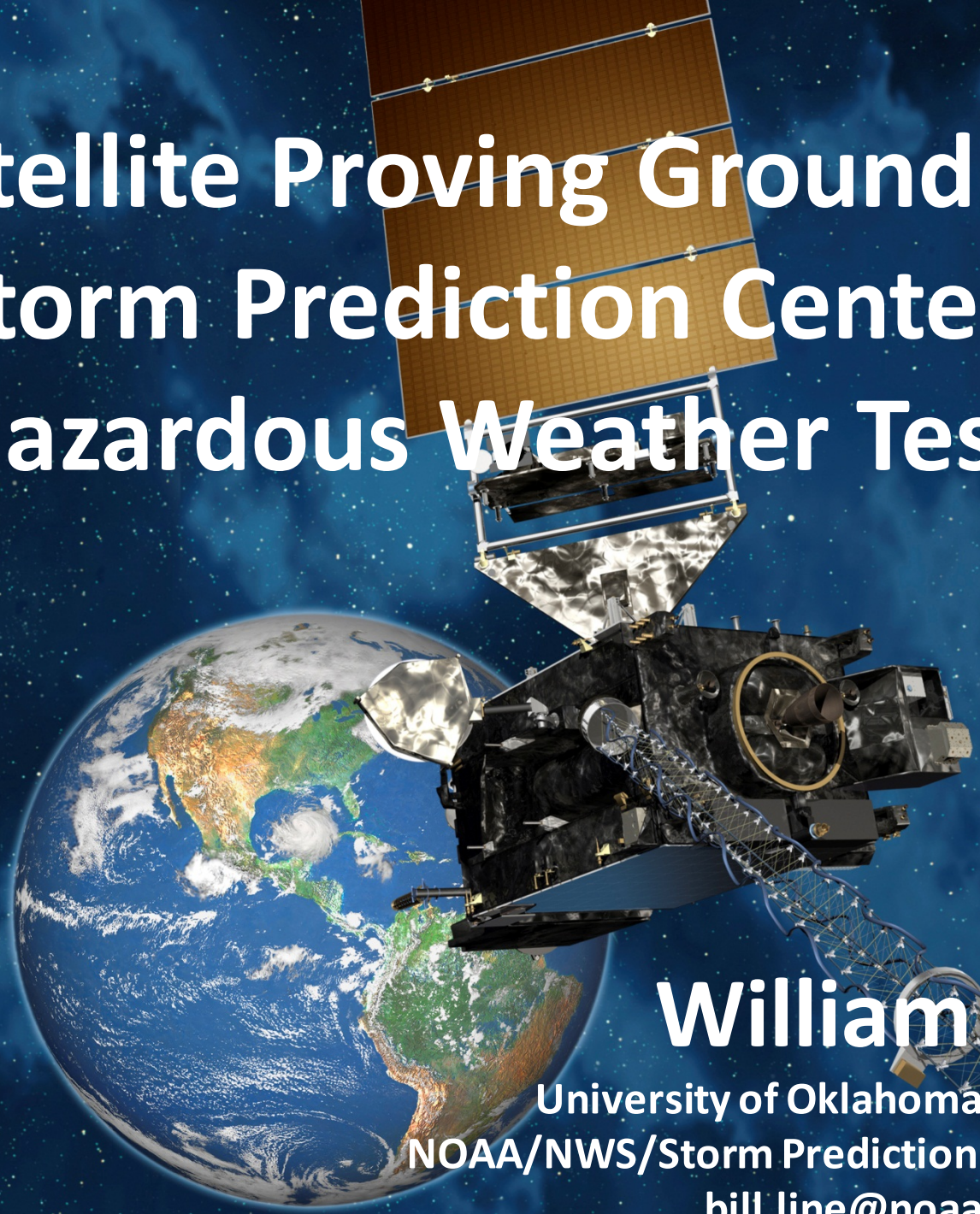
Satellite Proving Ground at the Storm Prediction Center and Hazardous Weather Testbed



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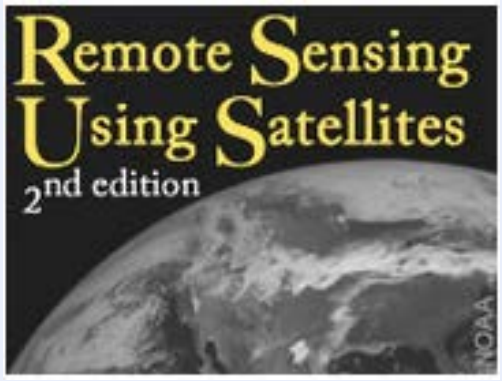
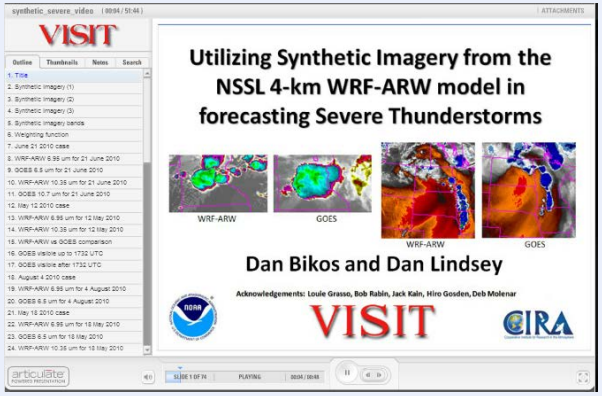
Background of SPC/HWT Satellite Liaison

- Office Location: Storm Prediction Center, National Weather Center, Norman, Oklahoma
- Started: May 22, 2013
- NWS Forecasters I work with:
  - SPC Forecasters (22, 3 vacant)
  - Hazardous Weather Testbed
    - SPC Forecasters
    - WFO Forecasters
    - CWSU Forecasters

Training Received by Satellite Liaison

- Satellite Boot Camp – Madison, WI - July, 2013
- SPC shadow shifts
- Various COMET, VISIT, EUMETRAIN Modules





Training Prepared by Satellite Liaison - SPC

- SPC Demonstrations
  - In-person, year-round, one-on-one training in ops
    - Products chosen that have potential to benefit SPC forecasters, based on initial liaison assessments and forecaster feedback
    - I'll spend time in ops monitoring and disucssing the satellite products with forecasters in real-time
    - My consistent presence in ops to serve as SME and familiarize forecasters is very important
    - Allows for more comprehensive evaluation over variety of seasons, weather regimes, etc.
  - Product quick-guides
  - Internal webpage with examples, resources

❖ In person training, feedback collection has worked best

❖ Relying on email, PP, etc. is not reliable

Training Prepared by Satellite Liaison - HWT

- HWT Demonstrations
  - Developers create Articulate training, quick-guides
  - In the past, WES case
    - Will likely utilize when available and working in AWIPS-II
  - I develop HWT GOES-R operations plan, serve as focal point for all satellite products
  - First day product spin-up
    - Hands-on, one-on-one training
    - Participants are learning throughout the whole week
  - This year in EWP: 4 weeks, 12 NWS (WFO and CWSU) forecasters, 4 broadcast mets, various scientists each week

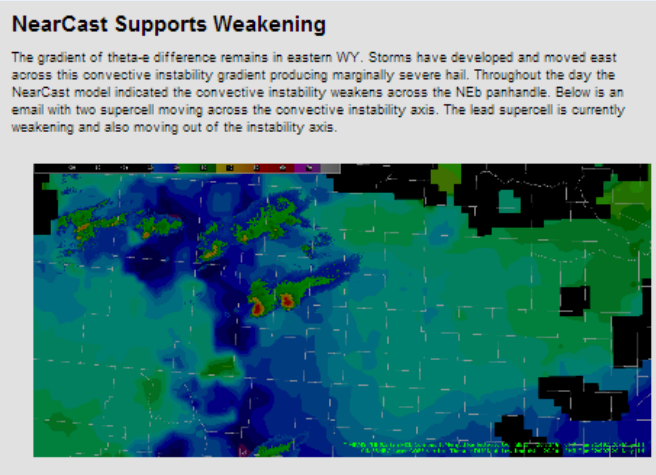
Preparing the User Community

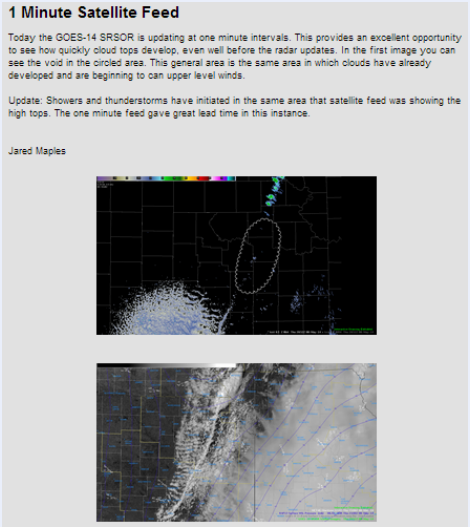
- Satellite liaison/SME located at national centers should continue to train/prepare Center forecasters in-person, year-round, in real-time pre- and post-launch (PLT)
- Preparing forecasters at field offices has additional challenges
  - HWT continues to be an effective avenue to enlighten, train forecasters
    - Experimental simulated operations environment using RT events
    - Opportunity for developers to interact with users (R2O/O2R)
    - Feedback collected has been vital for continued product development
    - Chance to enlighten/inform participants about next gen satellites systems
    - Participants are eager to share new knowledge with home office.
  - Training Modules for field, esp. SOO's

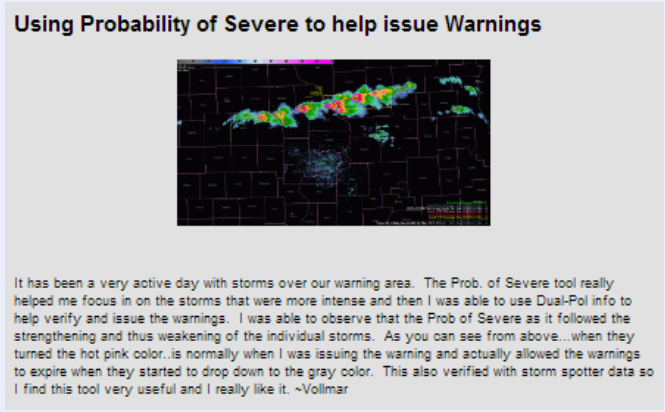
❖ It is vital we get the imagery and products in front of the forecasters once GOES-R launches and the real data start flowing

Collaborating with Developers

- Technical interchange meetings with SPoRT, CIMSS and CIRA
- Developer visits to HWT
- Work with developer when setting up new product in SPC or HWT, planning demonstration, preparing training (R2O)
- Telling the developers what the forecasters want (O2R)
- Relay feedback to developers through blog posts, emails, presentations and final reports
- http://www.goesrhwt.blogspot.com/ and http://satelliteliaisonblog.wordpress.com/

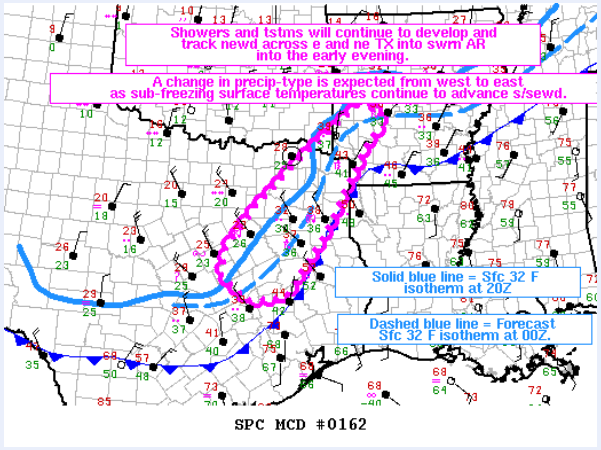






Biggest Accomplishments

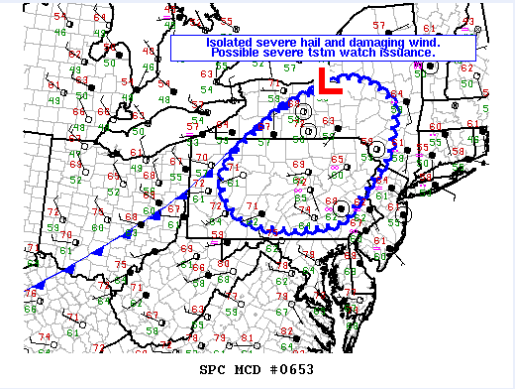
- Integrated 1-minute imagery (when available), CTC, OTD and NearCast into SPC operations (at least 11 MD's).
  - Forecasters have used these products in their decision-making, and have provided me with operational examples.



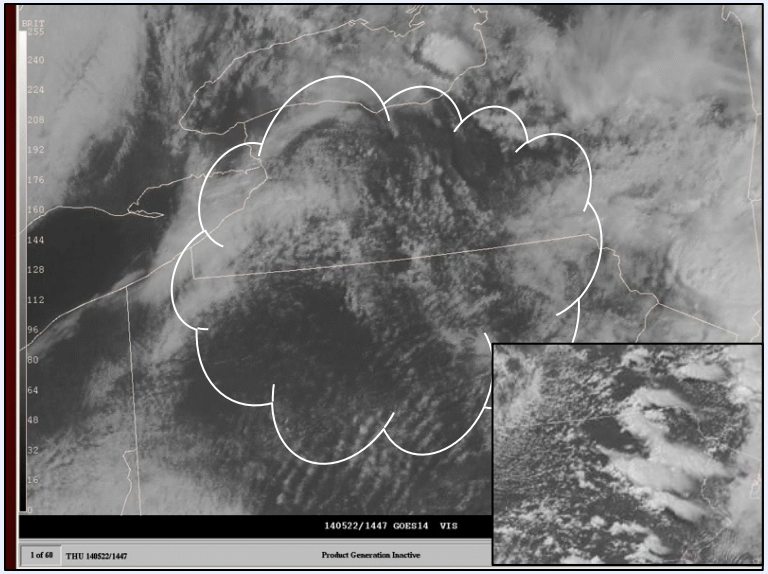
"DISCUSSION...TRENDS IN REGIONAL RADAR IMAGERY...LIGHTNING DATA...AND **CIMSS GOES-R CLOUD TOP COOLING AND OVERSHOOTING TOP PRODUCTS** INDICATED CONVECTION AND EMBEDDED TSTMS CONTINUING TO INCREASE IN COVERAGE AND INTENSITY SINCE 1930Z ACROSS NORTHEAST TX TO SWRN AR."

1-minute Imagery in SPC

- Feedback from SPC forecasters and HWT participants has been helpful in starting to identify the operational significance of raw 1-minute imagery.



DISCUSSION...**1-MIN RESOLUTION VISIBLE SATELLITE IMAGERY** DEPICTS DEEPENING CU AND SMALL CBS FORMING ALONG/JUST AHEAD OF A COLD FRONT STRETCHING FROM AROUND 25 S ROC TO ZZV...WITH THE GREATEST CLUMPING NEAR THE NY/PA BORDER.



- "Using cloud character and trends to diagnose boundary locations and motion…"
- "… allowed for careful analysis of overshooting and collapsing thunderstorm tops, the character of storm anvils (ie. the health of the storm) and the identification of convectively generated outflows."
- "Satellite imagery at 1-minute resolution needs to become the new standard for severe weather operations."

Comments from SPC forecasters

Biggest Challenge

- Water cannon of data
  - Not just satellite (radar, NWP, etc)
  - Must display data in an understandable manner so forecasters can more easily assimilate it into their decision-making process
  - Must identify satellite products that add information not already available to the forecaster
  - Consistent presence of liaison in operations is a must

- Plans to incorporate JPSS and other polar data into SPC operations
  - Blend with geostationary satellite data

Vision of Satellite Liaison Position

- Valuable assets to the satellite meteorological community
  - Facilitates increasing use and knowledge of satellite technology across the NWS community and beyond
  - In Norman, important to have a satellite focal point in a traditionally radar-focused research community
- Permanent Satellite Liaison (SME) Positions?
  - Ensures a satellite liaison/SME at National Centers, RHQ's?, etc. beyond the launch of GOES-R
    - The need for a liaison will exist especially after launch when we are working with actual data from GOES-R for real-time data-utilization and continued assessment and development.
    - We have expert knowledge of our unique customers/partners, GOES-R/JPSS products and capabilities
  - Unique knowledge can be leveraged for future training development