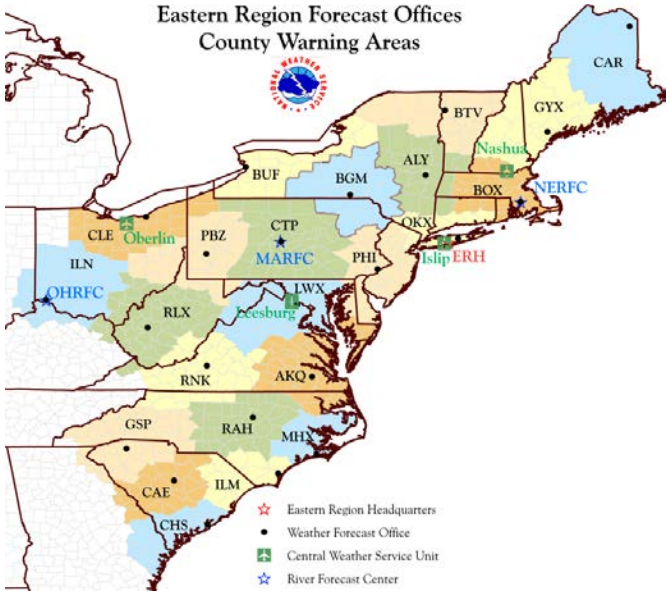
Overview of NWS/Eastern Region Satellite Program



Dave Radell

Techniques Development Meteorologist

Scientific Services, ERH

Outline

Overview of ER Satellite Program

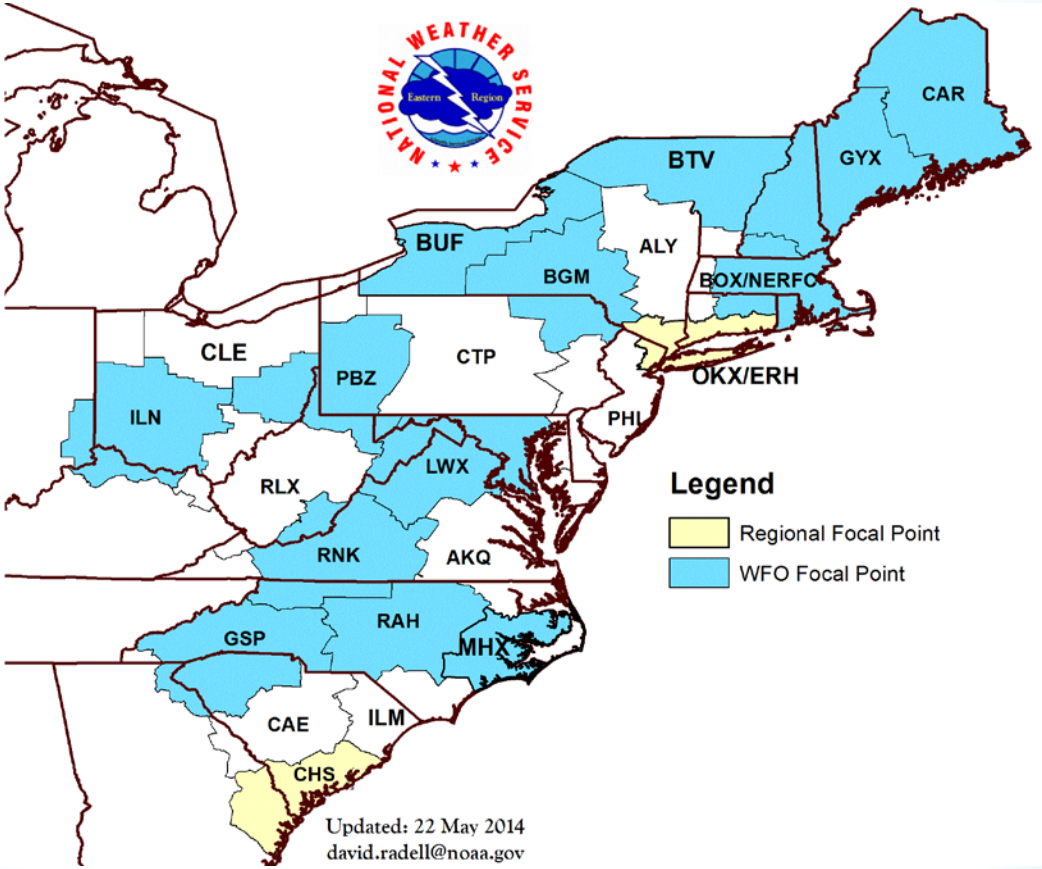
Participation in GOES-R PG

JPSS Data Usage Review

Successes and Challenges

Discussion

WFO Satellite Focal Points



WFO Satellite Focal Points

Major Duties:

-Serve as local satellite subject matter expert

-Assist local SOO/DOH with satellite-related R20 projects and local training development

-Inform staff of operational satellite issues & new data

GOES-R PG Evaluations

A twofold evaluation approach in ER:

"Official" Product Evaluation

Signed Partner/Provider Agreement via NWS/OS & T
Finite period of evaluation
Formal forecaster feedback between WFO, developers, ERH/SSD
Short SOO summary "science" report

"Casual" Product Evaluation

No official agreement
No set period of evaluation. WFO can "turn on/off" data.
Informal feedback between WFO, developers, ERH/SSD.

GOES-R PG Evaluations

PG data, like all other R20 data, comes through the ER LDM "backdoor". SSD prioritizes which data comes through.

Request from WFO to SSD

Is it 'official' PG data?

How big/frequent are the files?

Is another region already requesting ?

AWIPS I/II?

Sat. Provider, SR or CR LDM

Examine/adjust LDM config.

ER LDM

AWIPS I/2 display config.

ER WFOs

GOES-R PG "Participants"

PG Products

GOES-R FLS

UW/SSEC CI

UAH/SPoRT CI

SNPP/VIIRS

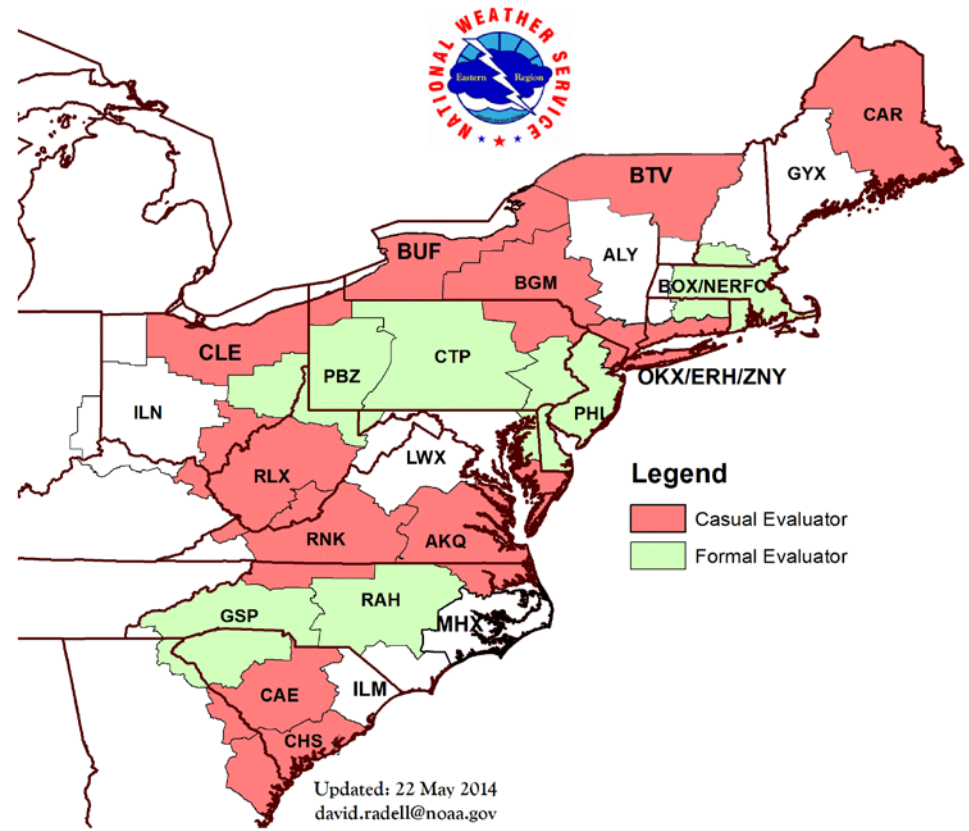
CIRA Sim WRF ABI

CIRA Low Cloud/Fog

UAH/SPoRT RGB

UAH/SPoRT WRF Lightning/Pseudo GLM

EPDT



Other Products

UW/SSEC MODIS

UAH/SPoRT SST

UAH/SPoRT LMA

UAH/SPoRT LIS

STAR/SFR

Training

Provider training materials

*Recommended as a “first training stop”

VISIT Satellite Chats

*Recommended as a “second stop”

NOAA Testbeds with GOES-R Products

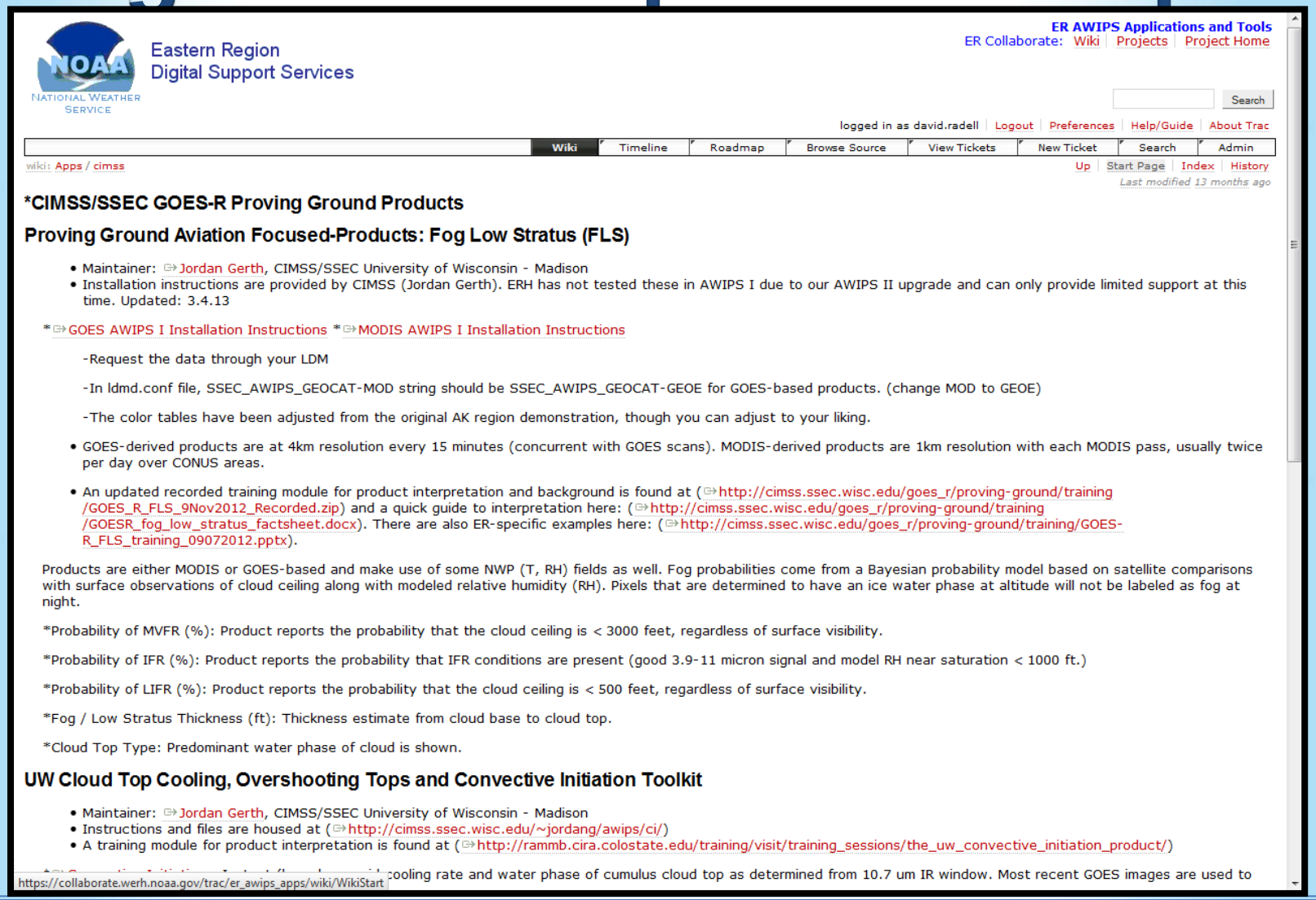
*Only select ER WFOs

Job Sheets /One-One local Training

Spring/Fall Local Workshops

Two Regional Satellite Virtual Workshops

Regional Setup…One stop!



Eastern Region
Digital Support Services

NATIONAL WEATHER SERVICE

ER AWIPS Applications and Tools
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Last modified 13 months ago

***CIMSS/SSEC GOES-R Proving Ground Products**

Proving Ground Aviation Focused-Products: Fog Low Stratus (FLS)

- Maintainer: Jordan Gerth, CIMSS/SSEC University of Wisconsin - Madison
- Installation instructions are provided by CIMSS (Jordan Gerth). ERH has not tested these in AWIPS I due to our AWIPS II upgrade and can only provide limited support at this time. Updated: 3.4.13

* GOES AWIPS I Installation Instructions * MODIS AWIPS I Installation Instructions

-Request the data through your LDM

-In ldmd.conf file, SSEC_AWIPS_GEOCAT-MOD string should be SSEC_AWIPS_GEOCAT-GEOE for GOES-based products. (change MOD to GEOE)

-The color tables have been adjusted from the original AK region demonstration, though you can adjust to your liking.

- GOES-derived products are at 4km resolution every 15 minutes (concurrent with GOES scans). MODIS-derived products are 1km resolution with each MODIS pass, usually twice per day over CONUS areas.
- An updated recorded training module for product interpretation and background is found at (http://cimss.ssec.wisc.edu/goes_r/proving-ground/training/GOES_R_FLS_9Nov2012_Recorded.zip) and a quick guide to interpretation here: (http://cimss.ssec.wisc.edu/goes_r/proving-ground/training/GOESR_fog_low_stratus_factsheet.docx). There are also ER-specific examples here: (http://cimss.ssec.wisc.edu/goes_r/proving-ground/training/GOES-R_FLS_training_09072012.pptx).

Products are either MODIS or GOES-based and make use of some NWP (T, RH) fields as well. Fog probabilities come from a Bayesian probability model based on satellite comparisons with surface observations of cloud ceiling along with modeled relative humidity (RH). Pixels that are determined to have an ice water phase at altitude will not be labeled as fog at night.

*Probability of MVFR (%): Product reports the probability that the cloud ceiling is < 3000 feet, regardless of surface visibility.

*Probability of IFR (%): Product reports the probability that IFR conditions are present (good 3.9-11 micron signal and model RH near saturation < 1000 ft.)

*Probability of LIFR (%): Product reports the probability that the cloud ceiling is < 500 feet, regardless of surface visibility.

*Fog / Low Stratus Thickness (ft): Thickness estimate from cloud base to cloud top.

*Cloud Top Type: Predominant water phase of cloud is shown.

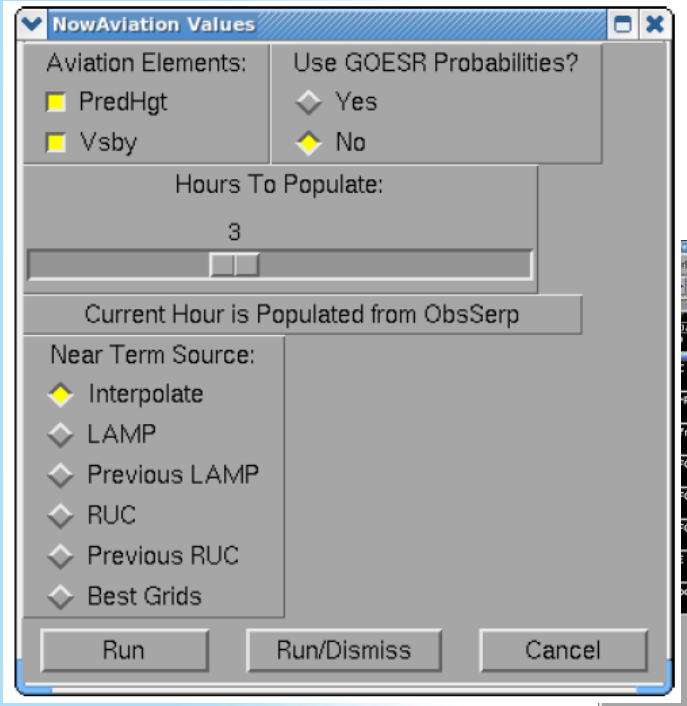
UW Cloud Top Cooling, Overshooting Tops and Convective Initiation Toolkit

- Maintainer: Jordan Gerth, CIMSS/SSEC University of Wisconsin - Madison
- Instructions and files are housed at (http://cimss.ssec.wisc.edu/~jordang/awips/ci/)
- A training module for product interpretation is found at (http://rammb.cira.colostate.edu/training/visit/training_sessions/the_uw_convective_initiation_product/)

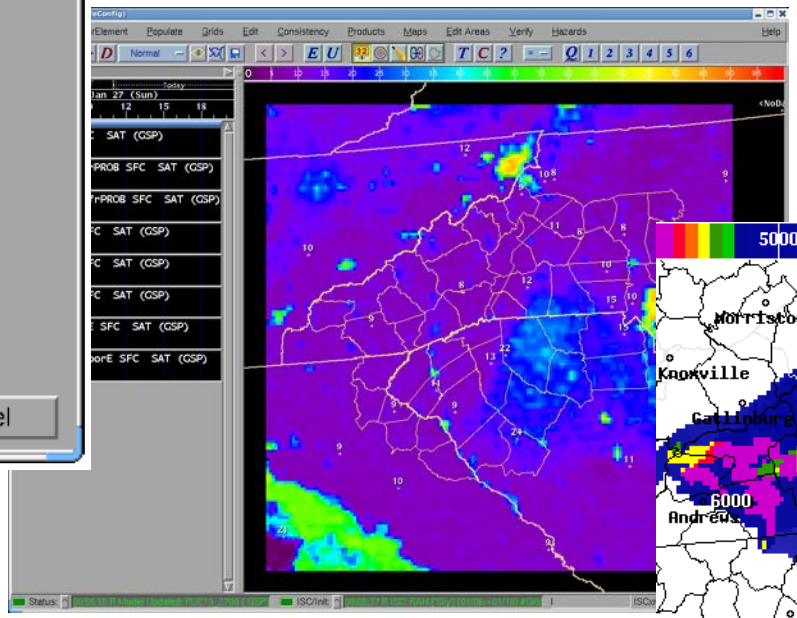
cooling rate and water phase of cumulus cloud top as determined from 10.7 um IR window. Most recent GOES images are used to

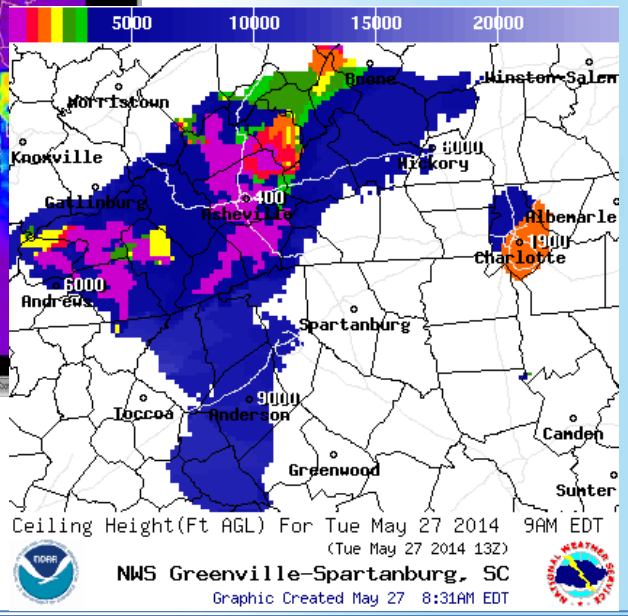
https://collaborate.werh.noaa.gov/trac/er_awips_apps/wiki/WikiStart

WFO GSP NowAviation

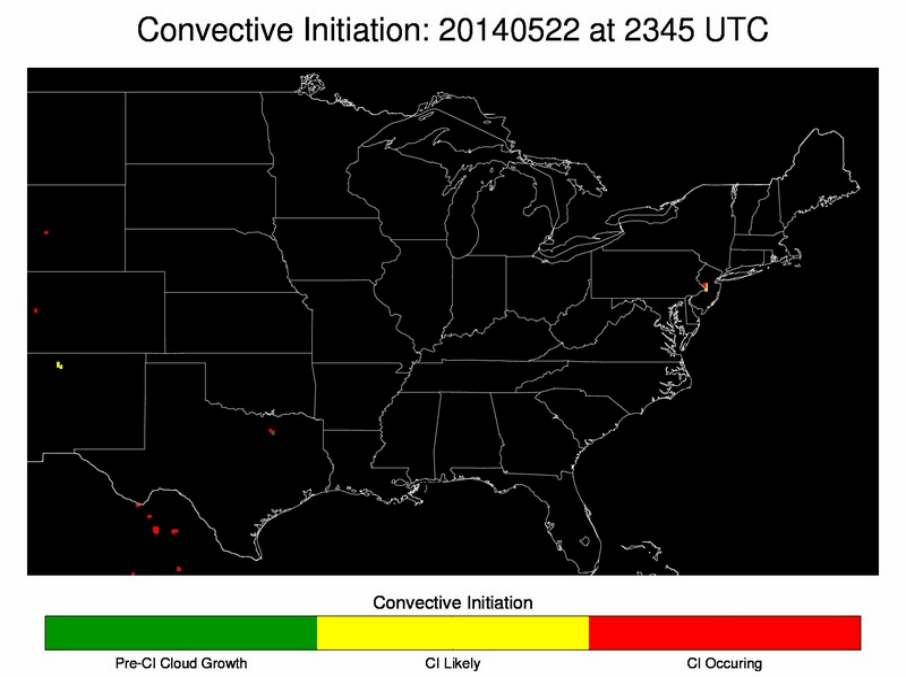


GOES-R Products not just used in the "warning" process….applications for gridded forecast prep as well.

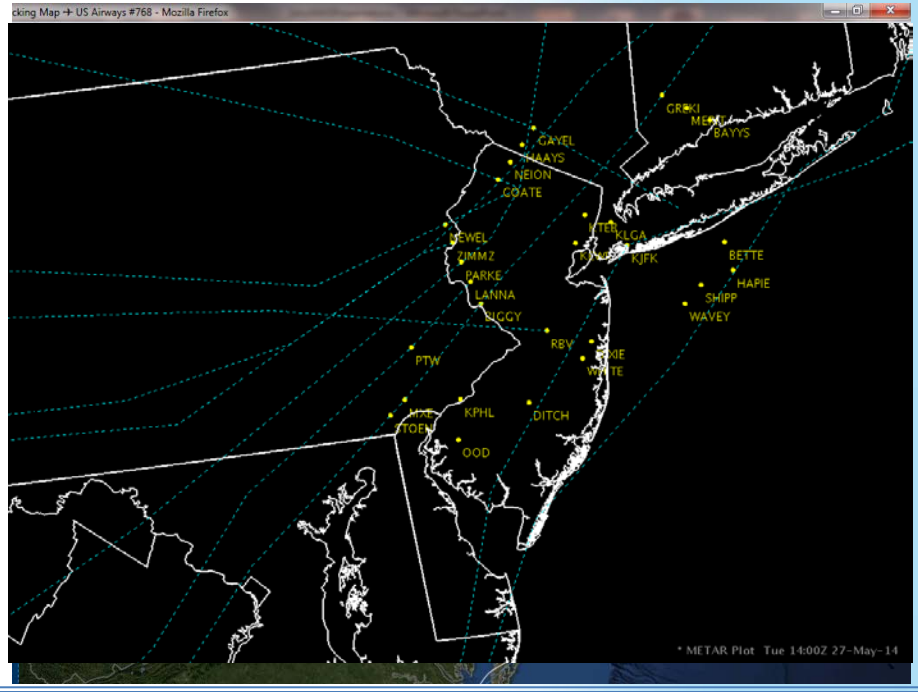




GOES-R PG Feedback

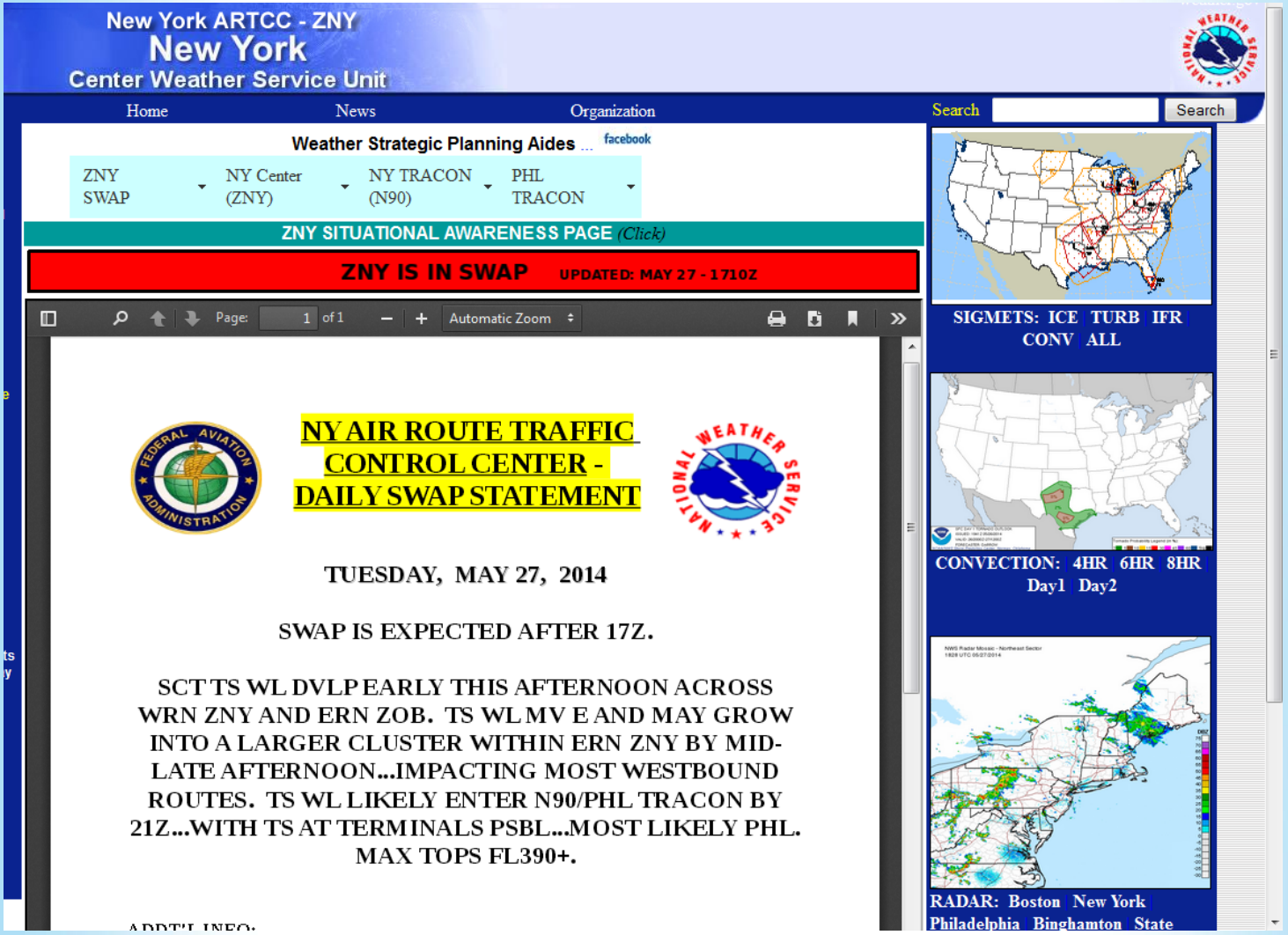


Aviation concerns in the northeast: Placement and coverage of convection, and FLS. 'Convective Toolkit' products have struggled in the east with weakly forced convection.



GOES-R FLS use has been an overall good success for ER WFOs.

27 May 2014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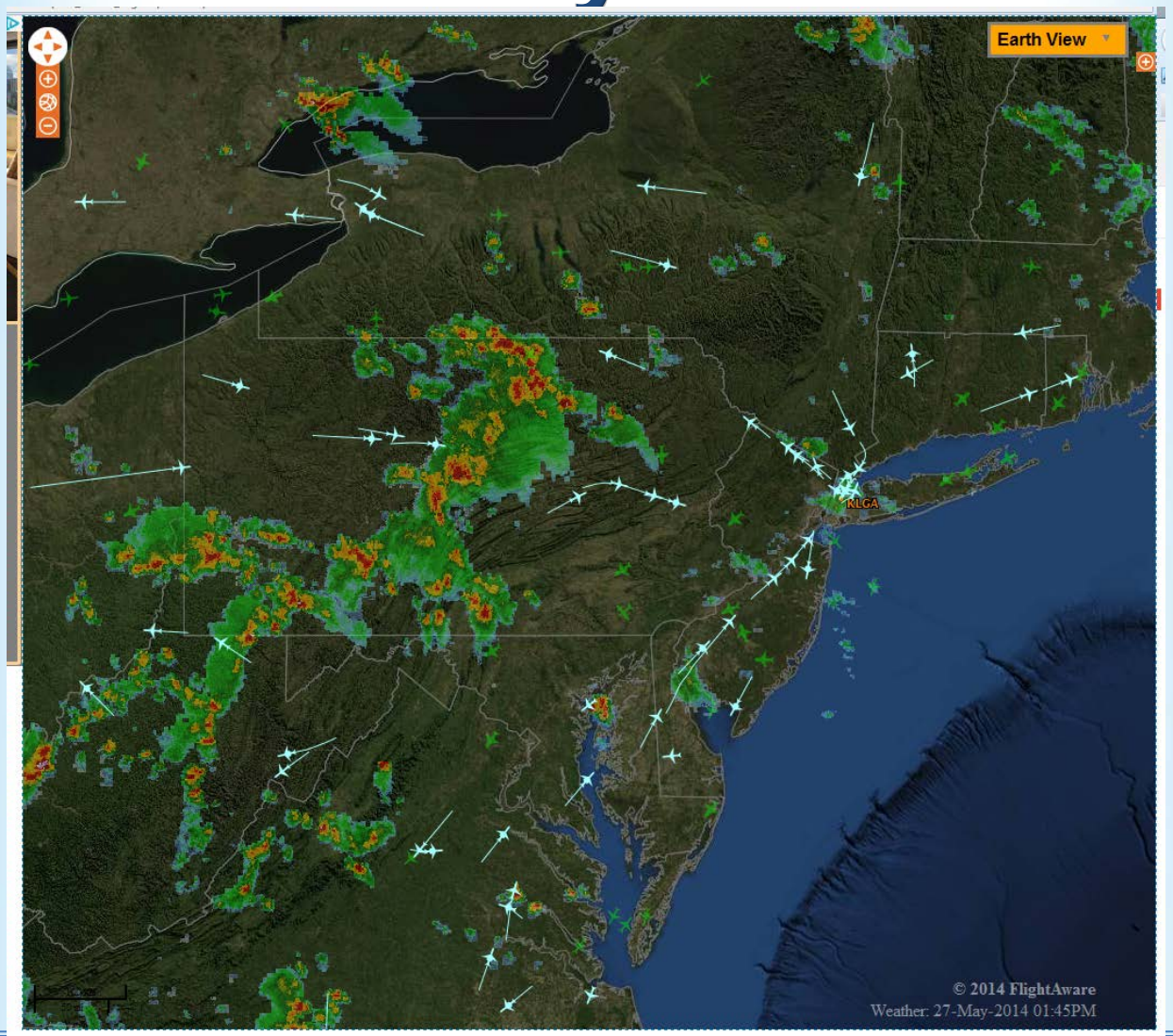
Page: 1 of 1
Automatic Zoom
NY AIR ROUTE TRAFFIC CONTROL CENTER - DAILY SWAP STATEMENT
TUESDAY, MAY 27, 2014
SWAP IS EXPECTED AFTER 17Z.
SCT TS WL DVLP EARLY THIS AFTERNOON ACROSS WRN ZNY AND ERN ZOB. TS WL MV E AND MAY GROW INTO A LARGER CLUSTER WITHIN ERN ZNY BY MID-LATE AFTERNOON...IMPACTING MOST WESTBOUND ROUTES. TS WL LIKELY ENTER N90/PHL TRACON BY 21Z...WITH TS AT TERMINALS PSBL...MOST LIKELY PHL. MAX TOPS FL390+.
SIGMETS: ICE TURB IFR CONV ALL
CONVECTION: 4HR 6HR 8HR Day1 Day2
RADAR: Boston New York Philadelphia Binghamton State

27 May 2014


Earth View
KLGA
© 2014 FlightAware
Weather: 27-May-2014 01:45PM

27 May 2014

Flight Delay Information - Air Traffic Control System Command Center

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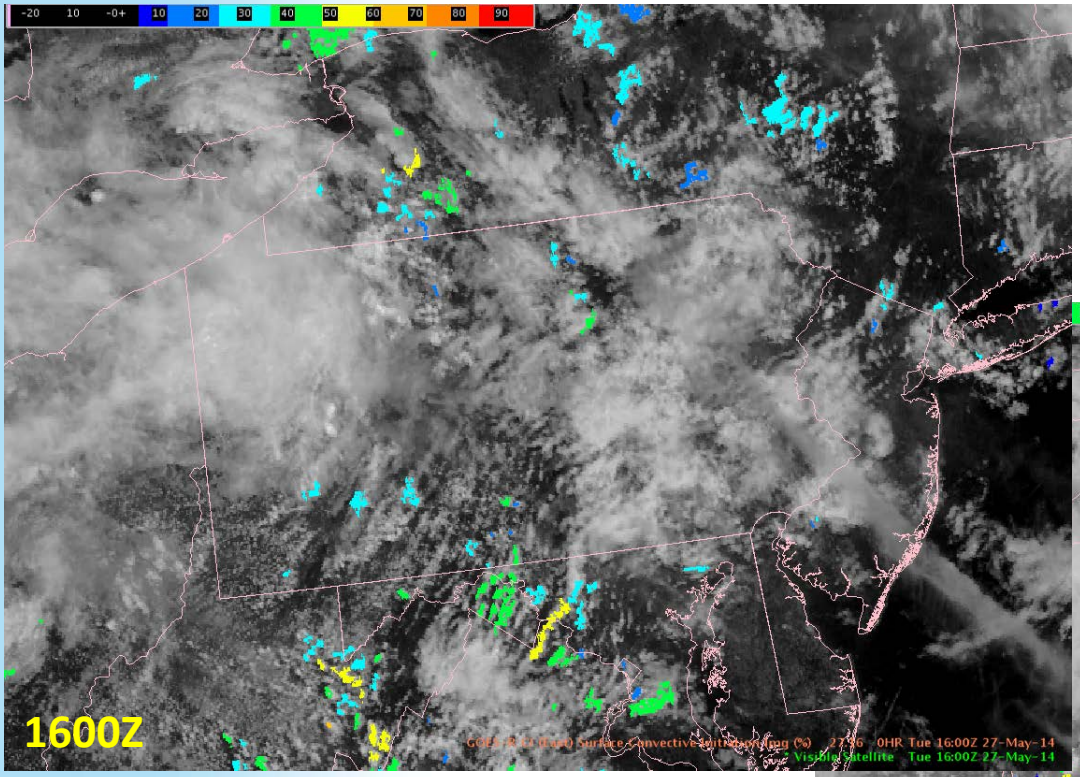
27 May 2014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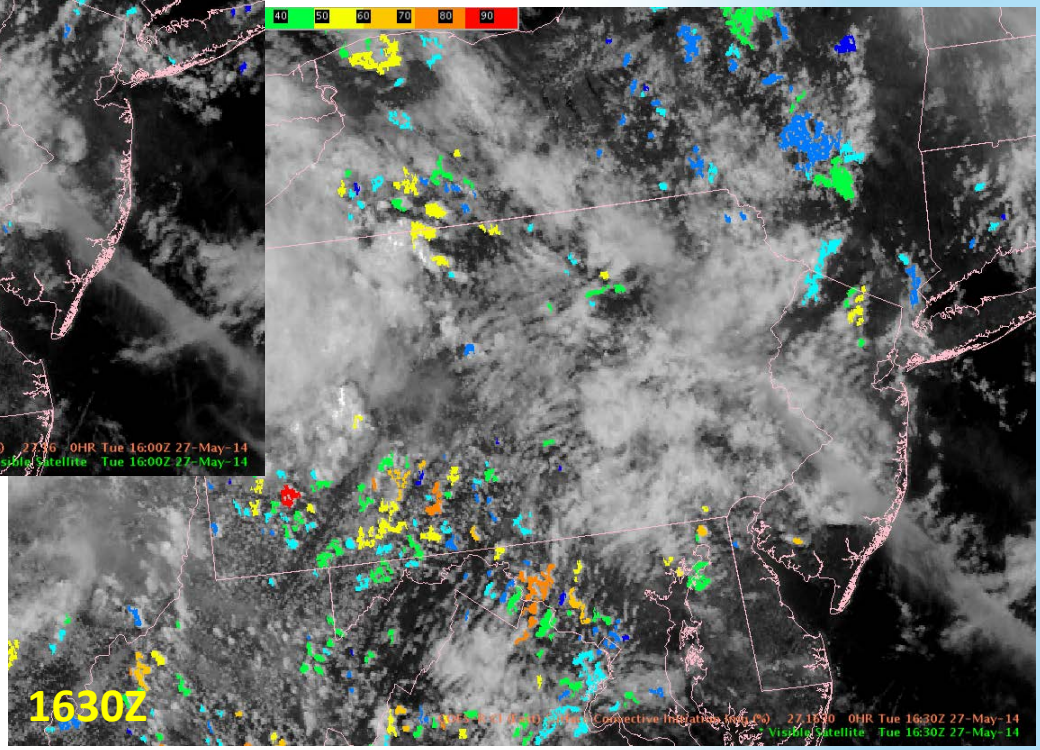
1600Z
Visible Satellite Tue 16:00Z 27-May-14


40 50 60 70 80 90
1630Z
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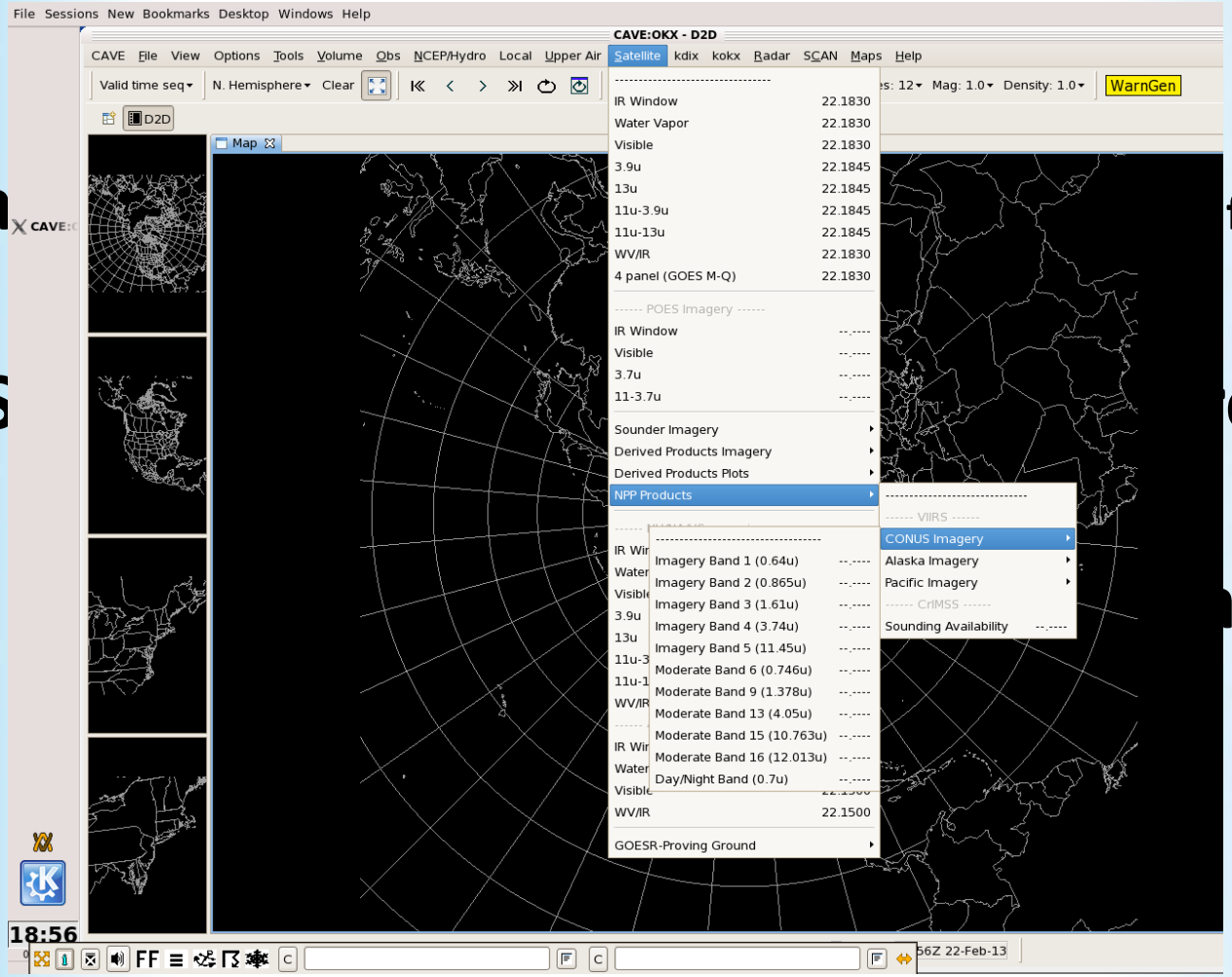
JPSS/VIIRS Feedback

VIIRS da figured)

NUCAPS ed.

ER LDM nnels



GOES-R PG Feedback

Successes

Regional FLS Product Use

Use of some GOES-R Products in GFE/Smart Tools.

Increasing use of JPSS data/assimilated products

Overall PG activity!

Challenges

FLS and CI limitations with mid/high clouds

Convective Toolkit Products (weakly forced esp.)

Keeping up with AWIPS 1/ AWIPS II Configurations and data movement

More effective evaluation process

Discussion

What's next for the GOES-R/JPSS Proving Grounds?

Transitioning of GOES-R/JPSS algorithms to NWS operations

Satellite PG/R20: Who develops training/AWIPS configs.? AWIPS 1 – AWIPS 2 transition.

How do we bring disjointed training efforts together?