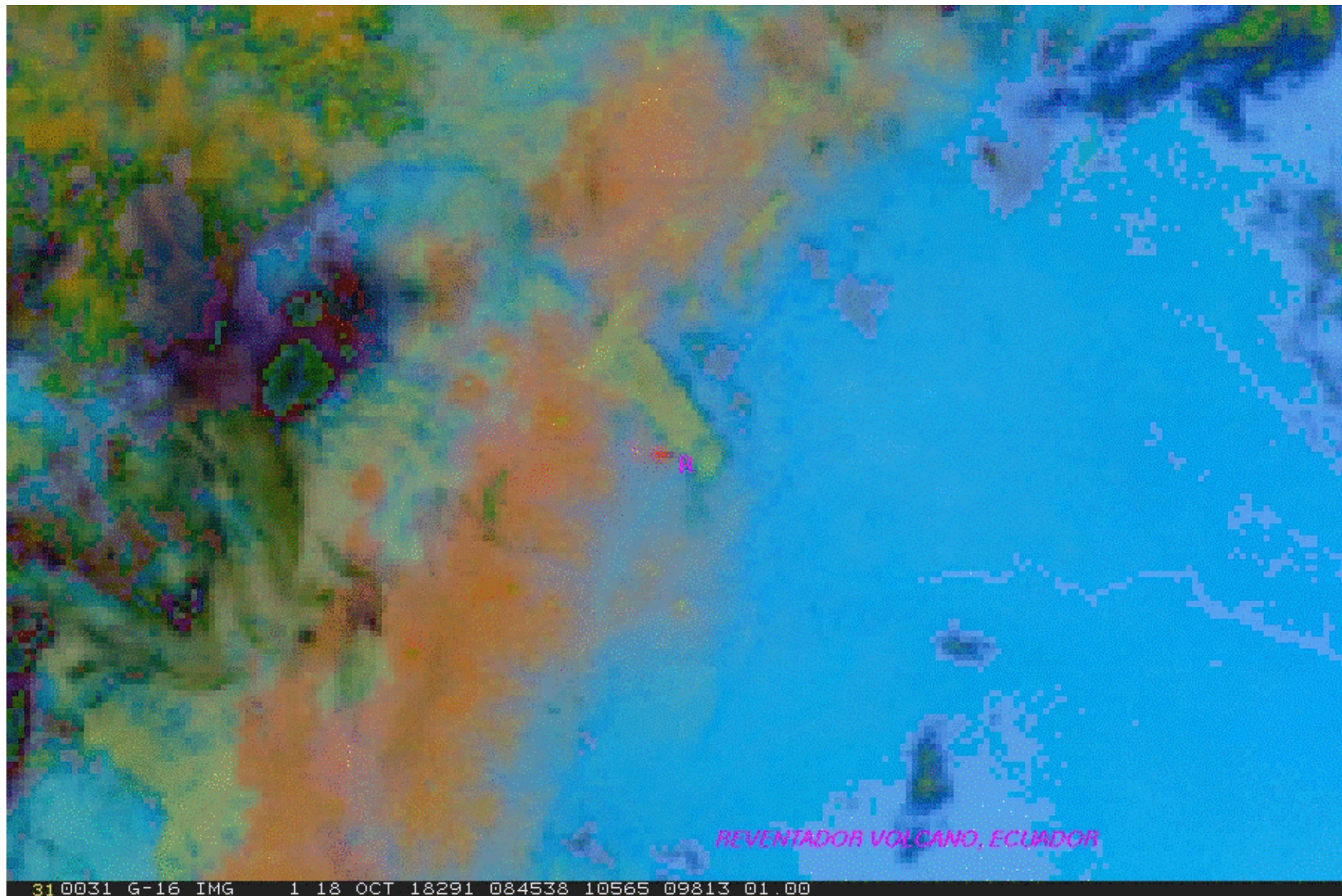# McIDAS at ESPC

SAB Use of McIDAS

- SAB is 24x7 operation of 5 disaster mitigation desks (Heavy Precipitation, Volcanic Ash, Fire/Smoke/Dust, Marine Pollution, Tropical Cyclones) All desk use Mc-X in some capacity, except Marine which is ArcGIS

- McIDAS-X Usage: ~10 operational Linux systems with 24 GB RAM each and multiple monitor visualization setup

- A persistent daemon (image loop refresh) "SPIDER" uses ADDE protocol to display ~100 imagery loops per system

- Use Fnc keys to switch loops and pan entire globe through SPIDER loaded frames (e.g. NW Pacific IR, Shift+F1 - NW Pacific Vis, F2 - Central US IR) and still use command line (grudgingly)

- Lots of batch commands and everything is scripted by business work flow

- Uses McIDAS AREA files for web site as do NWS offices across country, namely NHC, AWC, NWS Western Region

- RGBs delivered by bash script !looprgb.sh as well as function keys
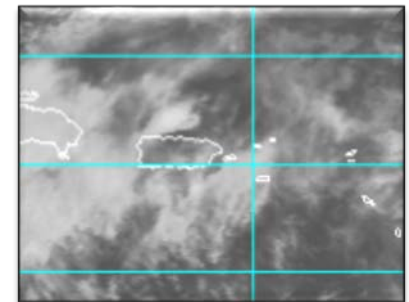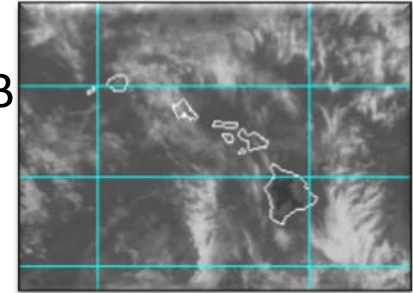
RGBs in SAB

- Background script continuously builds/saves RGB components for fast loading
- 13 RGBs being made full-time in FDSK
  - Volcano: PAVA, PAVB, ASH, SO2
  - Weather: DTMP, NTMP, AIRMAS, SEVST
  - Imagery: TRUE, NATCOL, SNOW
  - Air quality: SMOKE, DUST
- 6 in CONUS
 - PAVA, ASH, SMOKE, TRUE, DTMP, NTMP

REVENTADOR VOLCANO, ECUADOR

31 0031 G-16 IMG   1 18 OCT 18291 084538 10565 09813 01.00

McIDAS Advantages in SAB

- Institutional knowledge - SAB Analysts have great familiarity with McIDAS
- Ability to have near-global coverage at multiple domain scales and resolution (>2000 frames) of quickly and routinely loaded (SPIDER) imagery at the tap of a button (TU Hotkeys) to perform interrogation, manipulation and value-added analysis when every second counts for time sensitive and rapidly evolving natural and man-made hazards, such as volcanic eruptions, flash flooding, fires, etc.
  - This cannot be done presently with NAWIPS or HMS. In fact, depending on the area of concern up to 20 minutes is lost waiting for imagery to show up on these other systems vs McIDAS
  - HOWEVER, since the NWS is the primary user of many SAB products (e.g. volcanic ash and heavy precipitation), there are benefits for SAB to conduct PG on NAWIPS like, quick overlays and seamless in-tool distribution. Fire uses HMS for analysis.
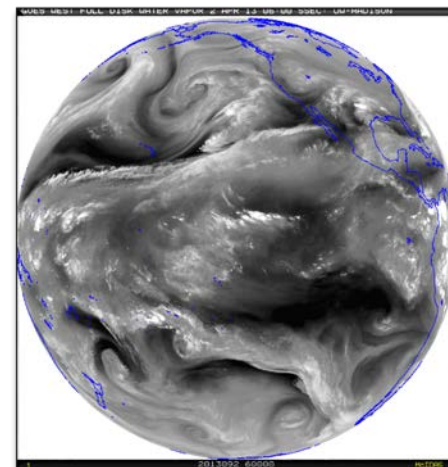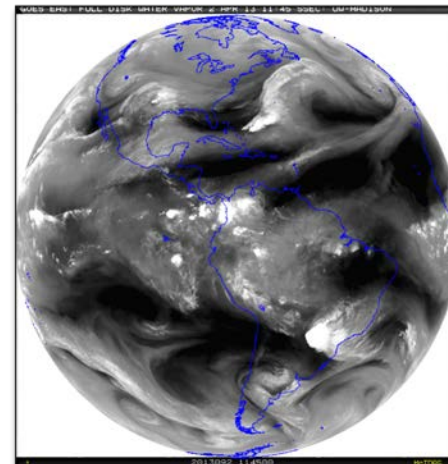
SAB Use of McIDAS for GOES-16/17

- Dedicated servers to ingest GOES-R series data – hold seven days
- Redundant data feeds from GRB antenna (NCEP, College Park, via LDM) and by PDA (local curl scripts)
- Soft links between old AREA*nnnn* names and netcdf files allow Spider to continue its distribution role
- Numeric limit extended to 10K per directory, from 10K total
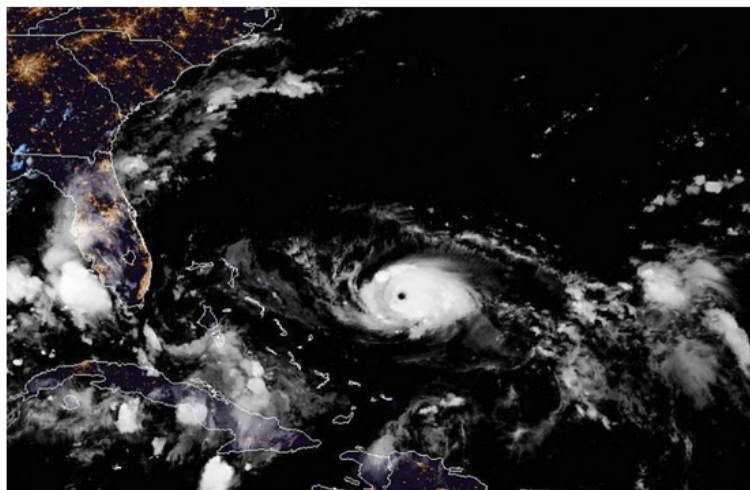- Setting up to have most RGB components pre-generated
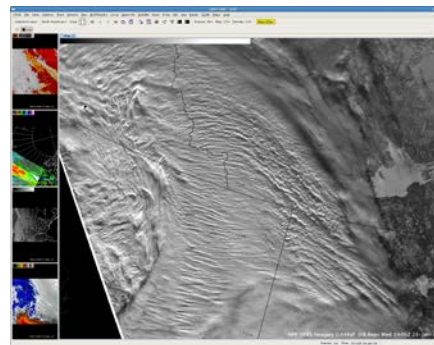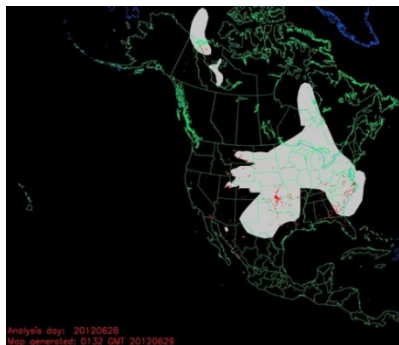
RGB Image in the Washington Post…

A satellite view of Hurricane Dorian taken at 10:00 p.m. EDT, Friday, Aug. 30, 2019. (NOAA via AP)

From the NWS...

From NOAA/STAR…

Which made it with McIDAS
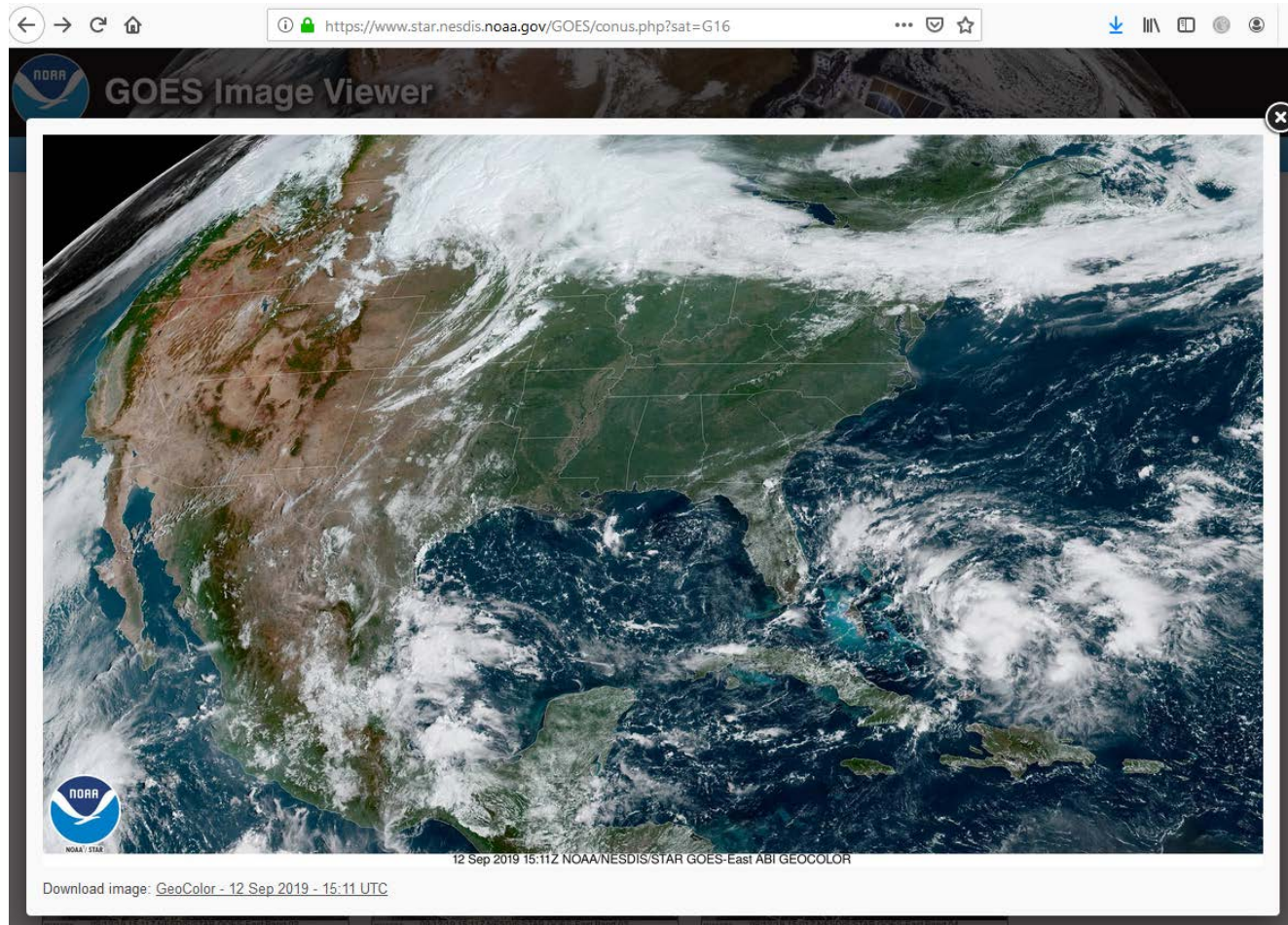
McIDAS & ESPC Applications

- Over 50 applications in ESPC use McIDAS, McIDAS libraries, input & serve McIDAS AREA Files, MD point files, GRID (McIDAS GRID Format), and Text via ADDE

- ADT, ABBA, CSBT, HMS, others…

Global Mosaics
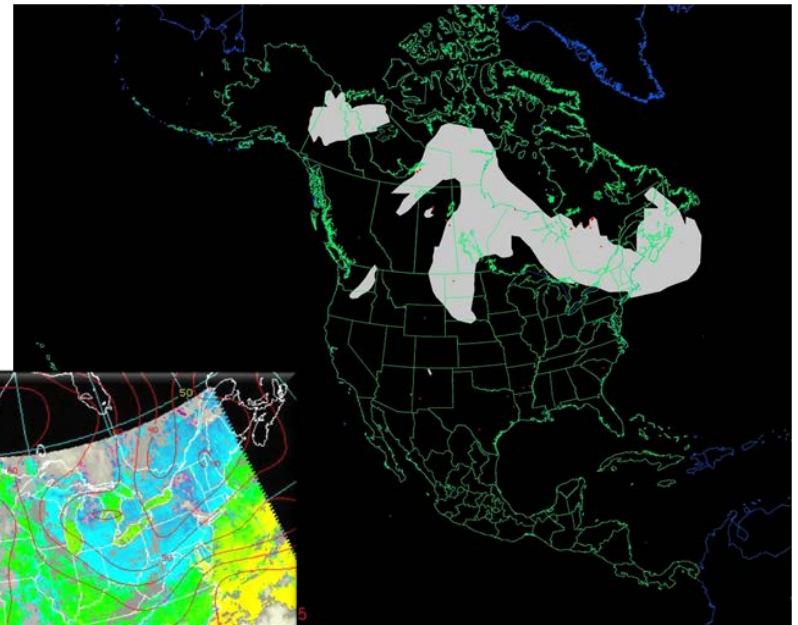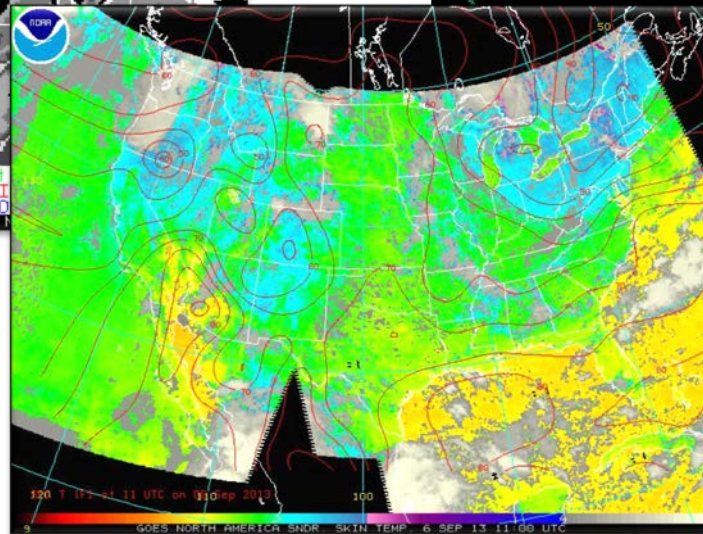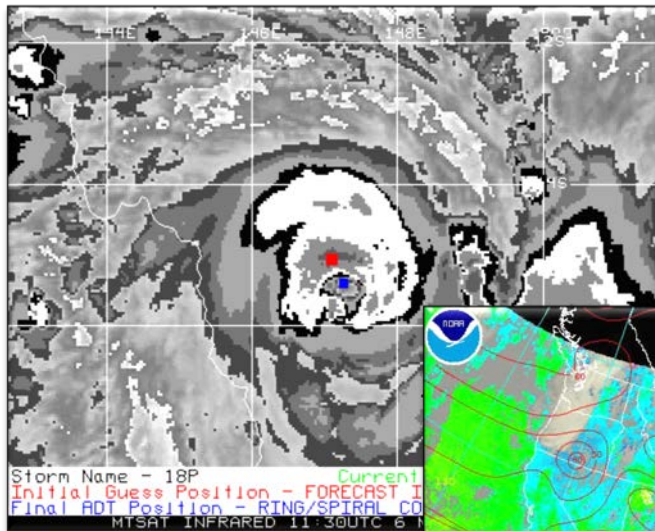
10001 DERIVED DATA 10 SEP 19253 210000 08266 07391 06.00   McIDAS
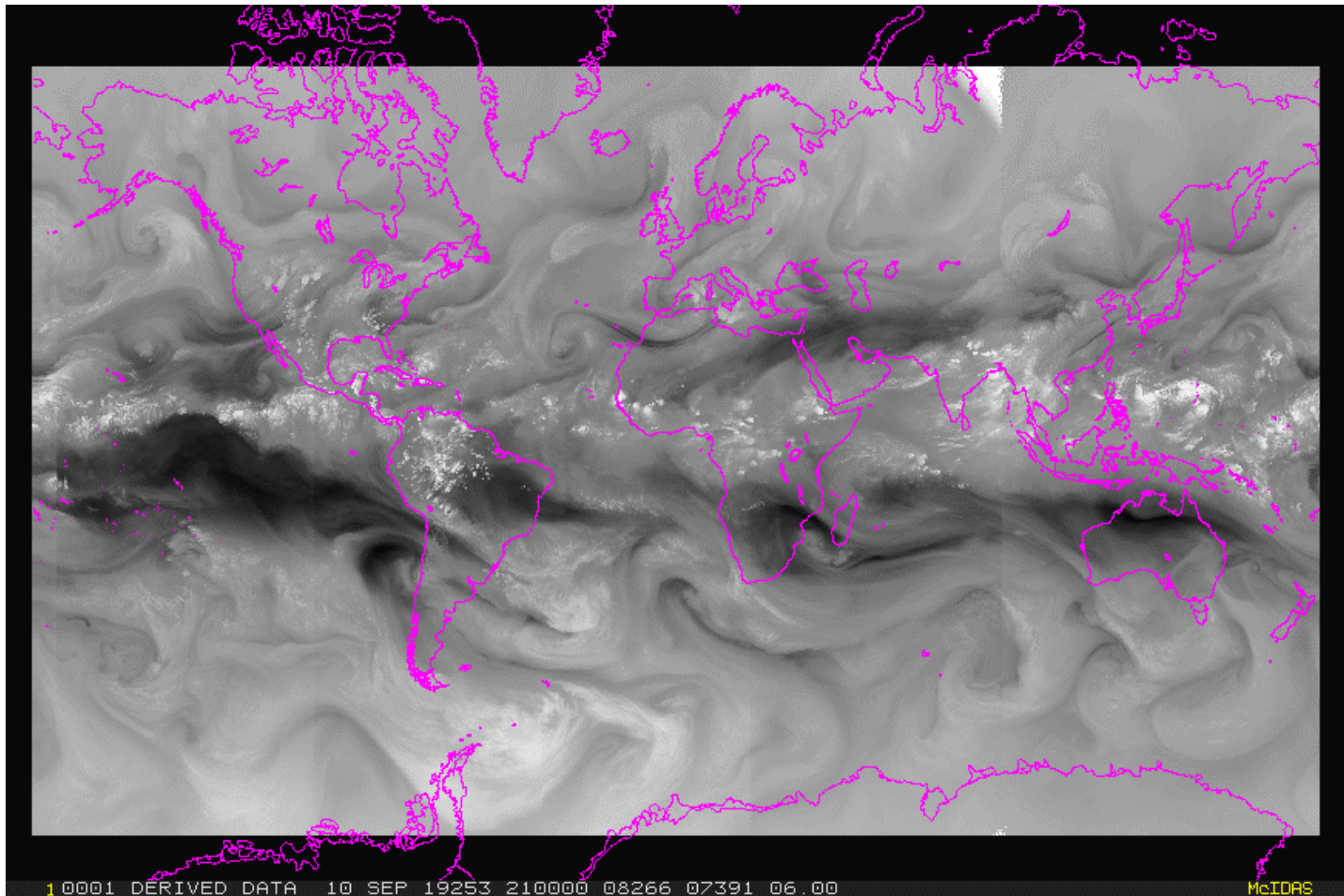
Arctic Composite Imagery
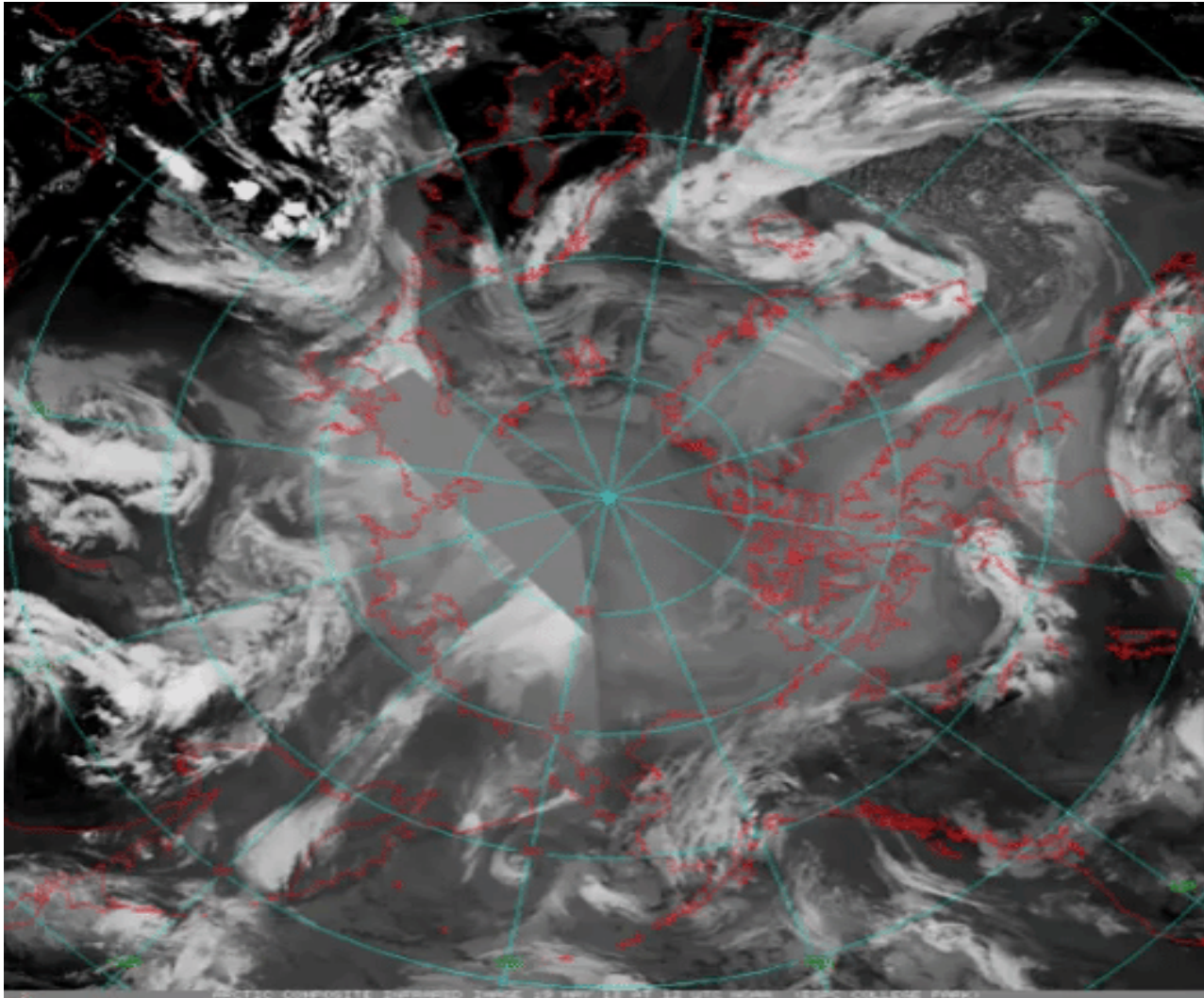
Dorian Rainfall (GHE)
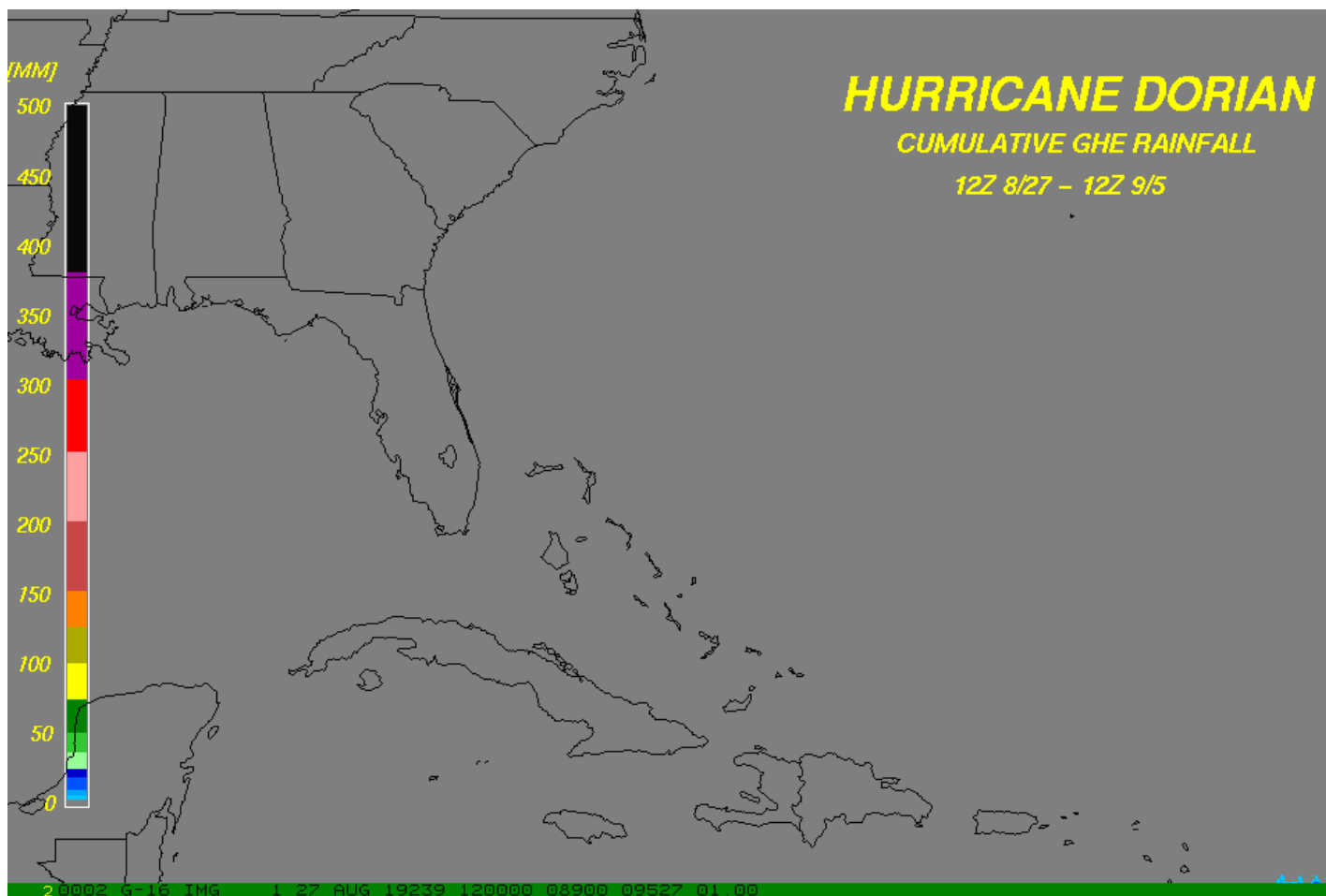
E-TRaP
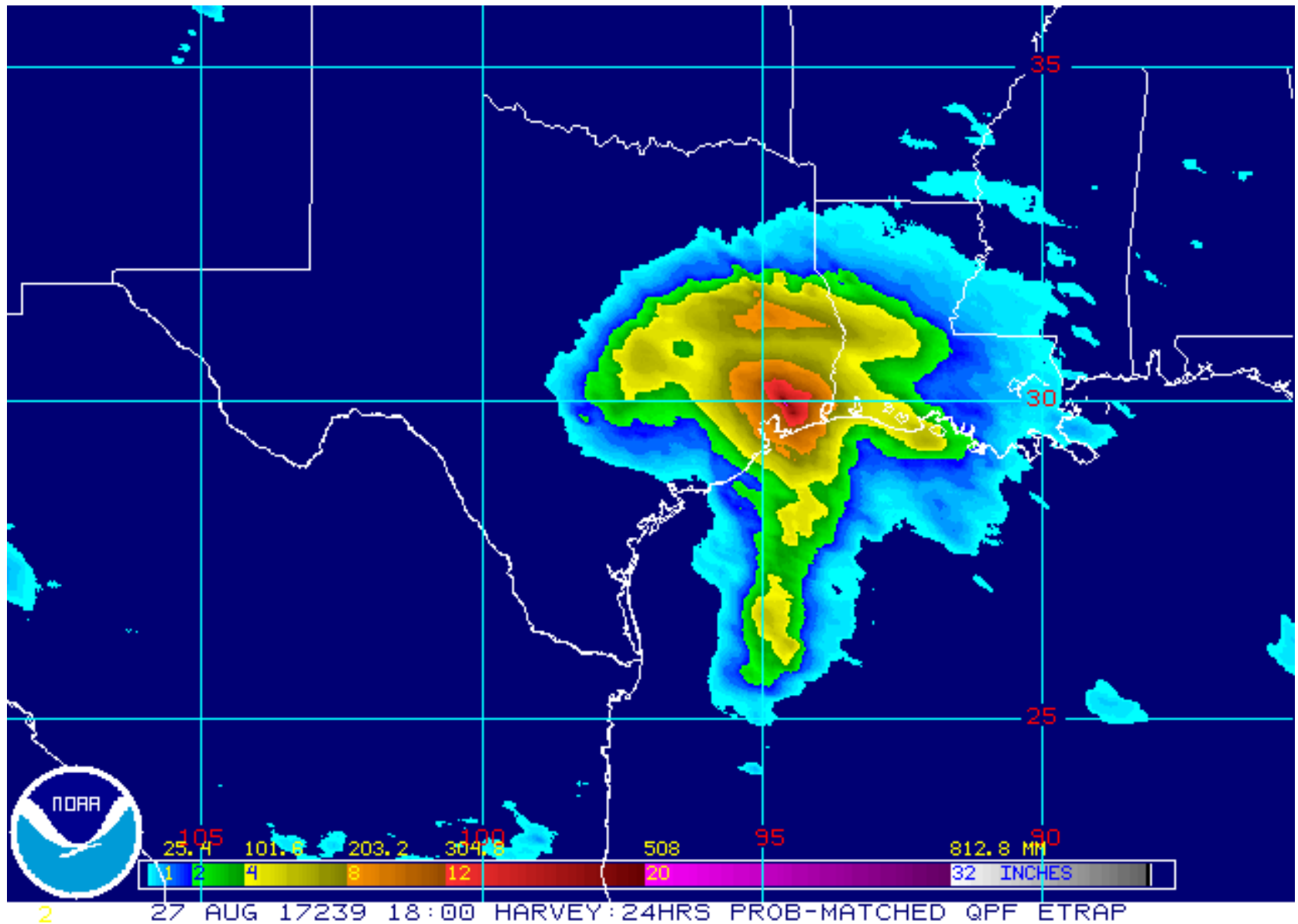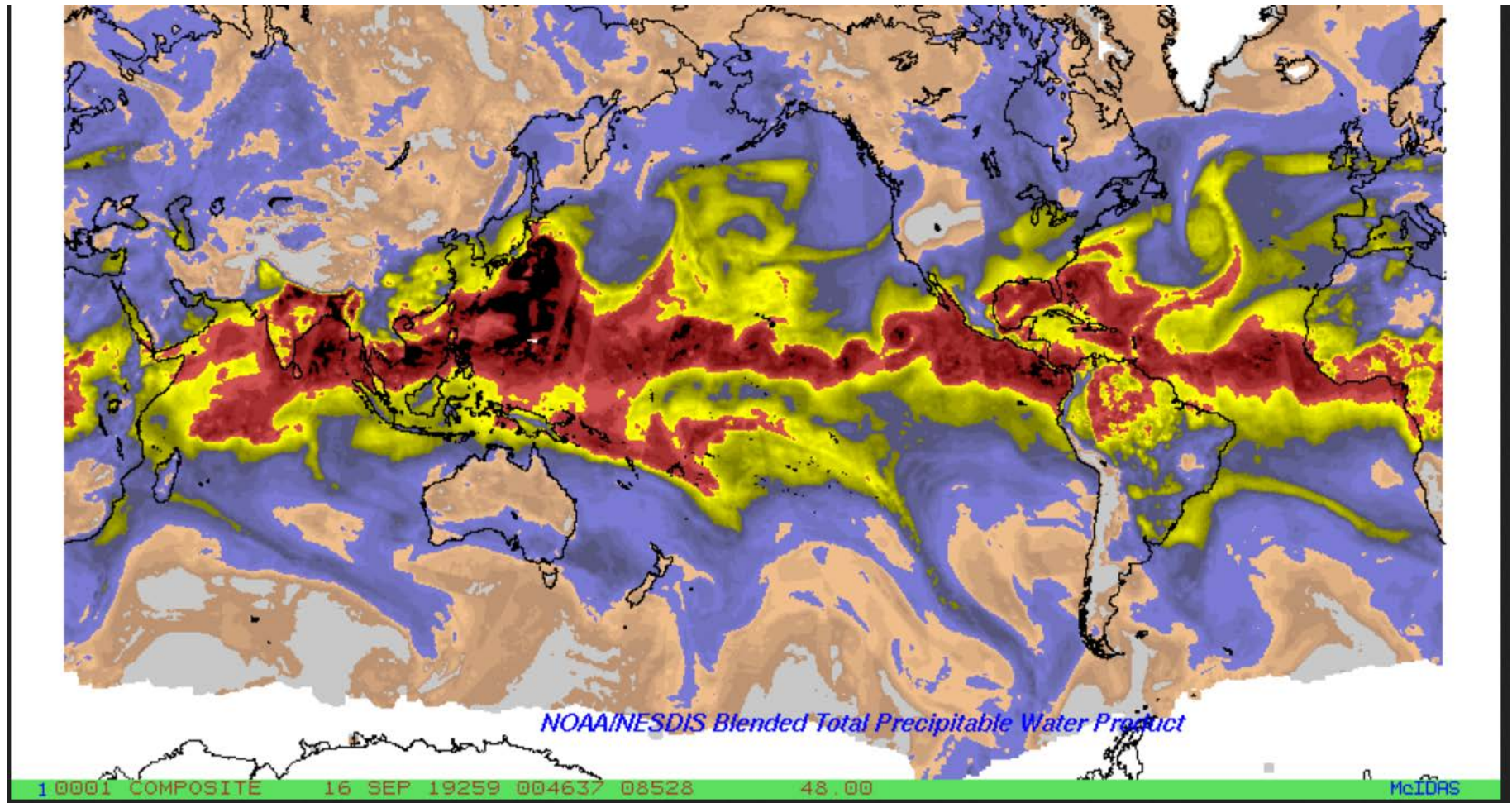
27 AUG 17239 18:00 HARVEY:24HRS PROB-MATCHED QPF ETRAP

Blended TPW

NOAA/NESDIS Blended Total Precipitable Water Product

10001 COMPOSITE   16 SEP 19259 004637 08528   48.00   McIDAS

Satellite Winds

MTCSWA
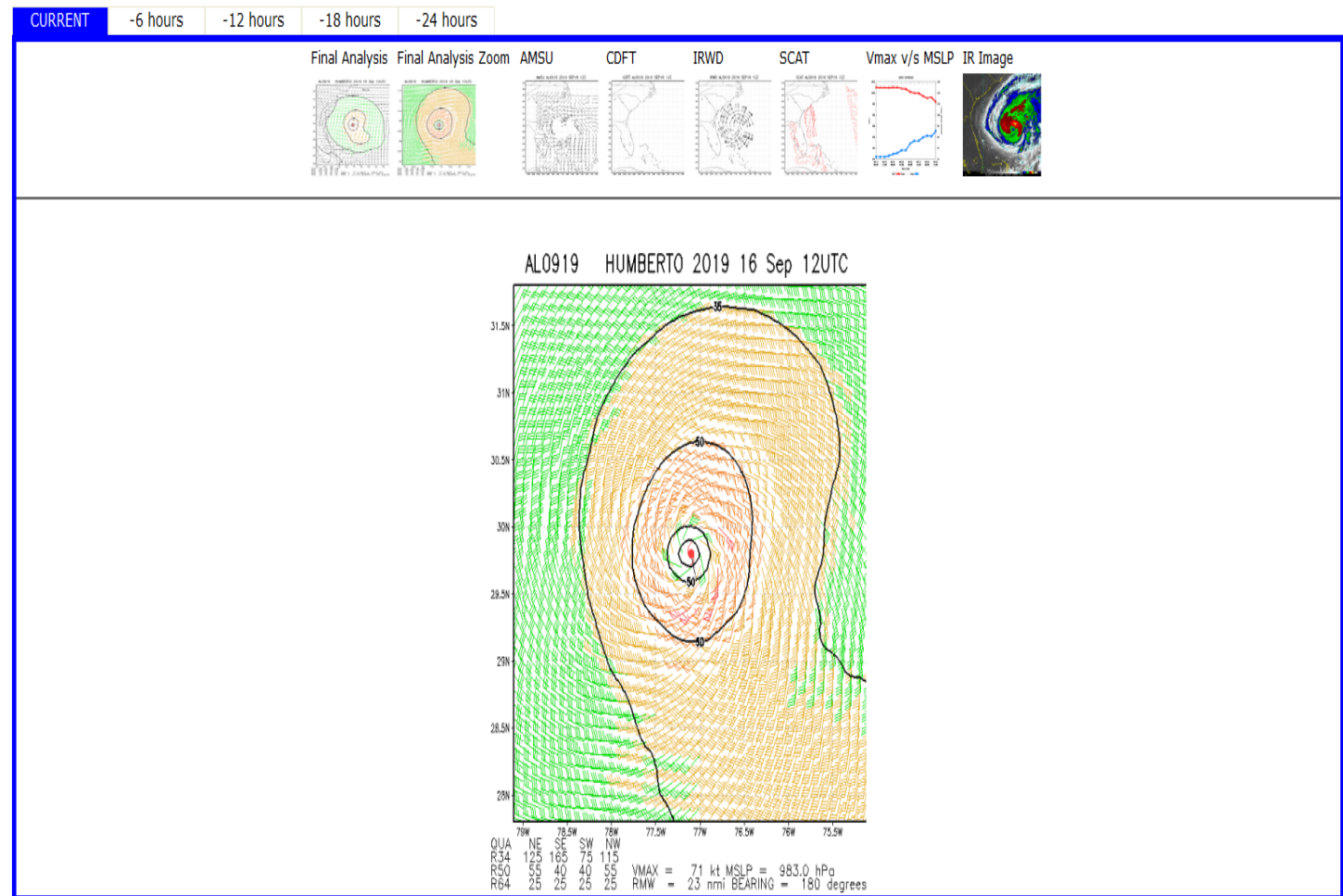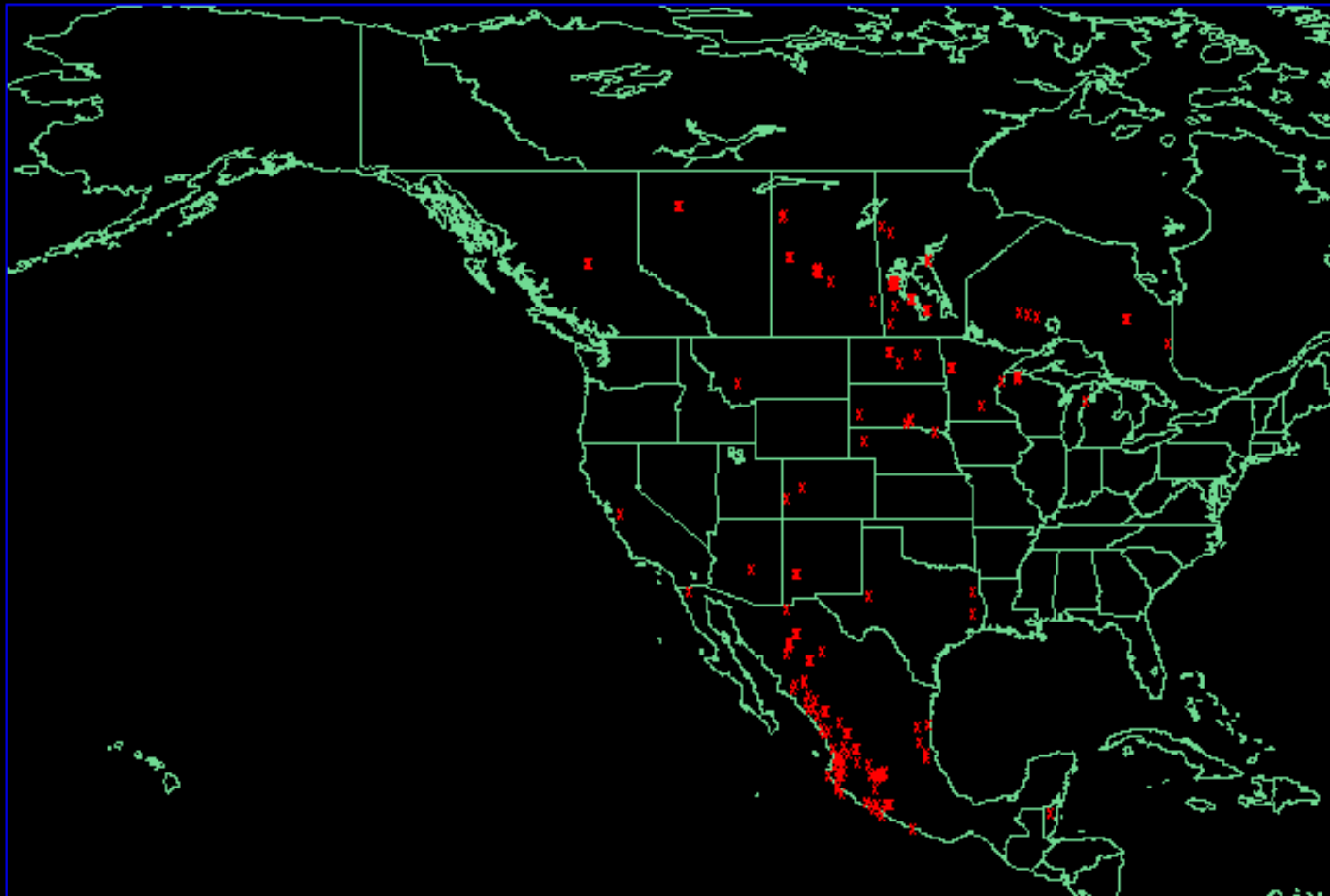
Fire Products

WF–ABBA All Fires Day 140, 2018

Smoke Products

GOES−15 Smoke Observation (2019 09 14 1500Z)

Smoke Aerosol Optical Thickness

0.0   0.2   0.4   0.6   0.8   1.0   1.2

NOAA-20 88 GHz

24 HOUR T88(H) NOAA-20
3 0003 COMPOSITE   13 SEP 19256 150000 08266 07390 06.00

S-NPP 88 GHz

24 HOUR T88(H) S-NPP

40004 COMPOSITE   13 SEP 19256 150000 08266 07390 06.00

GPM 89 Ghz

24 HOUR T89(H) GPM

2 0002 TEST IMAGE   13 SEP 19256 160000 08266 07390 06.00

AMSR-2 89 GHz

24 HOUR T89(H) AMSR-2

1 0001 TEST IMAGE   13 SEP 19256 170000 08266 07390 06.00   McIDAS
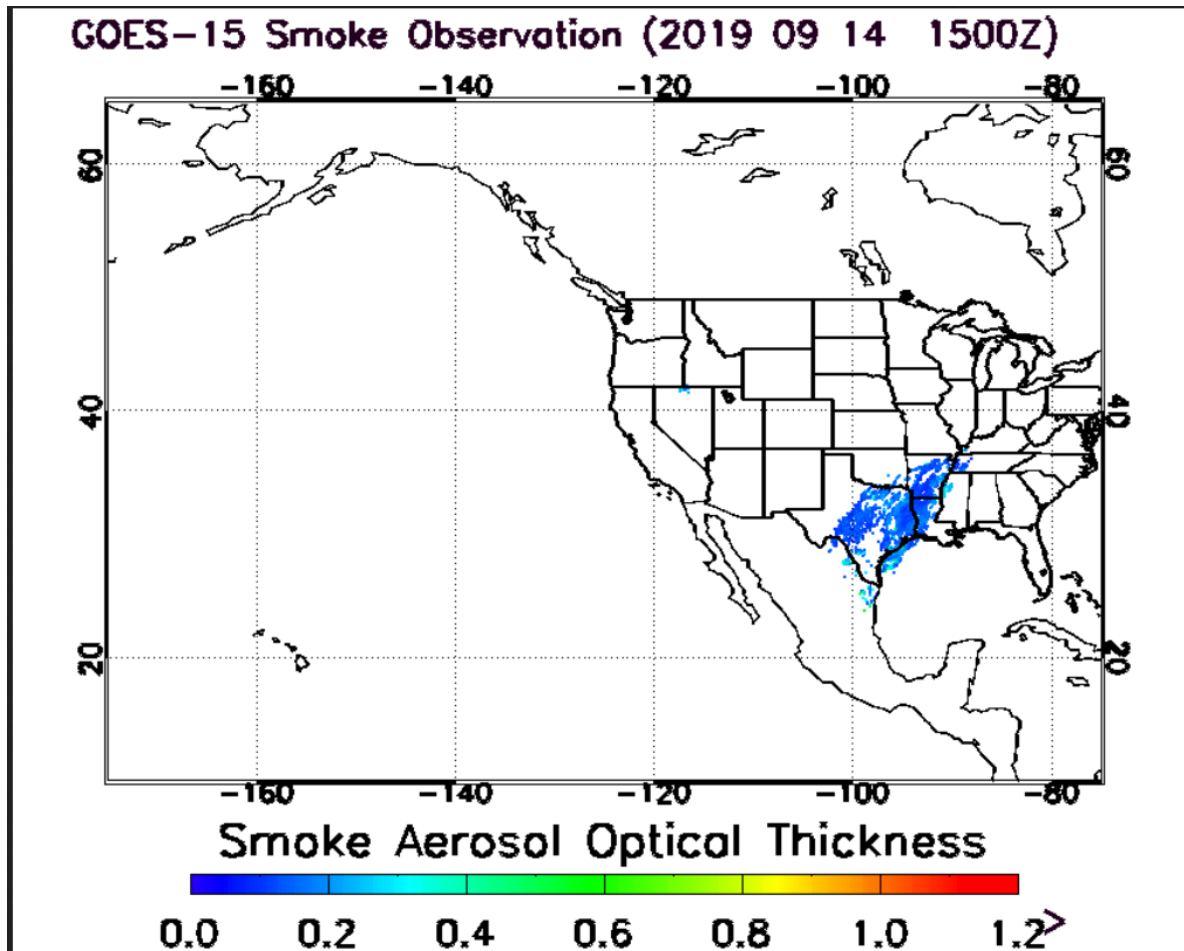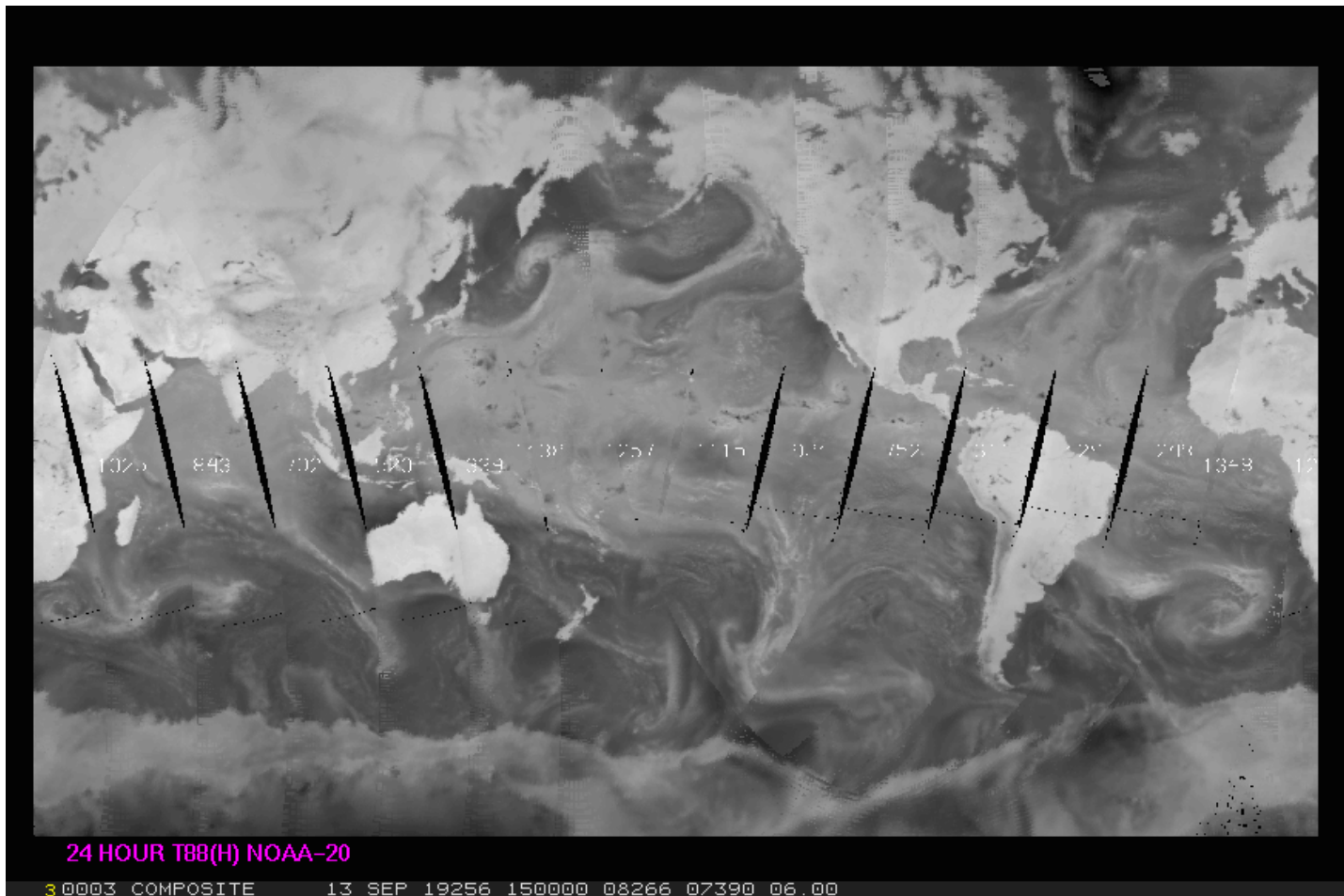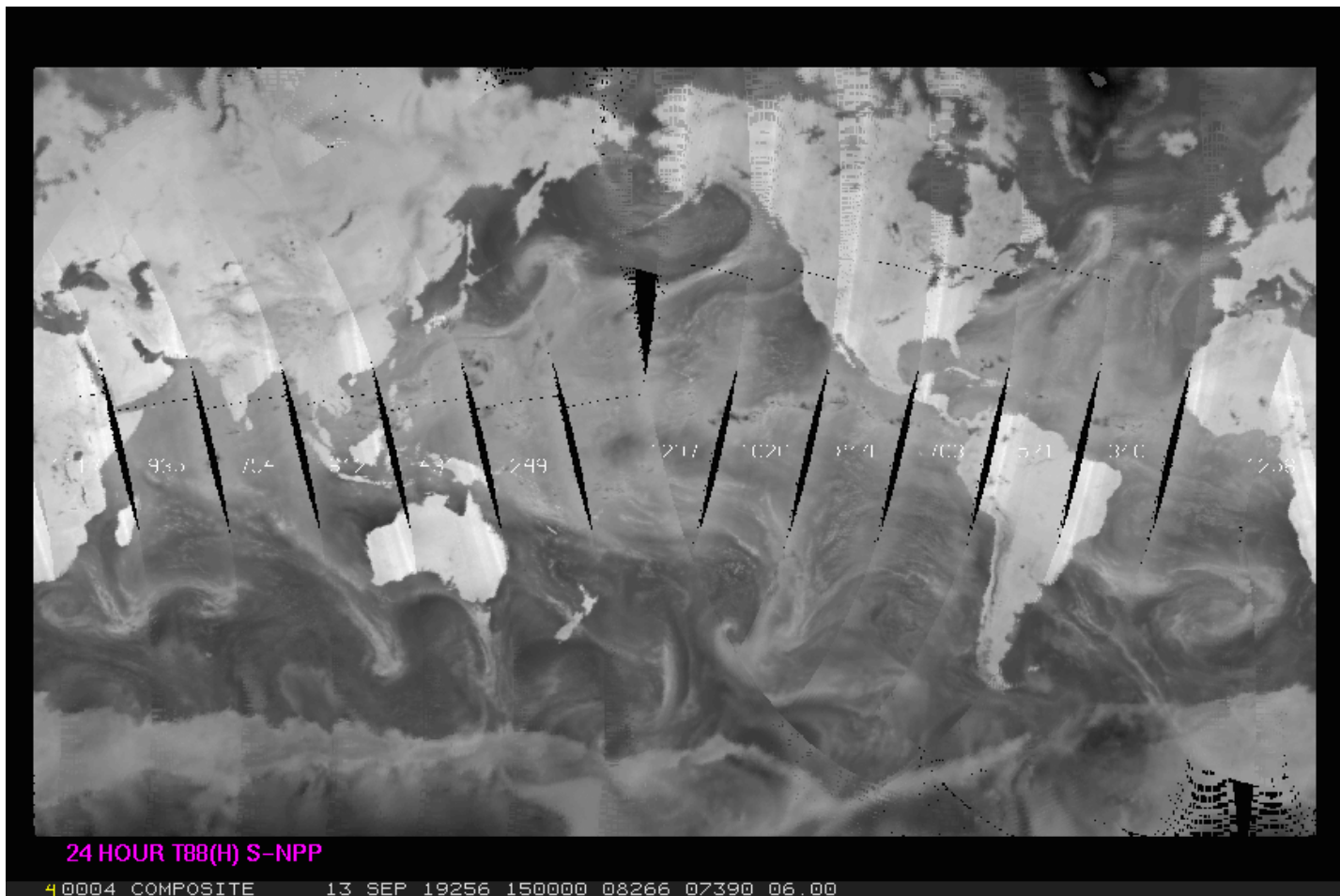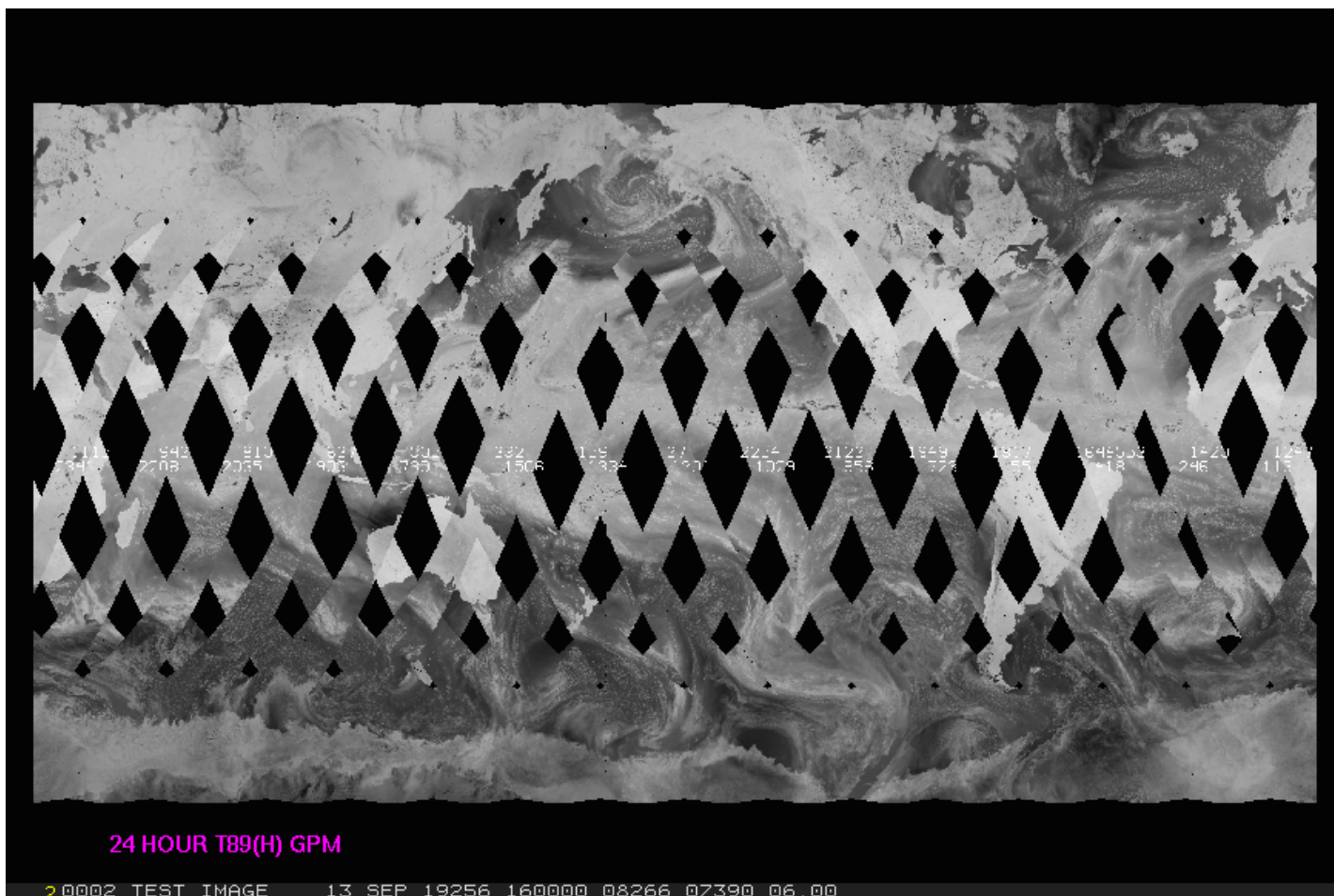
S-NPP 88 GHz (pre-Humberto)
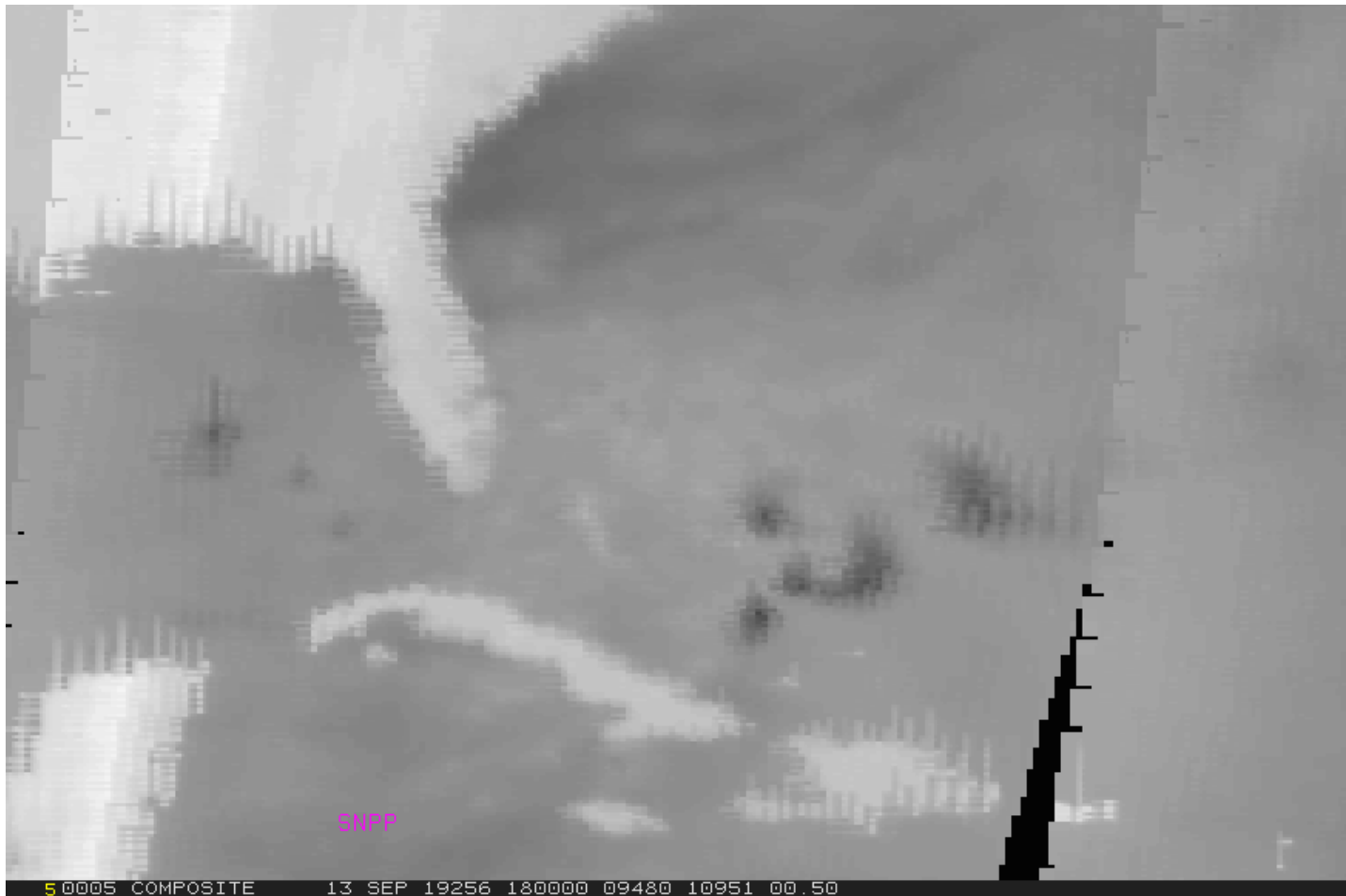
N-20 88 GHz (pre-Humberto)
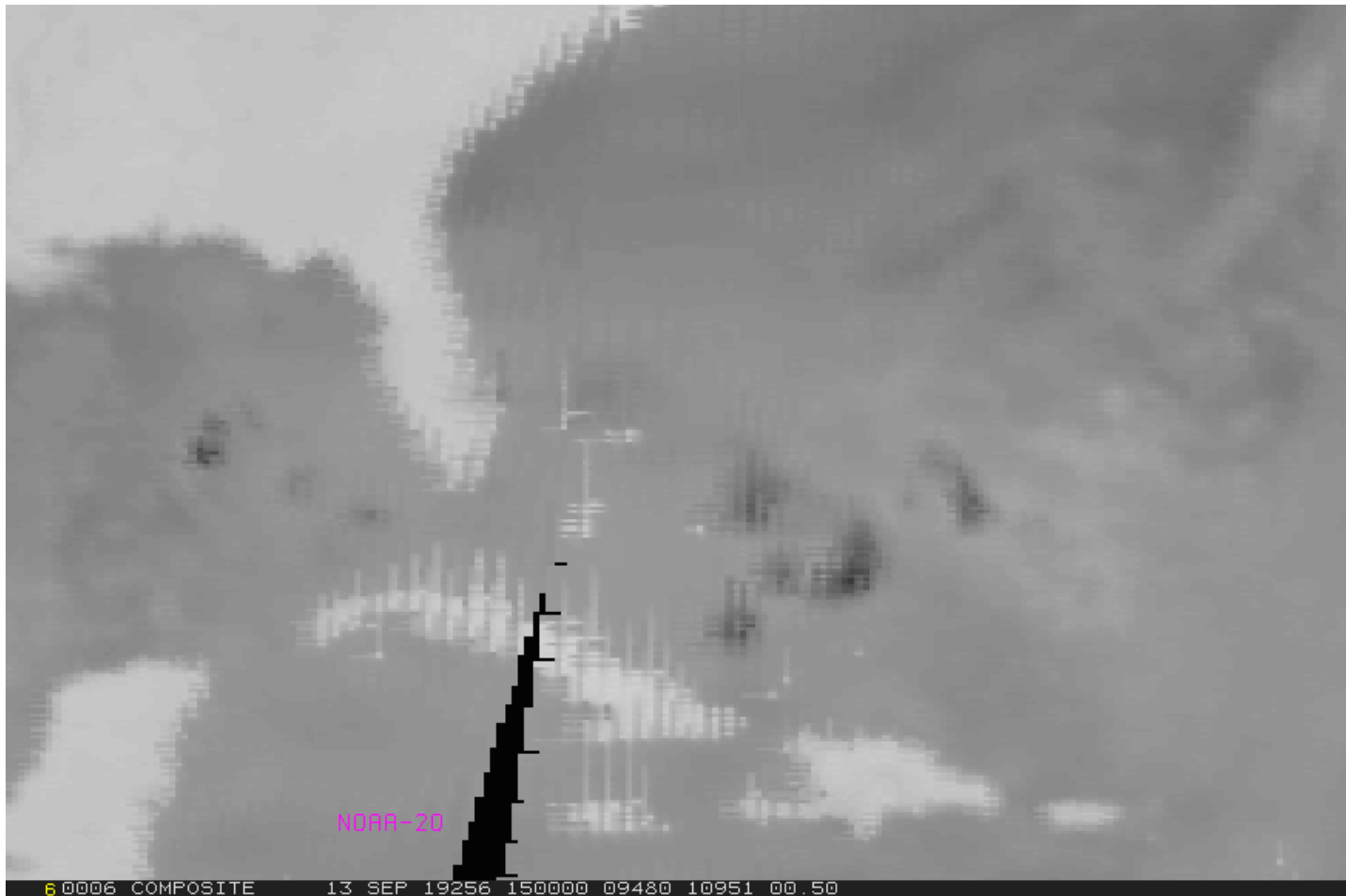
GPM 89 GHz (pre-Humberto)
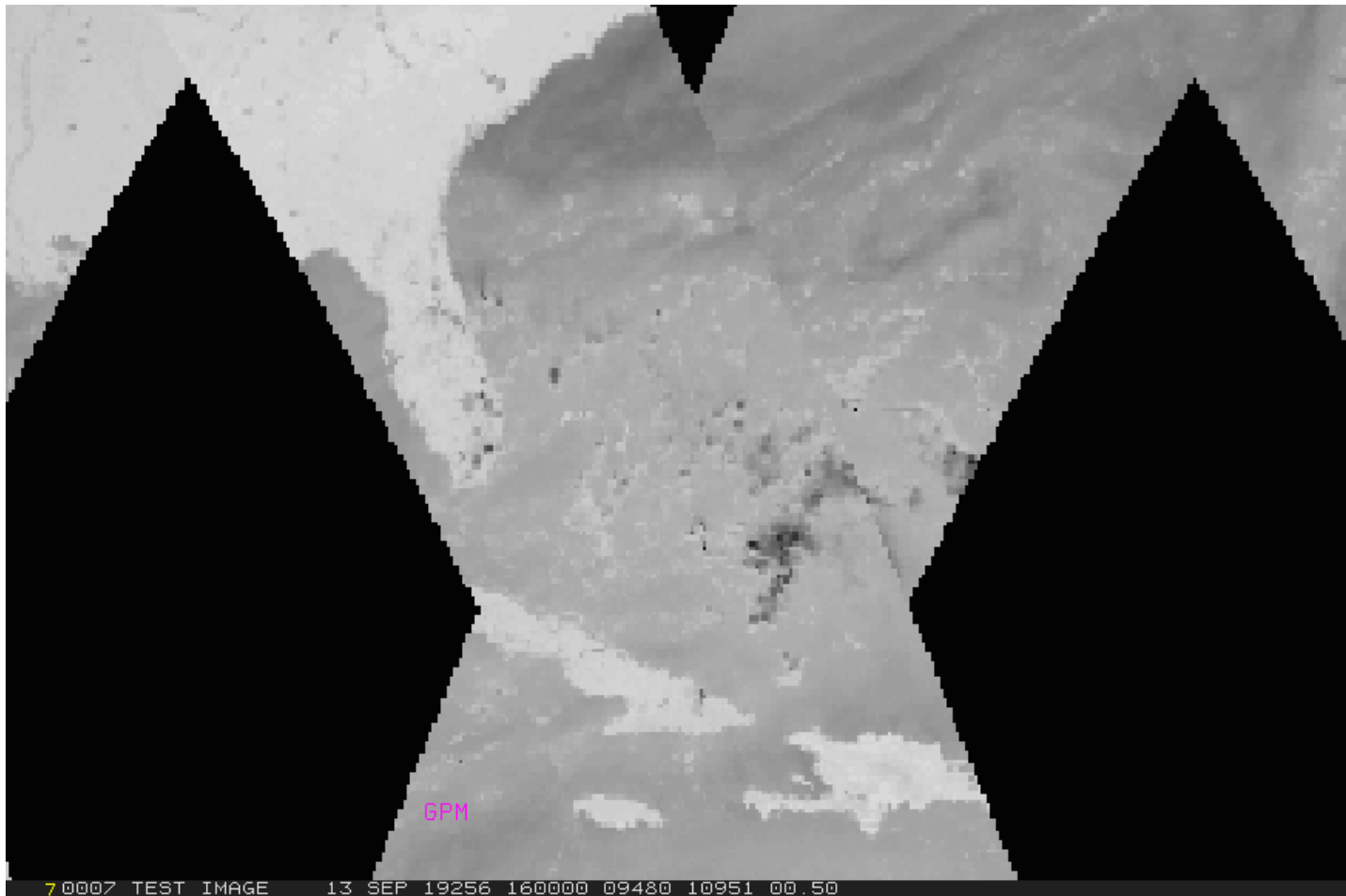
AMSR-2 89 GHz (pre-Humberto)
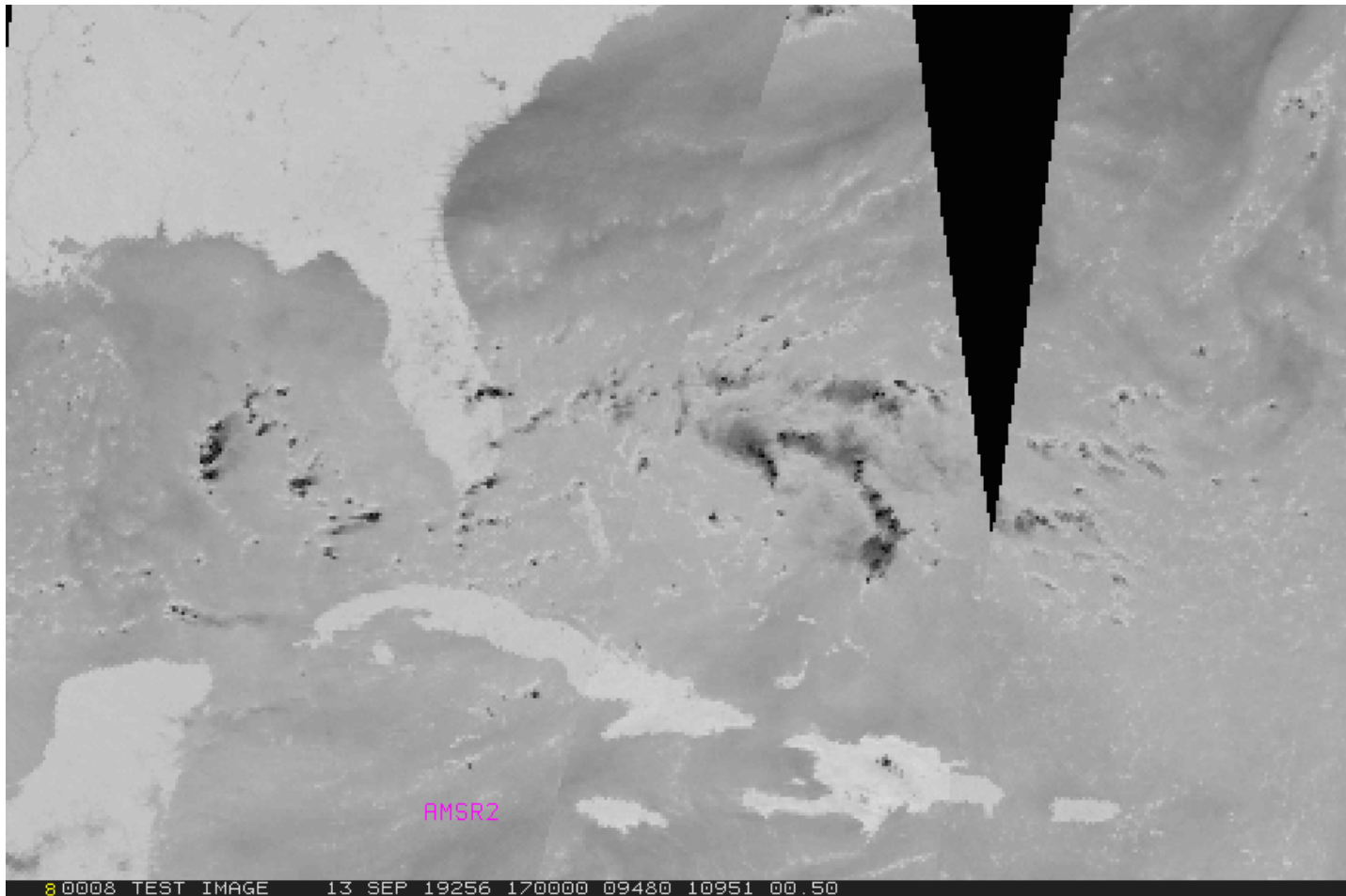
Other Ad hoc McIDAS Usage at ESPC

- Heavy usage of the local GINI server in McIDAS format for validation checks (image previews) for conversion of GOES-15 data to NWS AWIPS

- Great reliance on GINIs during GOES anomalies to confirm the output images quickly and efficiently (Generated mock AWIPS files to confirm changes to use GOES-14).

- Deliver GOES-16/-17 data to select legacy applications
  - Spoofs GOES-13 and 15 AREA file appearance with IMGREMAP
  - No or minimal changes required in legacy code to process
  - Usable by older (pre-GOES-R) McIDAS versions

- Imagery on OSPO web page generated by McIDAS-X client-side software.

- GHE and Arctic Composite – because they use so many different datasets - act as "coalmine canaries" for ingest issues

McIDAS Data Delivery Summary

GEODIST –

Geostationary satellite data is ingested, converted to McIDAS AREA format and placed on a server.

In addition, some foreign geostationary data, polar data, model data and derived products are converted into McIDAS.

This data is served via McIDAS ADDE:

Data	NSOF Server	ADDE Name	
Derived Products	GEODIST1e	DPD	
~~GOES-E~~	~~GEODIST2e~~	~~GER~~	*PDA/NCDF Only*
GOES-15	GEODIST3e	GWR	
Polar	GEODIST4e	PLR , MIRS	
Model data	GEODIST5	MOD	
Global Mosaic 5 Sat. Comp.	GEODIST6	MOS	
MSG/MIO	GEODIST6e	MSG, MIO	
Himawari	GEODIST7e	HIM	
Select requested data	SATEPSANONE	PUB	*(not operational)*
Surface/Ship Buoy/RAOBs	FOS2	FOS (Family of Services)	

Data Access Services

- Current Access Services (in addition to Direct Broadcast)
  - Product Distribution and Access (PDA) – Operational*
  - NWS Telecommunications Gateway
  - GINI (GOES Ingest and NOAAPORT Interface) / NOAAPORT for Advanced Weather Interactive Processing System (AWIPS) display
  - GEODIST – GOES, POES, and Derived Products; McIDAS *
  - Shared Processing DAPE Gateway – for military partners *
  - MODIS server – subset of products made by NASA *
  - Websites - http://www.ospo.noaa.gov/

  *** Require Data Access Request (Government)***

- Archival
  - NCEI archive data products using CLASS

ESPC Notifications, Status, and Contacts

24/7 Help Desk	ESPCOperations@noaa.gov
ESPC Messages	http://www.ssd.noaa.gov/PS/SATS/messages.html
WMO GTS Bulletins	Urgent: http://www.weather.gov/view/validProds.php?prod=ADM&node=KNES Routine: http://www.weather.gov/view/validProds.php?prod=ADA&node=KNES
User Services	SPSD.UserServices@noaa.gov
Data Access	NESDIS.Data.Access@noaa.gov
Webmaster	SSDWebmaster@noaa.gov
Facebook	www.facebook.com/NOAANESDIS
Twitter	www.twitter.com/noaasatellites
Satellite Ops Status	http://noaasis.noaa.gov/NOAASIS/ml/status.html
Press releases	http://www.nesdis.noaa.gov/news_archives/
Web	www.ospo.noaa.gov

Thank you!

Questions?