

High Latitude Proving Ground Recent Updates/Results

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Outline

- New hardware via Sandy Supplemental
- Satellite Products
- H LPG Success Story: NWS Ice Desk
- Upcoming Workshops and Meetings
- Welcome Carl Dierking

New Hardware via Sandy Supplemental

- Additional dish to be placed at NOAA/NESDIS at Gilmore Creek, Alaska
- New and/or upgraded computing power to be placed at:
 - NOAA/NESDIS at Gilmore Creek
 - UAF/GINA
 - NWS Anchorage

New 3-Meter Antenna to NOAA/NESDIS at Gilmore Creek



New 3-Meter Antenna to NOAA/NESDIS at Gilmore Creek

- Dish will be X, L, and S-band
- Receive SNPP, MetOp, Aqua/Terra, DMSP and NOAA
- Gives redundancy, a step to “operationalizing” the HLPG. Also gives redundancy.
- Mitigate (somewhat) the problem of overlap
- Timeline uncertain... Spring, 2015?



New/Upgraded Computing Power

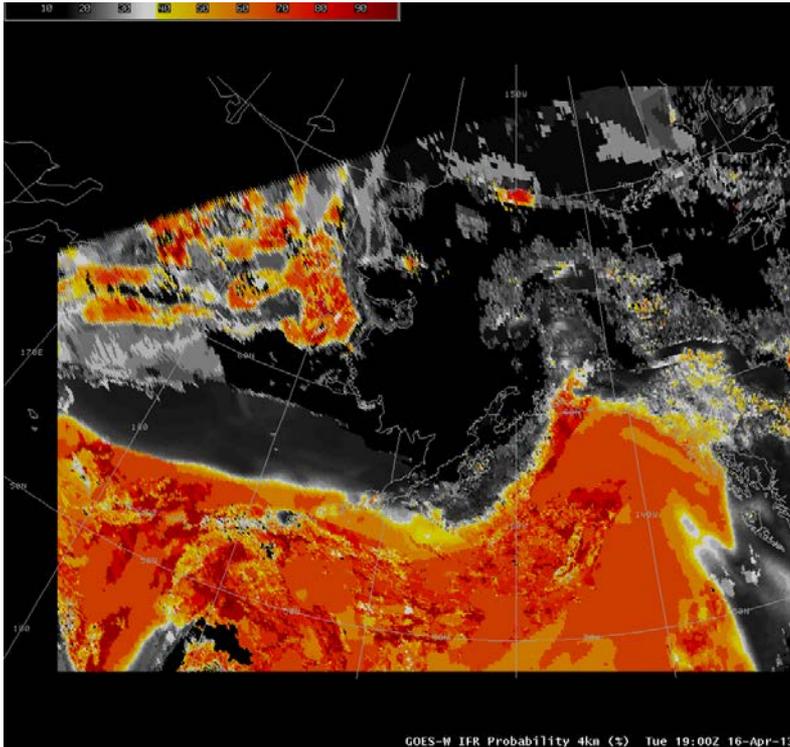
- Hardware at NOAA/NESDIS Gilmore Creek
 - Operational Processing
- Hardware at UAF/GINA
 - Operational Processing
 - Testing and Development
 - Faster VMs for NASA/SPoRT
- Hardware at NWS in Anchorage
 - Testing and Development



Products

- The “basic” satellite products: single channel visible, longwave IR, etc
 - Continue generation and delivery to NWS
 - Improvements to product quality (spatial resolution) and latency as infrastructure allows
 - With new antenna at Gilmore Creek, expand to include such products from MetOp, DMSP, NOAA

Products



- GINA serves as “conduit” to help CIs distribute products to the NWS in Alaska
 - Volcanic Ash, fog and low stratus products developed and generated at University of Wisconsin

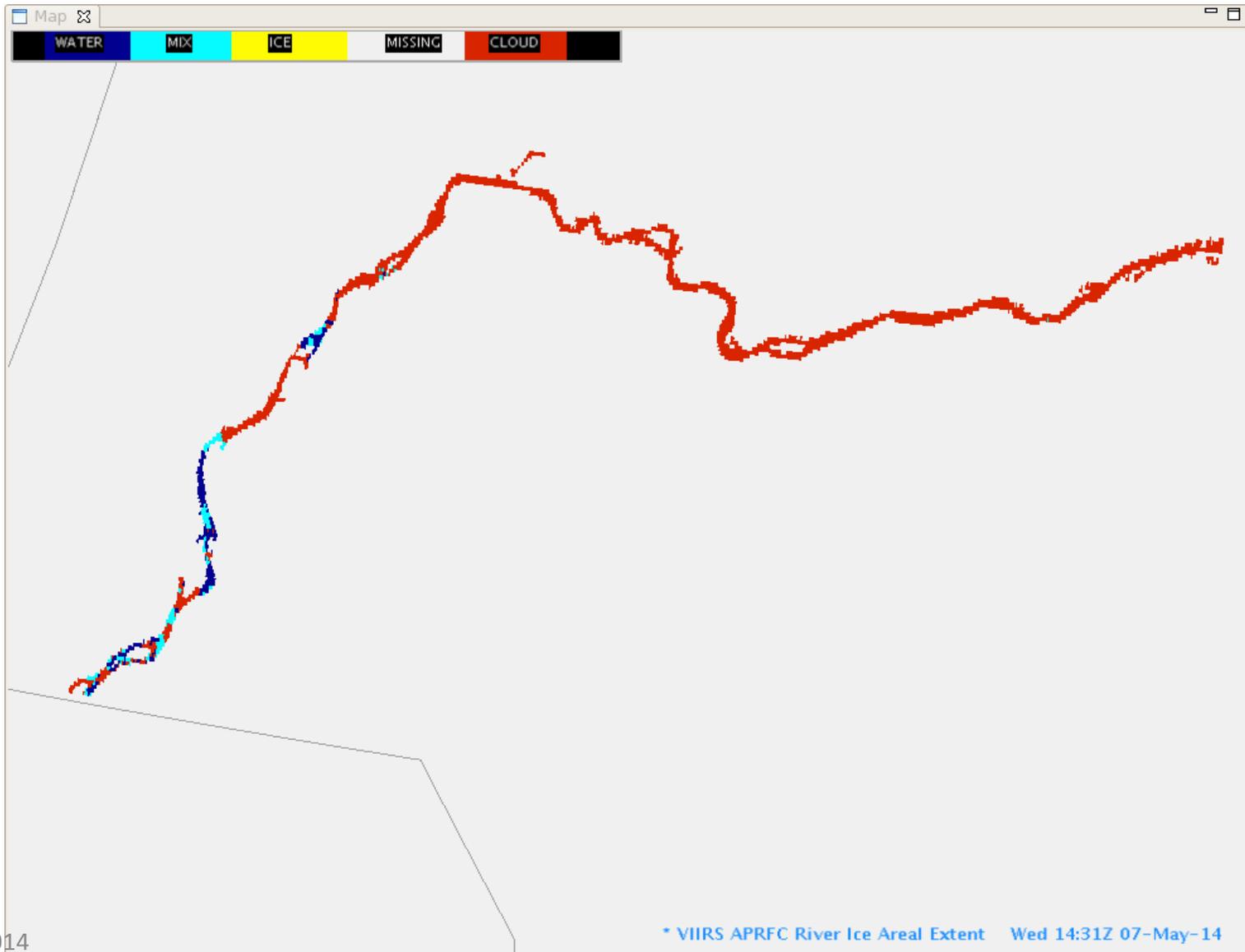
Products

- GMU/CCNY river ice and flooding products
 - 2014 was initial season, products improving
- SPoRT RGB Microphysics
 - Legacy Product: Night-Time Microphysics
 - New Product: 24-hr Microphysics
- CrIS products to NWS Alaska
 - NUCAPS
 - Some other method, with or without AWIPS?
- From CIRA, “ERF Dynamic Scaling” to improve DNB

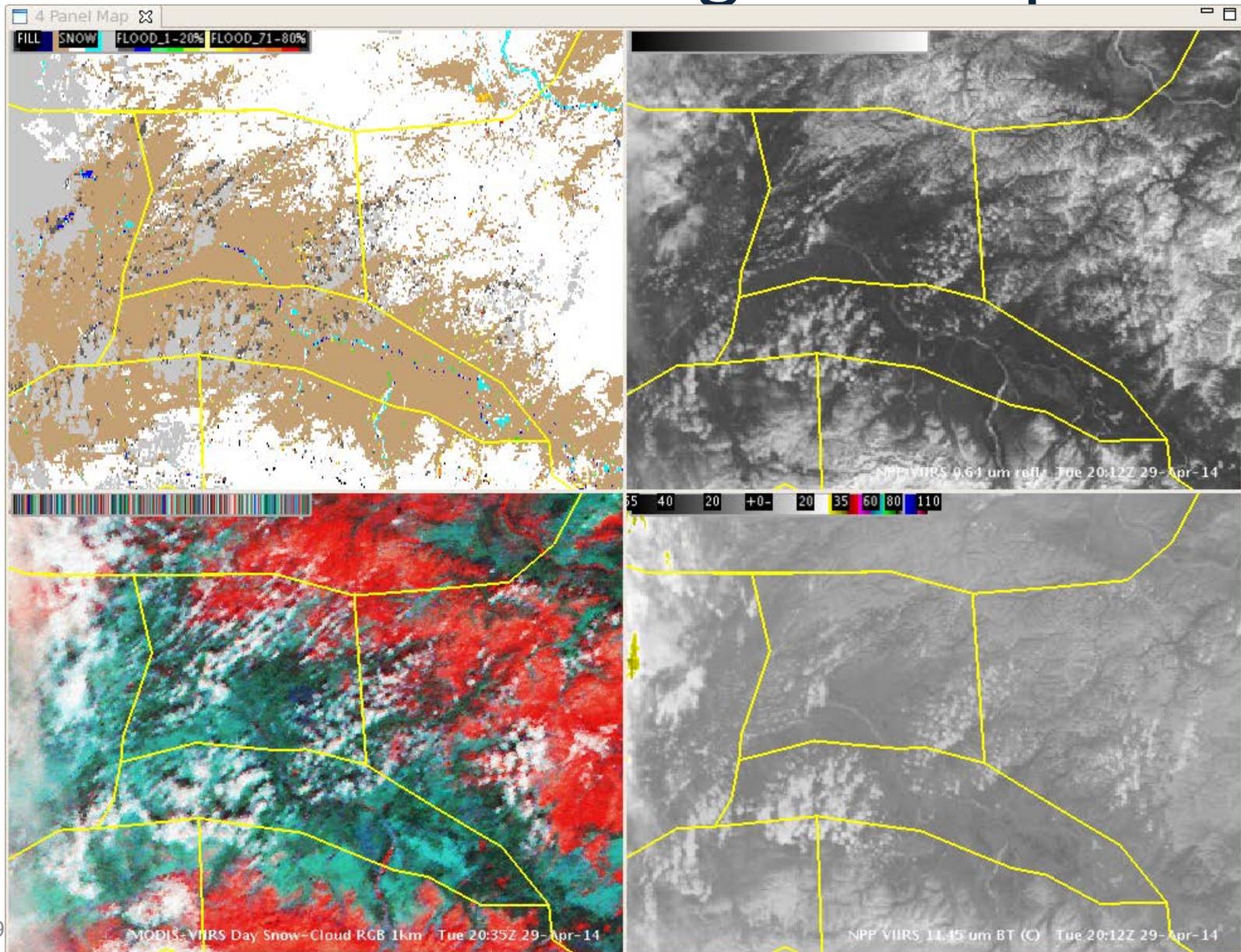
GMU/CCNY River Ice and Flooding Products

- GMU Product: designed to detect and depict areal extent of overland flooding
- CCNY Product: designed to detect and depict ice and liquid water coverage in river channels
- Both products delivered to NWS Alaska in time for the 2014 spring breakup
 - Breakup was a “mush out” with minimal flooding
- Working to improve products for 2015

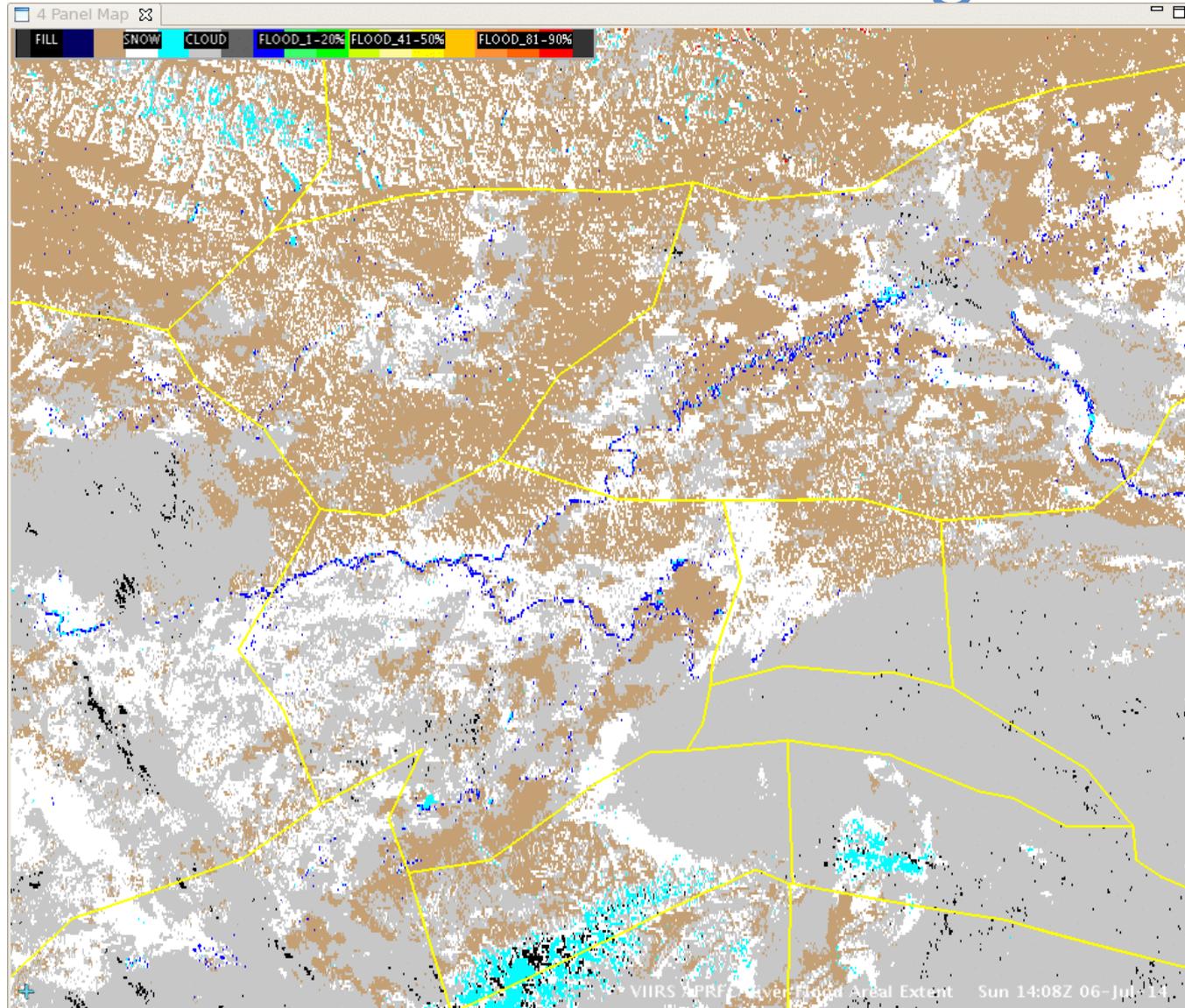
Sample CCNY Product near Galena



GMU Product During Breakup 2014

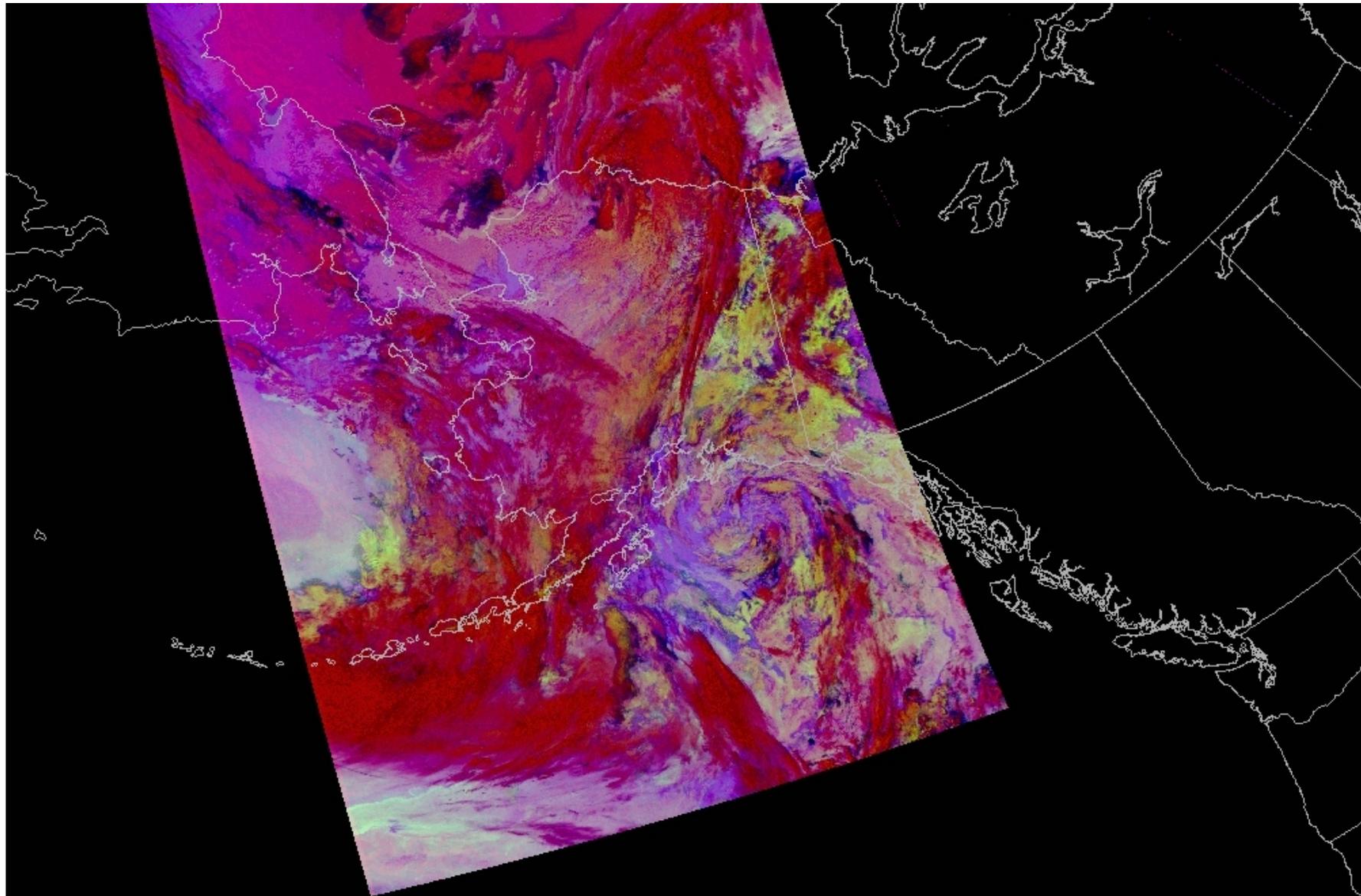


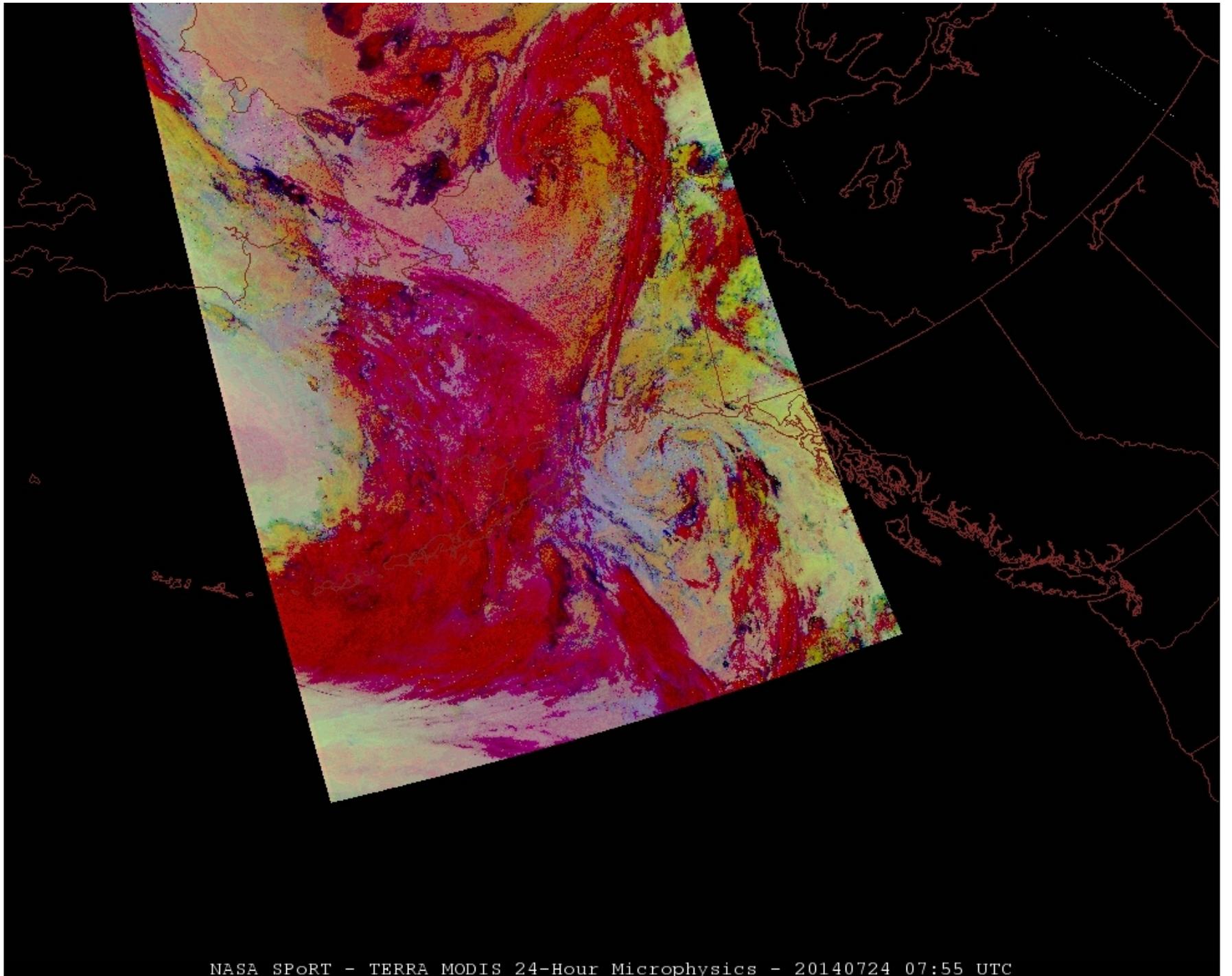
GMU Product Mis-Identifying Snow on Ground: should be fixed August 31st



NASA/SPoRT RGB Microphysics

- Later in 2014 and into early 2015, evaluation of RGB Night-Time Microphysics and RGB 24-hour Microphysics
- Will build upon initial evaluation of RGB Night-Time Microphysics product conducted with NWS last season
 - NWS Alaskan Field Offices better staffed than last year
 - GINA now has an account on AWIPS2 at WFO Fairbanks



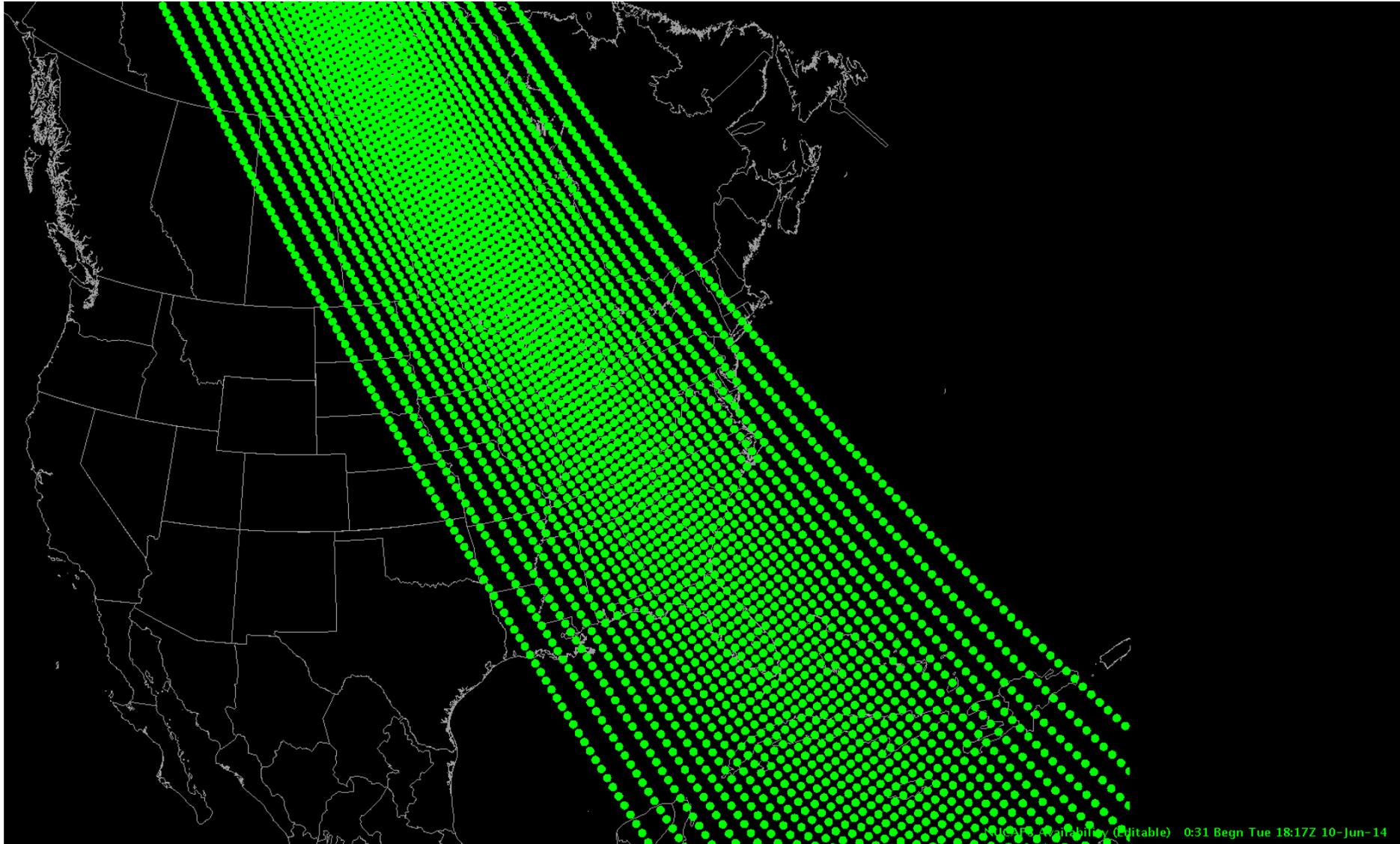


NASA SPoRT - TERRA MODIS 24-Hour Microphysics - 20140724 07:55 UTC

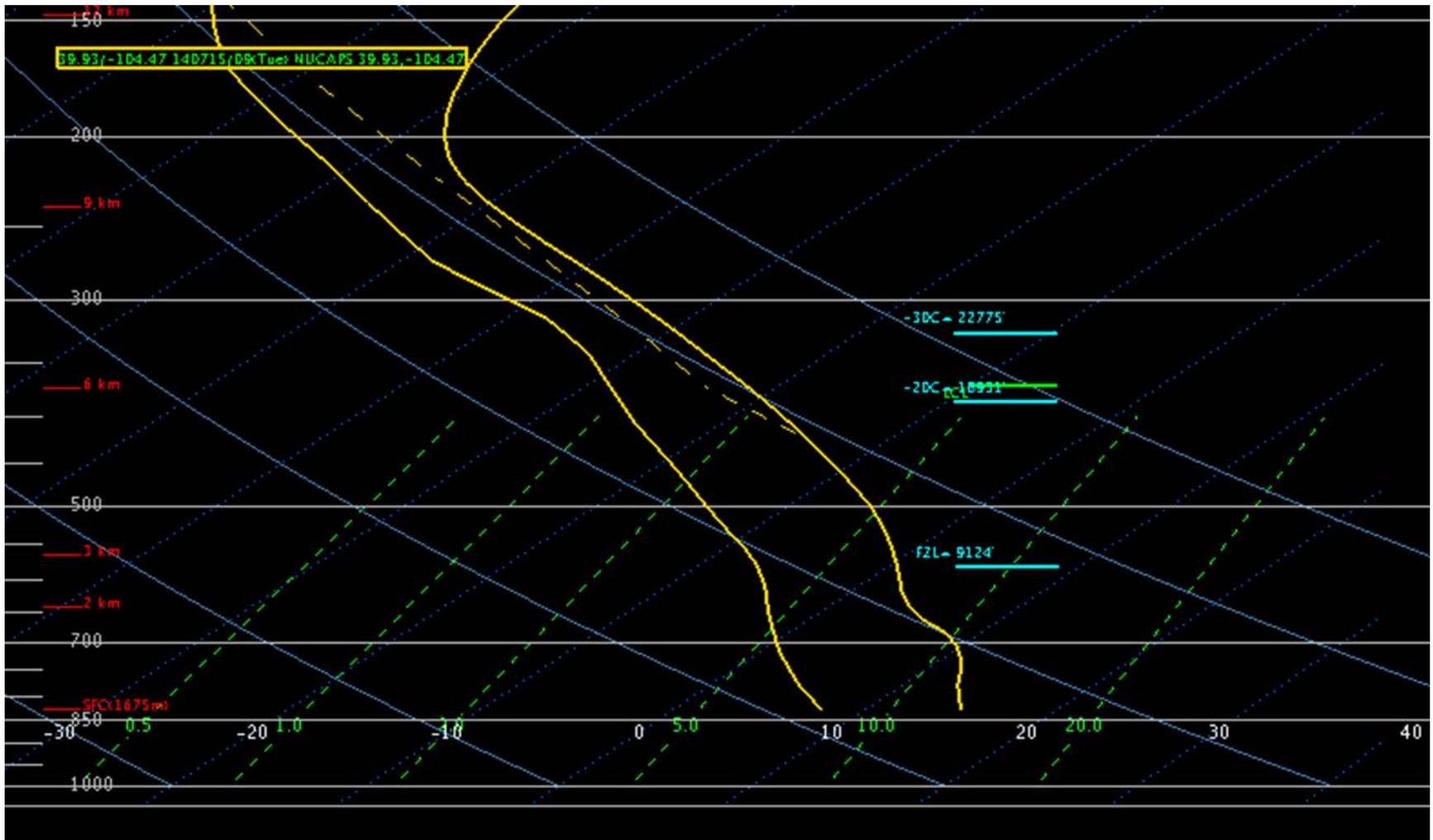
CrIS Products to NWS Alaska

- NUCAPS still needs to be configured at AWIPS2 offices (?)
- Even when NUCAPS is working, is there a non-point-based way to interrogate CrIS data in AWIPS2?

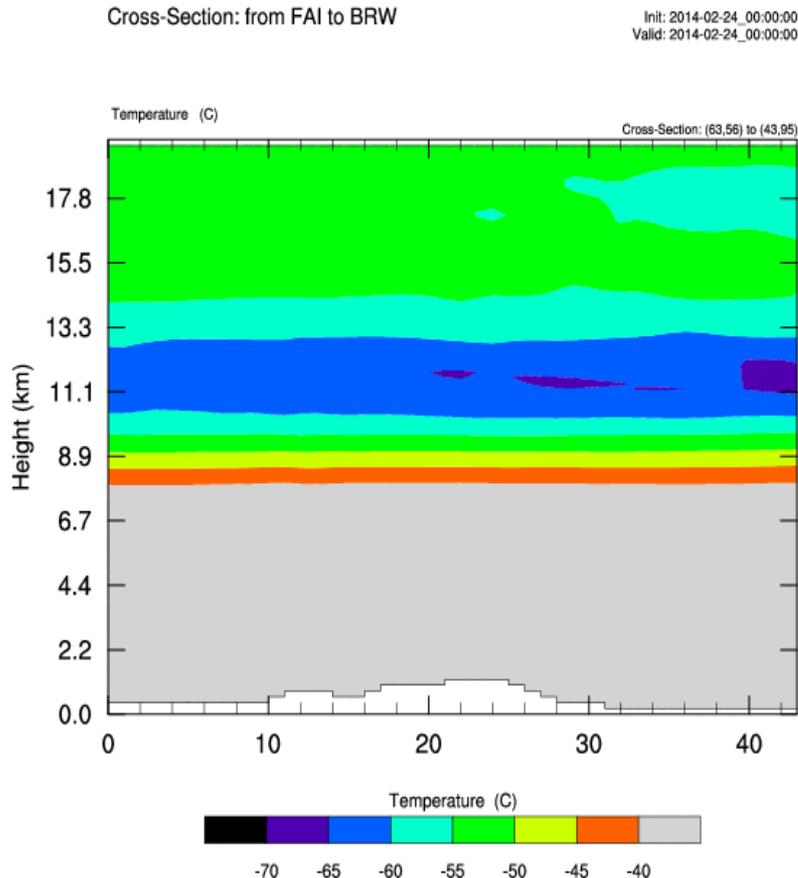
CrIS via NUCAPS, from CIMSS Blog



NUCAPS sample near Denver, courtesy of Dan Nietfeld WFO Omaha



Hyperspectral Sounders and WRF

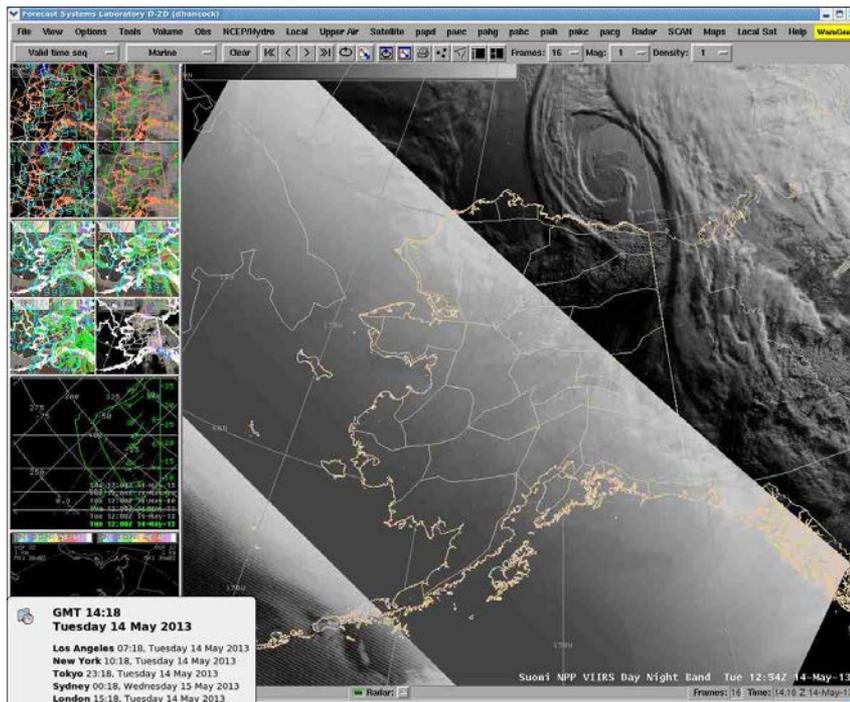


- Dr. Jiang Zhu of GINA is using CrIS and AIRS in data assimilation of an Alaskan WRF to forecast “Cold Air Aloft”
- Example here from February, 2014 event
- How best to present this information to forecasters?
 - A 3-D field changing over time

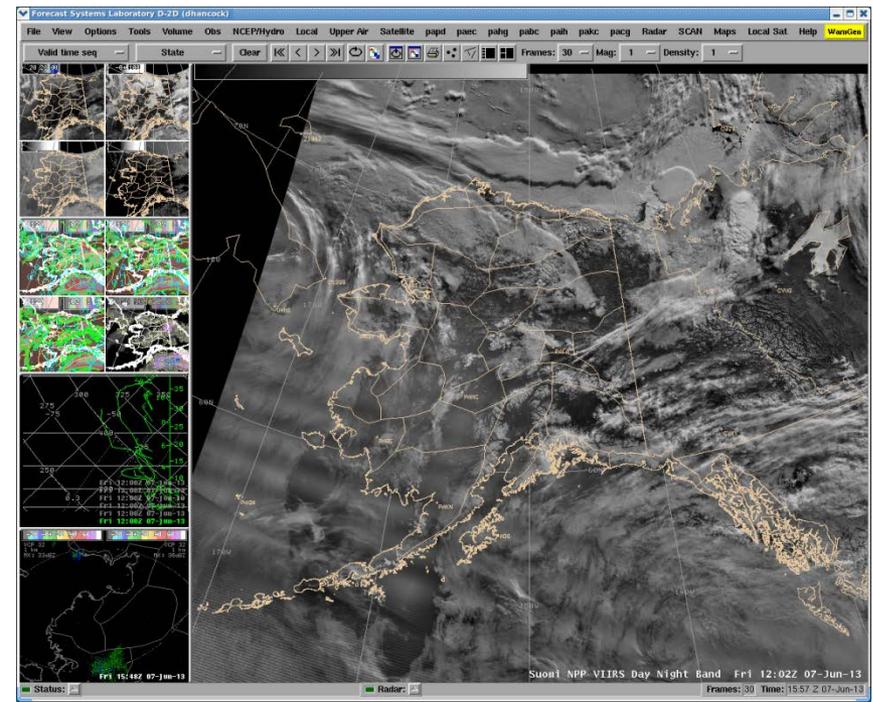
OUTPUT FROM WRF V3.4.1 MODEL
WE = 115 ; SN = 115 ; Levels = 28 ; Dis = 18km ; Phys Opt = 10 ; PBL Opt = 2 ; Cu Opt = 5

An Ongoing, Iterative Process: Improvement to CSPP and VIIRS Day-Night Band

Before: May 14, 2013



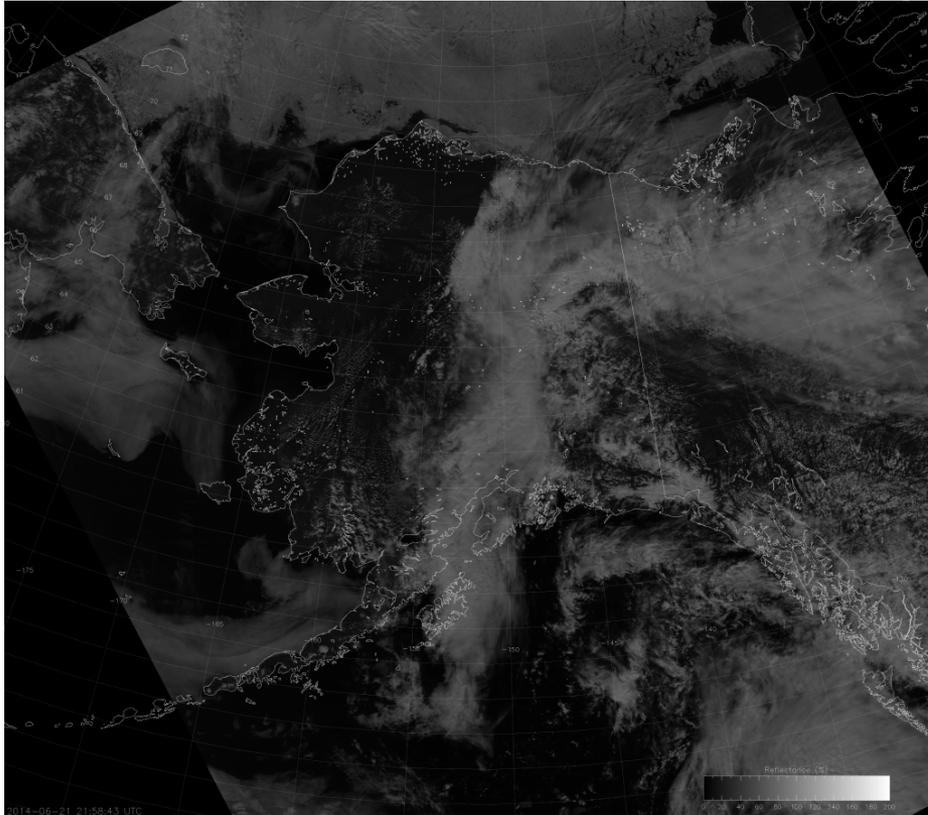
After: June 7, 2013



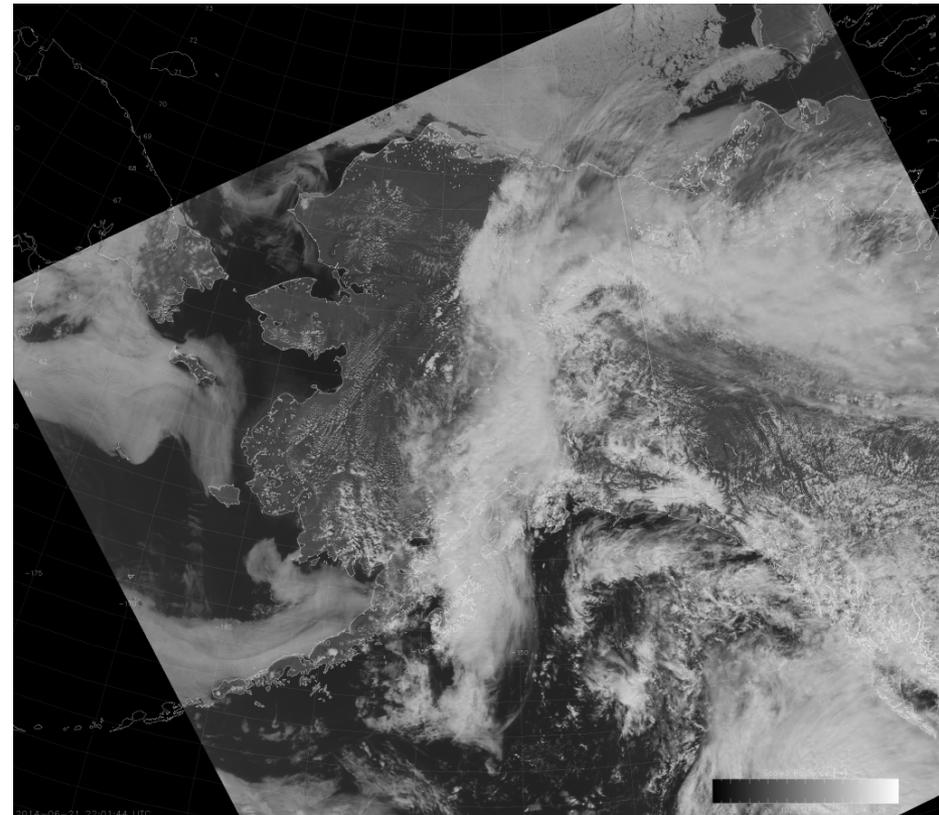
“One can still see discontinuities in the processing, but they are not likely to be operationally significant. Personally, I'm delighted.” –NWS Meteorologist Dan Hancock, June 7, 2013

CIRA's ERF Dynamic Scaling for DNB

NCC Scaling

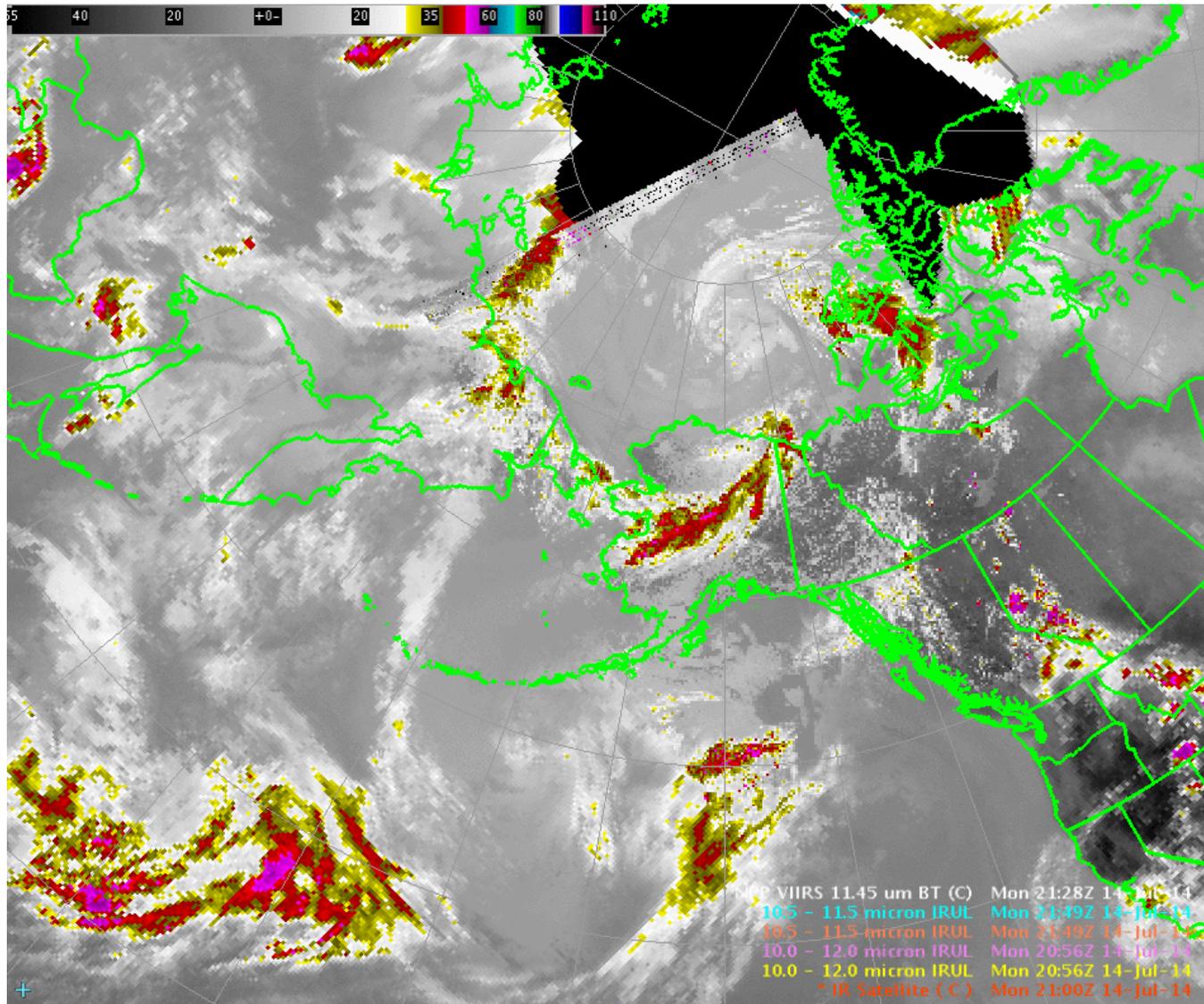


ERF Dynamic Scaling



- From CIRA's Blog, [“Seeing the Light, VIIRS in the Arctic”](#)
- Challenge: getting this imagery into AWIPS

Hybrids/Composites: Circumstances May Have Overcome the Requirements?



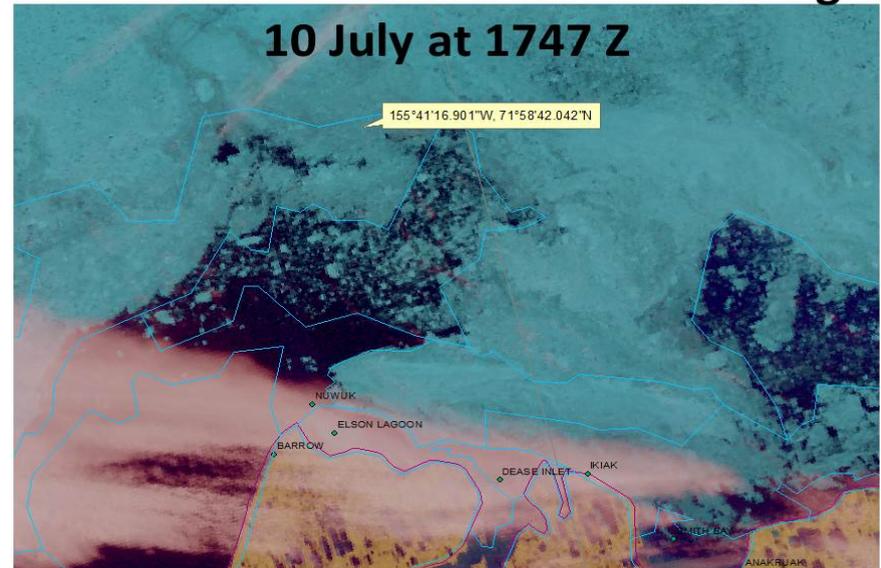
7/29/2014

H LPG Success Story: The NWS Ice Desk



Suomi NPP False Color Satellite Image

10 July at 1747 Z



WFO Anchorage sea ice forecasters provided “phenomenal weather products” that proved key to USCG decision makers, said Rear Adm. Dan Abel, commander, 17th Coast Guard District.

Upcoming Workshops and Meetings

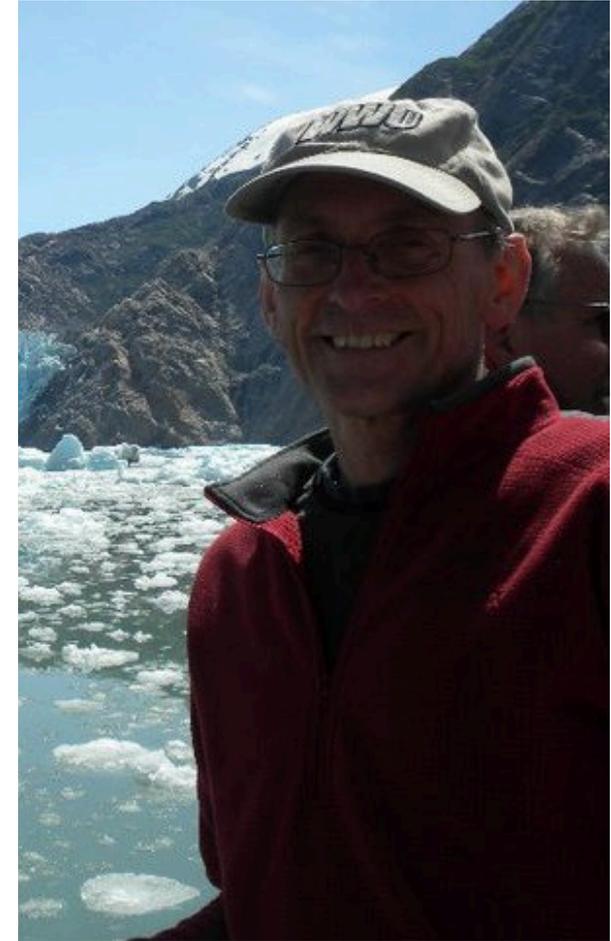
- Sea ice workshop in Anchorage, August
- NOAA Satellite Liaisons meeting with CIRA and COMET, September
- JPSS Science Seminar “The Cold and the Dark: JPSS and the Cryosphere,” December
 - Collaboration among Jeff Key, Becki Legatt, GINA
- Tom Heinrichs to AGU annual meeting, December

Upcoming Workshops and Meetings

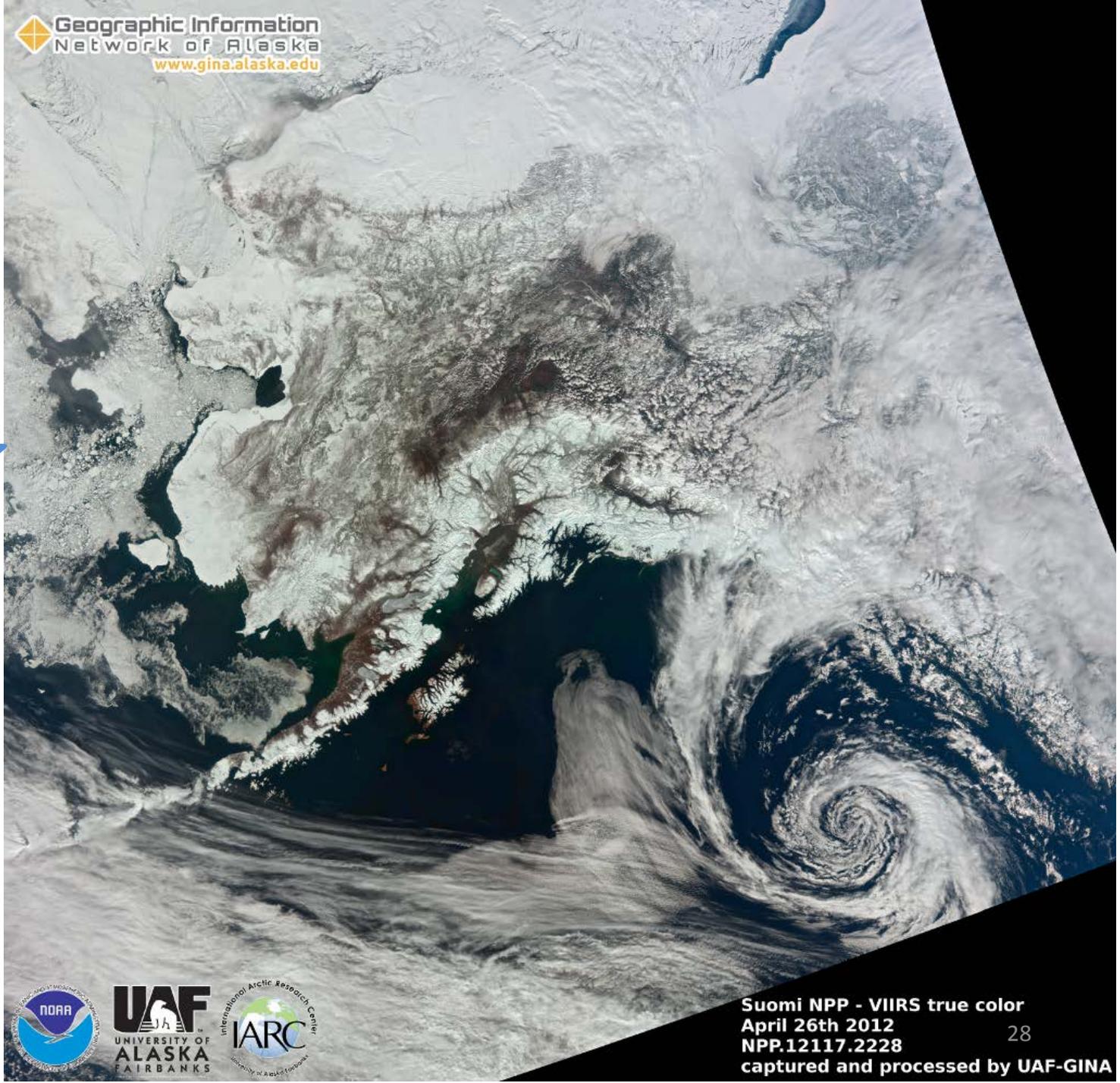
- Jiang Zhu and Eric Stevens to AMS annual meeting in January, 2015
 - Present work with “Cold Air Aloft”
- Satellite Science Week, Colorado, February, 2015
- NOAA Satellite Conference in Maryland, April, 2015
- “Alaska Weather Symposium” in Anchorage in May, 2015...*hopefully*

Welcome Carl Dierking to the HLPG

- SOO at WFO Juneau from 1990s until retirement in 2012
 - Still lives in Juneau
- Particularly skilled in coding
- Add a “Southeast” perspective
- Will work part time with HLPG
- HLPG becoming Carven Scott’s “Old SOOs’ Home” in Alaska



*Thank
You!*



7/29/2014



Suomi NPP - VIIRS true color
April 26th 2012
NPP.12117.2228
captured and processed by UAF-GINA