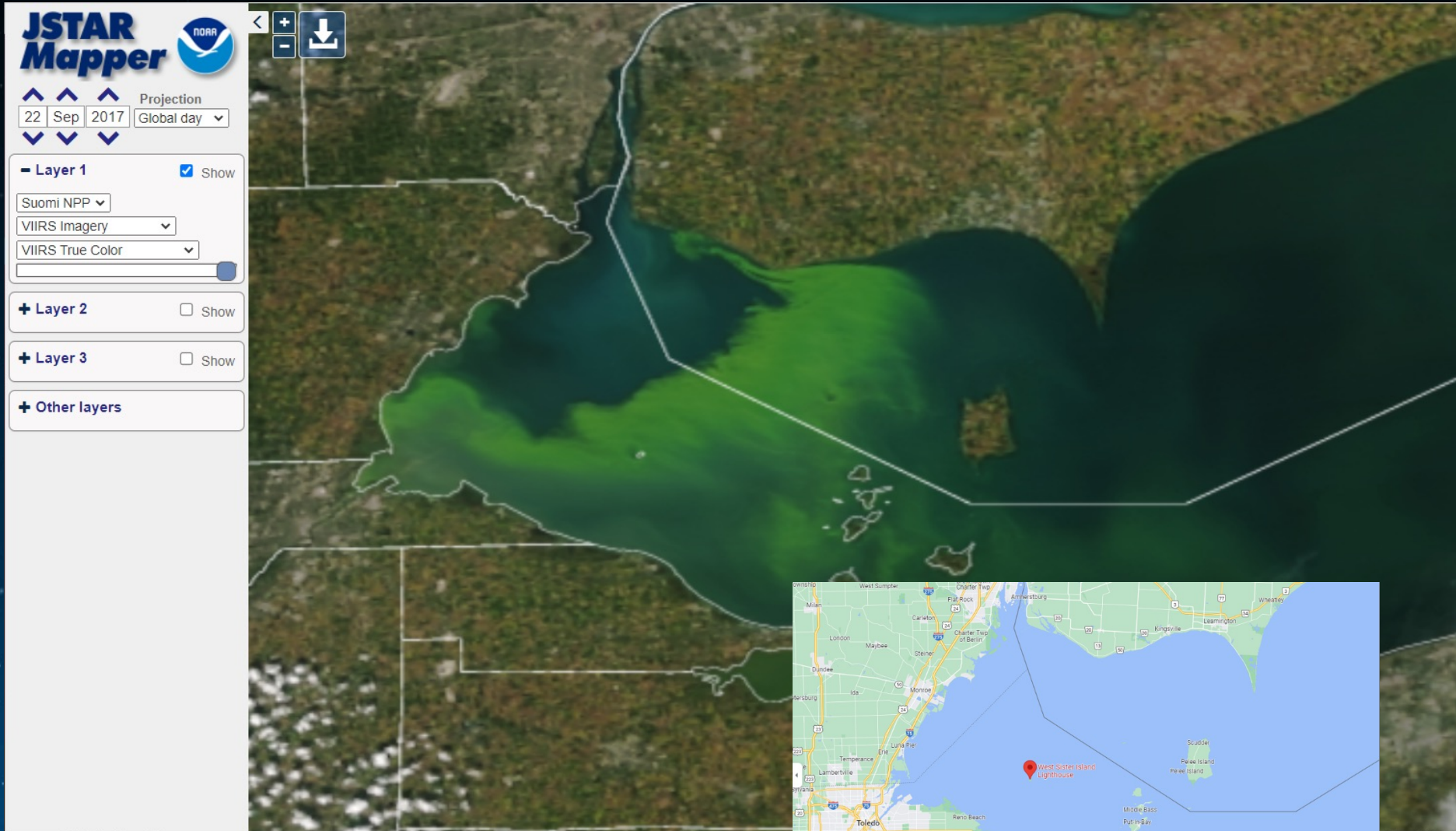# USING CSPP SOFTWARE TO CREATE COMPELLING IMAGERY THAT TELLS A GOOD STORY

Scott Lindstrom
UW-Madison CIMSS

Fancy a Swim?

Why not just use imagery you find online?

So: How do you make your own imagery for a particular event?

- **Overlays are not easy with online imagery**
  - You cannot always find the information to overlay, especially in the past
  - It's easy to download imagery that is slightly offset
  - You are sometimes at the whim of the person / software who created the imagery (you have no control)

Cooperative Institute for Meteorological Satellite Studies
University of Wisconsin - Madison

How do you know what time/day?

https://www.ssec.wisc.edu/datacenter/polar_orbit_tracks/#satellite:NPP;region:North%20America;

You can find orbits there for just about any polar orbiter, and the archive goes back many years!

Thank you SSEC Data Center for these maps

Make your own True Color

24 September 2017

Cooperative Institute for Meteorological Satellite Studies
University of Wisconsin - Madison

But you can overlay products too!

24 September 2017
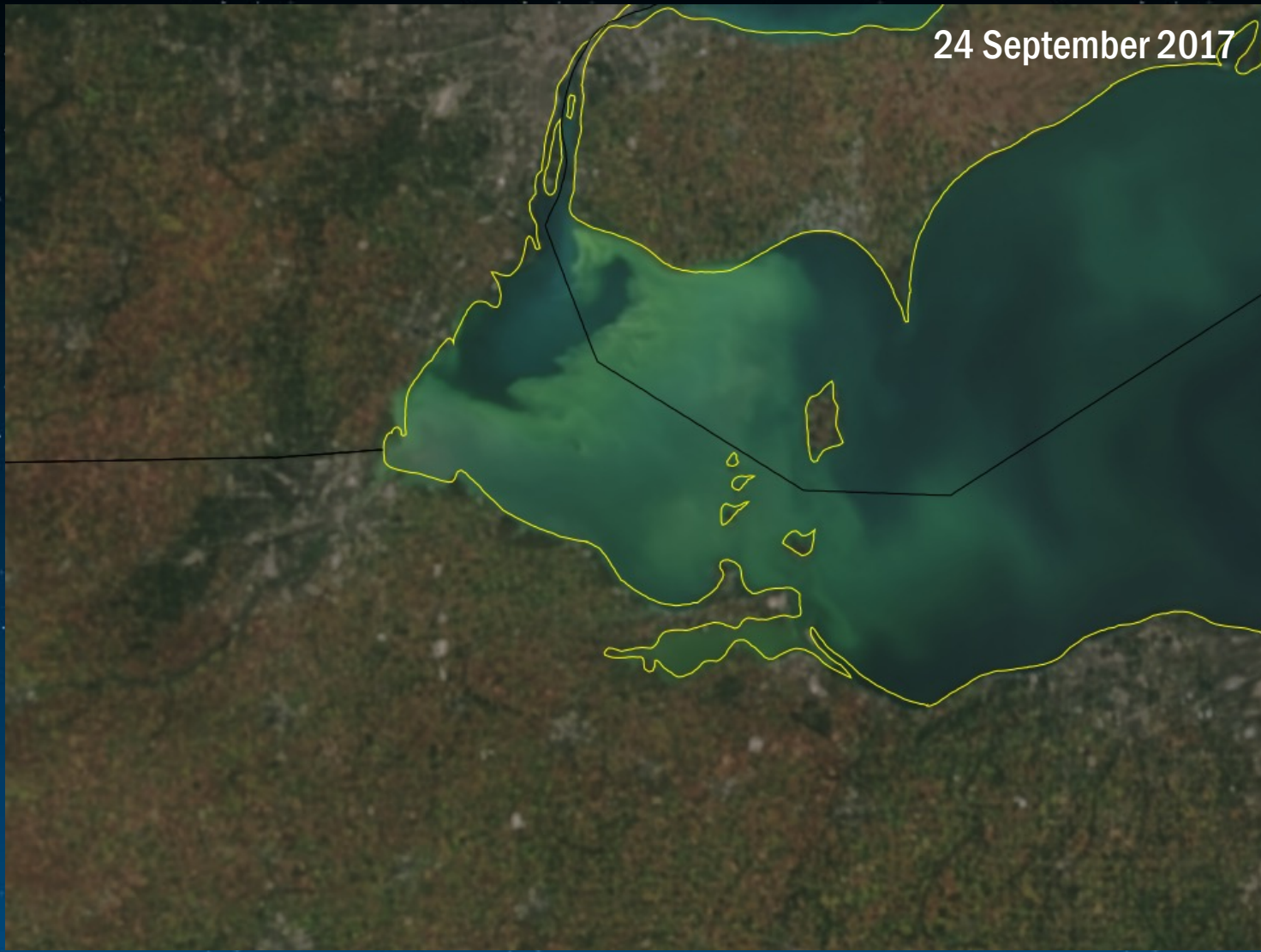
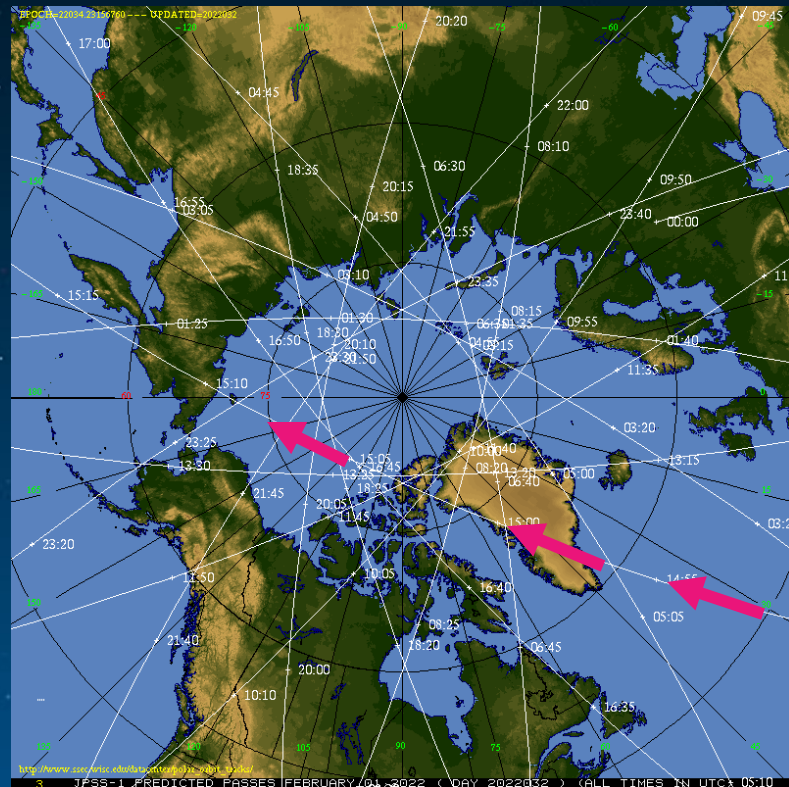# But you can overlay products too!

ACSPO SSTs
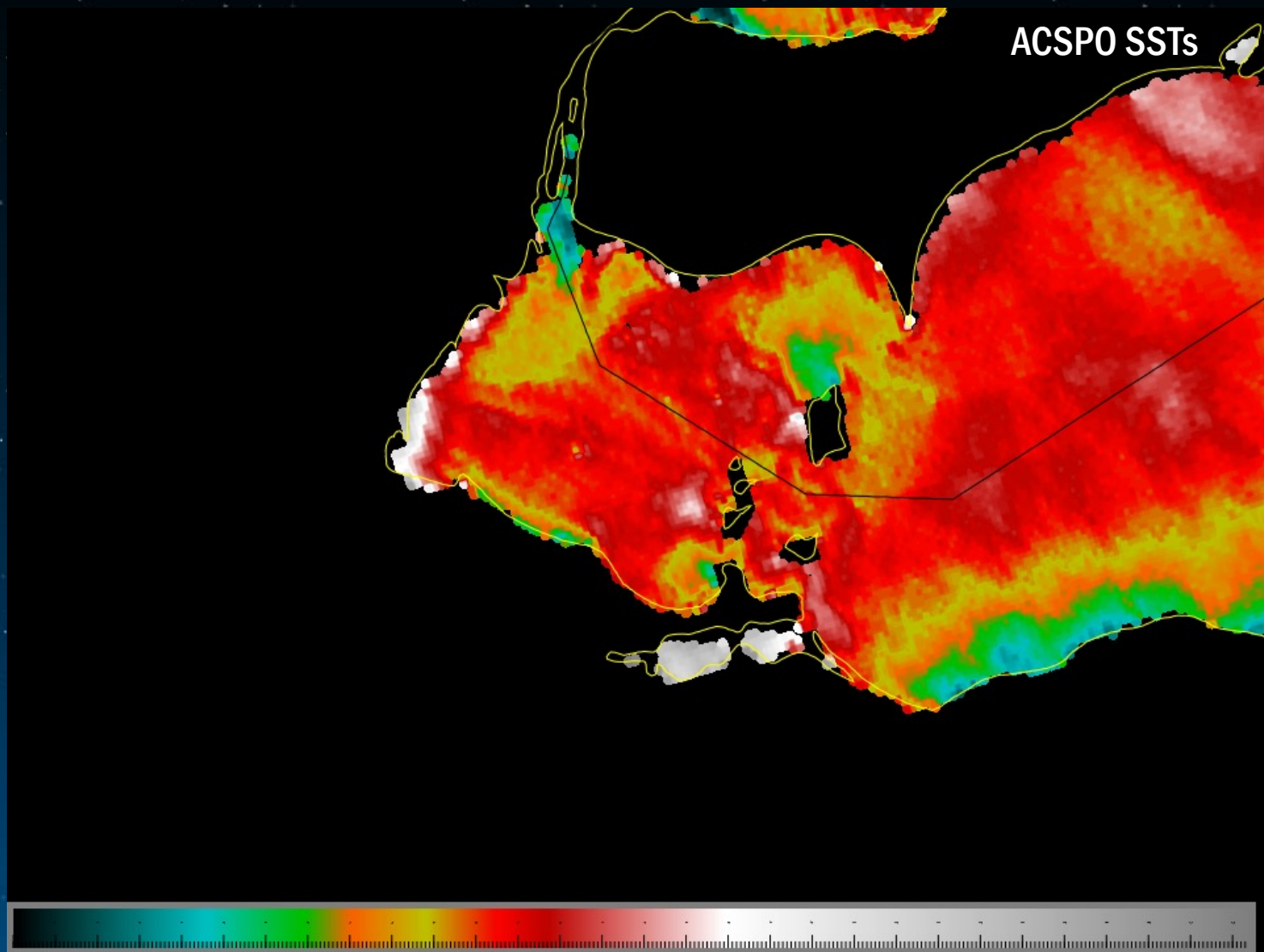
And you can show individual bands

- **(Did not create them for the Lake Erie HAB case with clear skies).**

- **Consider this email I received:**

  - "If you have time to try a case, you could pick Feb 1, 2022 near North Pole Point for 11 µm channel"
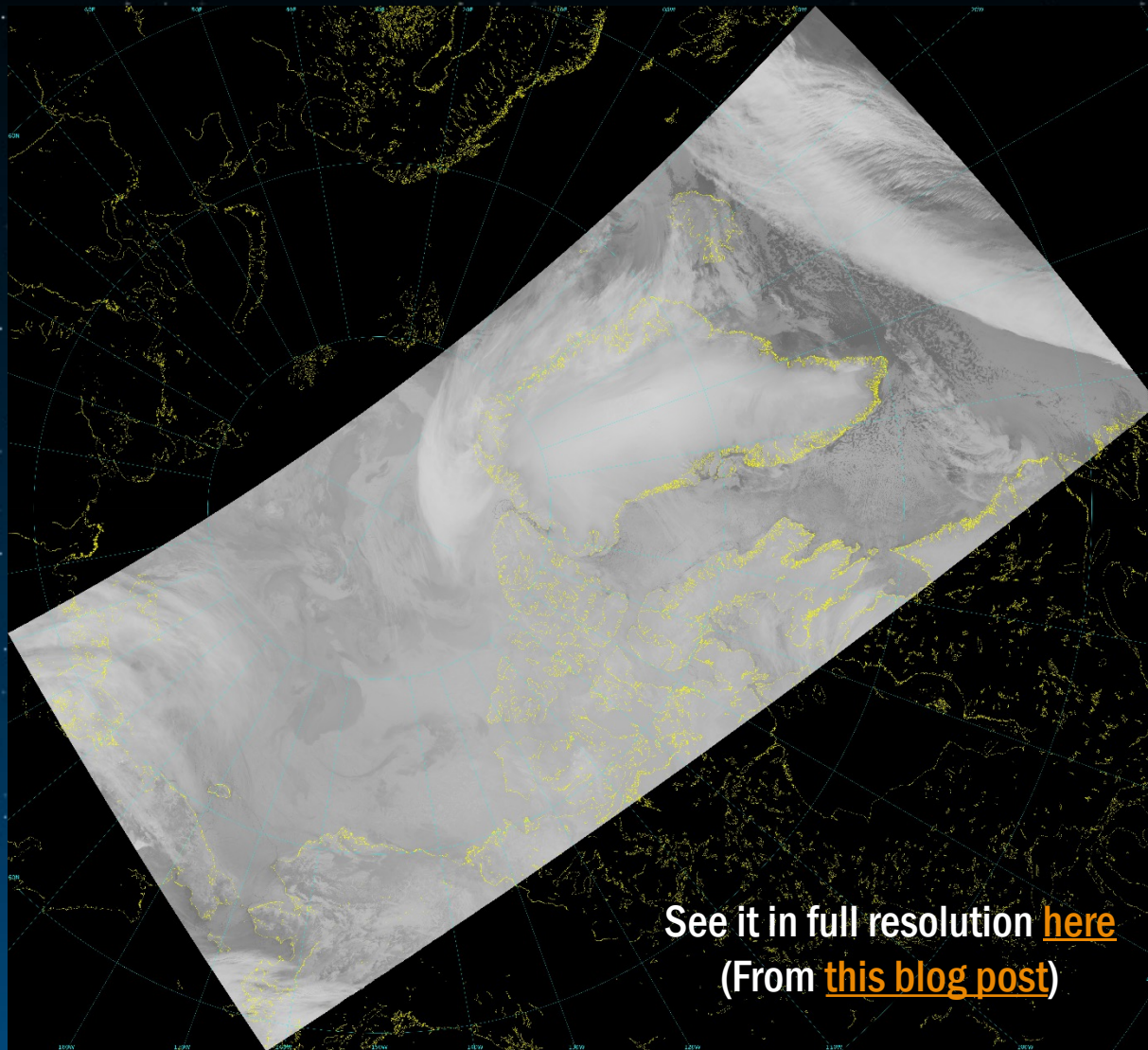
14:55 to 15:10 UTC

Greenland to eastern Russia

Polar2Grid results

See it in full resolution here
(From this blog post)

More examples from my inbox

Can you help him out?
Steve

Steven A Ackerman
Interim Vice Chancellor for Research and Graduate Education
(forwarded email includes this:

I've attempted to obtain from the NOAA_CLASS, without success, the three satellite images mentioned in the abstract. I do not have the knowledge to make the correct entrees and I'm running out of time to meet the submission deadline.
 Today, I studied your excellent SSEC site and conclude you have the images. But, again, I do not have the knowledge to extract them.
 Therefore, if possible, please forward this message to someone at the SSEC who, as a consultant, can produce the images.)

(He was asking about high-res imagery over Mt Everest)

Eventually created Suomi-NPP data with McIDAS-V

VIIRS-I1-SDR-All/Reflectance 2018-07-23 08:08:33Z
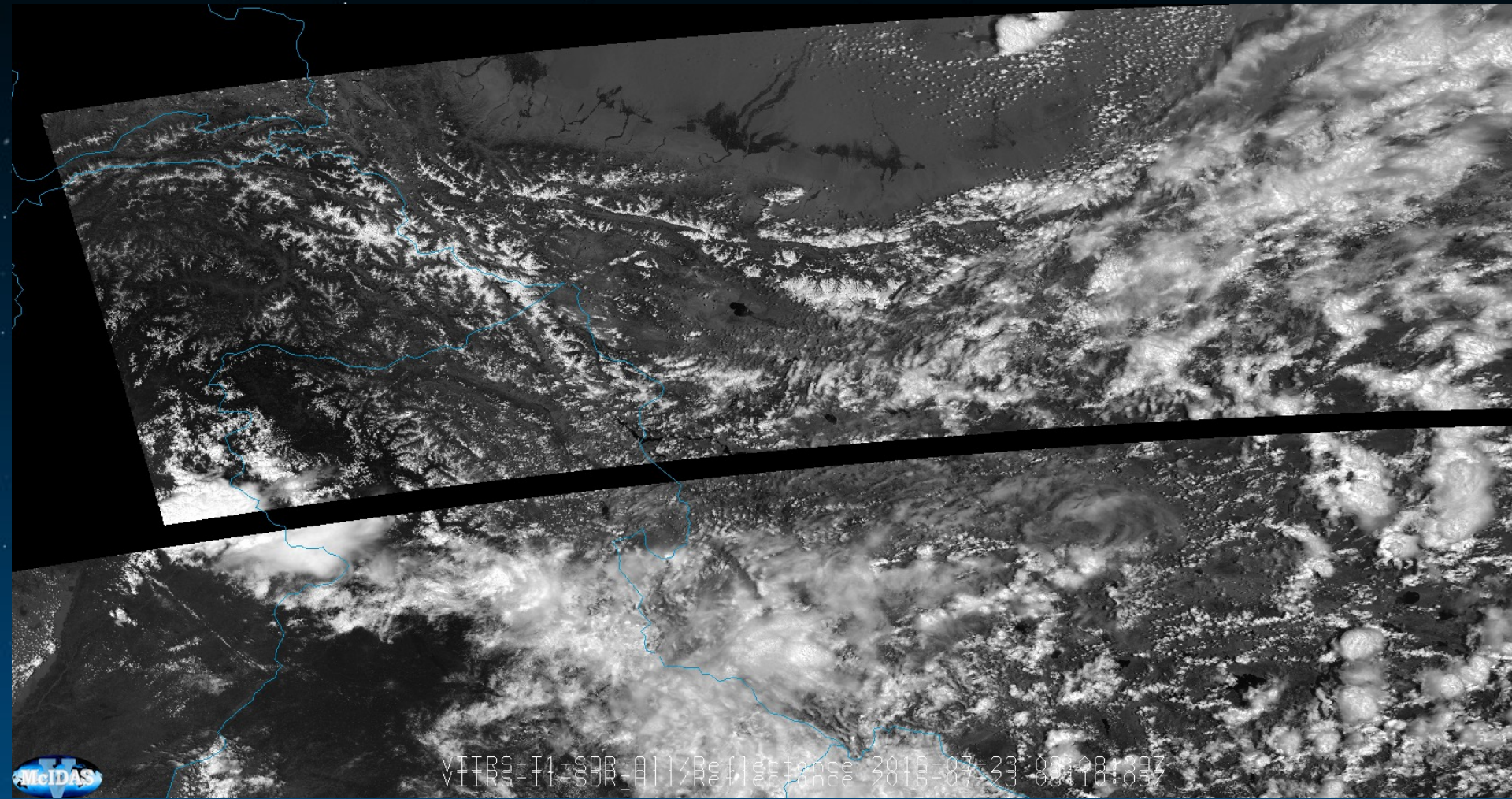
Then another email

- "I became aware of this event from 2004 – can you produce imagery?"
- This pre-dates Suomi-NPP.
- My advantage:

  - I work in a building where people can tell me how to do things, so I went an asked Kathy how I can get the data
  - Kathy pointed me to the NASA LAADS site, and told me what to order
  - Polar2Grid uses CSPP software to create beautiful imagery
  - Created the images and sent them along, and also made a blog post describing what I did

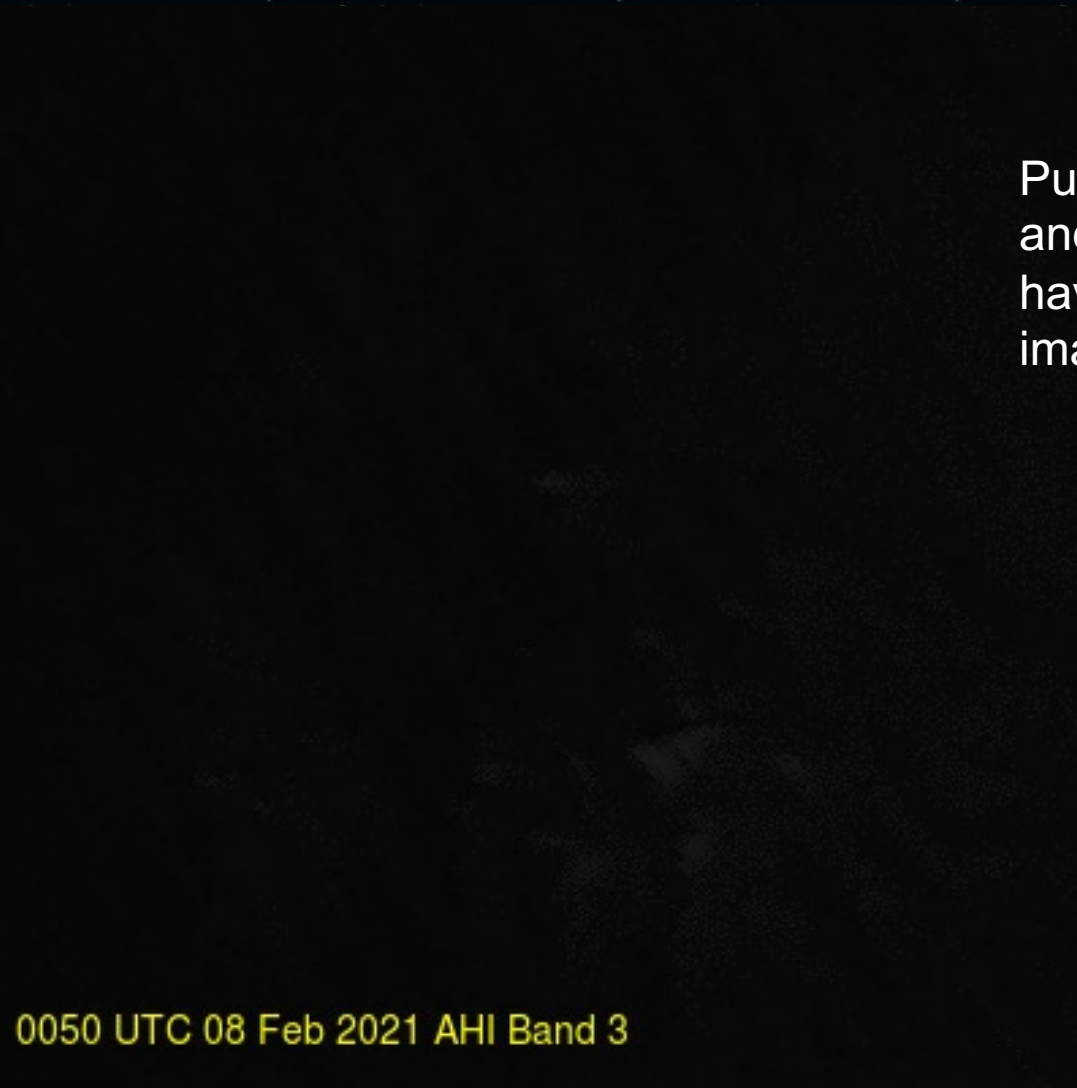# MODIS imagery from 2004: Produced by Polar2Grid
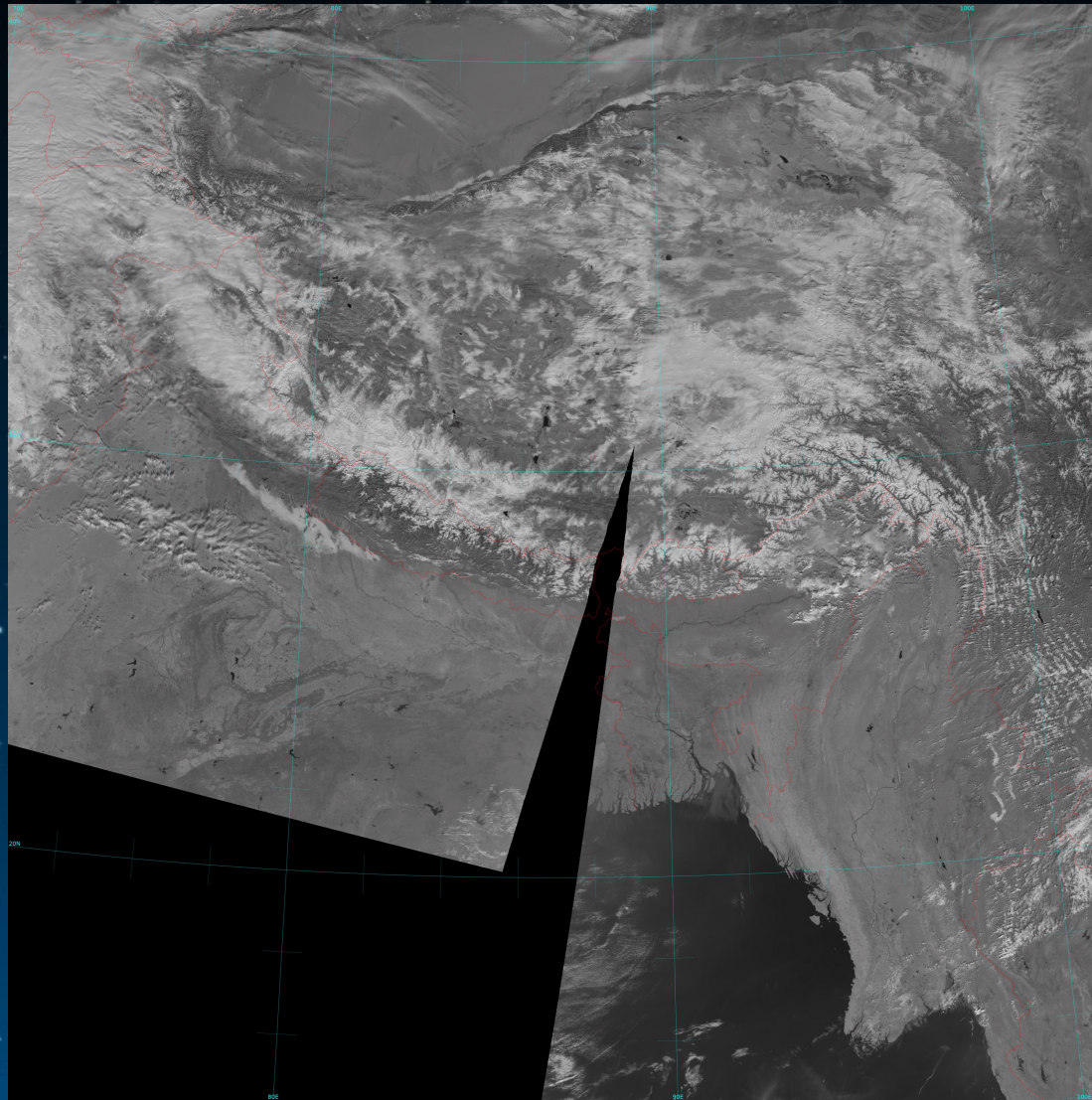
MODIS band 2, 6, 26

0.64, 1.62, 1.38 μm

Then a while later, <u>another</u> email!

- I've been looking at Himawari data. Can you produce imagery on these days/times for when a plume was apparent downwind of Everest?

- geo2grid to the rescue
  - Thank Goodness I work where there's a Superior Data Center that includes an HSD (Himawari Standard Data) archive

Some Simple geo2grid calls

../p2g_grid_helper.sh

$GEO2GRID_HOME/

\#

\#   08 February at

../geo2grid.sh -r ahi_

$GEO2GRID_HOME/

/arcdata/nongoes/ja   )/*B

03*FLDK*

\#

convert HIMAWARI-8_A   st -fill

yellow -pointsize 14 -an   RI-

8_AHI_B03_20210208

        (annotation ca   ere?)

Put this in a script, and suddenly you have lots of imagery

0050 UTC 08 Feb 2021 AHI Band 3

Result: (WII-FM)

The Power of Polar2Grid and Geo2Grid

- **Create a grid that data are interpolated onto**
    - You can re-create the same imagery after a long time
- **Simple matter to create Red/Green/Blue imagery, or to modify existing RGB values**
- **Free**
- **Easy to make scripts to do whatever you want**
- **<u>Reproducible</u>**

- **All you need are the data files (which is not always trivial)**

Thank you for listening!

- scott.lindstrom@noaa.gov / scott.lindstrom@ssec.wisc.edu
- Blog posts that demonstrate Polar2Grid capabilities
  - https://cimss.ssec.wisc.edu/satellite-blog/?s=Polar2Grid
- Blog posts that demonstrate Geo2Grid capabilities
  - https://cimss.ssec.wisc.edu/satellite-blog/?s=Geo2Grid

- 608 263 4425

- I'm always happy to answer questions!