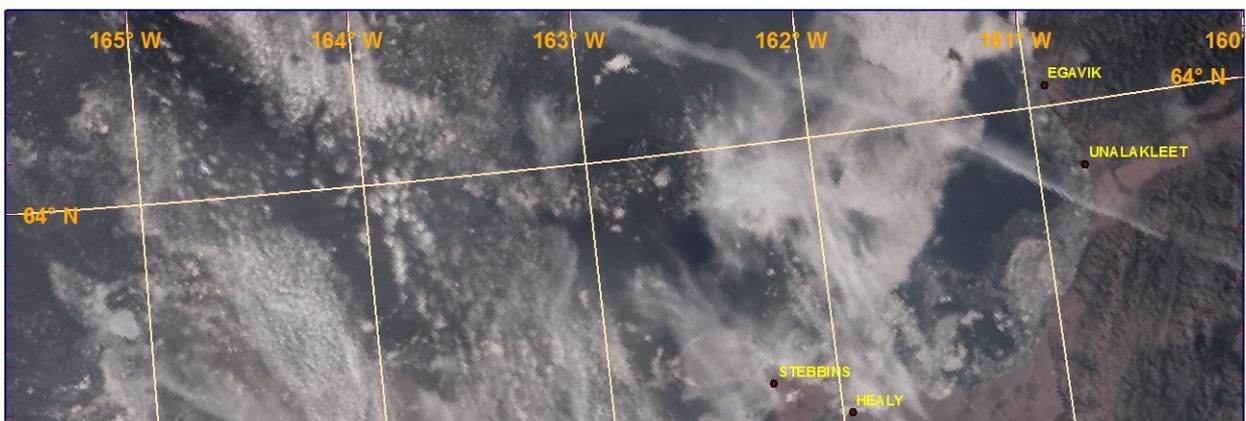
Visible Image

ANCHORAGE (58N, 156W) NOAA-17 AVHRR CH. 4 02/21/07 22:34:23 1.1 X 1.1 KM



AVHRR

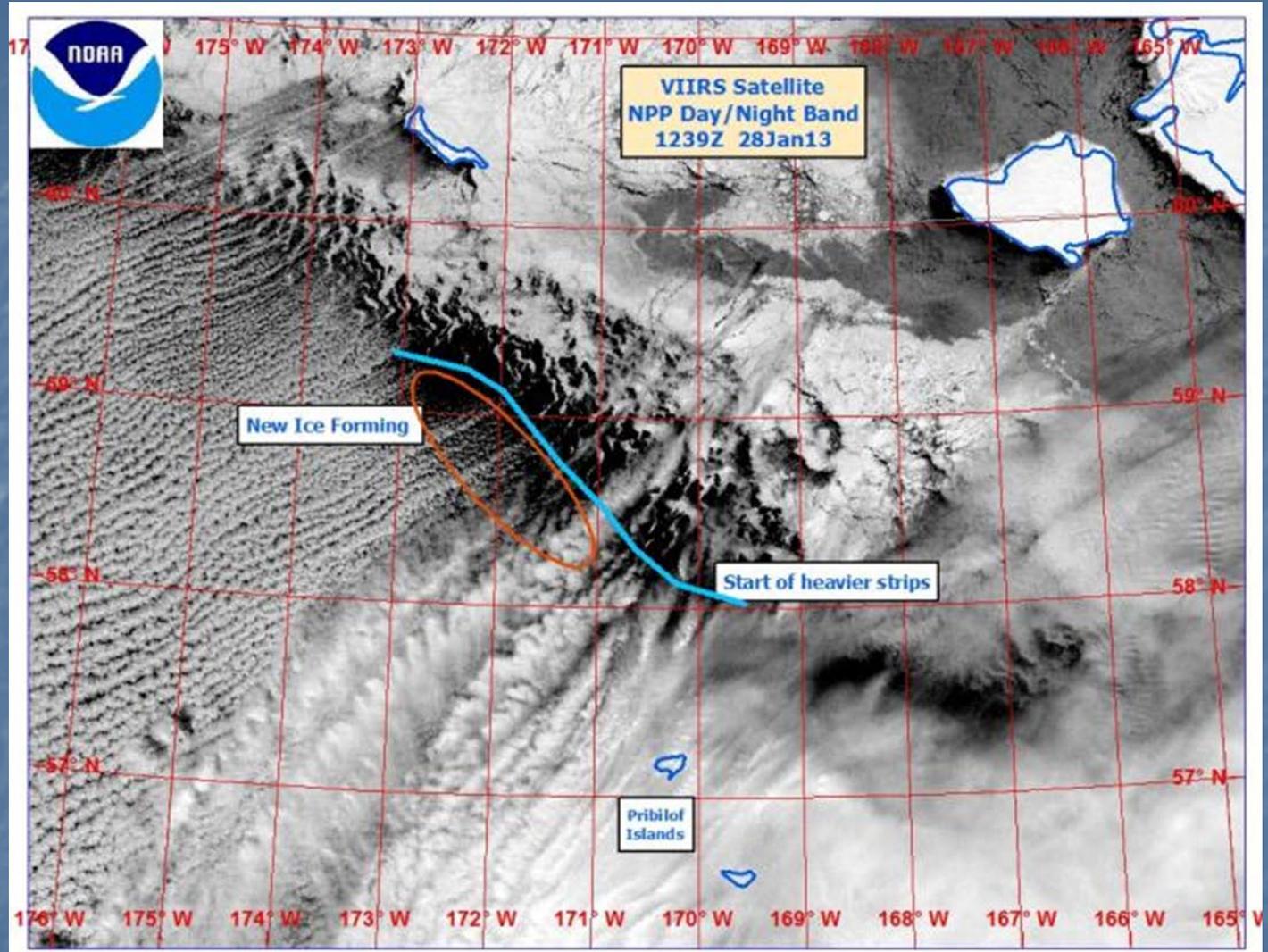
IR Image



SNPP  
VIIRS

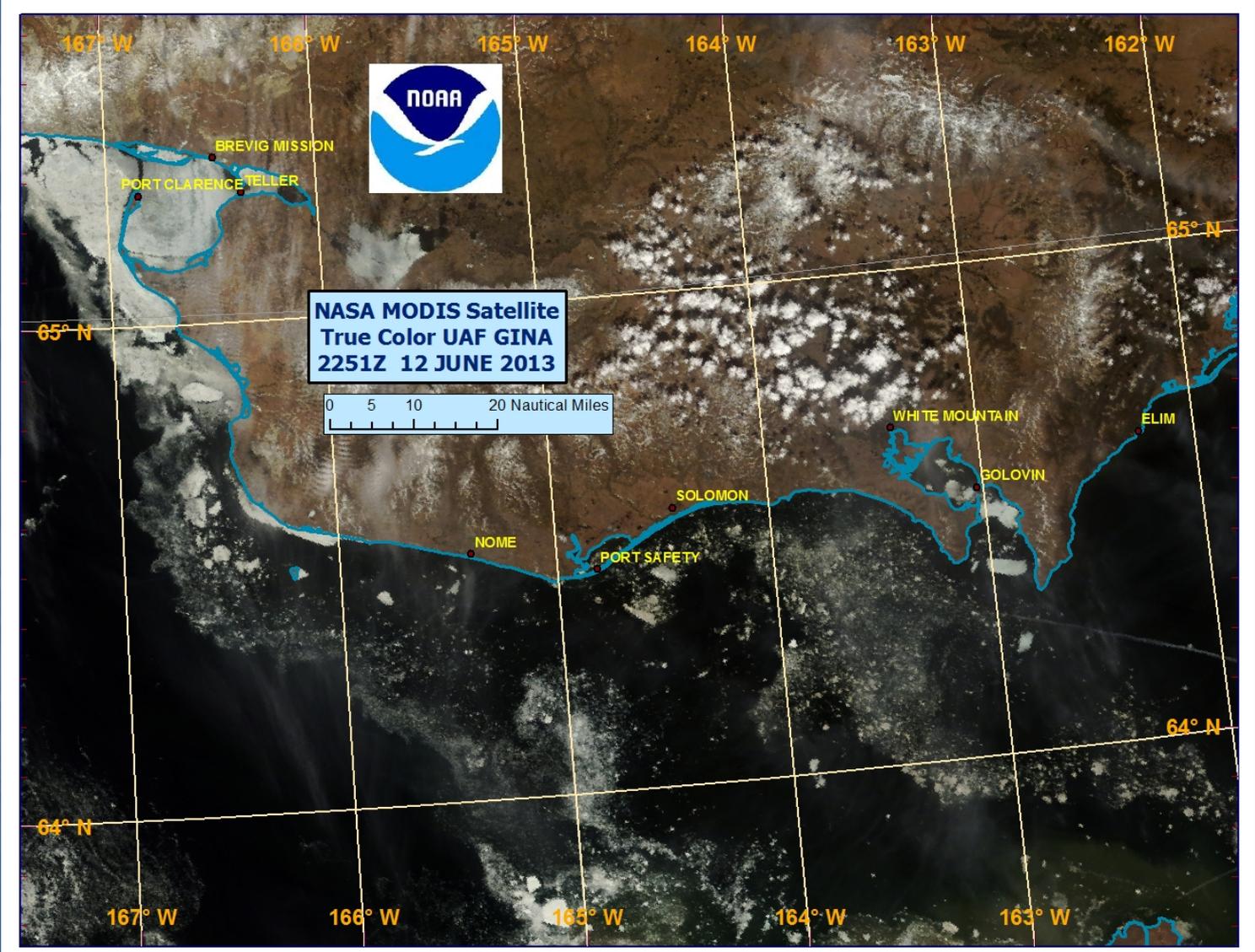


SNPP VIIRS Satellite  
False Color UAF GINA  
1529Z 12 JUNE 2013



SNPP VIIRS Day/Night  
Band

# True Color MODIS from UAF GINA



***THANK YOU***

Kathleen Cole

Sea Ice Program Leader

National Weather Service

[Kathleen.Cole@noaa.gov](mailto:Kathleen.Cole@noaa.gov)

907-266-5138

