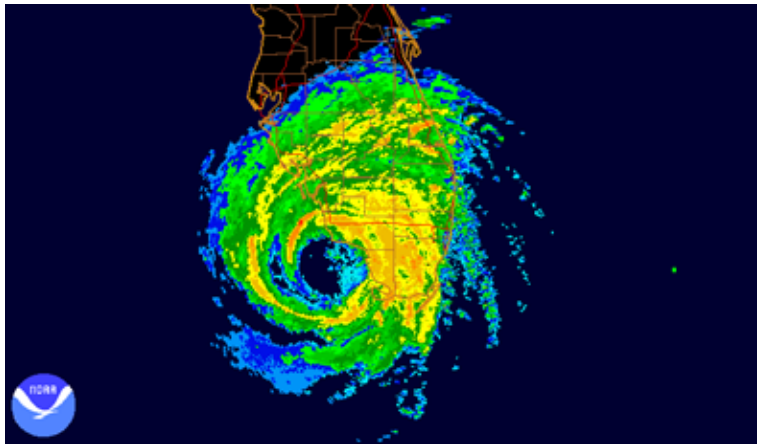
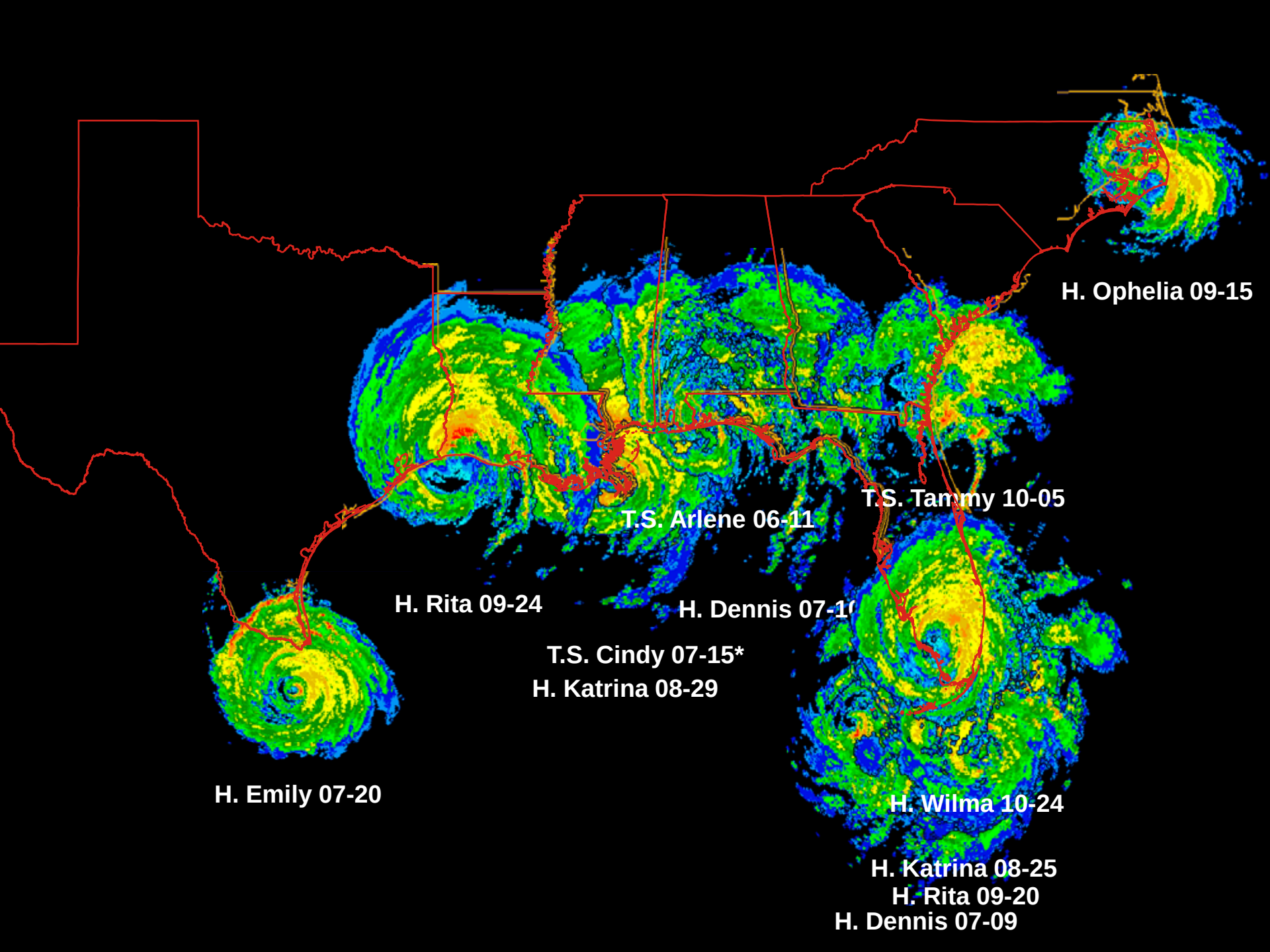
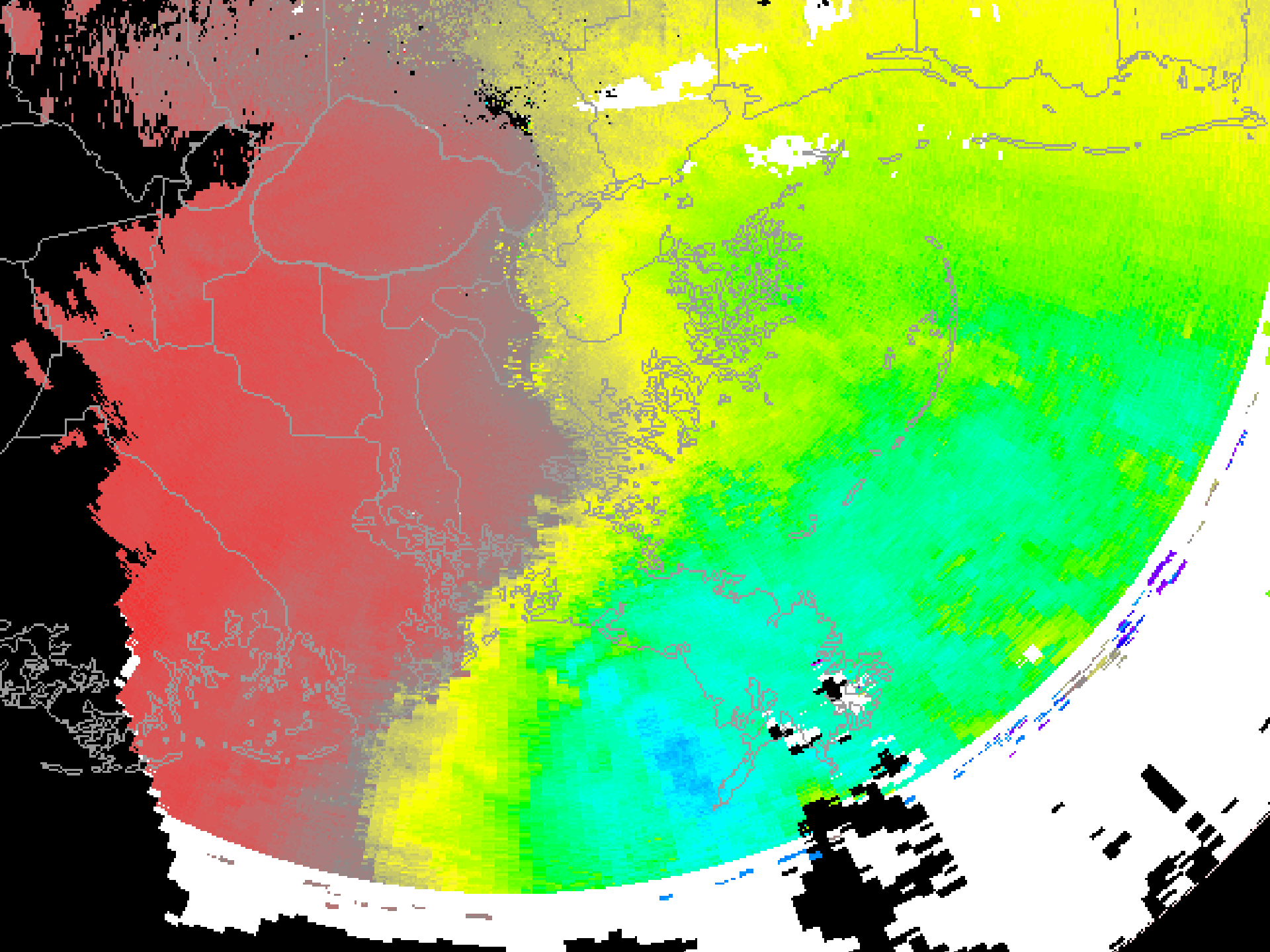
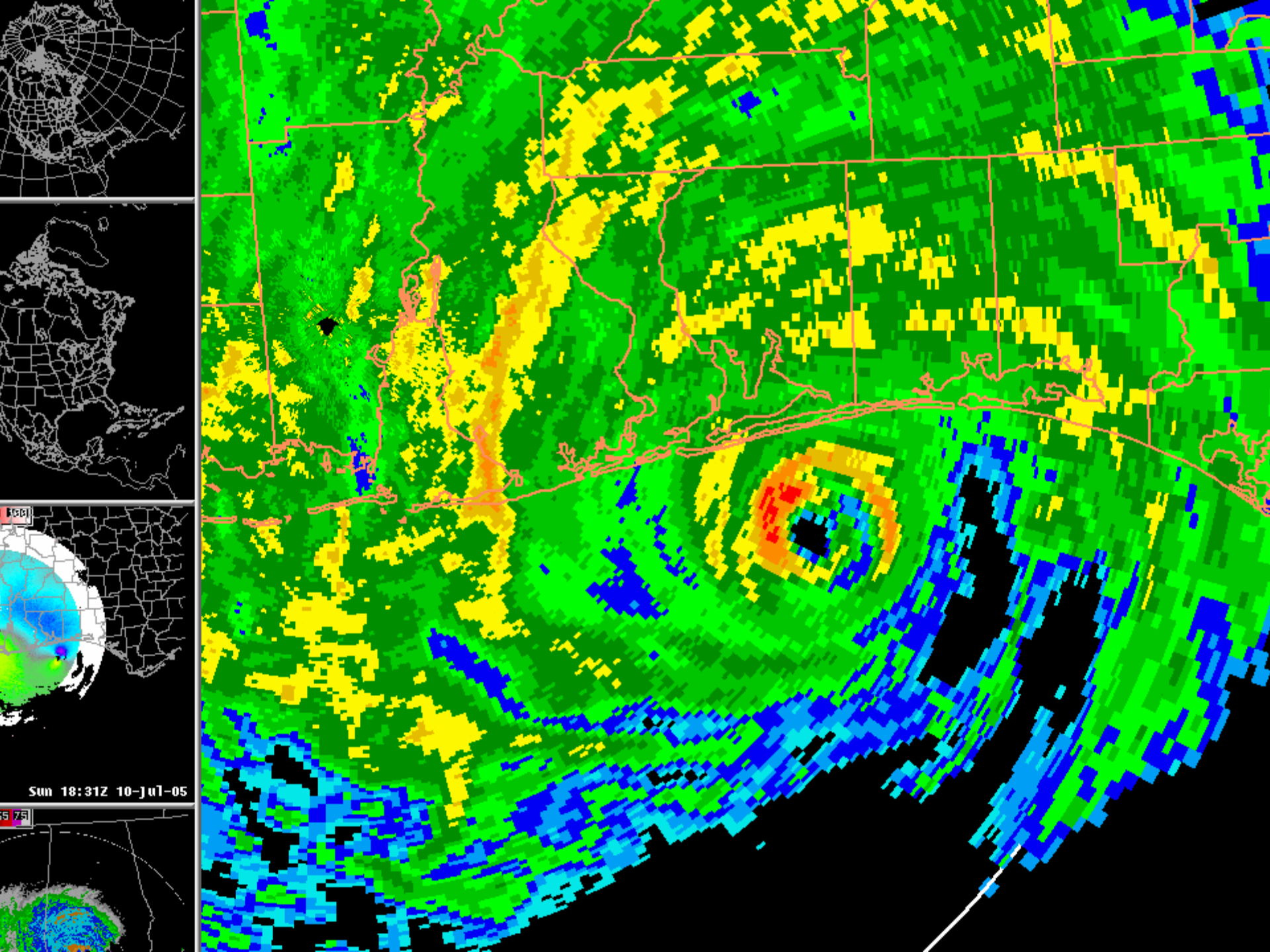
A review of radar operations at the Tropical Prediction Center during the **2005** Hurricane Season

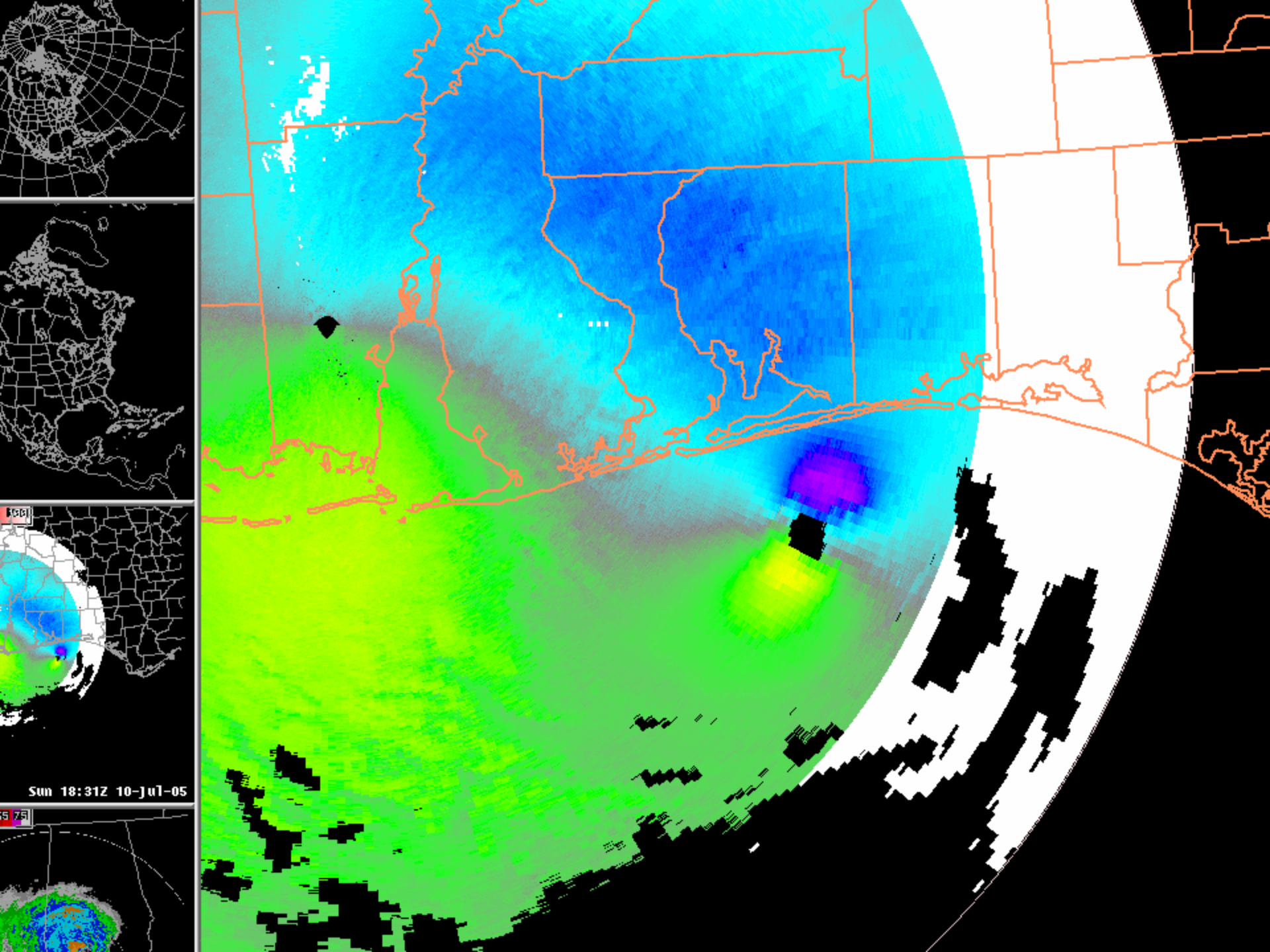


Colin McAdie
NOAA/NWS/NCEP
Tropical Prediction Center
Miami, FL


H. Ophelia 09-15
T.S. Tammy 10-05
T.S. Arlene 06-11
H. Rita 09-24
H. Dennis 07-1(
T.S. Cindy 07-15*
H. Katrina 08-29
H. Emily 07-20
H. Wilma 10-24
H. Katrina 08-25
H. Rita 09-20
H. Dennis 07-09




Sun 18:31Z 10-Jul-05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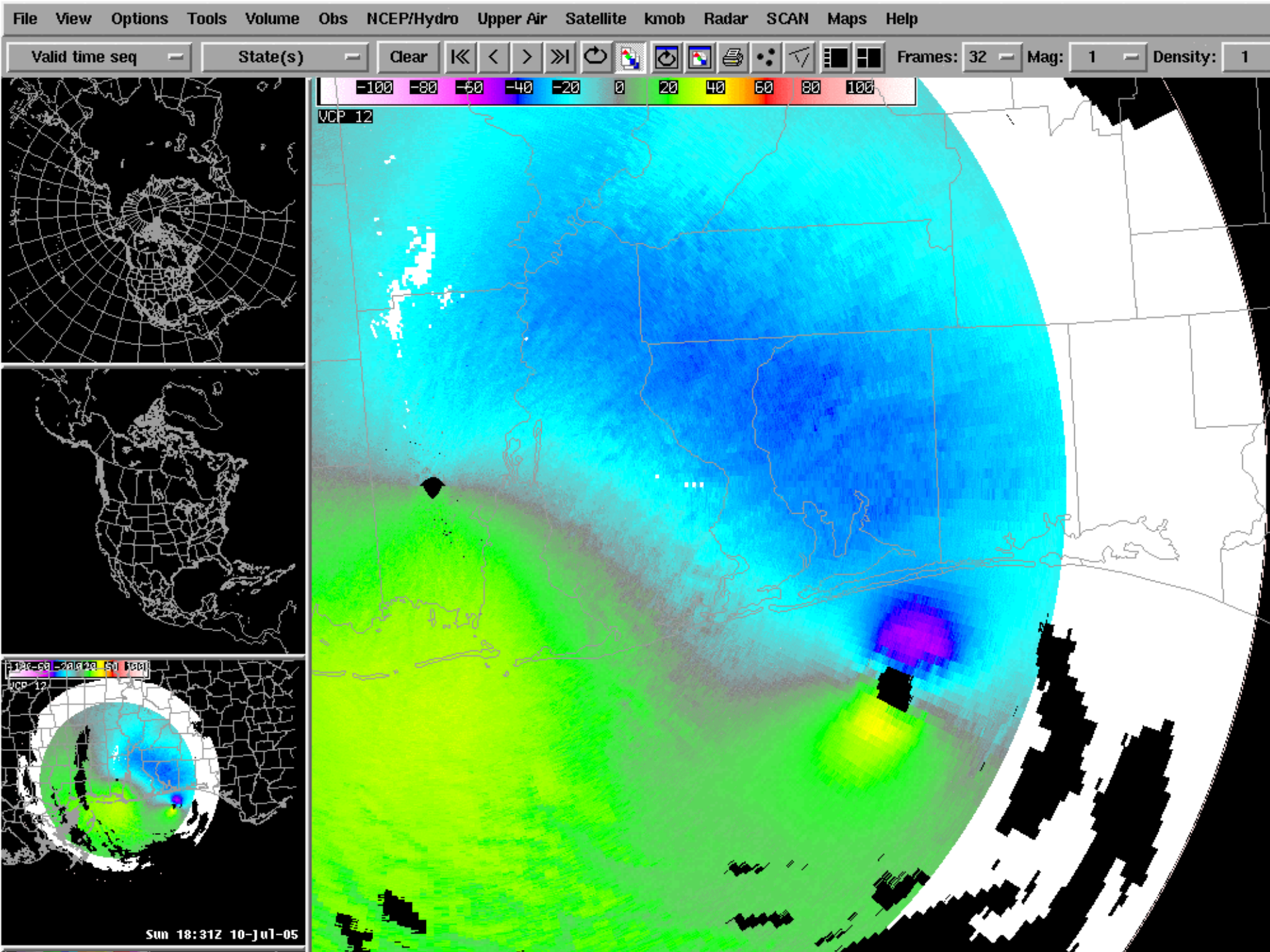
File View Options Tools Volume Obs NCEP/Hydro Upper Air Satellite kmob Radar SCAN Maps Help
Valid time seq
State(s)
Clear
Frames: 32
Mag: 1
Density: 1
-100 -80 -60 -40 -20 0 20 40 60 80 100
VCP 12
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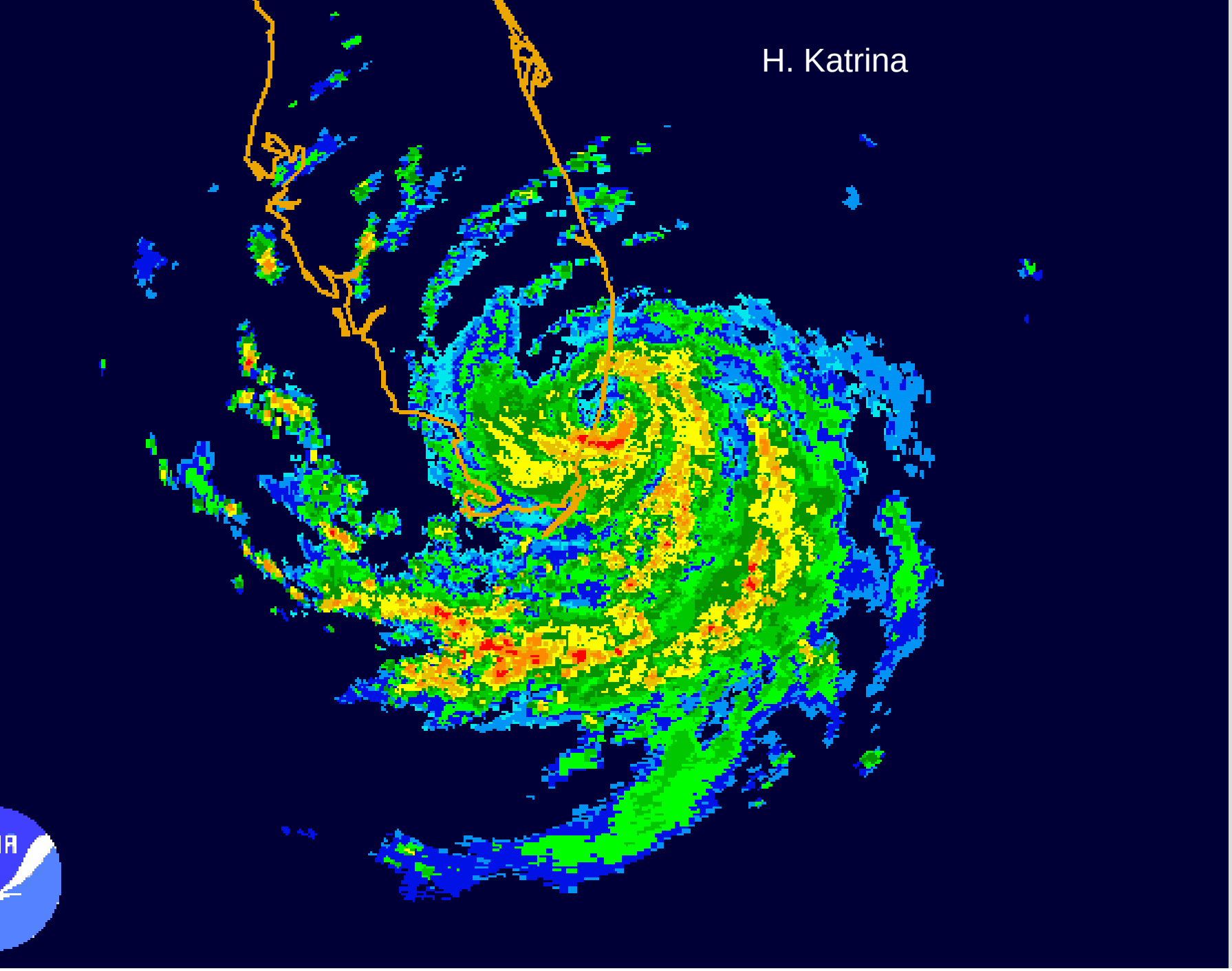
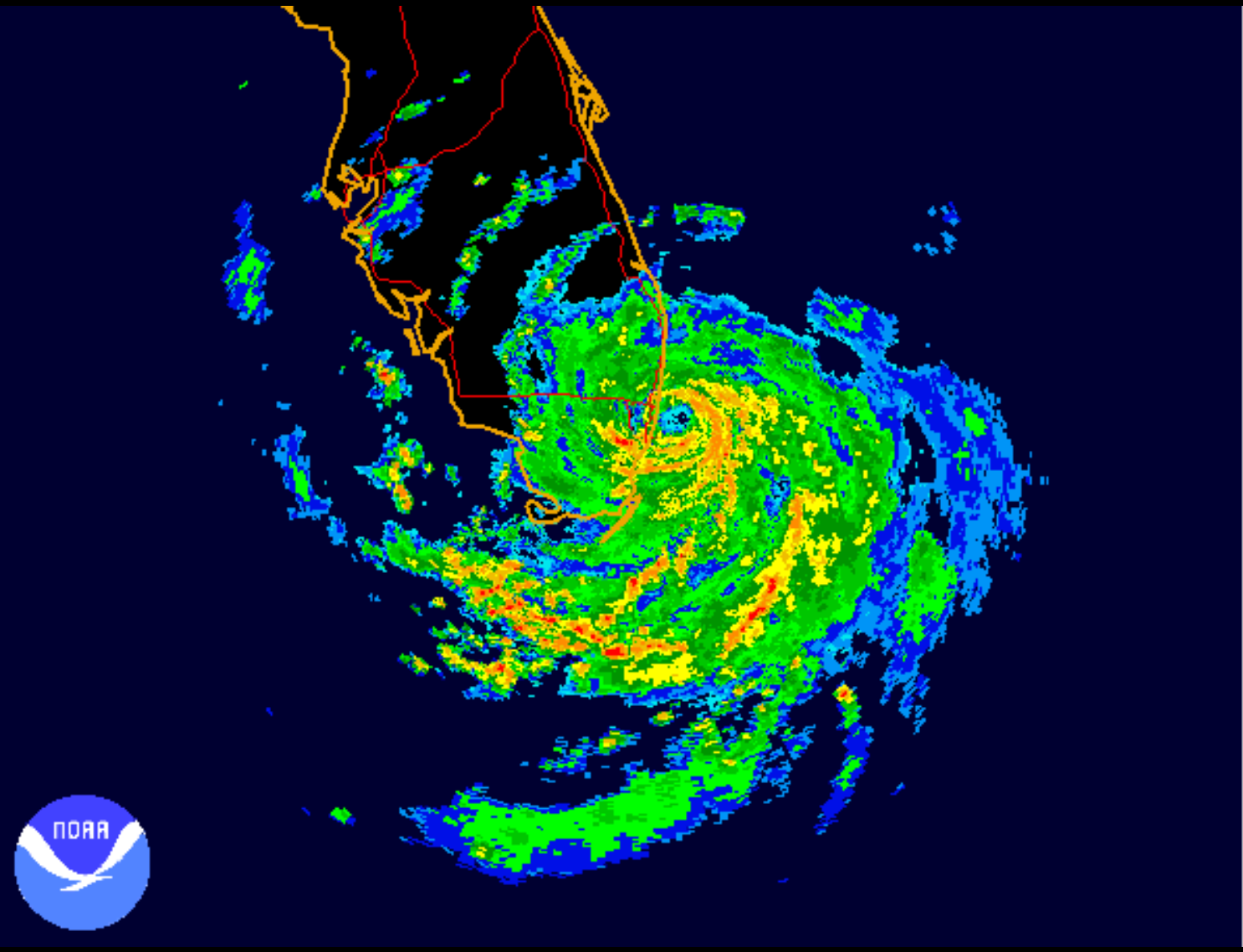
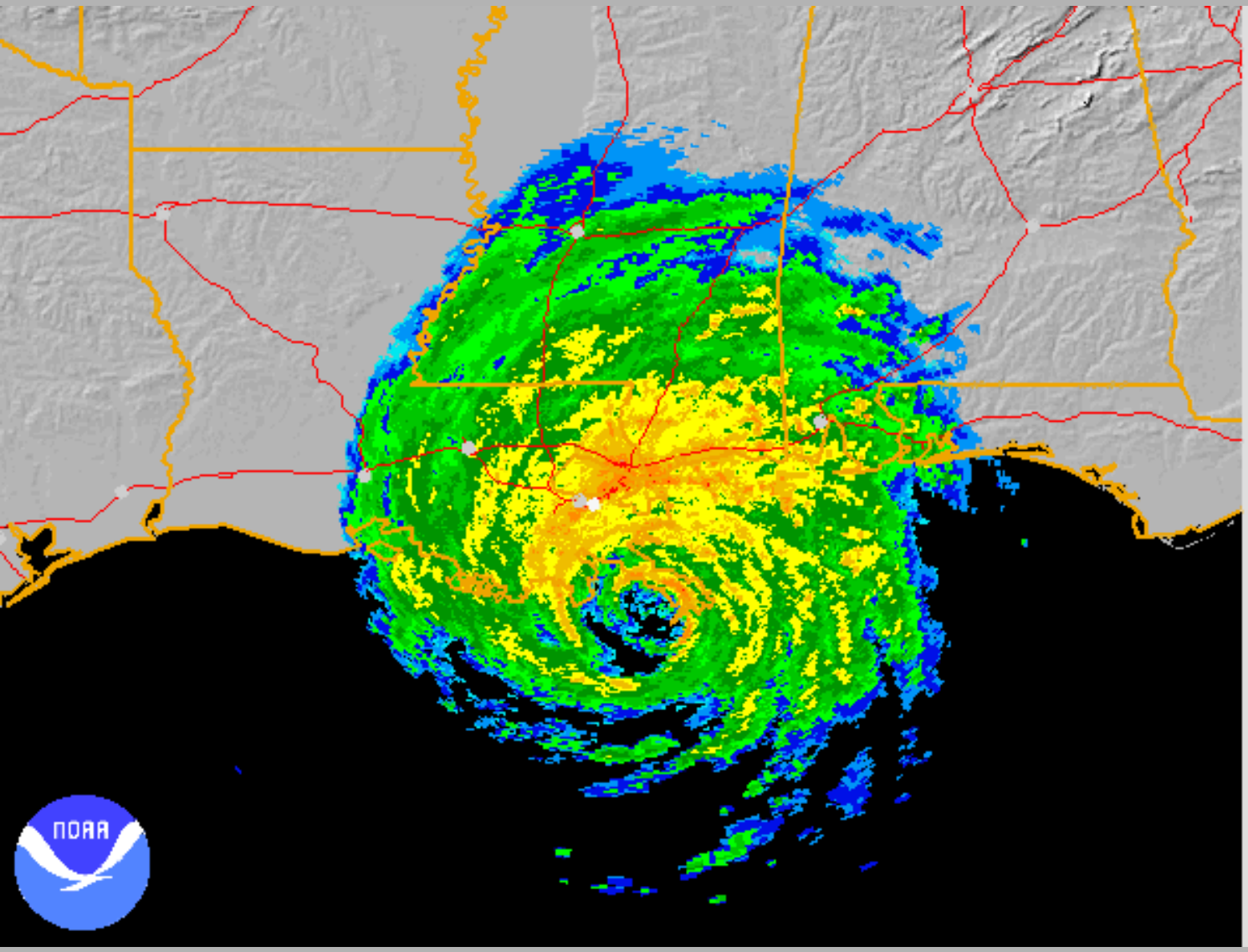

H. Katrina
KAMX
08/25/
LAT: 2
LON: 8
ELEV:
MODE/
ELEV A
MAX: 5
RANGE
Lege


BASE REFLECTIVITY
KAMX - MIAMI, FL
08/25/2005 21:42:14 GMT
LAT: 25/36/39 N
LON: 80/24/46 W
ELEV: 111.0 FT
MODE/VCP: A / 121
ELEV ANGLE: 0.50 °
MAX: 54 dBZ
RANGE 248 NM
Legend: (Category) dBZ
(15) 75
(14) 70
(13) 65
(12) 60
(11) 55
(10) 50
(9) 45
(8) 40
(7) 35
(6) 30
(5) 25
(4) 20
(3) 15
(2) 10
(1) 5
NOAA

2005,AUG,25,1700,26.18,79.51,F,CLOSED CIRCULATION WITH DRY SLOT TO N AND W.,RM,KAMX, 2005,AUG,25,1728,26.19,79.50,F,MAX WND 65 KT S QUAD AT 4730 FT,RM,KAMX, 2005,AUG,25,1801,26.16,79.54,F,MAX WND 77 KT S QUAD AT 5075 FT,RM,KAMX, 2005,AUG,25,1829,26.16,79.63,F,WEAK REF NW SEMICIRCLE...MAX WND 75 KT SE QUAD,RM,KAMX,
2005,AUG,25,1902,26.14,79.67,F,80 KTS S OF CTR AT 3900 FT,RM,KAMX,
2005,AUG,25,1929,26.14,79.74,F,85 KT MAX S QUAD AT 3417 FT JUST S OF CTR,RM,KAMX, 2005,AUG,25,2002,26.07,79.84,F,CENTER RAGGED CMA GOOD ZERO ISODOP,CJM,KAMX, 2005,AUG,25,2030,26.00,79.90,G,INBOUND MAX OVER SE BROWARD 75 KT 2300',CJM,KAMX,
2005,AUG,25,2058,25.98,79.95,G,STRONGEST CONV S EYEWALL KEY BISCAYNE AREA,CJM,KAMX, 2005,AUG,25,2134,25.99,79.96,G,CENTRAL CONV BECOMING MORE SYMMETRICAL,CJM,KAMX,
2005,AUG,25,2204,25.97,80.03,G,- -,CJM,KAMX,
2005,AUG,25,2231,25.96,80.10,G,CENTER OVER COAST BROWARD-DADE COUNTY LINE,CJM,KAMX, 2005,AUG,25,2304,25.96,80.16,G,HIGHEST WINDS OFFSHORE ABOUT 70 KT 1500',CJM,KAMX, 2005,AUG,25,2332,25.89,80.24,G,- -,CJM,KAMX, 2005,AUG,26,0000,25.88,80.31,G,- - ,CJM,KAMX,
2005,AUG,26,0034,25.78,80.39,G,TPC IN EYE - CALM OUTSIDE,CJM,KAMX,
2005,AUG,26,0101,25.73,80.46,G,75 KT INBOUND OVER CENTRAL DADE 700 FT ,CJM,KAMX, 2005,AUG,26,0126,25.70,80.53,G,- - ,CJM,KAMX,
2005,AUG,26,0201,25.64,80.60,G,TIGHT VELOCITY COUPLET STILL EVIDENT IN VEL ,CJM,KAMX, 2005,AUG,26,0228,25.61,80.71,G,- - ,CJM,KAMX,
2005,AUG,26,0301,25.58,80.82,G,80 KT AT 900 FT OUTBOUND,CJM,KAMX,
2005,AUG,26,0326,25.56,80.93,G,74 KT AT 1600 FT,HDC,KAMX,

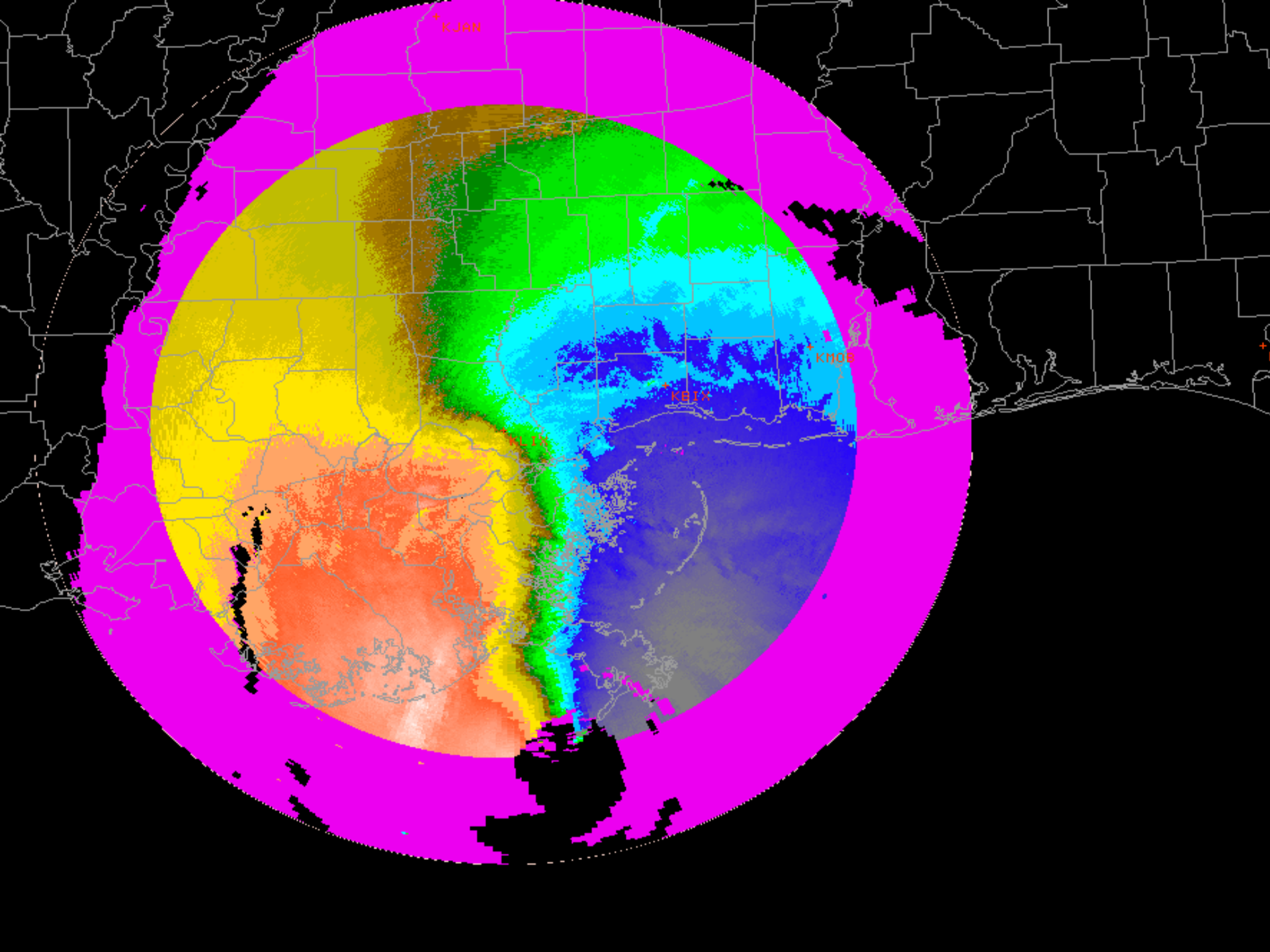


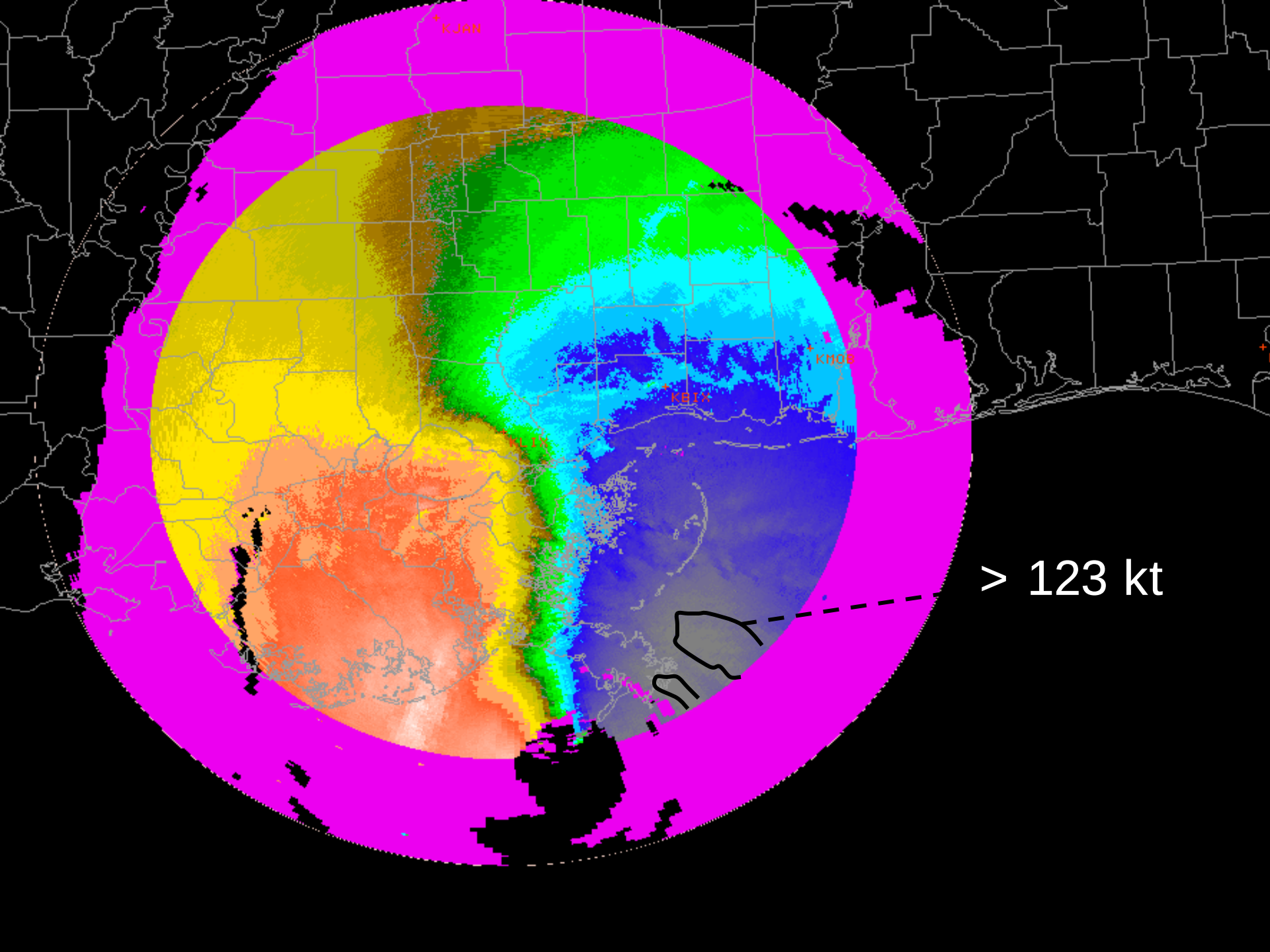
BASE REFLECTIVITY
KLIX - NEW ORLEANS, LA
08/29/2005 10:28:20 GMT
LAT: 30/20/13 N
LON: 89/49/30 W
ELEV: 138.0 FT
MODE/VCP: A / 11

ELEV ANGLE: 0.50 °
MAX: 53 dBZ
RANGE 248 NM

Legend: (Category) dBZ

(15) 75
(14) 70
(13) 65
(12) 60
(11) 55
(10) 50
(9) 45
(8) 40
(7) 35
(6) 30
(5) 25
(4) 20
(3) 15
(2) 10
(1) 5


KJAN
KMOB
KBIX
KLIX


KJAN
KHGX
KBIX
KLIX
> 123 kt

VCP 121 can be effective in reducing range-folding (purple haze) - a well-known problem for 88D tropical cyclone observations.

However, problems remain in increasing the velocity measurement increment in VCP 121.

2004 – increasing VMI not possible

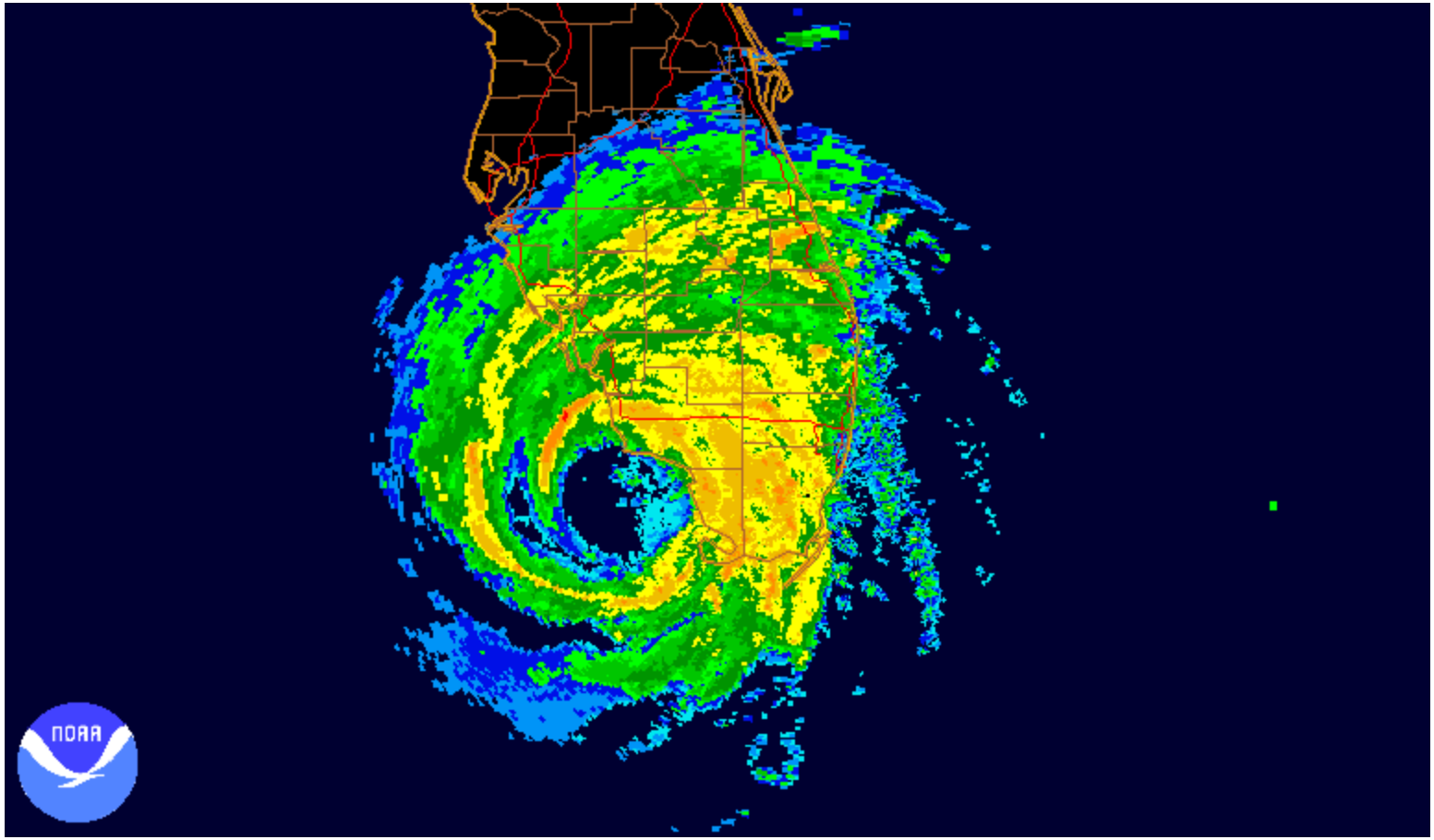
2005 – possible, but there appears to be a bug in the VCP 121 code.

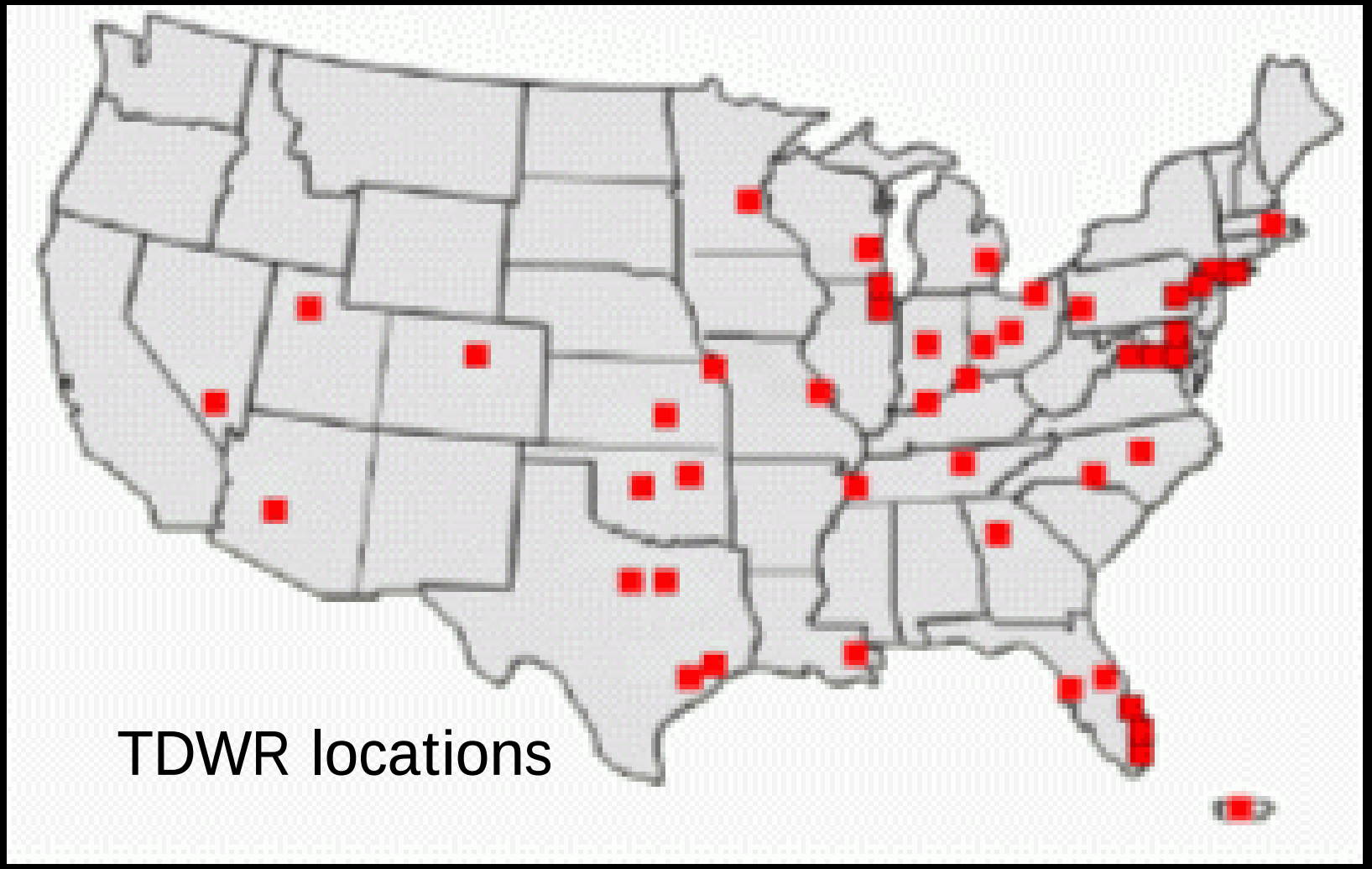
2006 – problem should be solved in Build 8

Additional issues –

AWIPS display (product legend) should clearly indicate VMI at a glance. Currently, it does **not** do so.

Comms failure at KLIX during landfall emphasized the need for a local (WFO) level II archive.

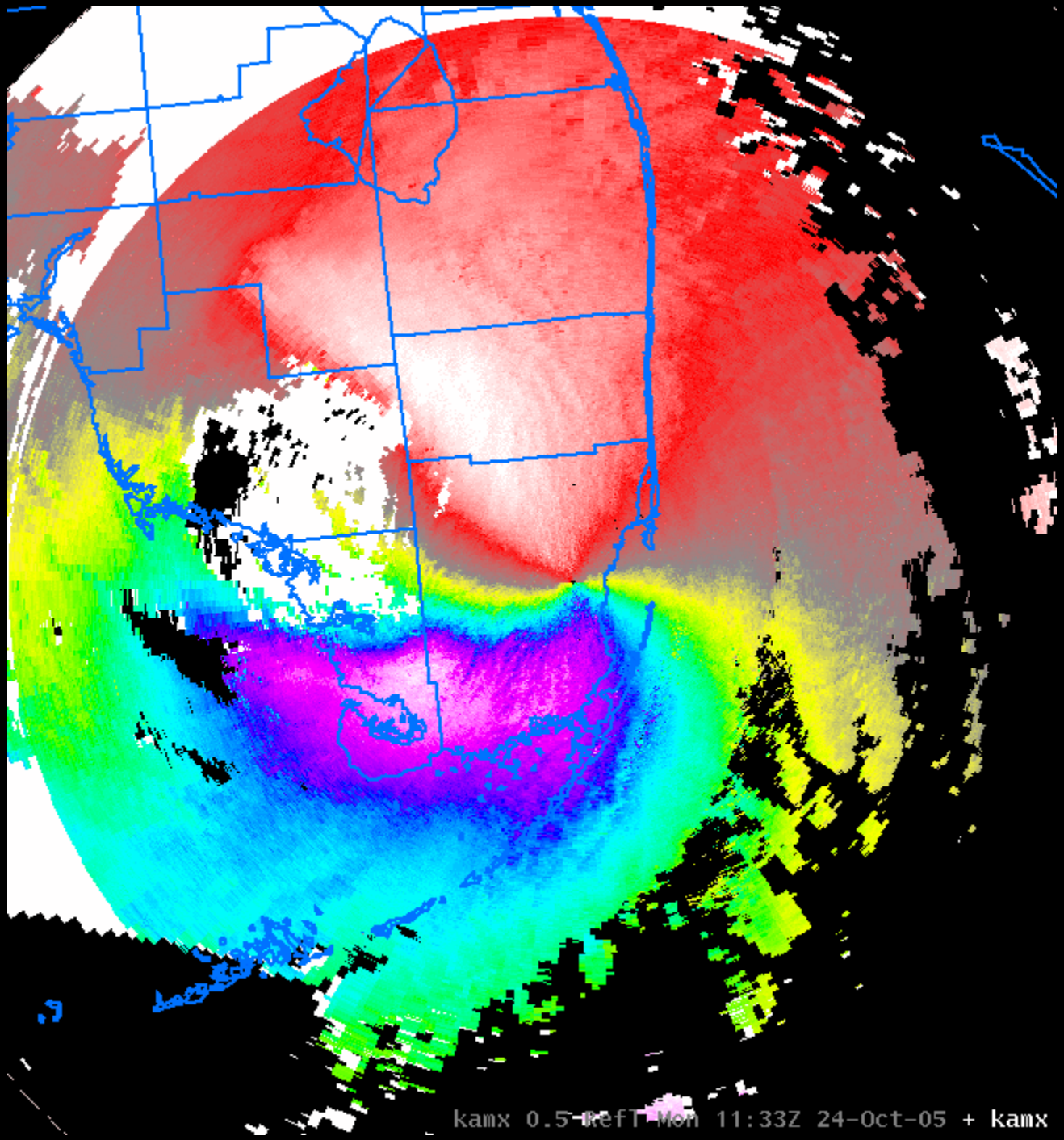

NOAA

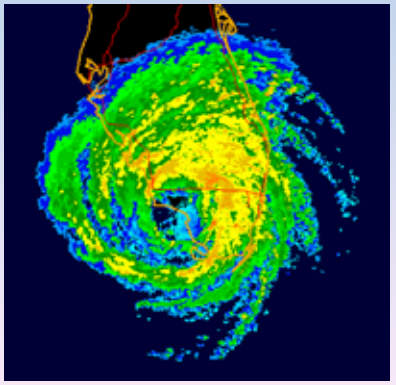

TDWR locations

Significant damage to Unisys dish demonstrated the value of redundancy.

In this case, AWIPS remained operational.

TDWR provided additional backup.


kamx 0.5 Refl Mon 11:33Z 24-Oct-05 + kamx

Conclusions

- Central collection of radar data vastly improved, but local backup will ensure that valuable data is not lost during extreme events.
- Catastrophic failures are possible.
- VCP 121 is an effective tool for reducing range-folding (purple haze). A residual bug should be resolved for 2006.