

NRL-MRY SNPP Satellite Product Support

Kim Richardson¹, Richard Bankert¹,
Steve Miller², Arunas Kuciauskas¹,
Mindy Surratt¹

1 Naval Research Laboratory

2 CIRA

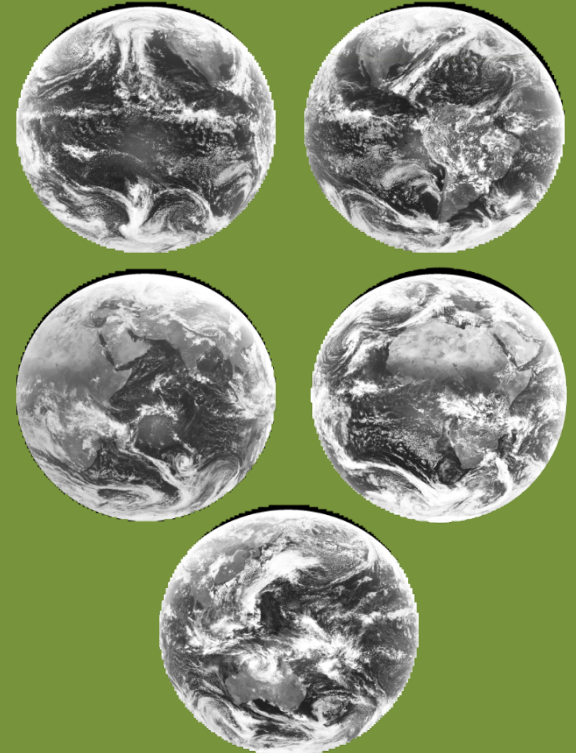
Current Satellite Suite

Sensor Suite: Total Sensors: 39

Polar Orbiting Sensors: 34

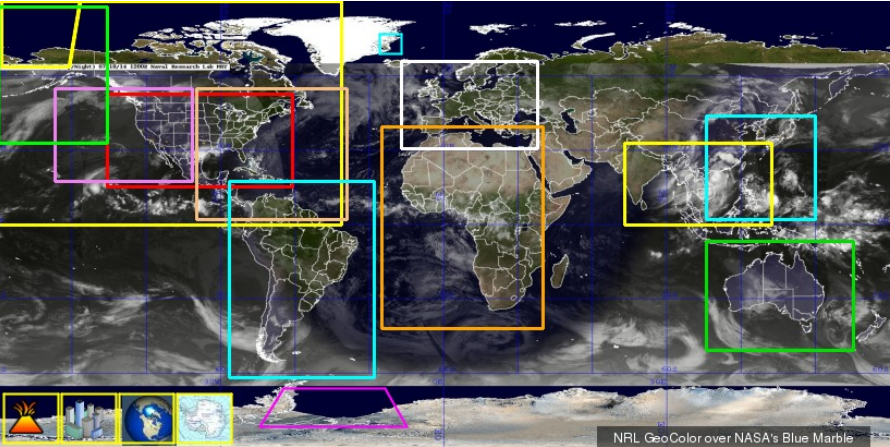
IR/Vis Imagers:	NOAA	- AVHRR (4)
	METOP	- AVHRR (2)
	DMSP	- OLS (4)
	NASA	- MODIS (2)
	NOAA	- VIIRS
Microwave Imagers:	DMSP	- SSM/I , SSMIS (3)
	NASA	- AMSR2, GMI
	NRL	- WindSat
Micro Sounders:	NOAA	- AMSU (2), MHS (2), ATMS
	METOP	- AMSU (2)
Microwave Radar:	NASA	- GPM, CloudSat
	Foreign	- ASCAT (2), ScatSat
Collaborations: FNMOC, 557WW, NASA, NOAA, CIRA		

Geo Sensors: 5



Satellite Meteorological Applications

NexSat



- Over 100k images per day
- 3M+ kml per day
- Digital data products including rain rates, cloud types, etc.
- Used by NWS, NHC, JTWC, etc.

TCWeb

Privacy Policy Disclaimer **NRL Tropical Cyclone Page** Development Team

2014 Season Storms
[All](#) [Active](#) [Year](#)

Atlantic
 East Pacific
 Central Pacific
 West Pacific
 94W.INVEST NEW
 93W.INVEST NEW
 09W.RAMMASUN NEW
 Indian Ocean
 Southern Hem.
 Season: 15
 97S.INVEST NEW

Sensor	% Cor	VIS	IR	IR-BD	Main Sea	5GHz H	5GHz weak	5GHz PCT	Color	Rain	Wind	37GHz Color	37GHz V	37GHz H	SSM/I Vapor
SSM/I	76	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSM/IS	96	■	■	■	■	■	■	■	■	■	■	■	■	■	■
TMI	56	■	■	■	■	■	■	■	■	■	■	■	■	■	■
GMI	61	■	■	■	■	■	■	■	■	■	■	■	■	■	■
AMSR2	42	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WINDSAT	72	■	■	■	■	■	■	■	■	■	■	■	■	■	■
AMSUB	25	■	■	■	■	■	■	■	■	■	■	■	■	■	■

09W.RAMMASUN, TRACK_VIS, 15 JUL 2014 06:20:47 UTC
 0514Z (Z) [Overview](#)

Forecast and Graphic by: Naval Maritime Forecast Center/Joint Typhoon Warning Center

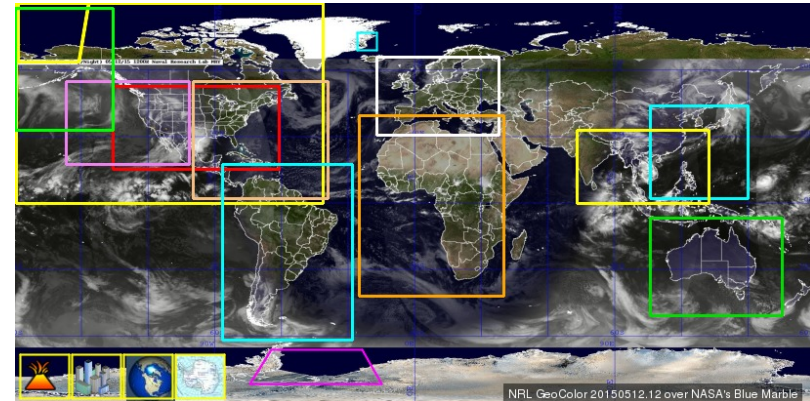
Tutorials: [COMET](#)

Latest ATCF Track: smwp092014.14071418.jpg

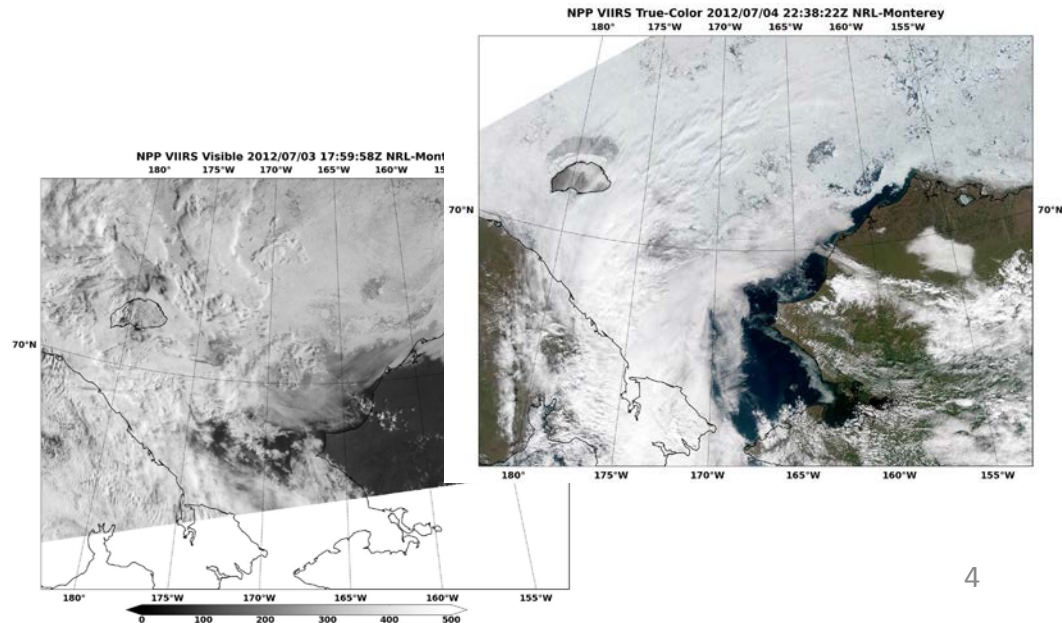
Latest vis/geo/1km zoom/20140715.0514

Current IR/Vis Arctic Imagery Support

- Imagery available in 1-3 hours.
- Currently includes VIIRS, MODIS, and AVHRR data for six Antarctic and five Arctic sectors.



- Products include:
 - Visible
 - Infrared
 - True-Color
 - Day/Night Band
 - IR/Vis RGB

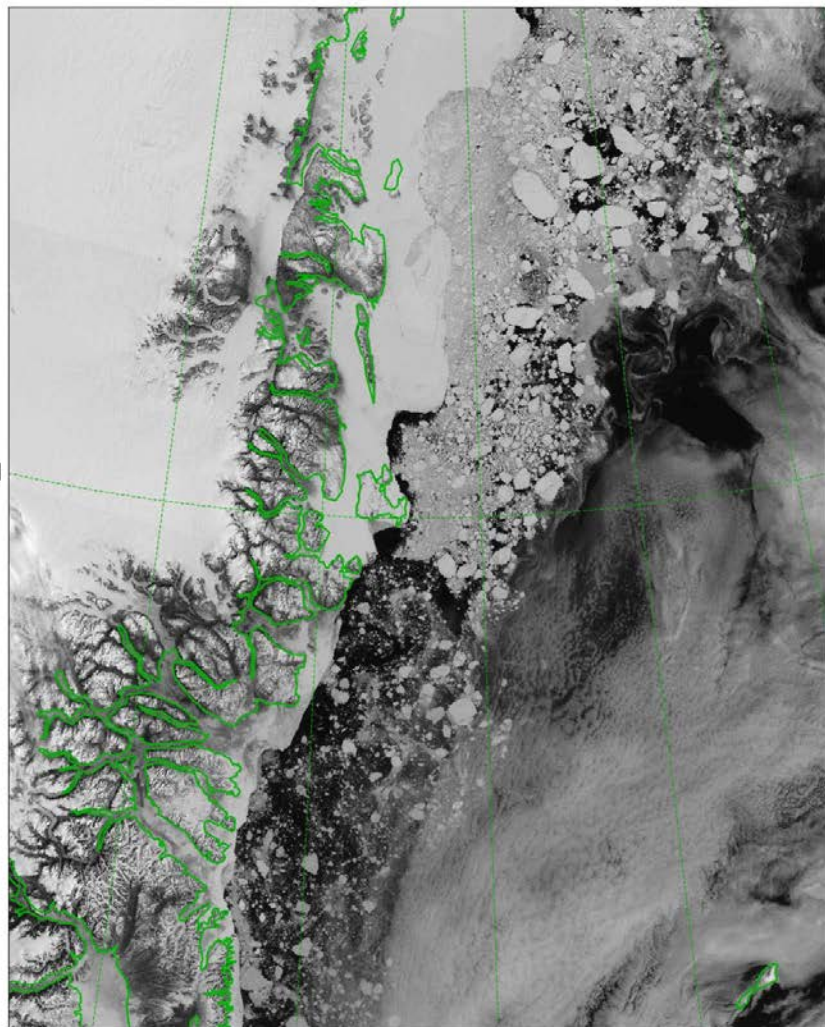


Arctic Imagery Support

NPP VIIRS Near-Constant-Contrast 2016/06/12 09:33:03Z

NRL-Monterey

25°W 20°W 15°W 10°W 5°W 0°

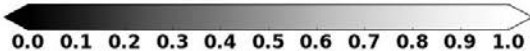


75°N

75° 75°N

75°N

25°W 20°W 15°W 10°W



NPP VIIRS Visible 2016/06/03 09:01:28Z NRL-Monterey

25°W 20°W 15°W 10°W 5°W 0°



25°W 20°W 15°W 10°W

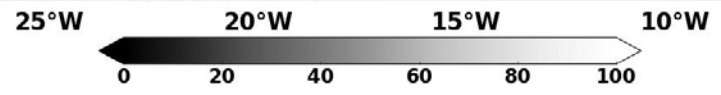
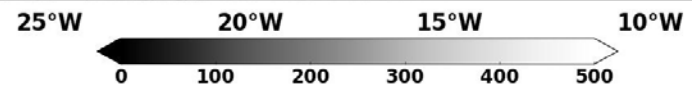


Arctic Imagery Support

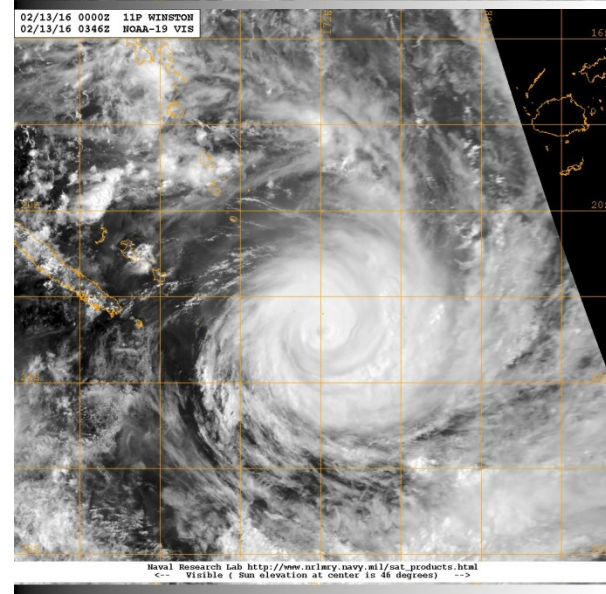
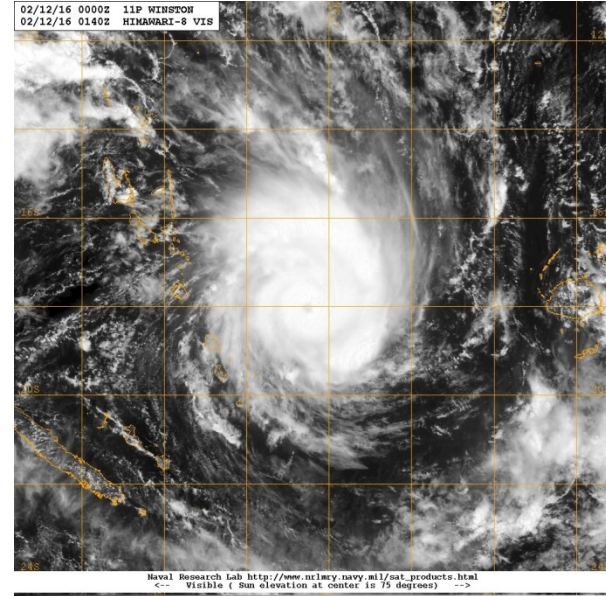
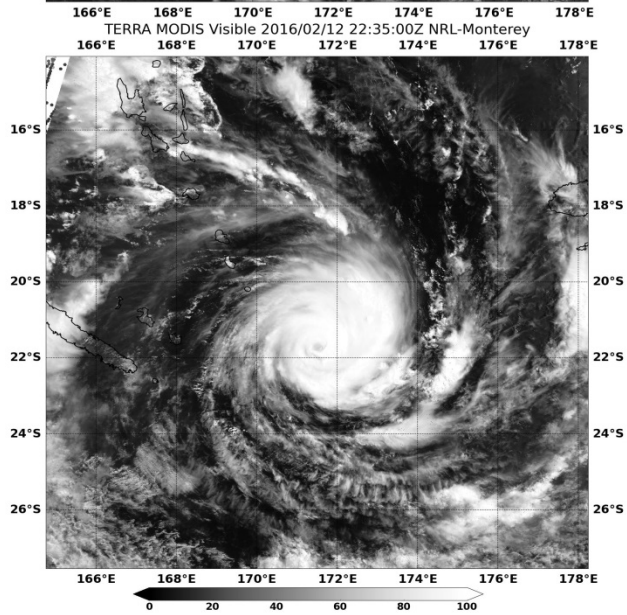
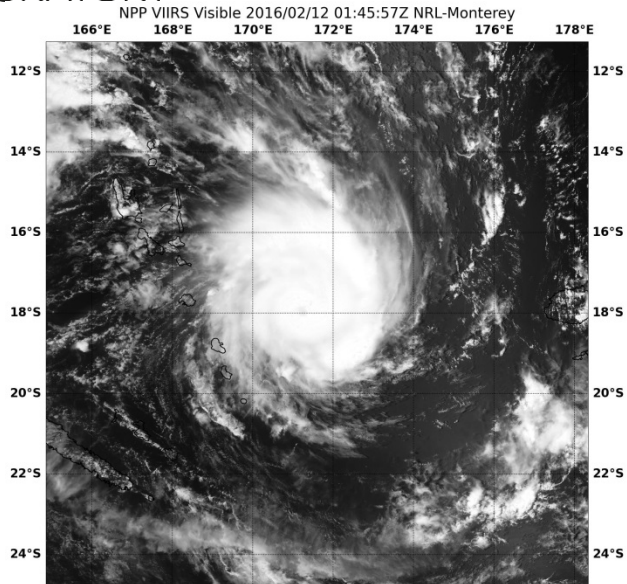
NPP VIIRS Visible 2016/06/03 09:01:28Z NRL-Monterey
25°W 20°W 15°W 10°W 5°W 0°



AQUA MODIS Visible 2016/06/03 07:40:00Z NRL-Monterey
25°W 20°W 15°W 10°W 5°W 0°

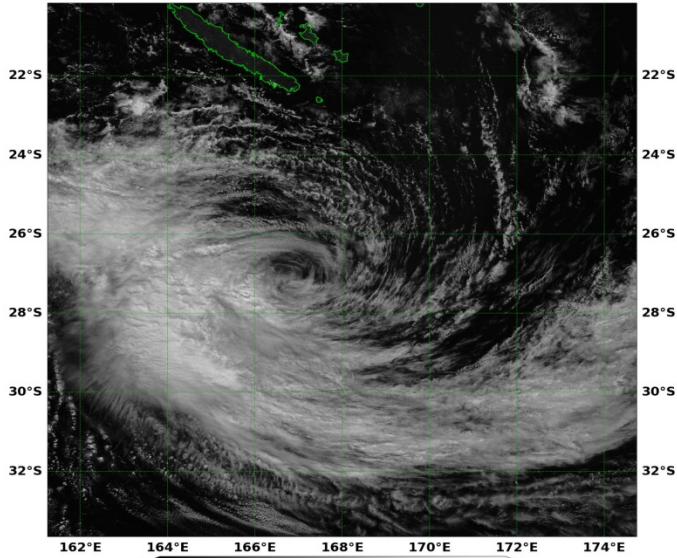


Tropical cyclone support

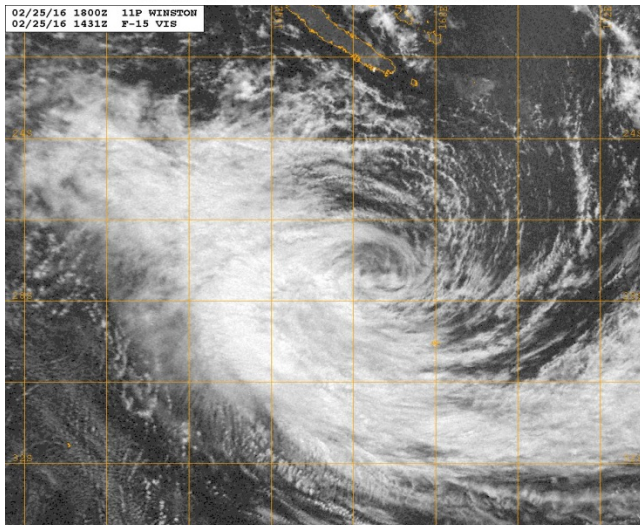
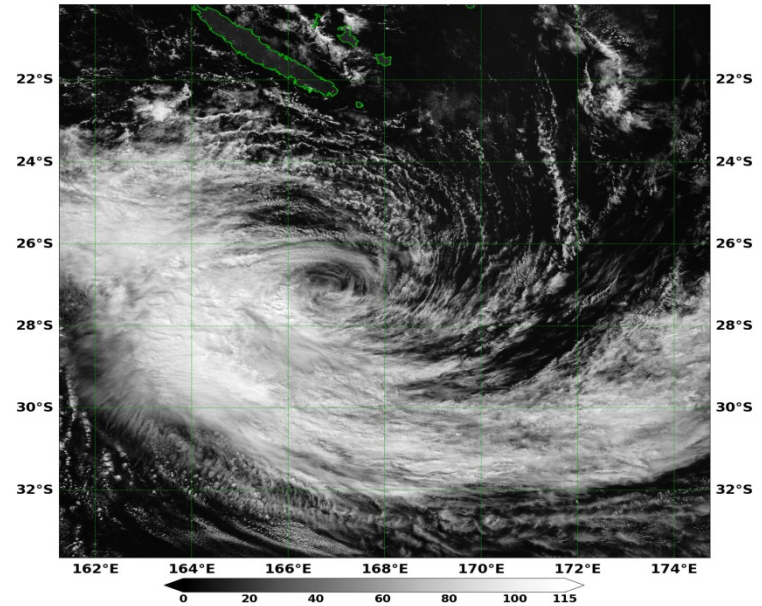


Tropical cyclone support

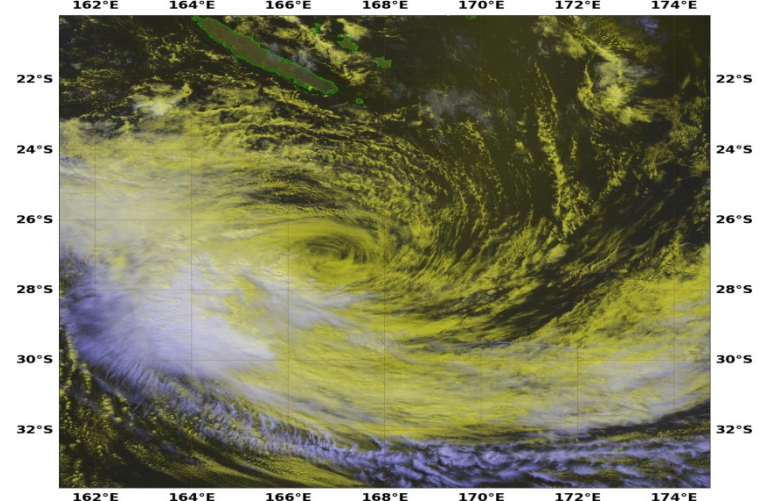
NPP VIIRS Near-Constant-Contrast 2016/02/25 13:54:07Z NRL-Monterey
162°E 164°E 166°E 168°E 170°E 172°E 174°E



NPP VIIRS Lunar-Reflectance 2016/02/25 13:54:23Z NRL-Monterey
162°E 164°E 166°E 168°E 170°E 172°E 174°E

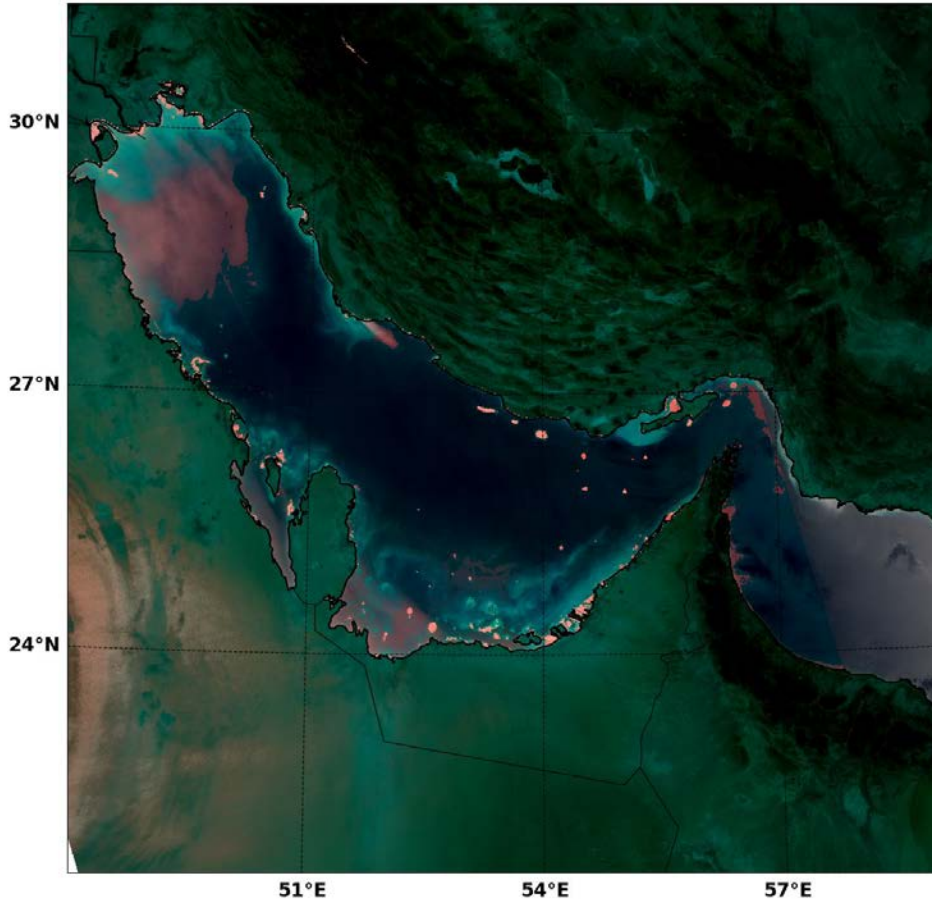


NPP VIIRS Night-Vis-IR 2016/02/25 13:54:23Z NRL-Monterey
162°E 164°E 166°E 168°E 170°E 172°E 174°E

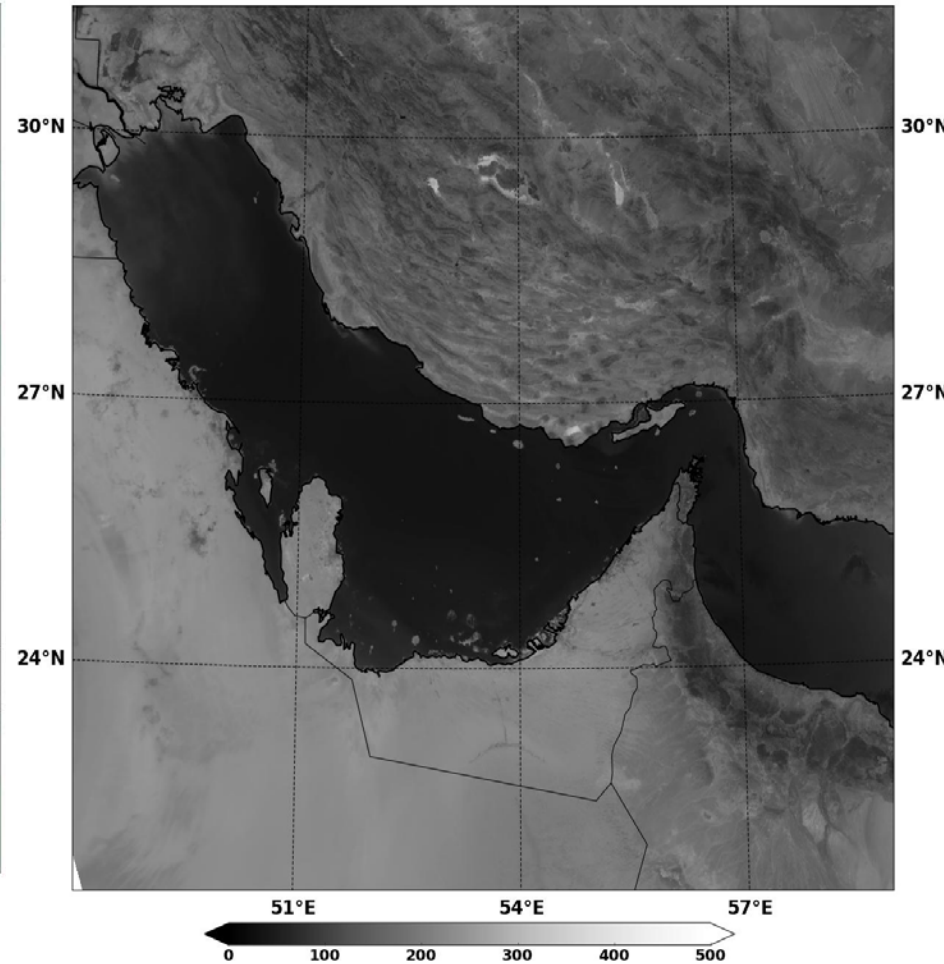


Dust product support

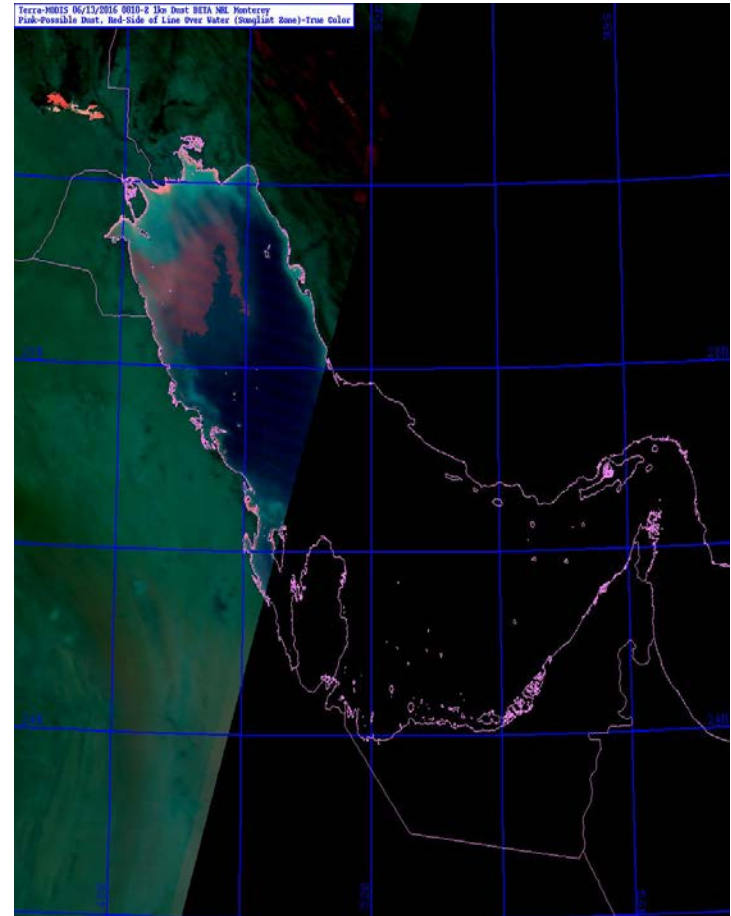
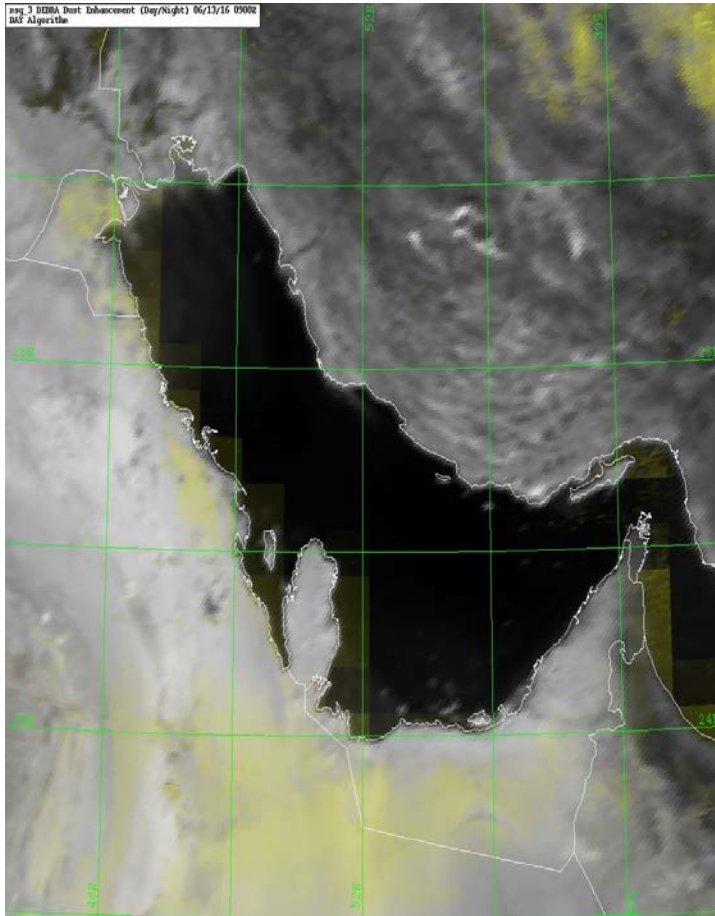
NPP VIIRS Dust-BlueLight 2016/06/13 08:57:08Z NRL-Monterey
51°E 54°E 57°E



NPP VIIRS Visible 2016/06/13 08:57:08Z NRL-Monterey
51°E 54°E 57°E



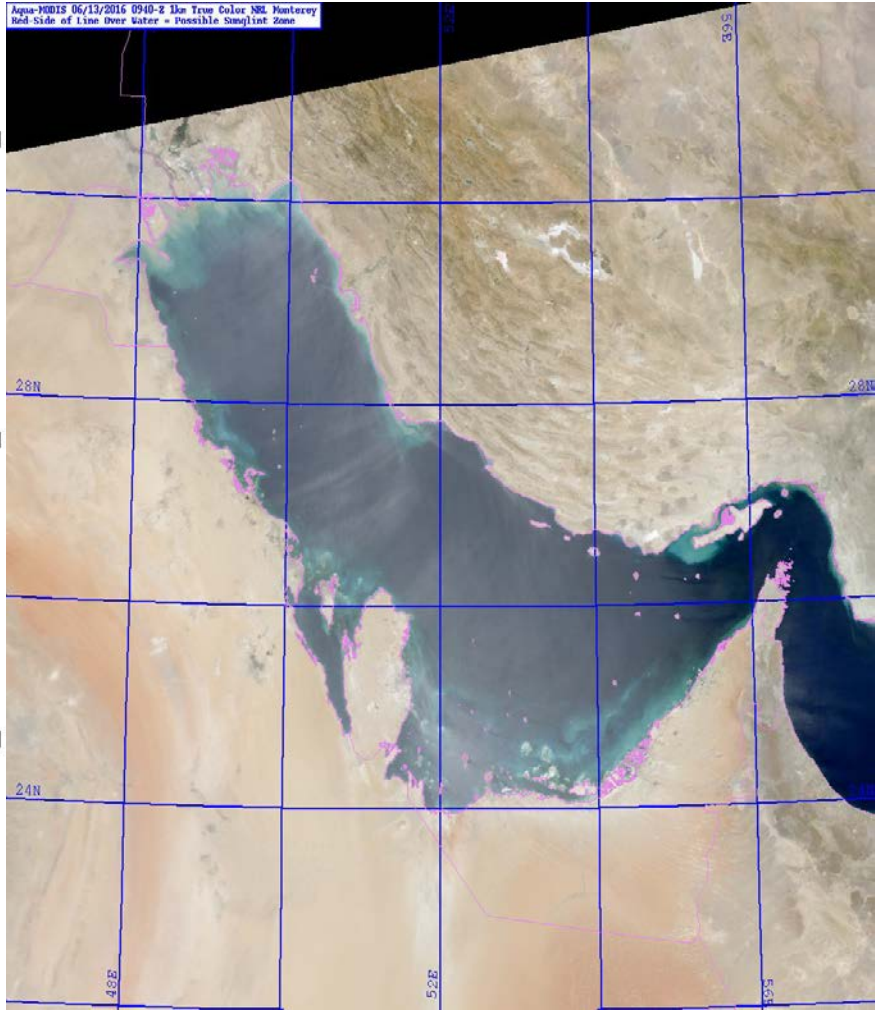
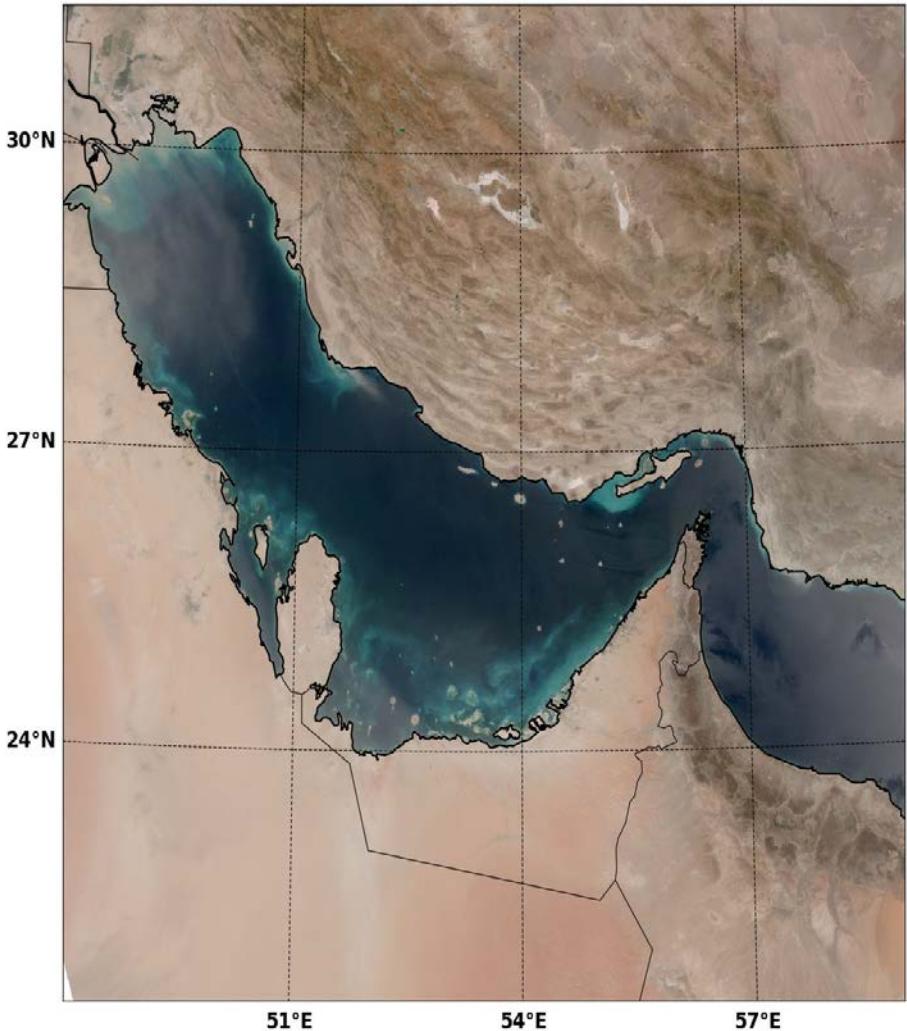
Dust product support



Dust product support

NPP VIIRS True-Color 2016/06/13 08:57:08Z NRL-Monterey

51°E 54°E 57°E

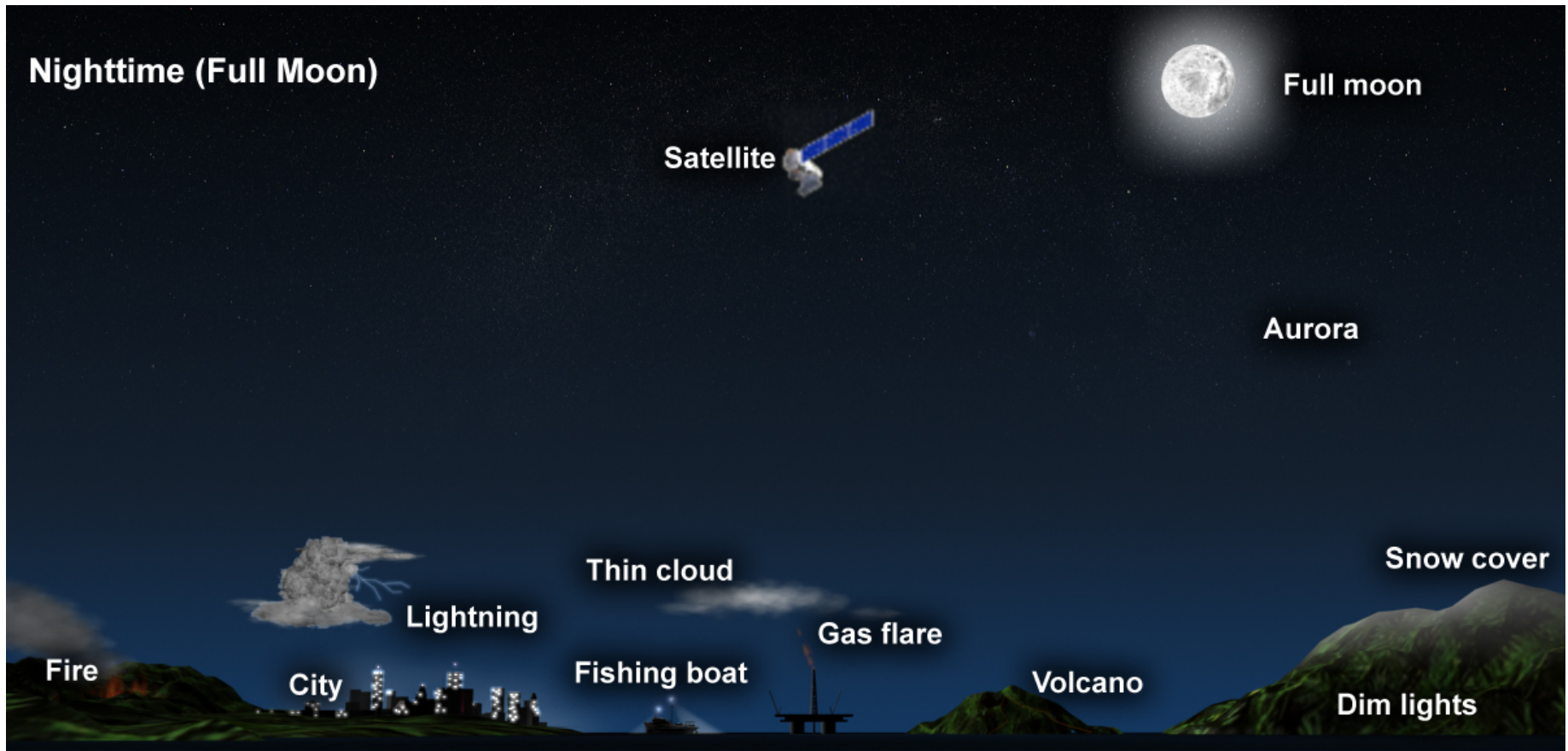


Nighttime Imaging

Day/Night Band

Broadband NIR/Vis channel with high gain

Successor to DMSP Night-Visible channel

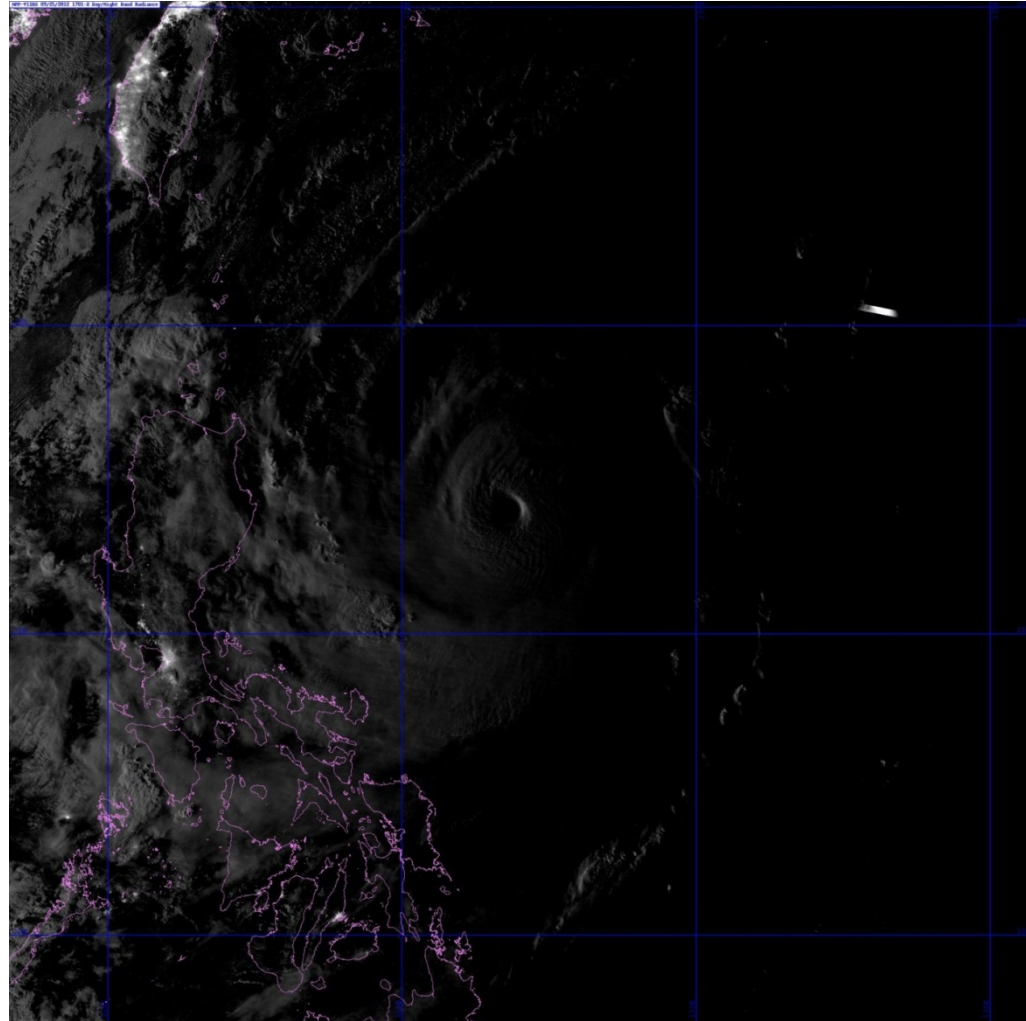


Lunar Model Impact

Lunar model is used to produce a form of near constant contrast (NCC) imagery.

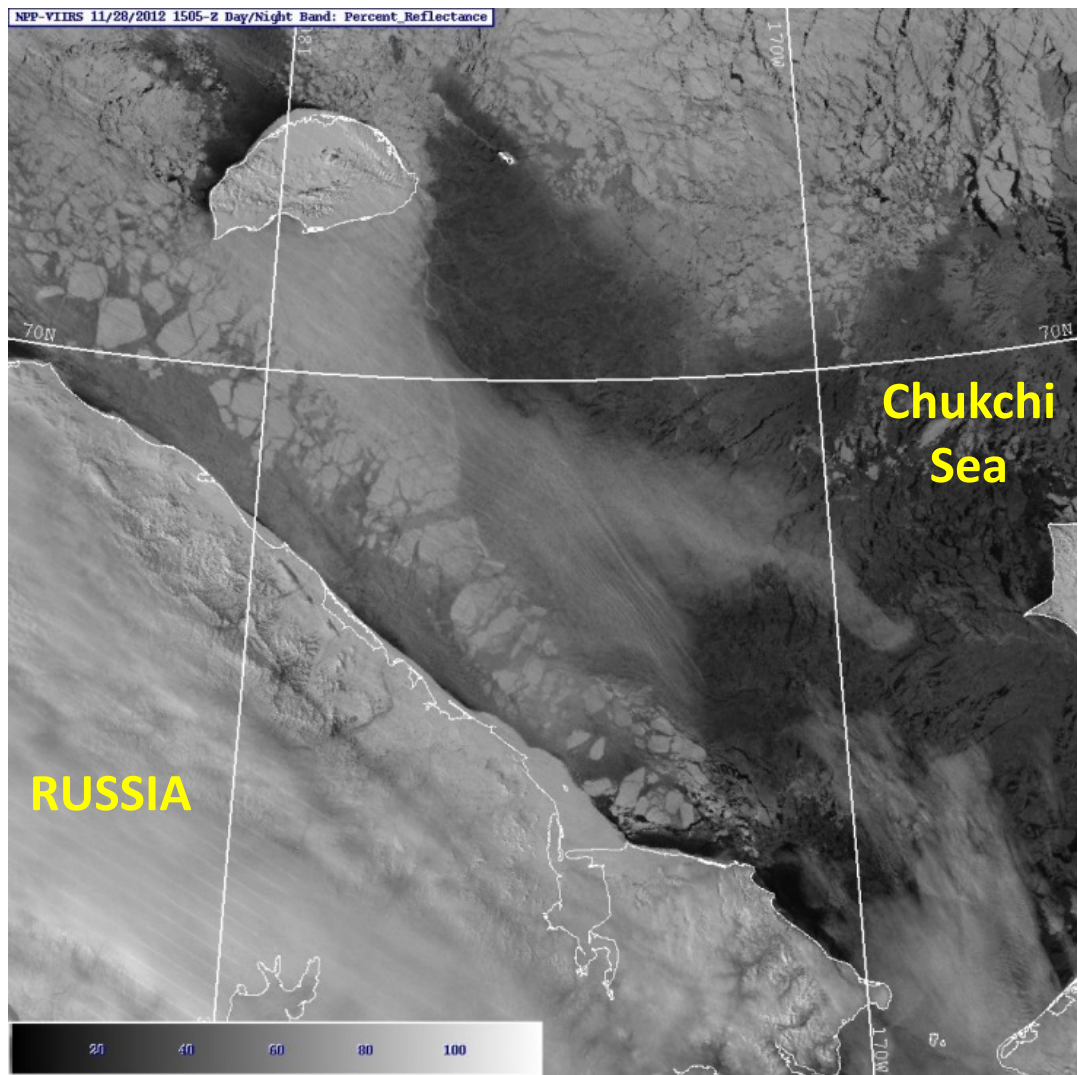
Not applicable to the day/night terminator where solar signal is present.

Moon phase: 80%

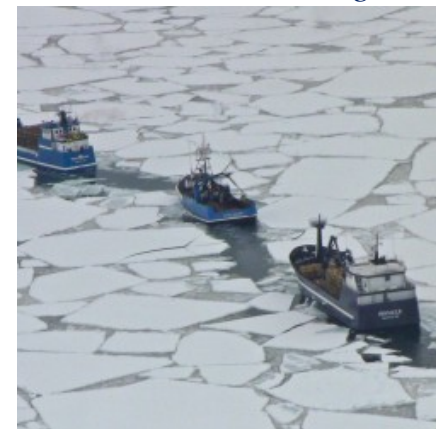


Quantitative visible reflectance values: many applications

DNB Sees through Thin Clouds



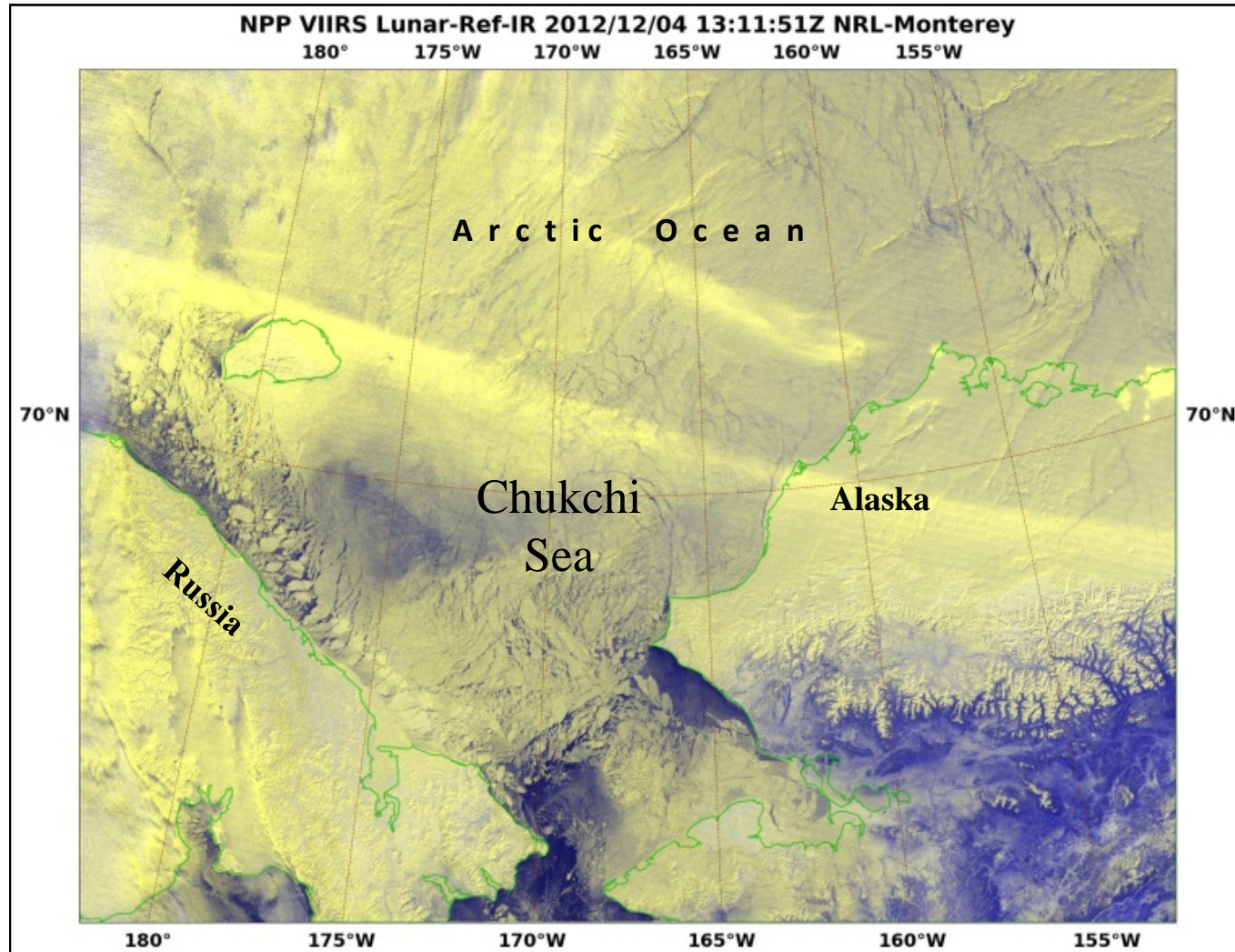
The Northern Passage



Lunar illumination passes through thin cirrus and reflects off sea ice below

Nighttime Sea Ice Monitoring

11/27 – 12/04, Lunar cycle > 3/4



Summary

- NRL Monterey currently provides IR/Vis imagery in multiple global regions from multiple sensors.
- Can create new areas of interest in minutes for support purposes.
- Able to provide imagery in near real-time (1-3 hours).
- DNB may provides useful new information in many support product regions.

Questions