



# GOES-R Proving Ground Storm Prediction Center and Hazardous Weather Testbed

## Demonstrating the Pseudo-GLM (PGLM) in Operations

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1 - OU-CIMMS, 2 - NOAA/NCEP/SPC, 3 - NSSL, 4 - NASA SPoRT



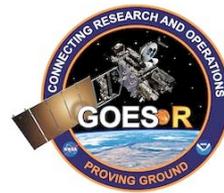
GLM Science Meeting  
9/20/2012



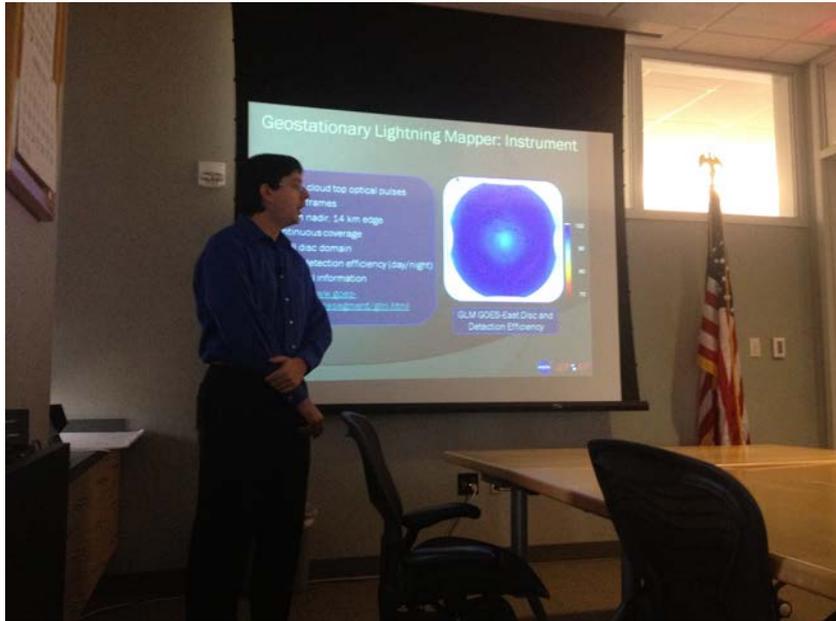
# National Weather Center



- Storm Prediction Center (SPC)
- Hazardous Weather Testbed (HWT)
- Norman, OK Weather Forecast Office (OUN)
- National Severe Storms Lab (NSSL)
- Warning Decision Training Branch (WDTB)
- Cooperative Institute for Mesoscale Meteorological Studies (CIMMS)
- Center for Analysis and Prediction of Storms (CAPS)
- Radar Operations Center (ROC)
- OU School of Meteorology
- Private Sector

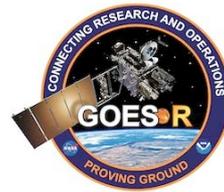


# Visiting Scientist Interactions



Dr. Geoffrey Stano providing SPC forecasters and support staff with an overview of the GLM on 27 March 2012.

- Dr. Geoffrey Stano (NASA SPoRT) visited SPC March 26-30, 2012
  - Provided GLM overview to SPC forecasters and support personnel
  - Shadowed forecasters on operations floor
  - Worked to outline delivery and display of PGLM data



# PGLM at the SPC

- **Creation and Delivery**

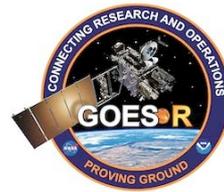
- Raw source data collected by NASA SPoRT and combined into flashes
- Flash extent density created on an 8km national mosaic
- Output GEMPAK-friendly format and delivered to SPC via SPoRT LDM
- Data arrives every 2 minutes with a 3-4 minute latency

- **Display**

- Displayed in IMAGE format within SPC N-AWIPS
- Range rings added as VGF overlay

- **Demonstration**

- Visiting scientist interactions and SPoRT training module(s) provided for training
- 1-on-1 informal demonstrations take place on ops floor when weather permits



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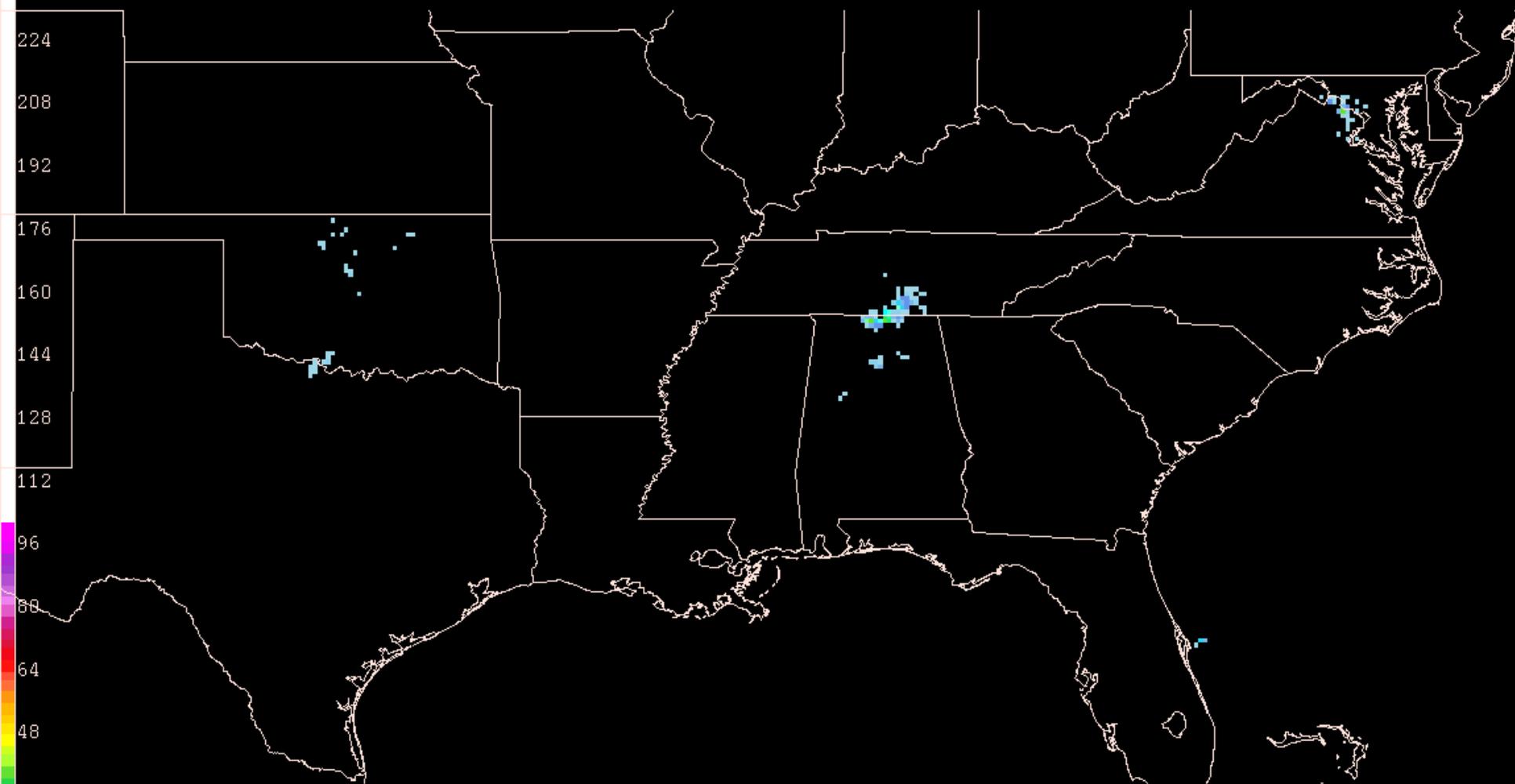
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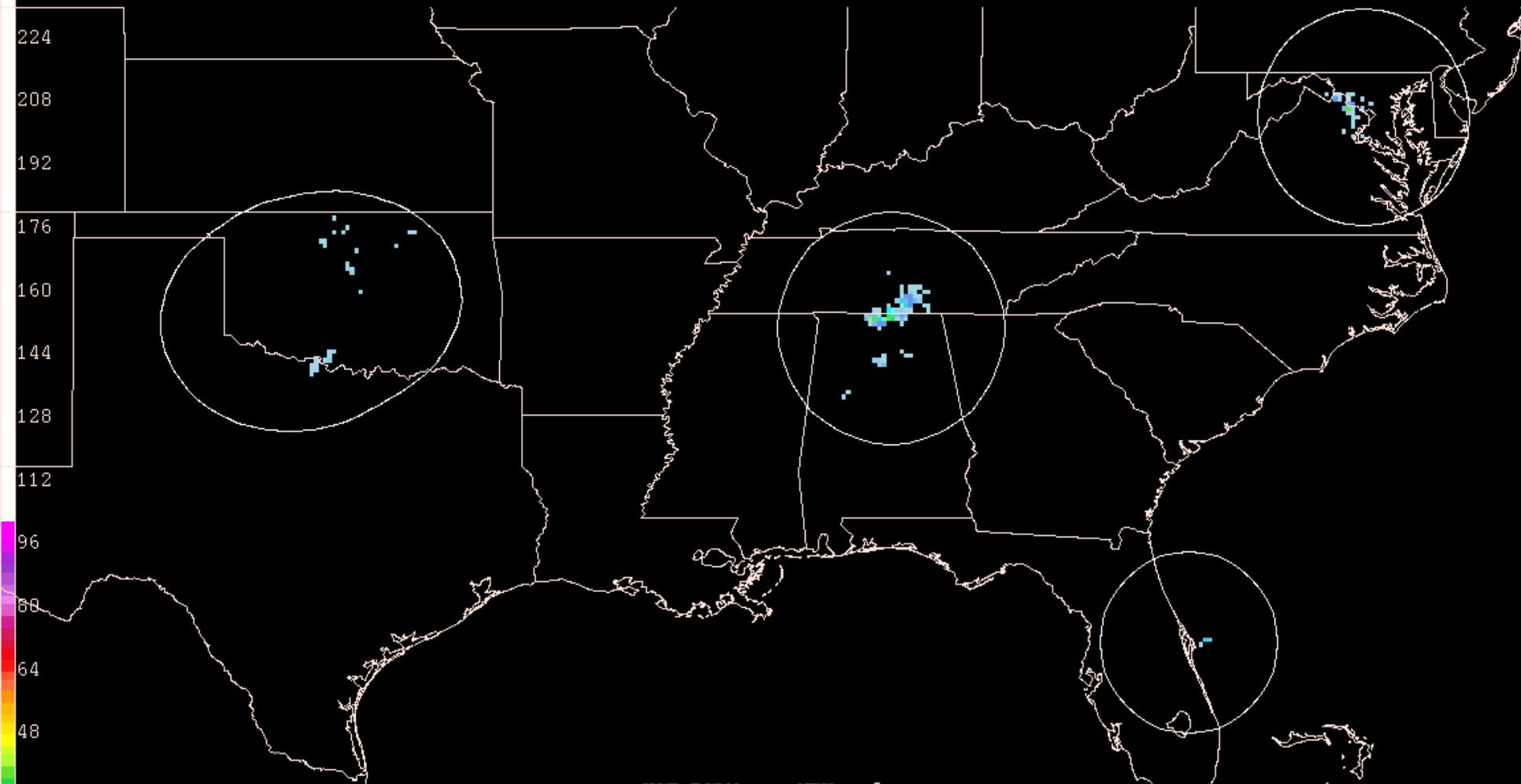
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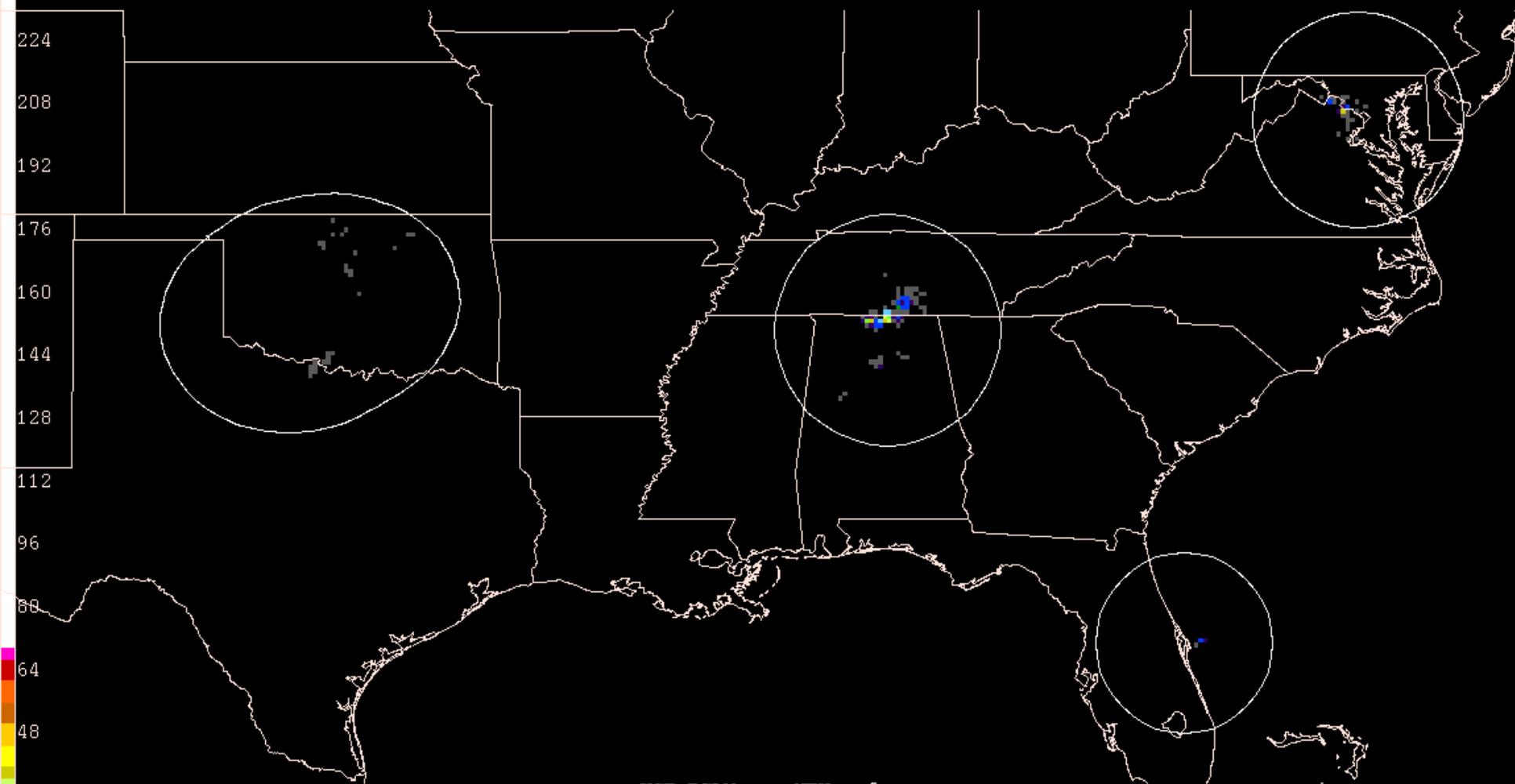
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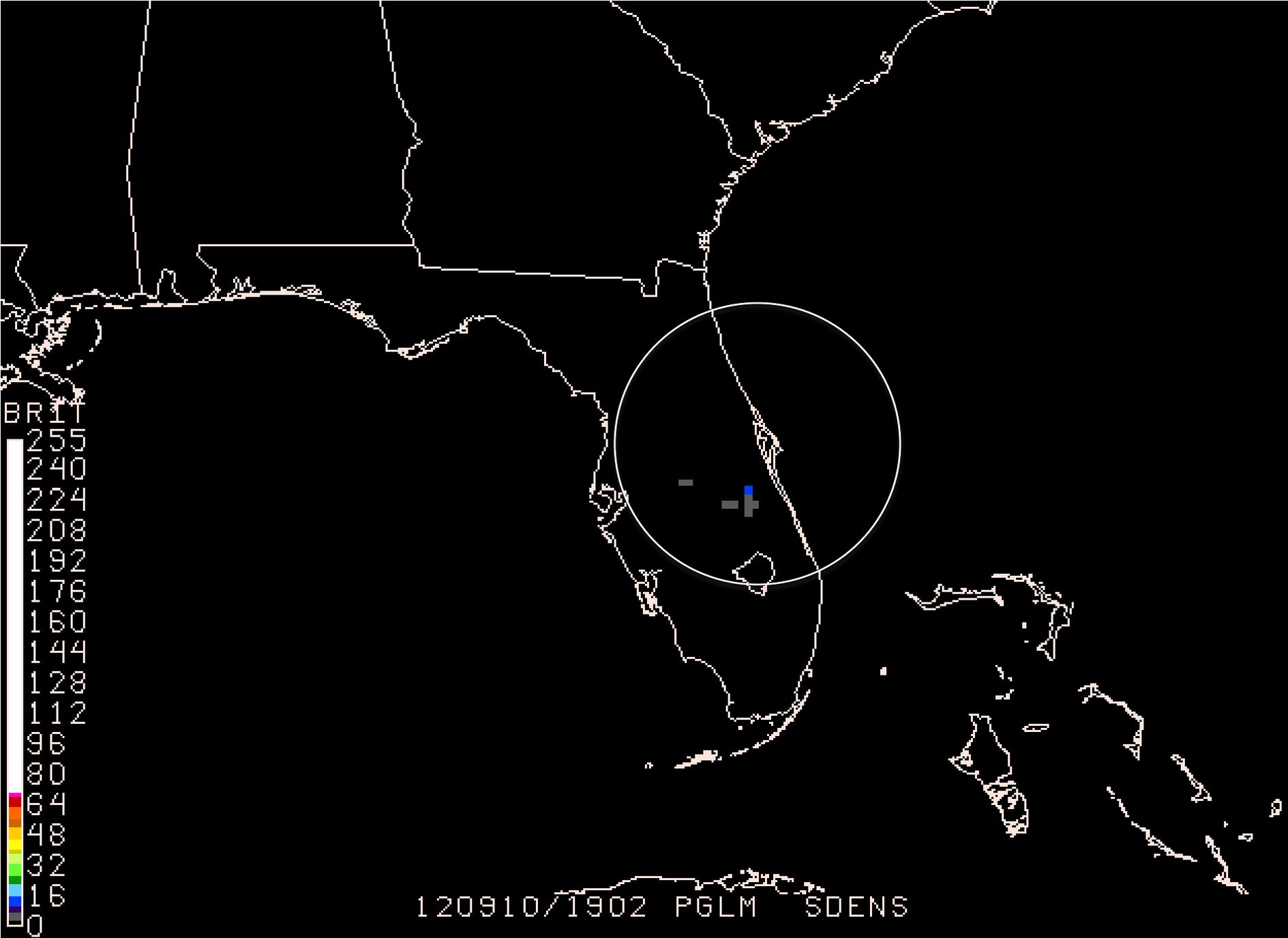
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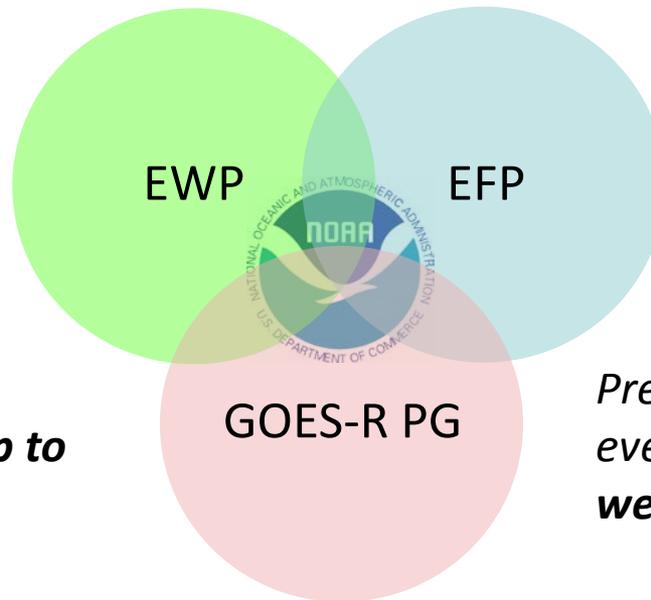


# NOAA's Hazardous Weather Testbed



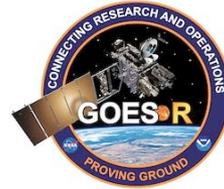
**E**xperimental  
**W**arning  
**P**rogram

*Detection and prediction of hazardous weather events **up to several hours in advance***



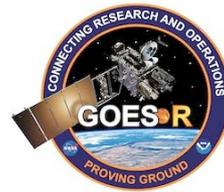
**E**xperimental  
**F**orecast  
**P**rogram

*Prediction of hazardous weather events from **a few hours to a week in advance***



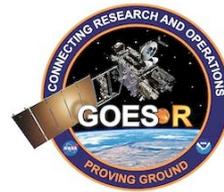
# HWT 2012: By the numbers...

- 6-week period (7 May – 15 June)
- 28 NWS forecasters
  - WFOs and CWSUs
- 18 visiting scientists
  - CIMSS, CIRA, SPoRT, UAH, DWD, and AFWA
- 225 blog posts
  - Majority from NWS forecasters
- 109 completed surveys
- 5 weekly “Tales from the Testbed” webinars
  - Up to 56 WFOs participated weekly



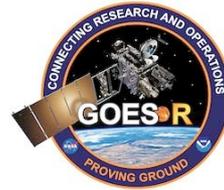
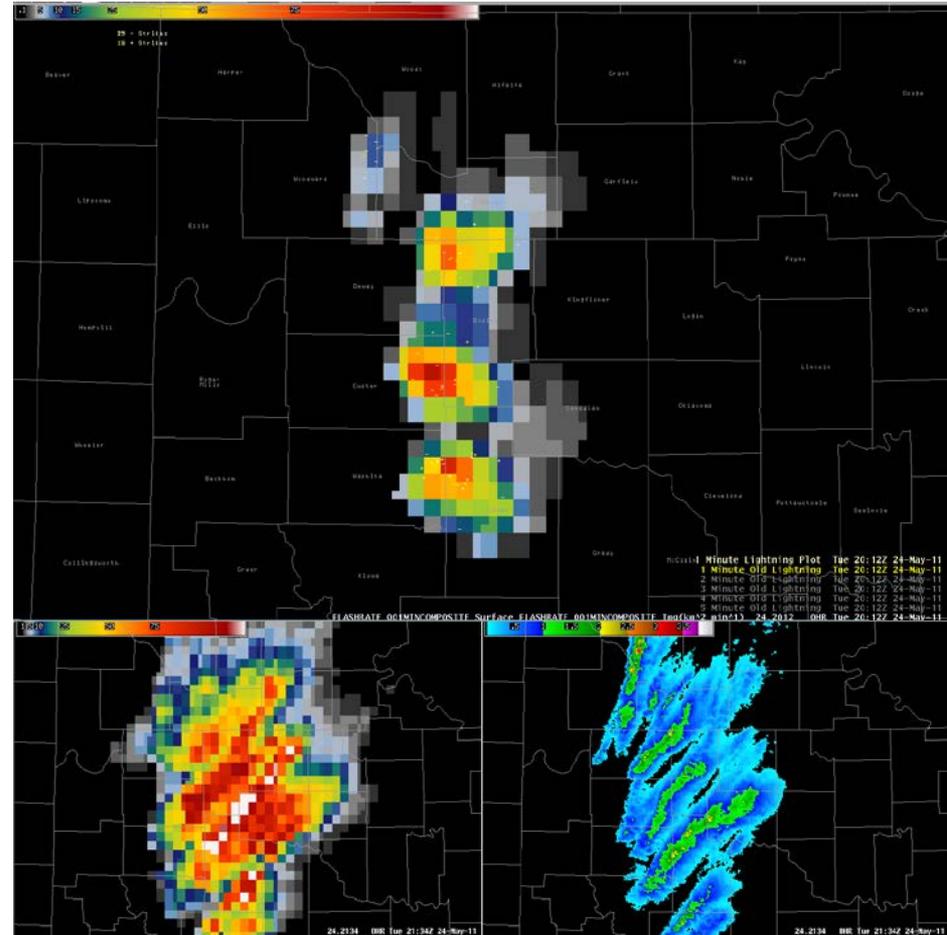
# HWT 2012 Changes

- **AWIPS II**
  - Demonstrate experimental products in AWIPS II for the first time within the HWT in real-time
  - Many thanks to Darrel Kingfield (OU-CIMMS / NSSL)
- **WES case and training material**
  - Forecaster participants receive prior to arrival
  - Forecasters take one admin shift to review material
  - No death by PowerPoint on Mondays
- **“Tales from the Testbed” weekly webinars**
  - Based on dual-pol “Storm of the Month” webinars hosted by WDTB
  - Forecaster participants share their experiences with their peers
  - Provides opportunity to reach wide audience

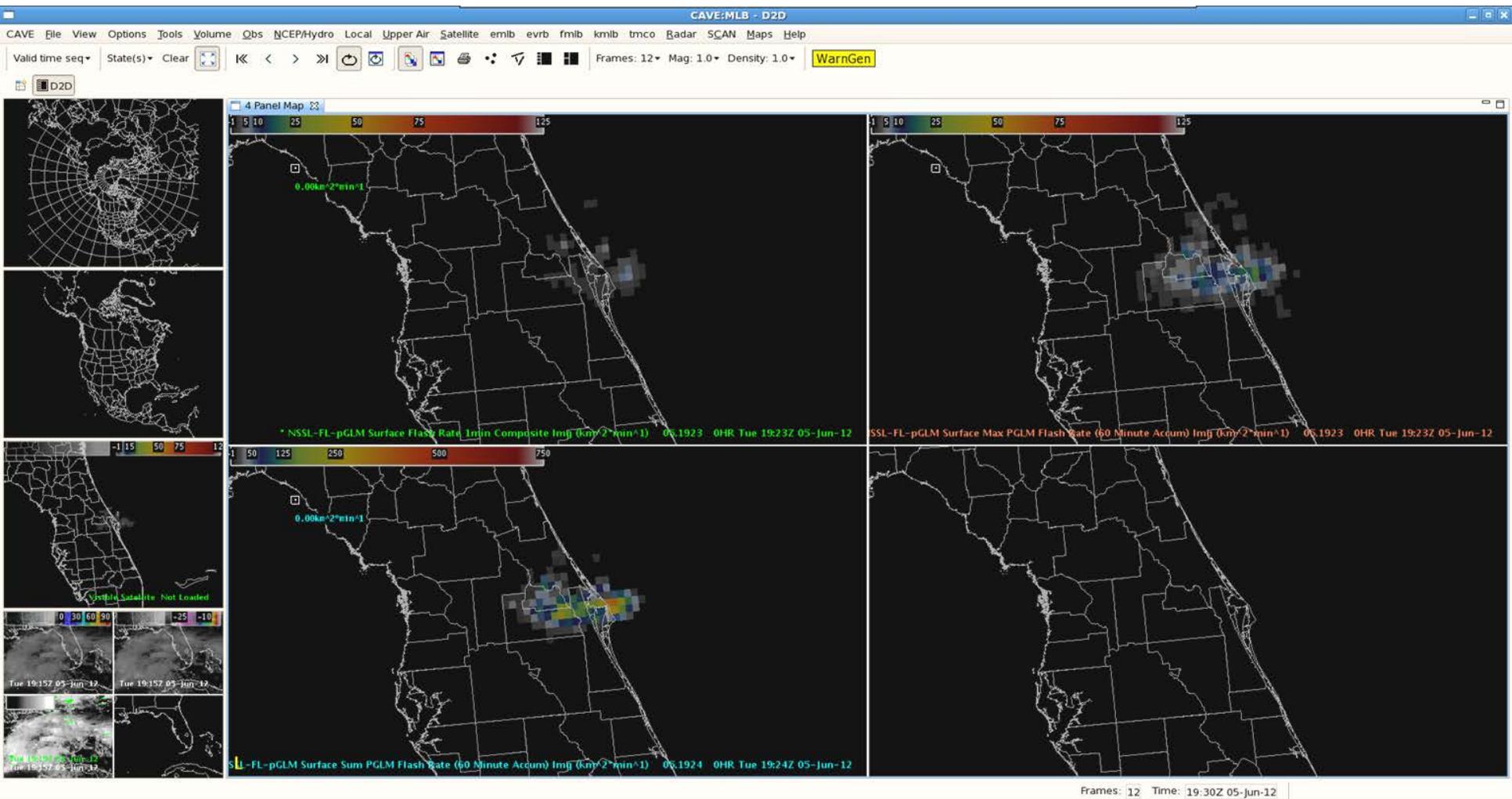


# PGLM in WES

- **May 24, 2011 case**
  - Tornadic supercells in OK
- **Allows forecaster hands-on experience**
  - Immediately following training module
- **AWIPS I virtual machine**
  - Can be run on desktop
  - Supports real-time playback
  - Contains all standard WFO data
- **Experimental radar data included**
  - Can compare PGLM total lightning to MESH, rotation tracks, etc...

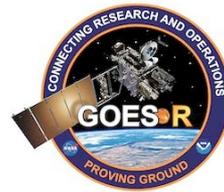


# PGLM in AWIPS II



# HWT 2012 PGLM Feedback

- “The lightning data corresponded well to the strength of the updraft (3dvar data) and to the MESH. The **IC lightning seemed to precede strengthening updrafts** (or was concurrent), which was helpful to determine which storms to focus on.”
- “Would be nice to have a readout of the number of strikes (similar to NLDN) or a **time series readout to see the lightning jump** as storms reach severe criteria.”
- “I'd like to see **more examples of PGLM-resolution data from real events**--I could see this having utility in a lot of different ways, from severe weather detection to lightning safety. QLCS events are particularly challenging in my area of the country.”
- “**Total lightning data will revolutionize our operations in the aviation community.** This will especially help with dry thunderstorms and in areas of reduced radar coverage. My area of responsibility is very large... and I do not have access to every radar in my area.”



# Plans for the future

- **Storm Prediction Center**

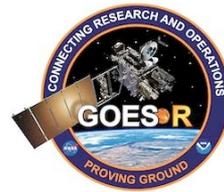
- Work with SPoRT to ingest additional networks (W. TX, Houston, etc...)
- Work with SPoRT to generate national center training module
- Continue to work with forecasters on operations floor
- Fine tune display (colortable, range rings, tracks, etc...)
- Participate in new National Center Perspective blog

- **Hazardous Weather Testbed**

- Incorporate lightning tracking/trending tools into AWIPS II demonstration
- Continue and refine effective training methods
- Hopefully get some additional events

- **Additional**

- Get buy-in from new Norman WFO forecasters



# Thank you for your attention!

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GOES-R Proving Ground at the SPC and HWT on the web:

<http://goesrnatcentperspective.wordpress.com/> (SPC)

<http://goesrhwt.blogspot.com/> (HWT)

