

DCA23FA428

METEOROLOGY

Specialist's Factual Report - Attachment 1

Delta Airlines Turbulence Review

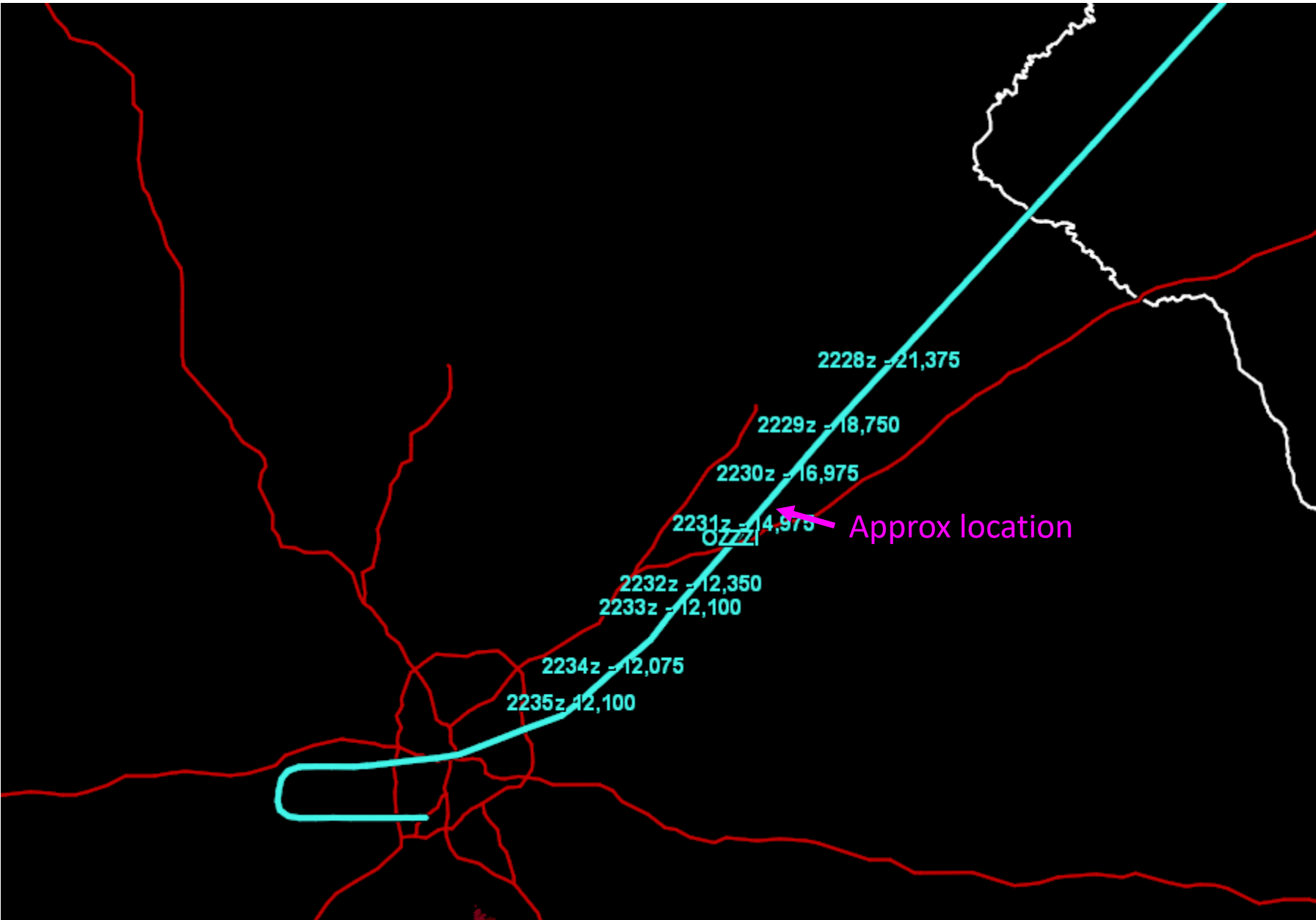
August 29, 2023

Preliminary Draft

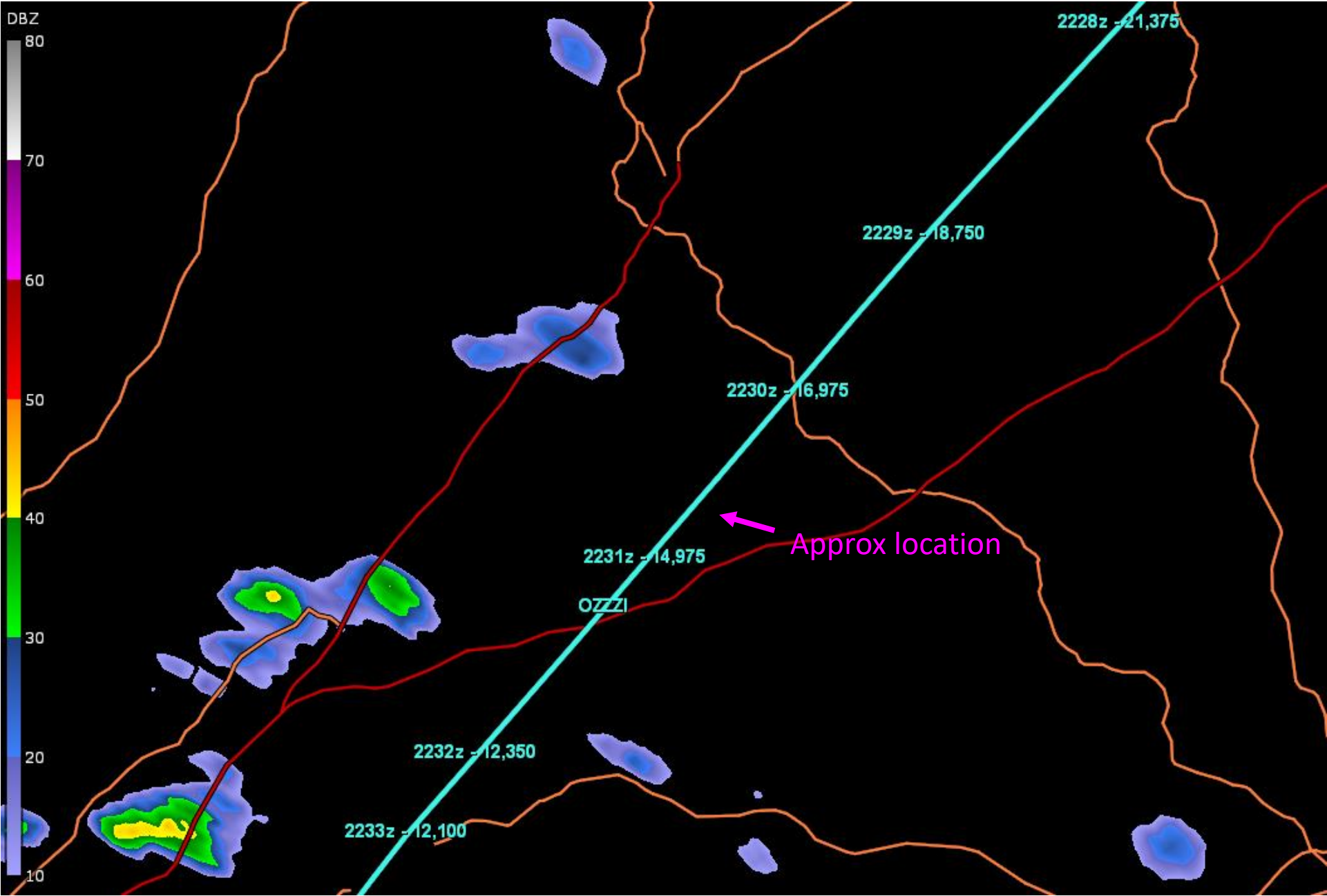
Weather Package for:
DL175 MXP-ATL
August 29, 2023

Met Summary: Approximately 2231z, DL175 flew over a growing cell while descending near FL150. Prior to the event at 2224z, there was no cell detected by radar. By 2248z, cell tops grew over 20,000FT. Included in this package is radar imagery from NWS Atlanta (KFFC), images from WidgetWx that are available to flight crews along with METARs, TAFs and digital-ATIS.

Flight Path: Flight approached ATL from the Northeast. At 2235z, pilot reported severe turbulence over OZZZI. Flight Aware data was used to plot flight path. At 2231z, flight was at 14,975FT just prior to OZZZI.

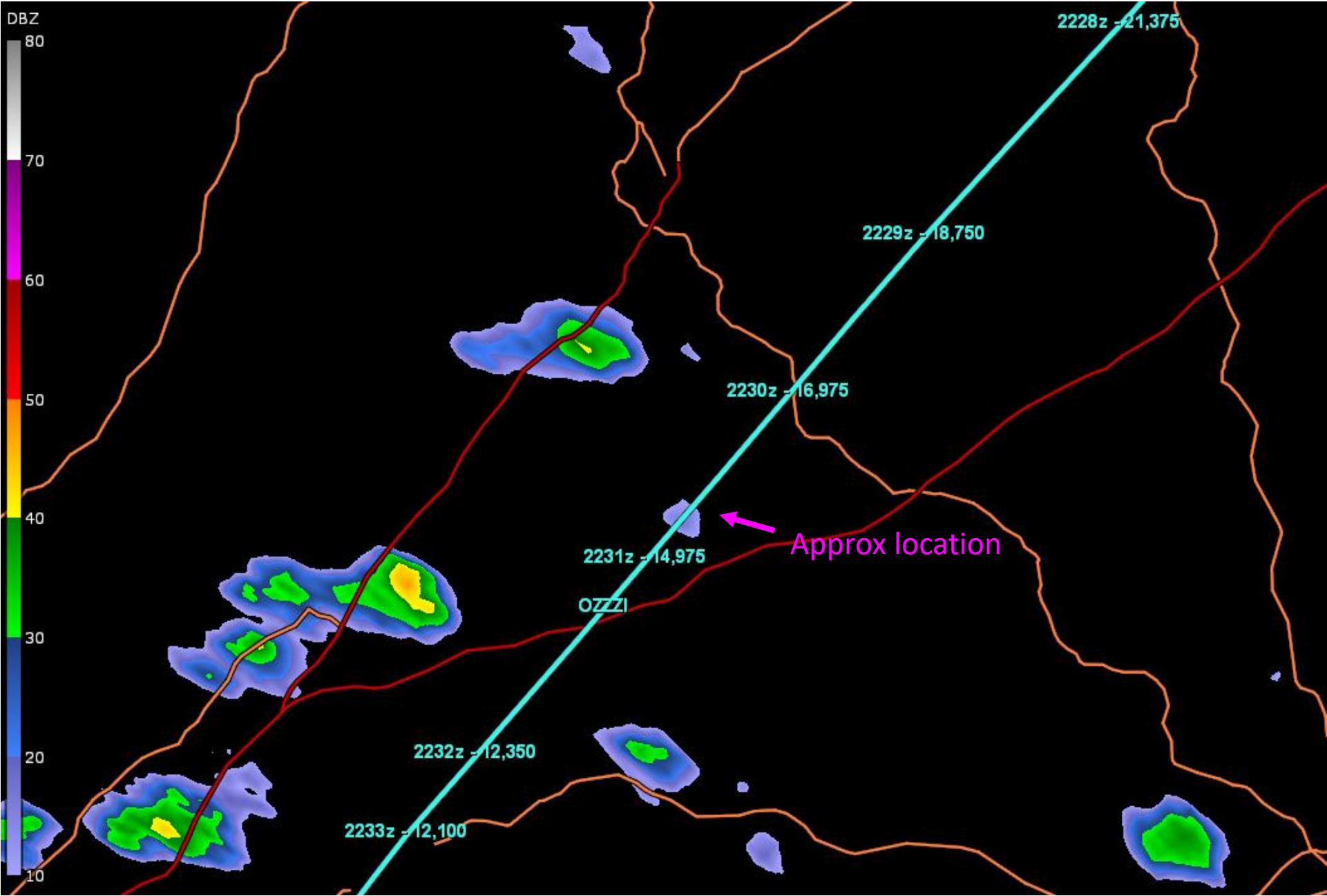


Radar Base Reflectivity – 2224z: Radar did not detect cell near event location.



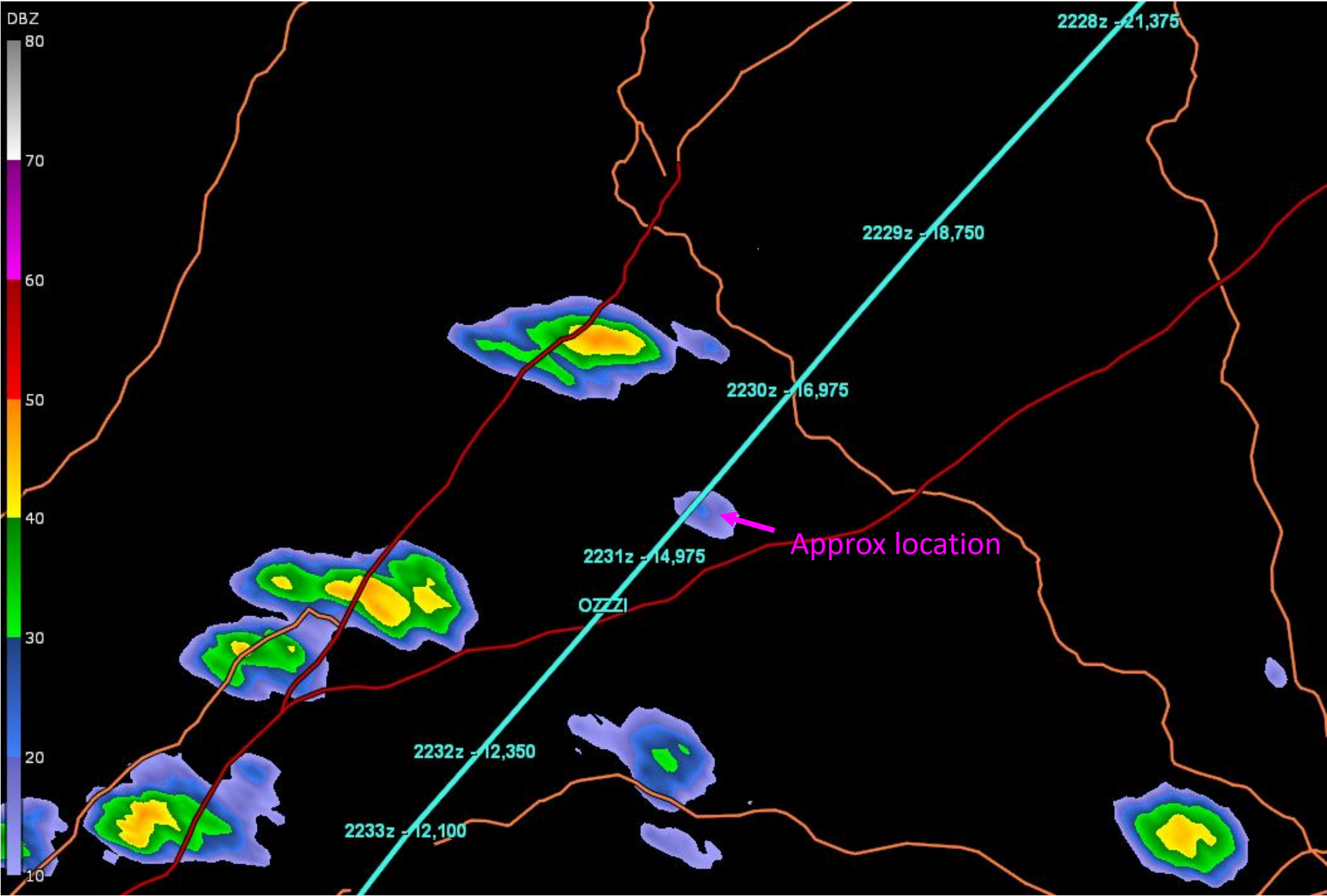
Atlanta NWS radar - KFFC

Radar Reflectivity – 2228z: Cell was just starting to develop on radar 3 minutes prior to encounter.



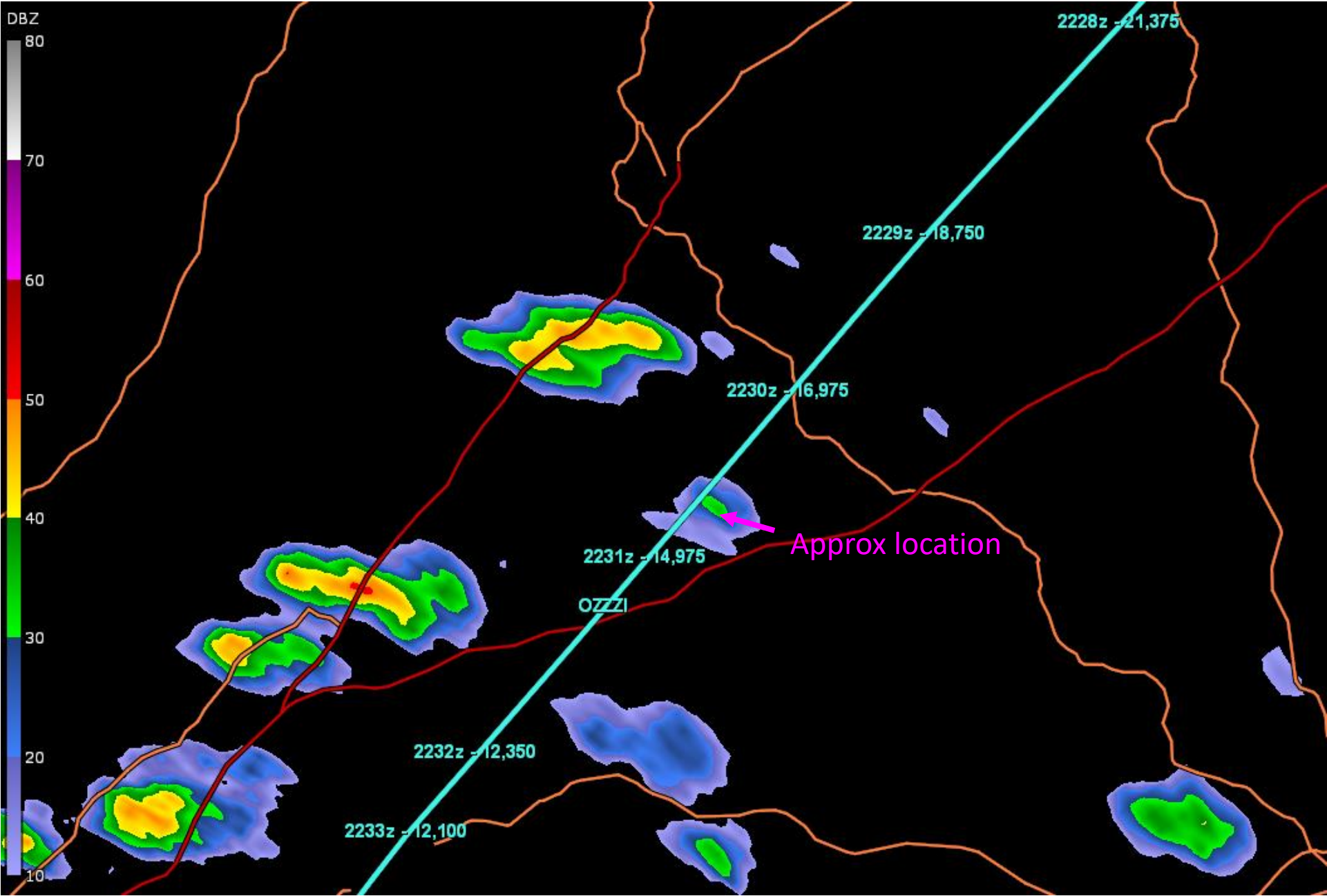
Atlanta NWS radar - KFFC

Radar Reflectivity – 2231z: Cell continued to develop directly along flight route.



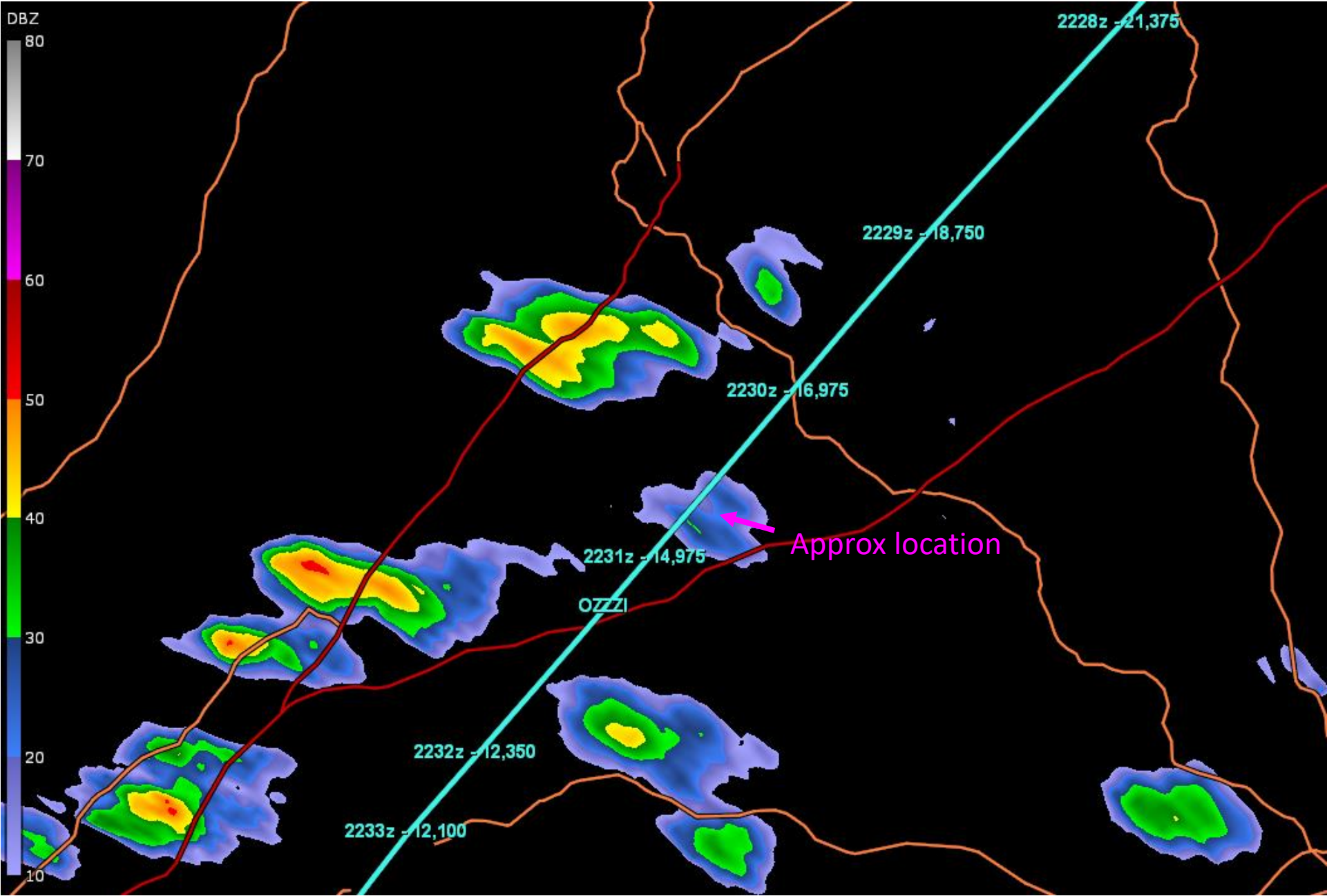
Atlanta NWS radar - KFFC

Radar Reflectivity – 2234z: Cell continued to grow after event.



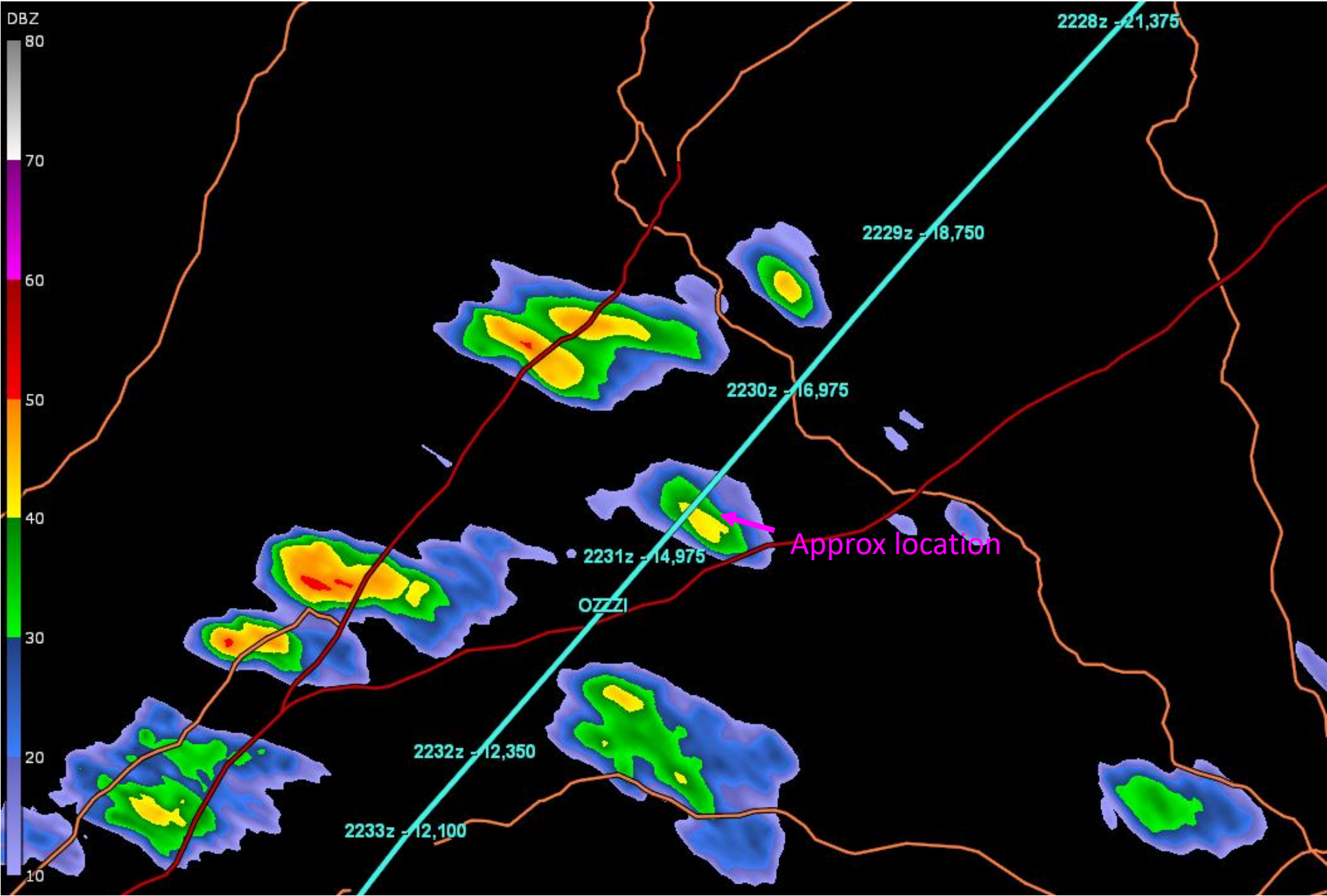
Atlanta NWS radar - KFFC

Radar Reflectivity – 2238z



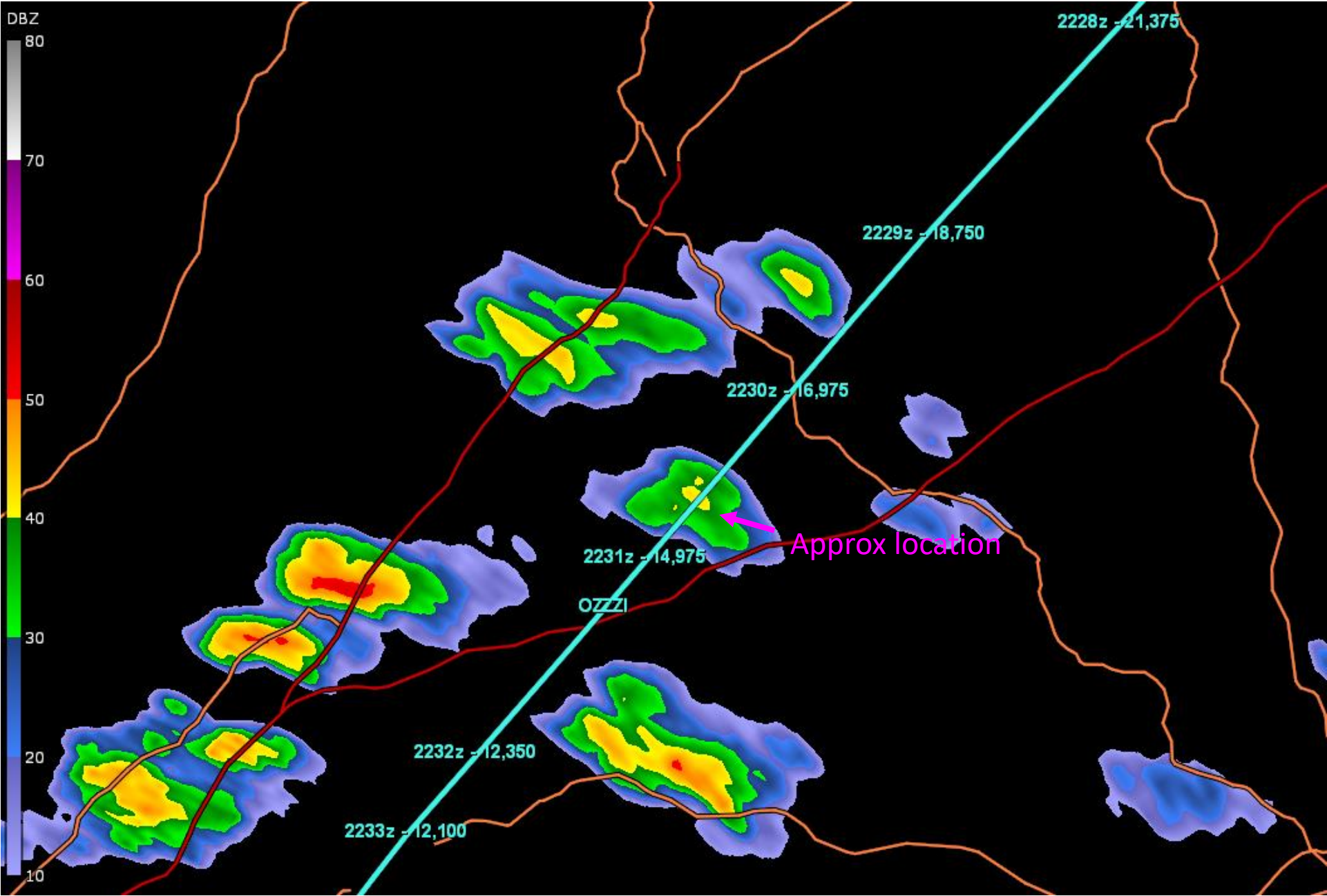
Atlanta NWS radar - KFFC

Radar Reflectivity – 2241z



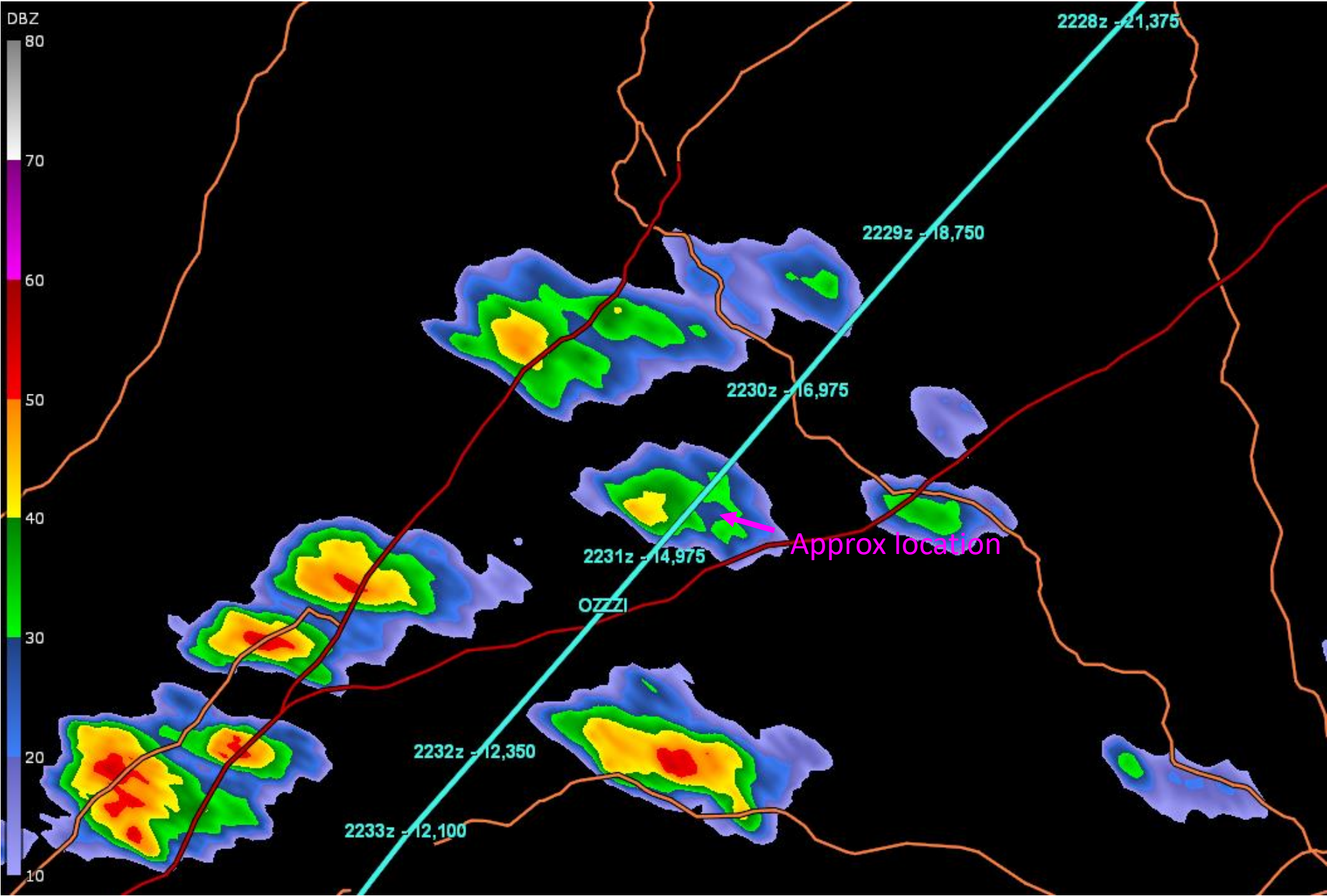
Atlanta NWS radar - KFFC

Radar Reflectivity – 2245z



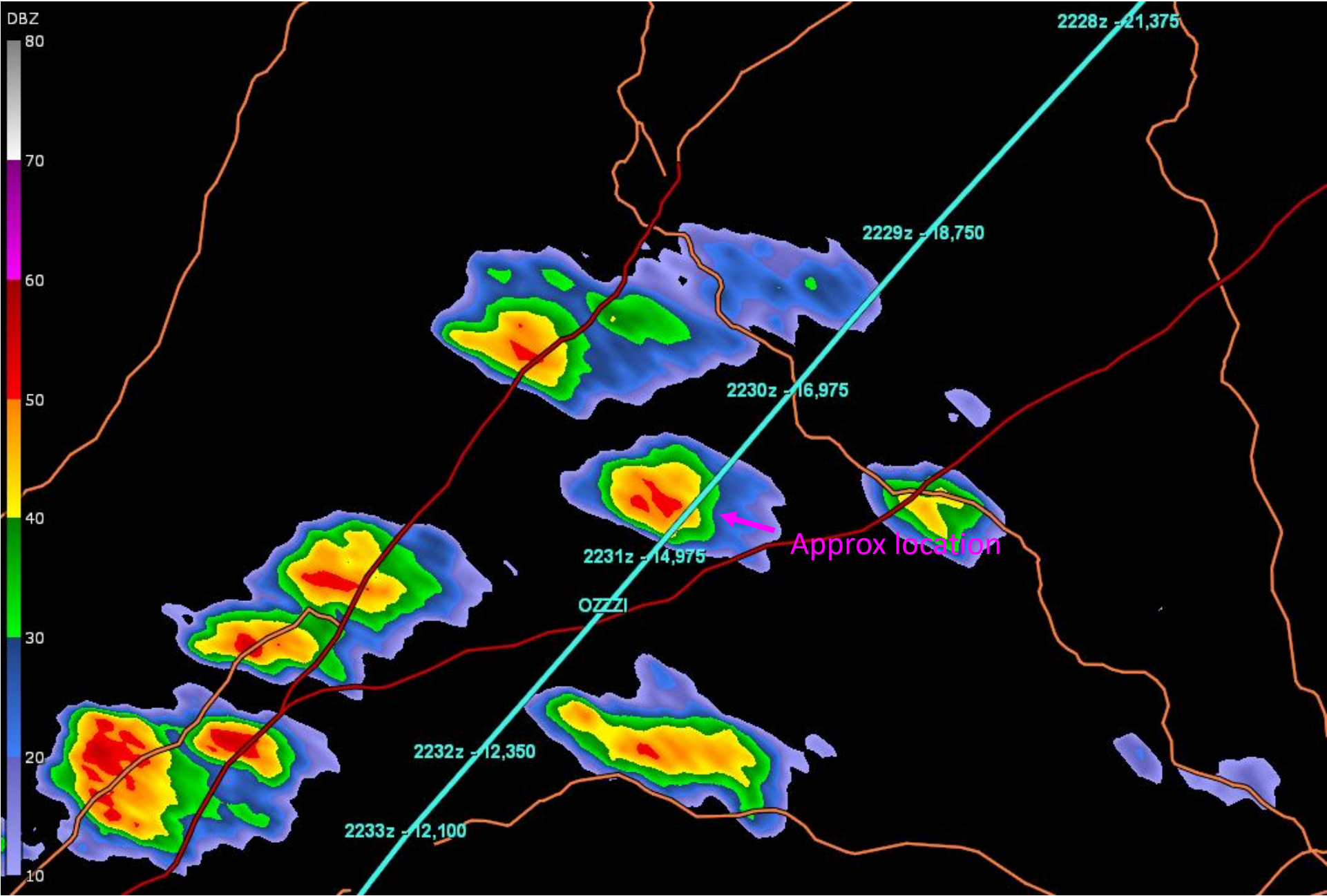
Atlanta NWS radar - KFFC

Radar Reflectivity – 2248z



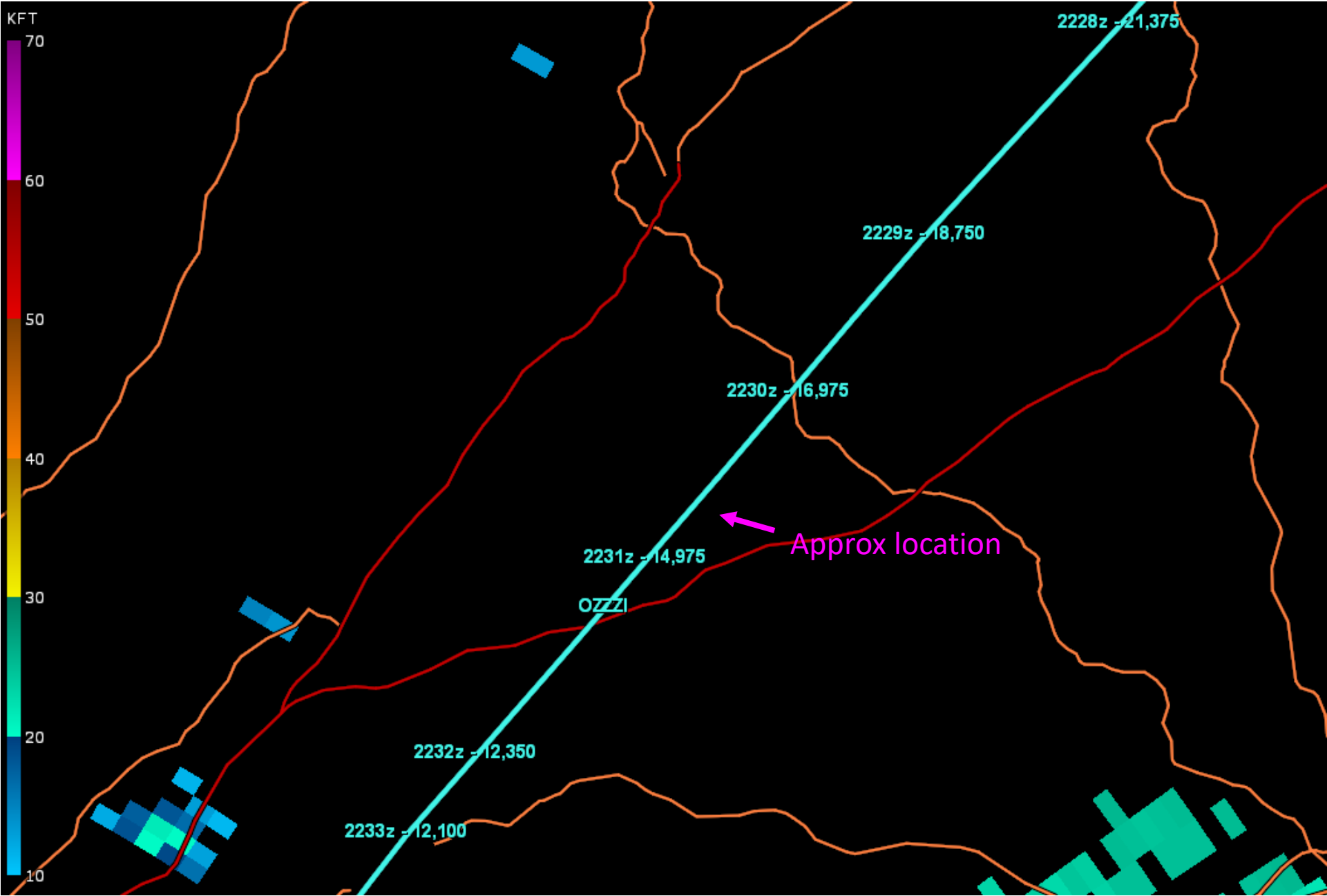
Atlanta NWS radar - KFFC

Radar Reflectivity – 2251z



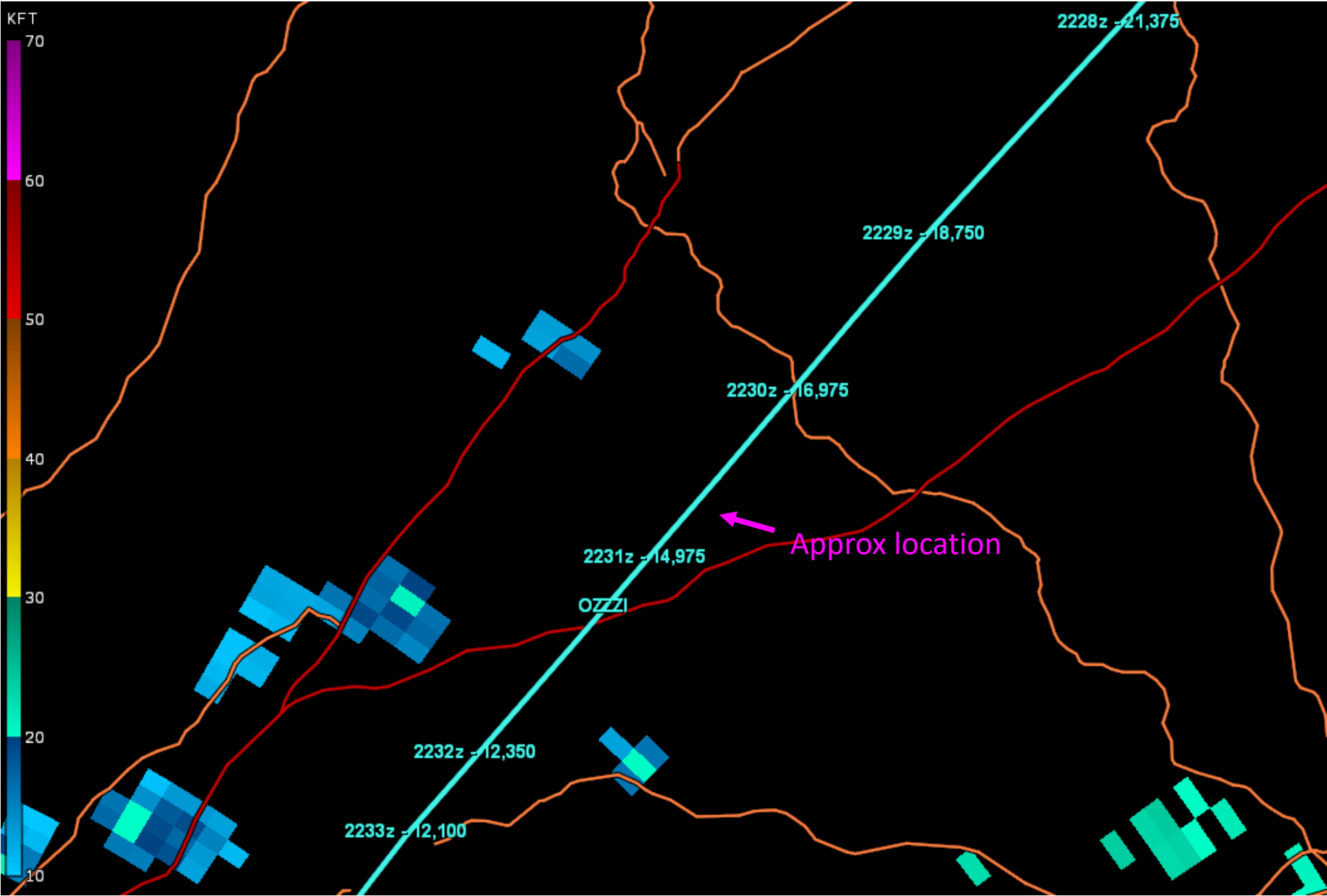
Atlanta NWS radar - KFFC

Radar Echo Tops – 2221z: Echo tops are reported once the cell reaches certain intensity above 10,000FT. None were detected prior to event.



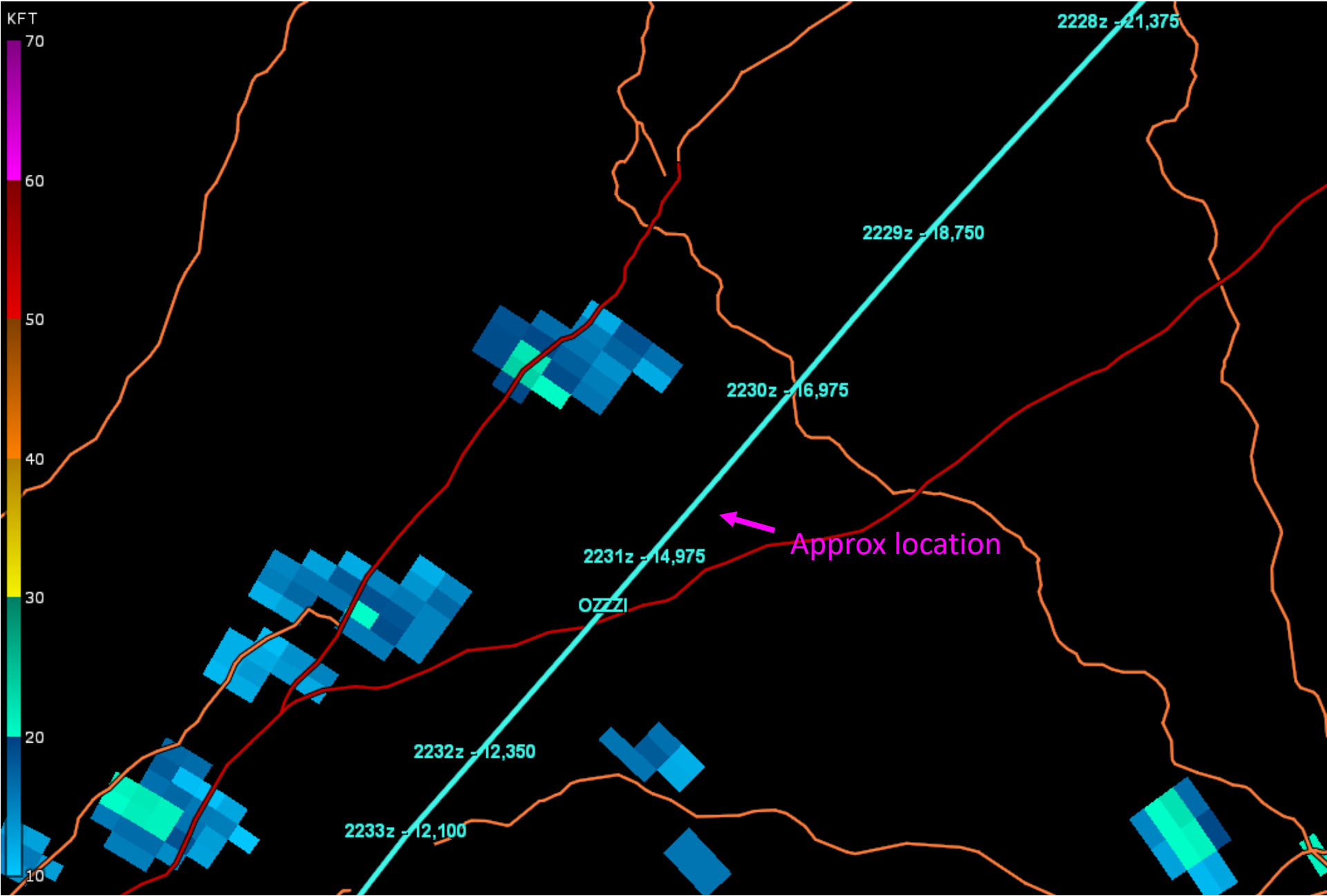
Atlanta NWS radar - KFFC

Radar Echo Tops – 2227z: 4 minutes prior to event, no echo tops were detected.



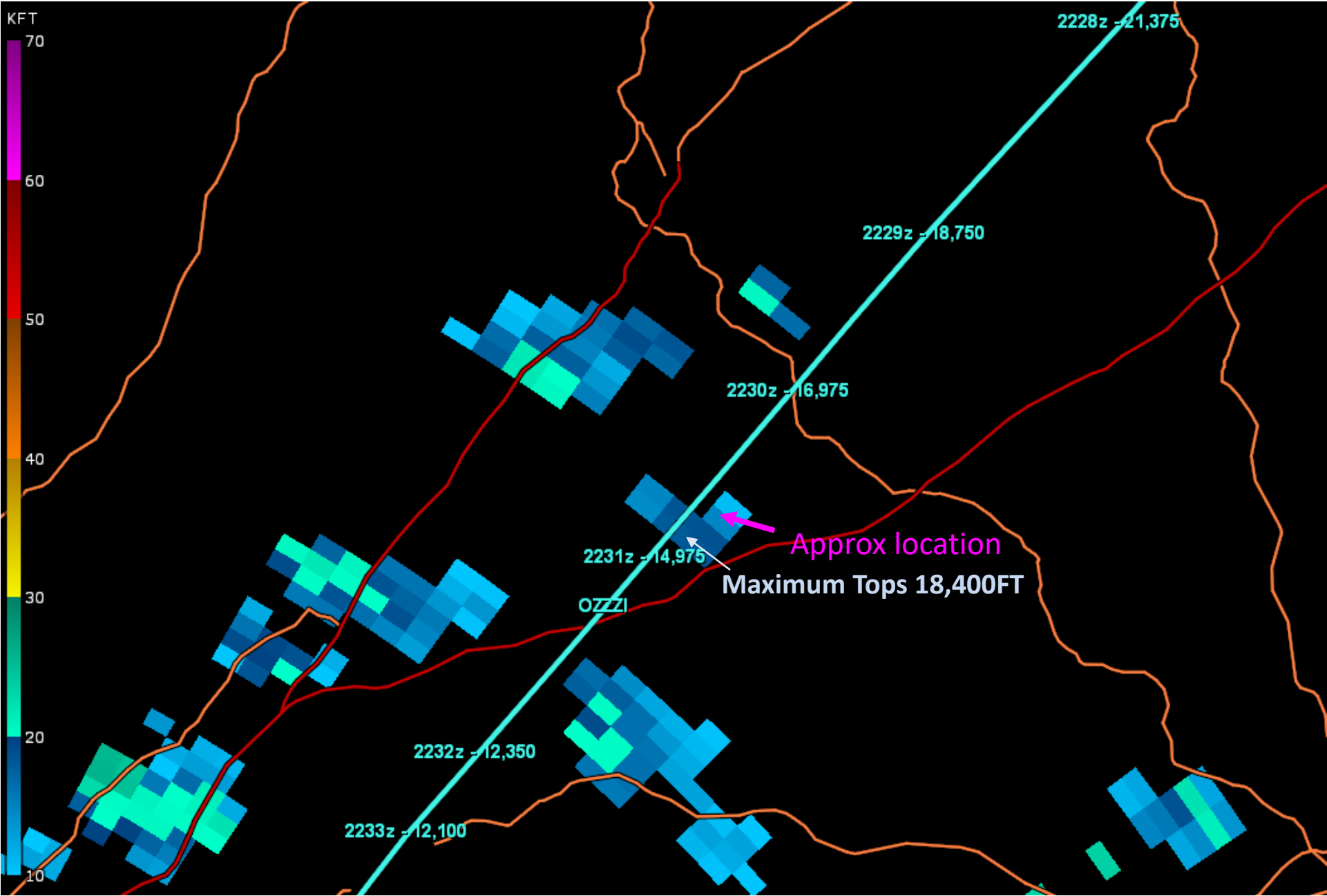
Atlanta NWS radar - KFFC

Radar Echo Tops – 2234z: Just after event, echo tops still did not meet threshold.

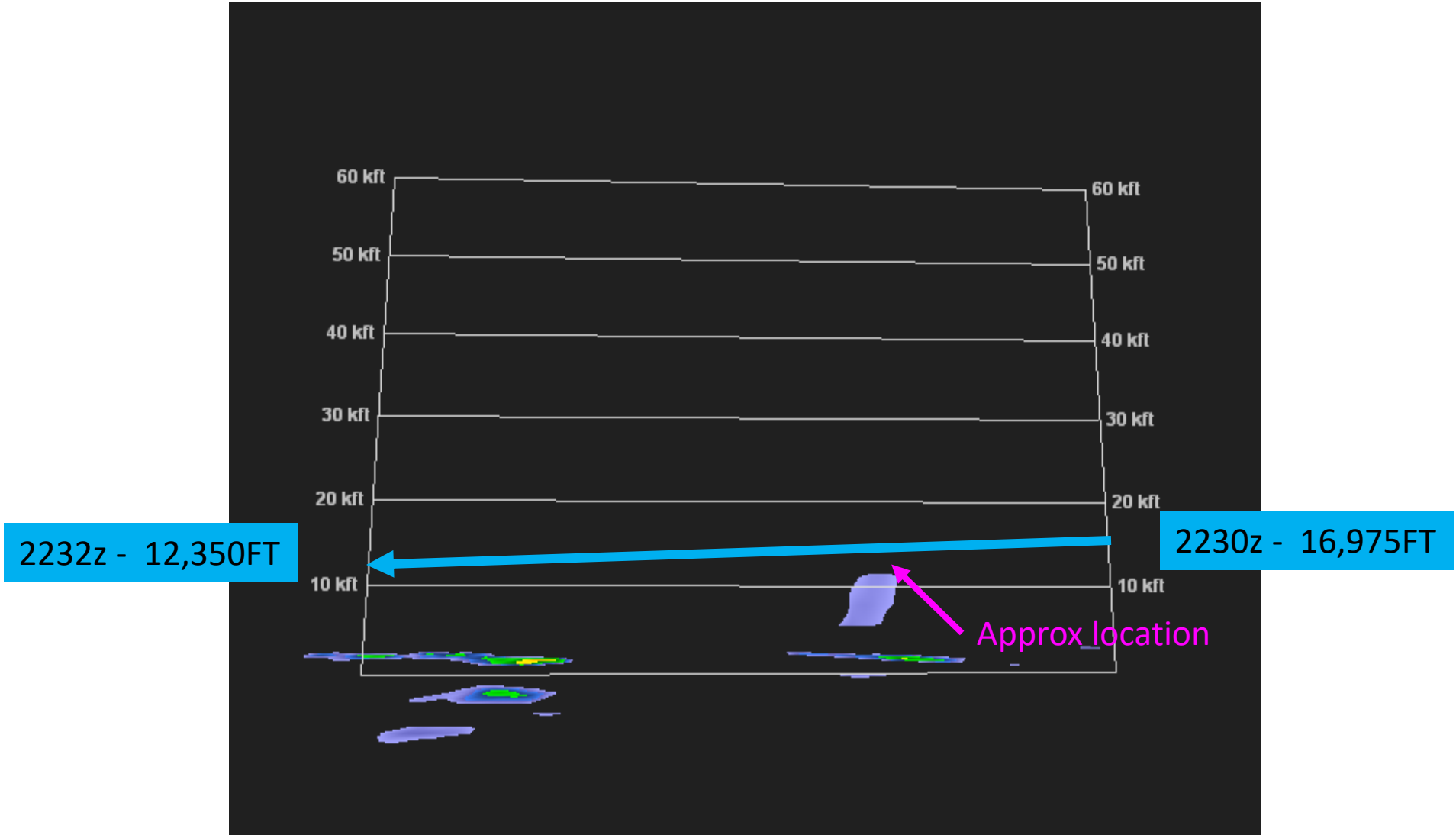


Atlanta NWS radar - KFFC

Radar Echo Tops – 2241z: Echo tops to 18,400FT 10 minutes after event.

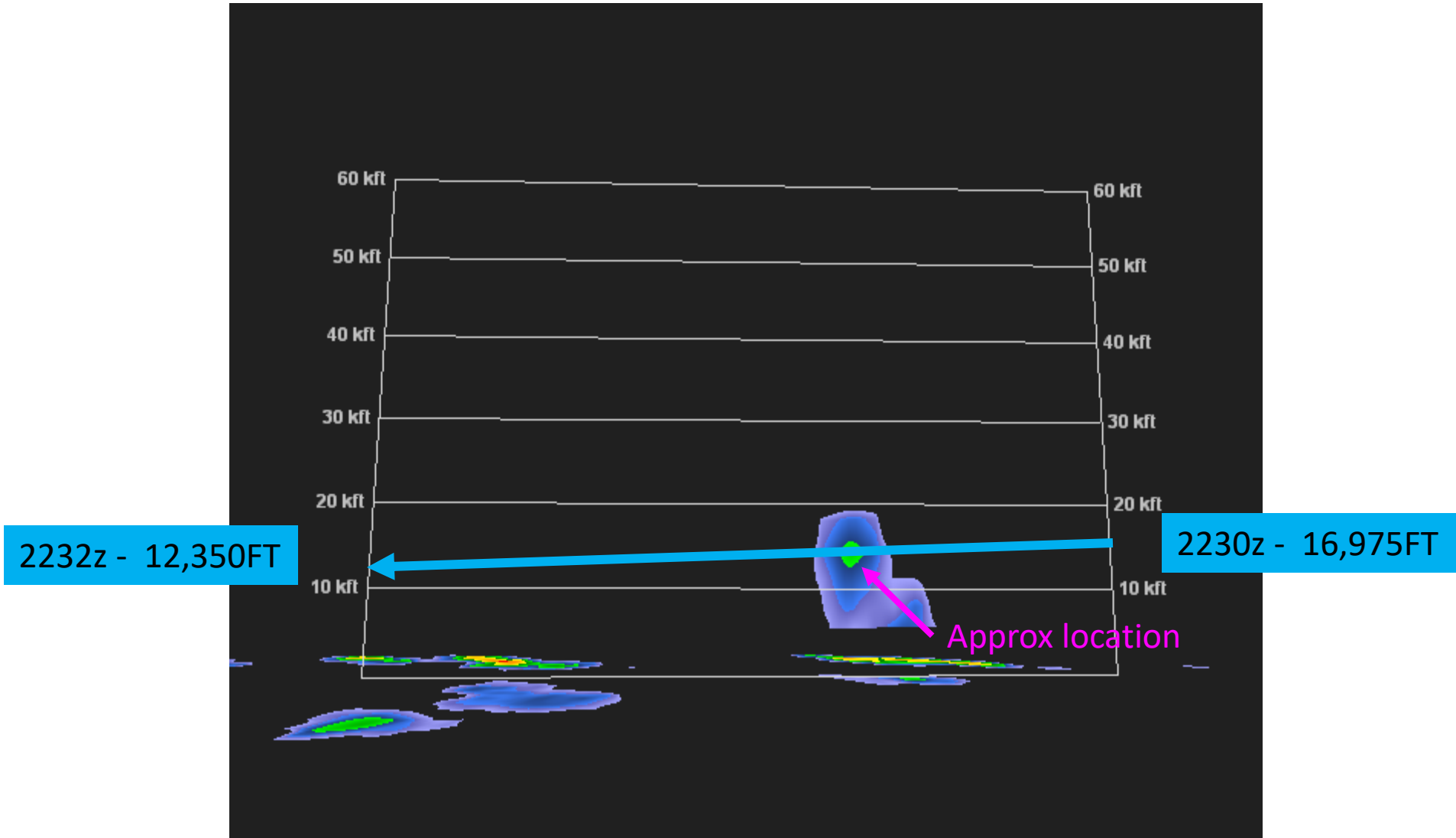


Radar Cross Section along Route – 2228z: Echo tops 11,000FT approximately 3 minutes prior to event. The flight was descending from 16,975FT to 12,350FT.



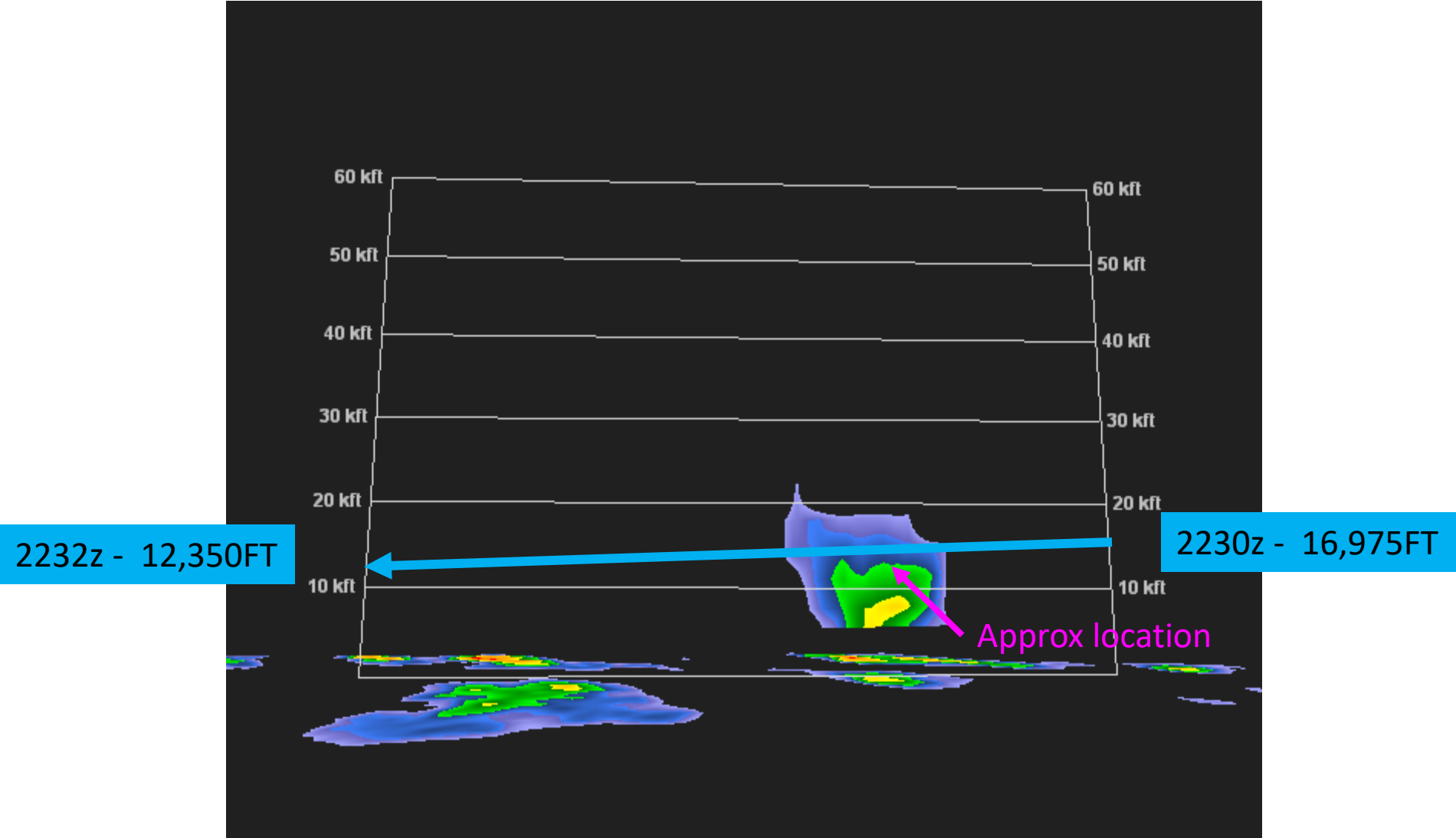
Atlanta NWS radar - KFFC

Radar Cross Section along Route – 2234z: Approximately 3 minutes after the event, echo tops had grown to approximately 19,000FT.



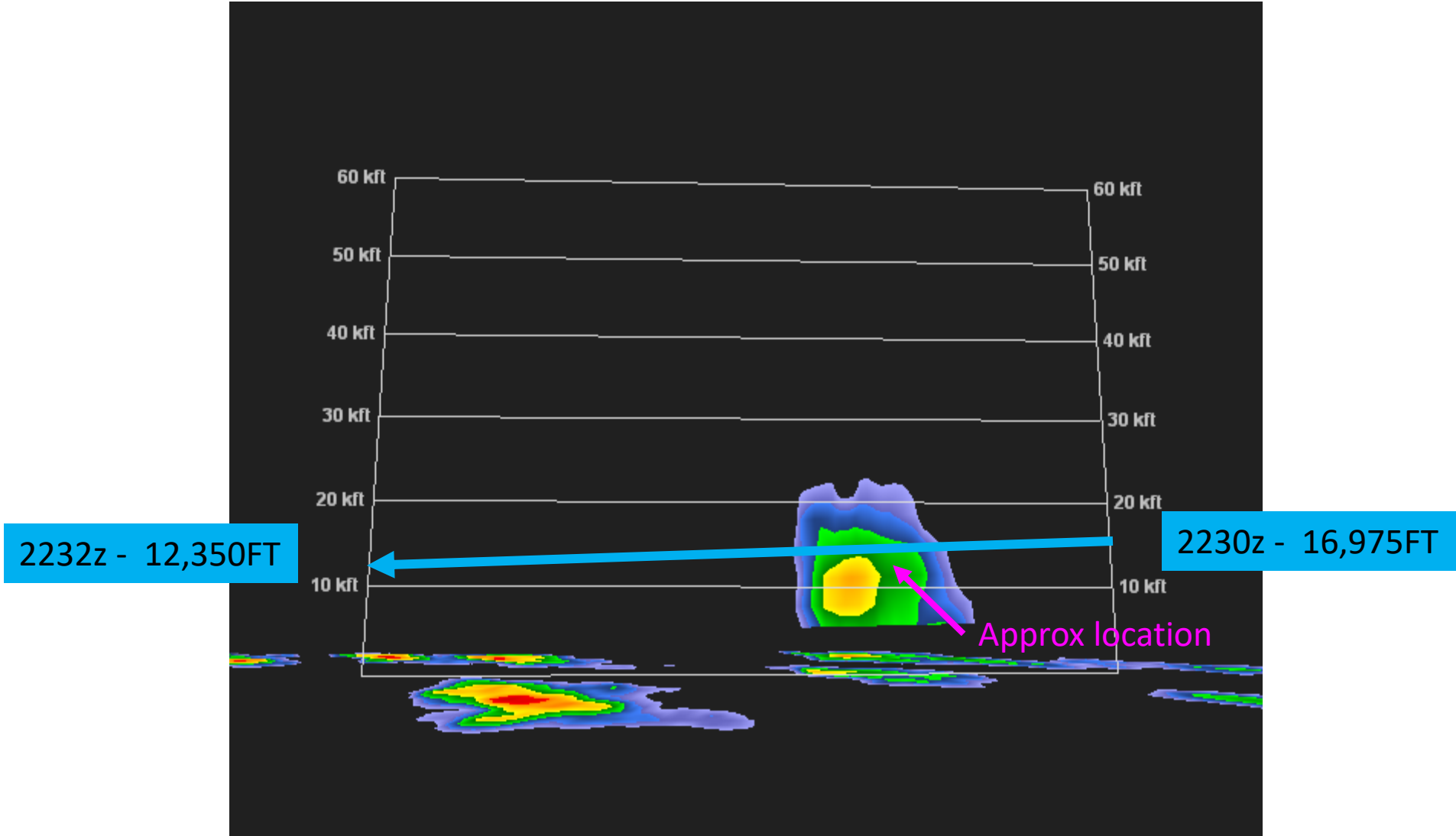
Atlanta NWS radar - KFFC

Radar Cross Section along Route – 2241z: After event, cell continued to become more intense



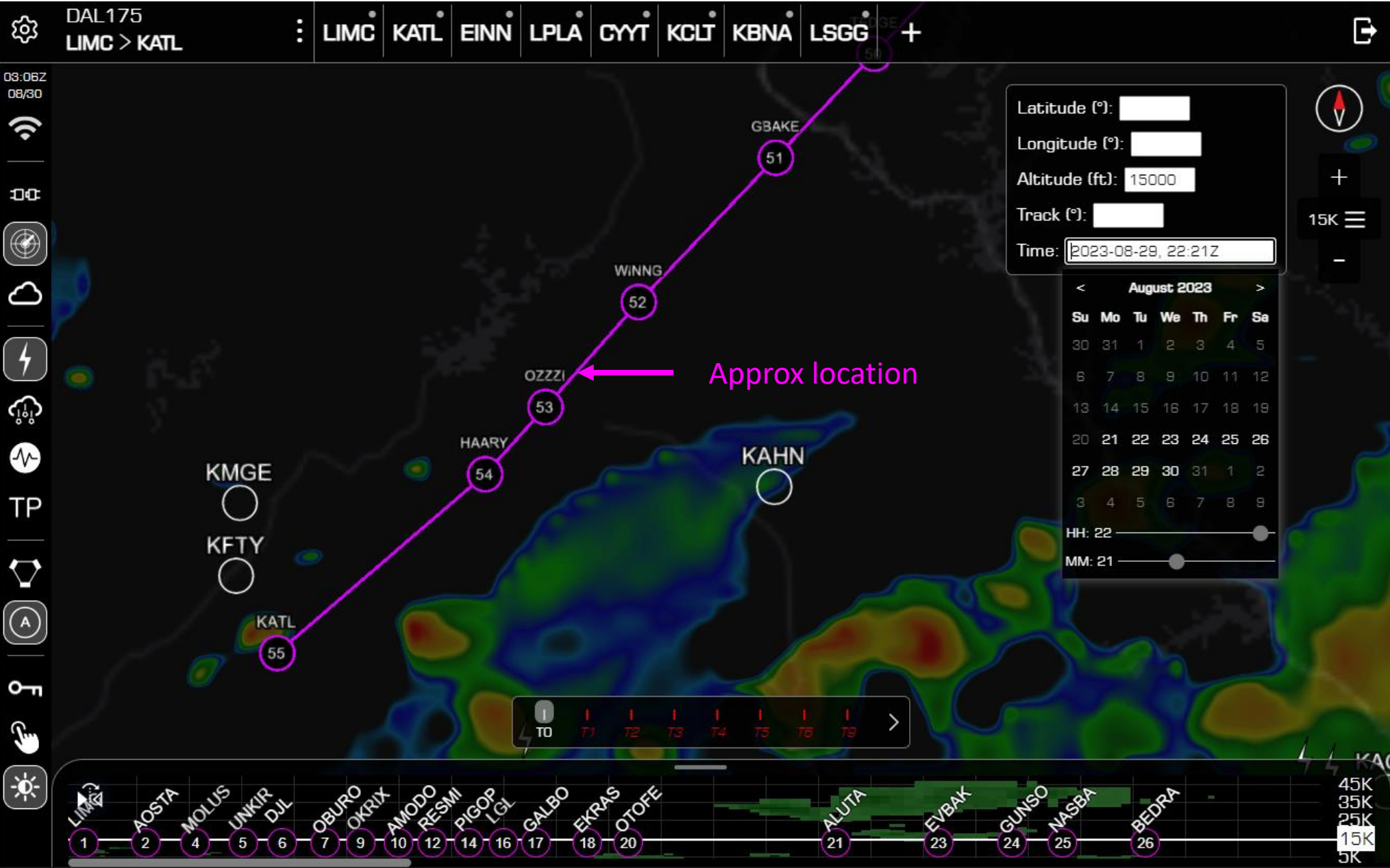
Atlanta NWS radar - KFFC

Radar Cross Section along Route 2248z: 17 minutes after the event, the cell was still growing.

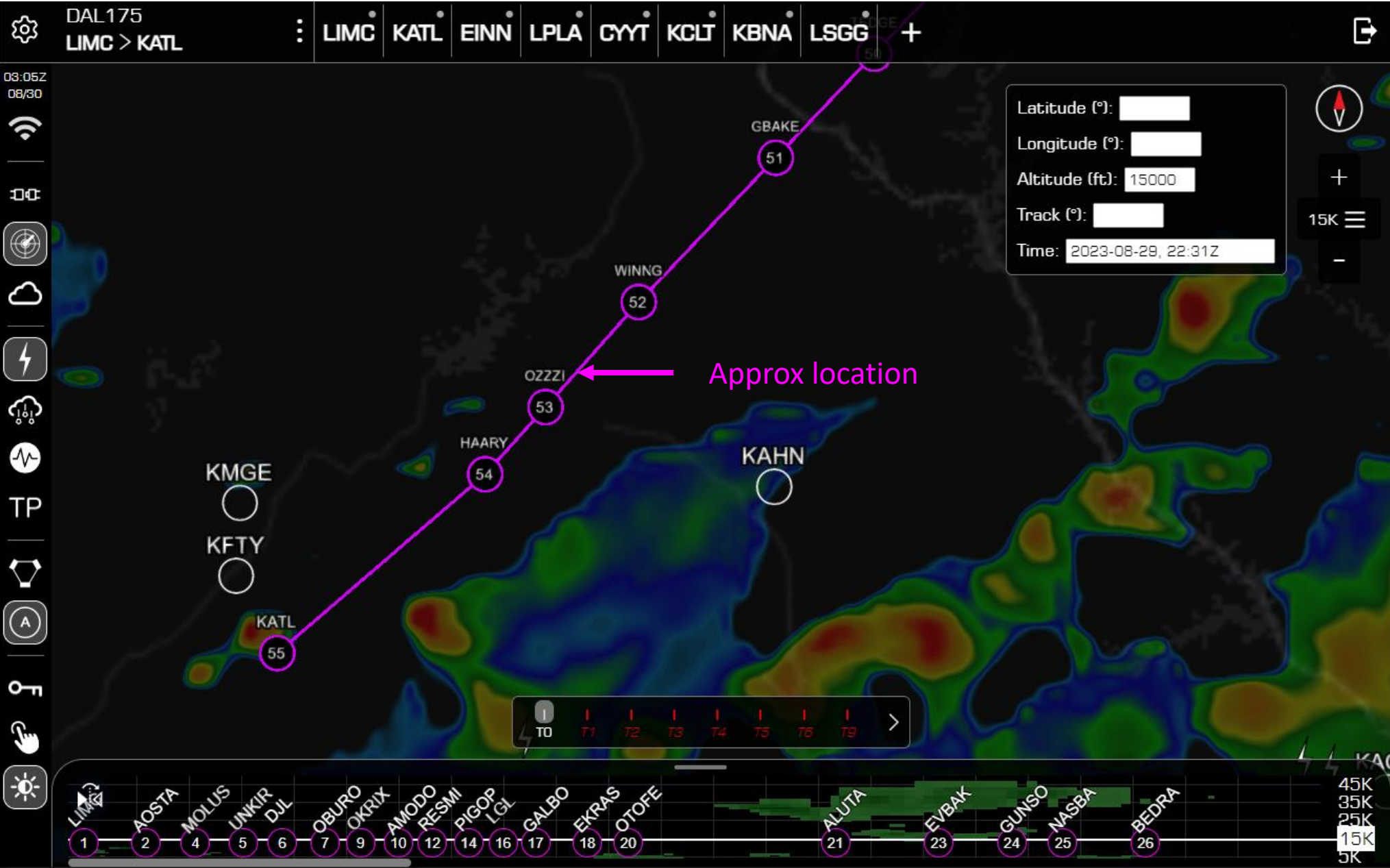


Atlanta NWS radar - KFFC

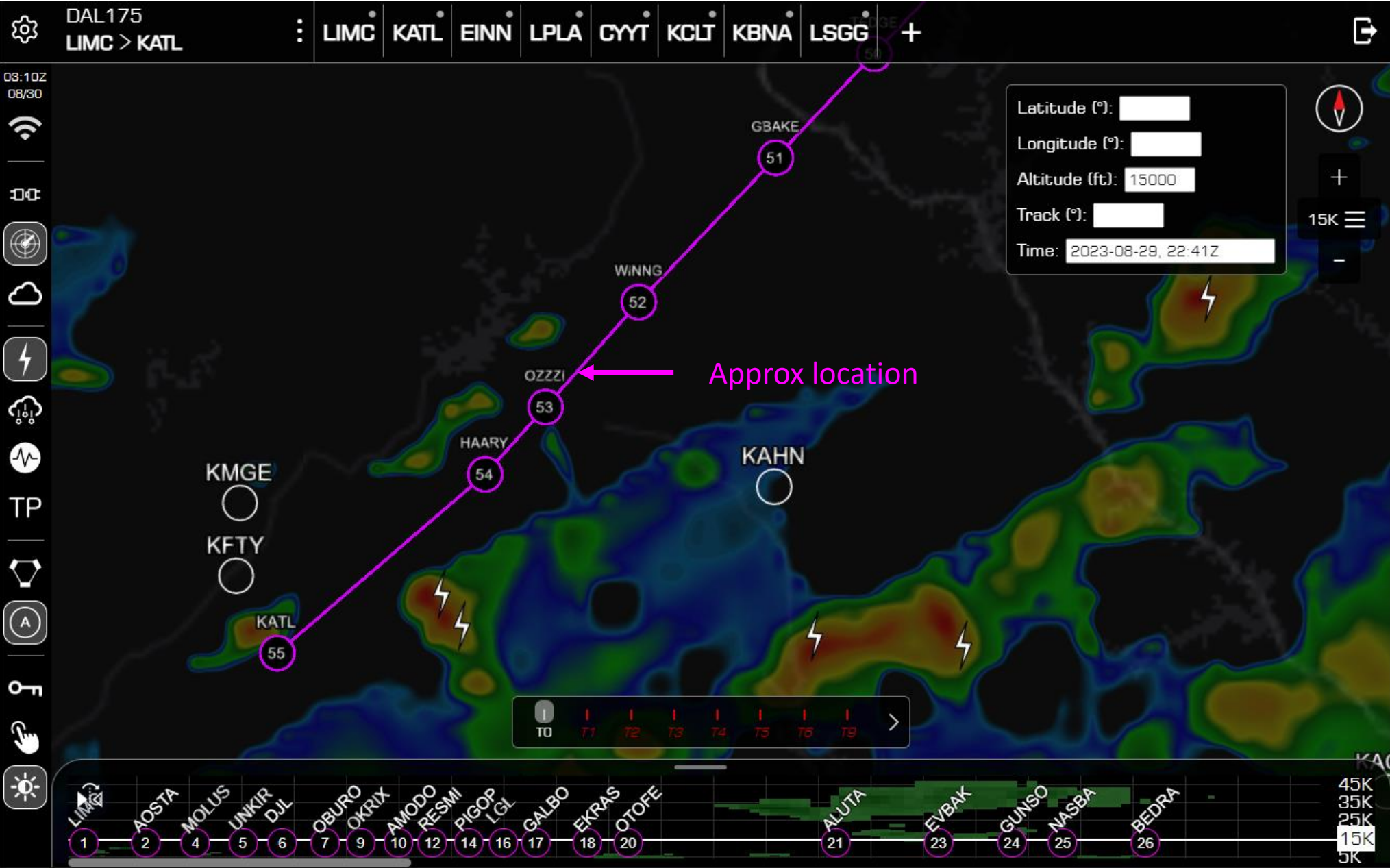
Widget Wx – Radar 2221z: No signs of cell development 10 minutes prior to event.



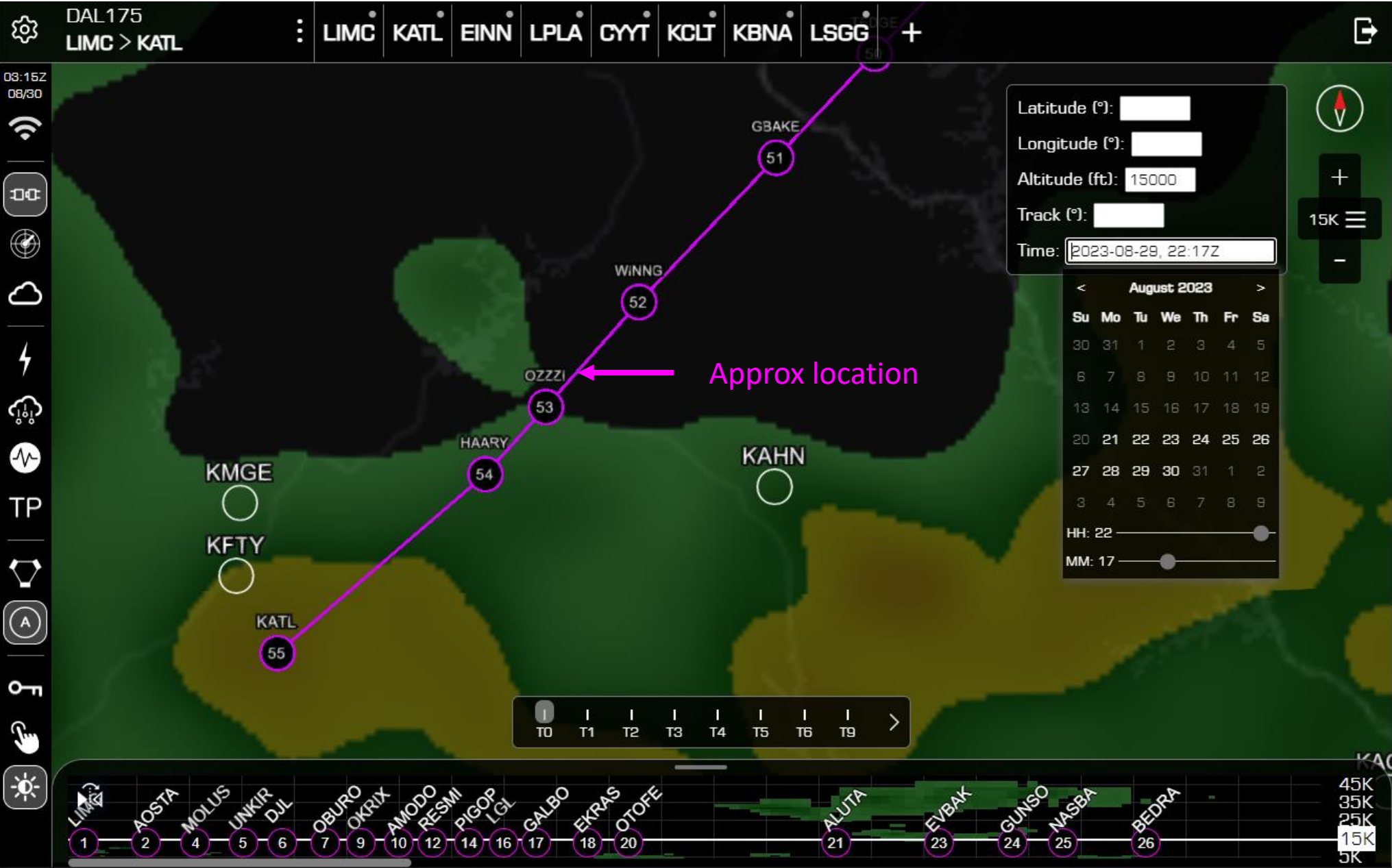
Widget Wx – Radar 2231z: No signs of cell development at event time.



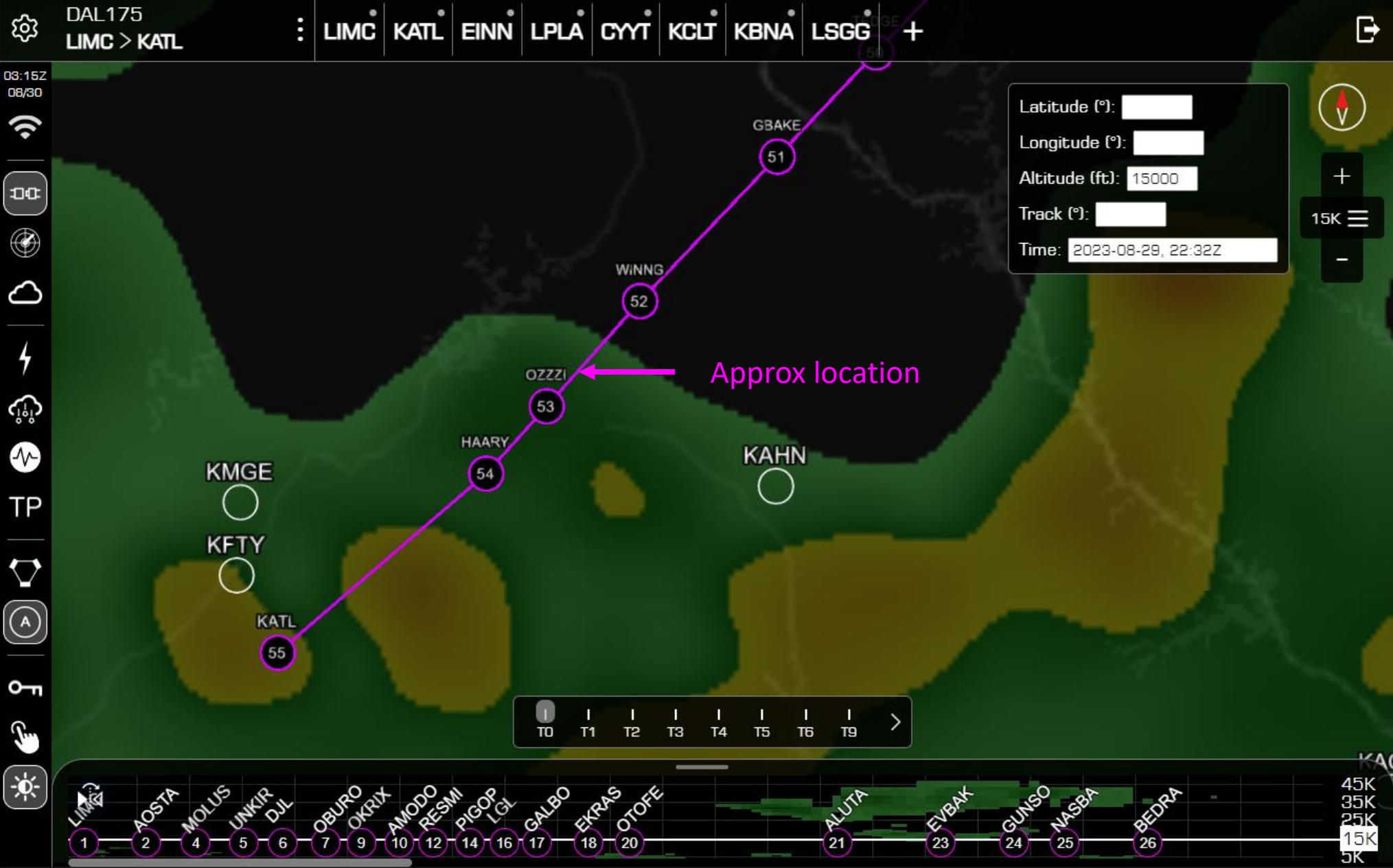
Widget Wx – Radar 2228z: : No signs of cell development 10 minutes after event.



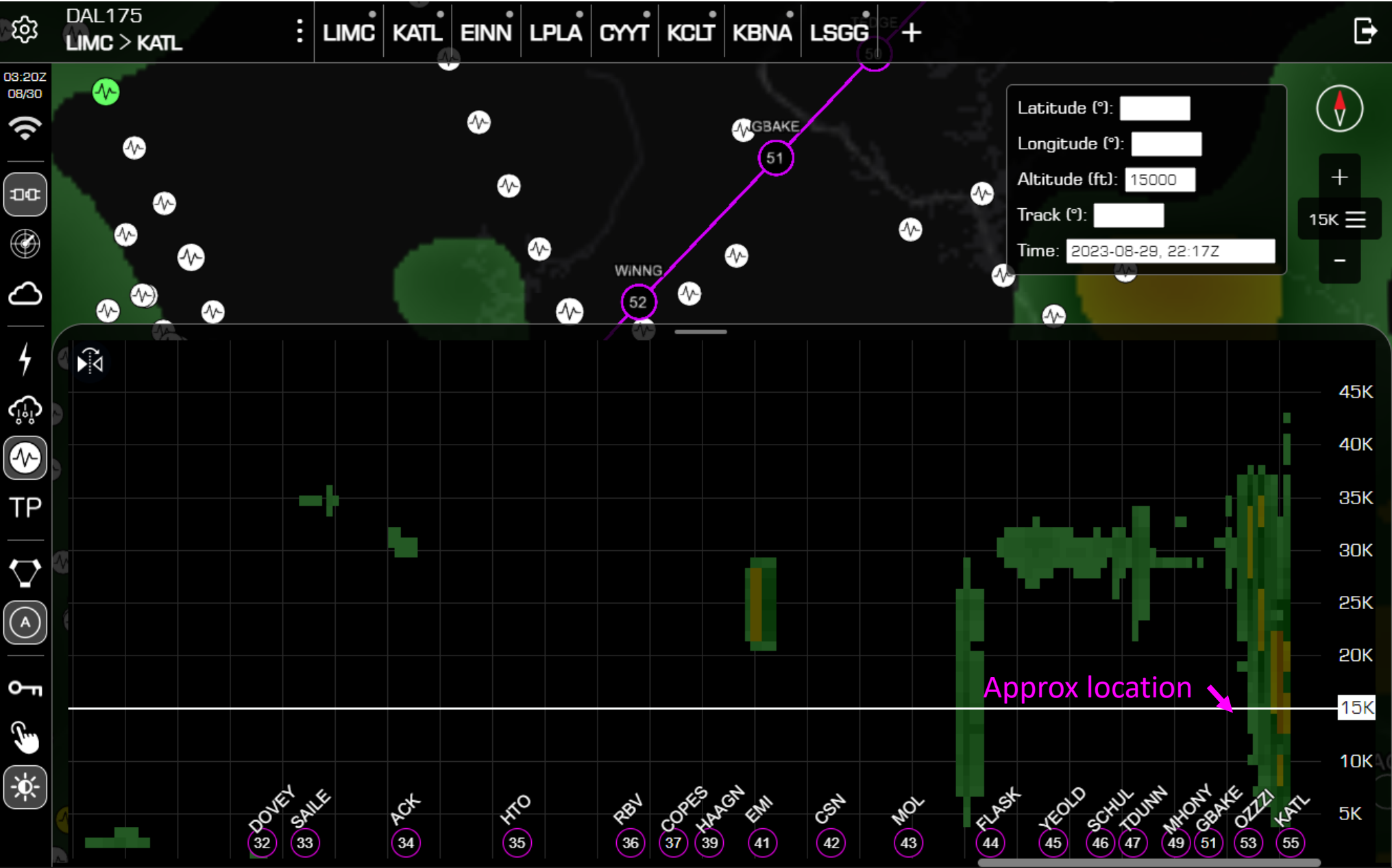
Widget Wx – GTG-N Automated Turbulence 2217z Update: 14 minute prior to event, light turbulence after OZZZI with moderate turbulence forecast closer to ATL.



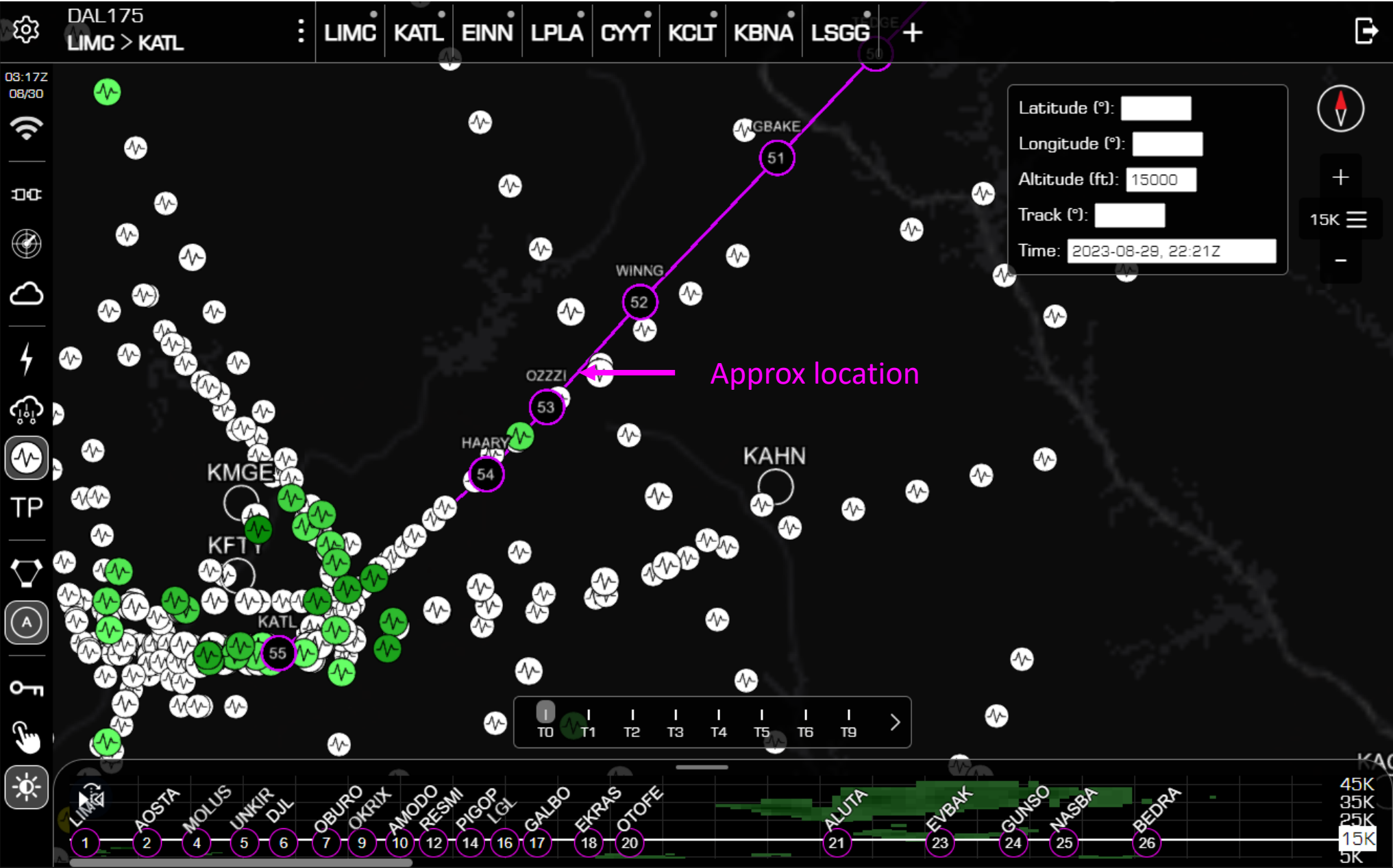
Widget Wx – GTG-N Automated Turbulence 2232z Update: 1 minute after event, light turbulence forecast before OZZZI with moderate closer to ATL.



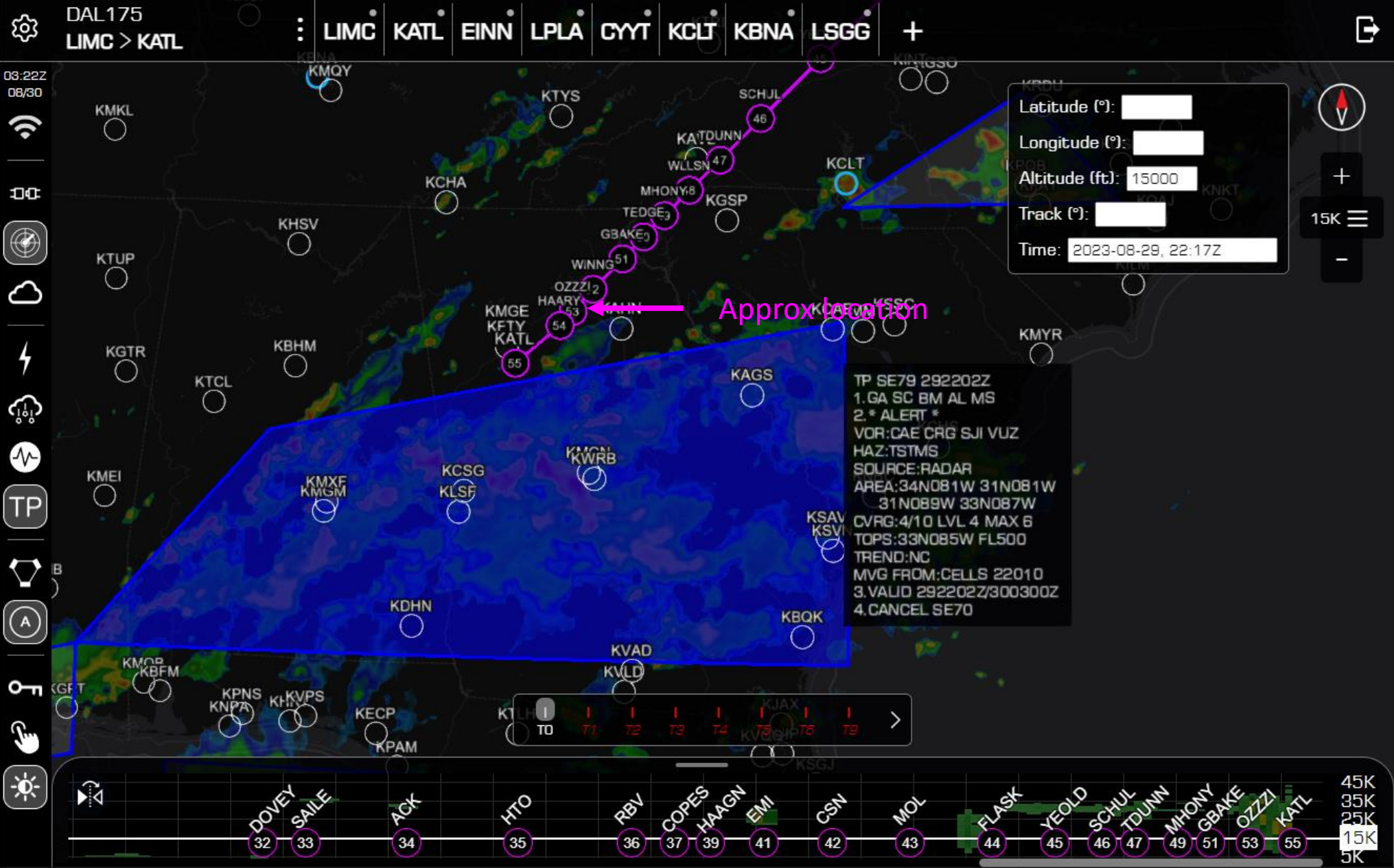
Widget Wx – GTG-N Cross Section 2217z: Light and moderate turbulence forecast between OZZZI-ATL.



Widget Wx – Eddy Dissipation Rate (EDR): EDR is automatically reported by some aircraft when turbulence is experienced. DL175 was not equipped with EDR. Other aircraft reported smooth and light turbulence around the Atlanta area.



Widget Wx – Delta Meteorology Threat Plot (TP): Only issued for thunderstorm areas with 4/10 coverage or greater. No TP was active over event location. Coverage did not meet threshold and no lightning was reported. Closest thunderstorm TP was approximately 40 miles south (blue area below).



KATL METARs and Delta TAFs

SPECI KATL 292301Z 16005KT 10SM TS FEW035CB SCT060 BKN100 OVC200 28/21 A2983 RMK AO2 TSB01 OCNL LTGICCG VC N-NE TS VC N-NE MOV N TCU W-N NE T02780206 \$=
METAR KATL 292252Z 16005KT 10SM FEW038CB SCT055 BKN110 OVC200 28/21 A2983 RMK AO2 LTG DSNT NE AND E SLP089 RAB14E24 CB W-NW DSNT NE-SE MOV N TCU NW-NE P0000
T02830206 \$=
METAR KATL 292152Z 16012G19KT 10SM SCT040TCU BKN070 BKN200 BKN250 31/22 A2982 RMK AO2 LTG DSNT E AND SE SLP086 CB DSNT E SE-S TCU E-OHD-W ALQDS T03060222 \$=
METAR KATL 292052Z 09005KT 10SM FEW040TCU SCT070 SCT200 BKN250 32/22 A2981 RMK AO2 LTG DSNT SE-SW SLP082 CB DSNT SE-SW TCU SW DSNT N-NE NW T03170222 57026 \$=

Valid at Departure:

ATL 291056Z 2911/3016 07005KT 5SM BR SCT004 BKN006
TEMPO 2911/2914 3SM BR BKN004
FM291500 11005KT P6SM BKN015
FM291700 13005KT P6SM BKN035
FM292000 13007KT P6SM -SHRA BKN050
PROB40 2921/3002 VRB20G30KT 3SM TSRA BR BKN035
FM300300 14005KT P6SM SCT025 BKN050
PROB20 3005/3007 4SM -TSRA BR BKN025
FM300700 09005KT 5SM BR SCT003 OVC006
TEMPO 3009/3014 3SM BR BKN003
RMK DL TAF BY EDWARDS

DISCUSSION - *AMD TO TEMPO LIFR POTENTIAL UNTIL 14Z
AND ADJUST TSTM TIMING* LOW CIGS TUES AM GIVING WAY
TO A GOOD CHC FOR SHWRS/TSTMS TUES AFTN. BEST CHC
FOR TERMINAL IMPACT 21Z-02Z. TSTMS CAN PRODUCE GUSTY
WINDS. ANOTHER CHC FOR A LATE-EVNG TSTM FOLLOWED
BY MORE LOW CIGS OVERNIGHT INTO STARTUP WED.

Updated:

KATL 291600Z 2916/3022 10007KT P6SM BKN018
FM291800 13008KT P6SM BKN035
FM292000 13008KT P6SM BKN050
PROB20 2920/2922 5SM -TSRA BR BKN035
FM292200 13006KT 6SM -SHRA BR SCT035 OVC050
TEMPO 2922/3002 VRB20G30KT 3SM TSRA BR BKN035
FM300300 15006KT P6SM -SHRA SCT008 BKN025
FM300700 09005KT 5SM BR SCT004 OVC008
TEMPO 3009/3015 3SM BR BKN004
FM301700 06015G25KT 5SM -RA BR OVC015
RMK DL TAF BY Edwards

DISCUSSION - SCT TSTMS DVLPNG AFTER TUES AFTN BEFORE A
MORE ORGANIZED CLUSTER OF STORMS MOVES IN FROM THE
SOUTH AFTER 22Z. LOW CIGS RETURN OVERNIGHT INTO
STARTUP WED. LGT RAIN AND BREEZY NE WINDS MOVE IN
MIDDAY WED ASSOC WITH IDALIA.

Updated:

KATL 292157Z 2922/3104 13010KT P6SM SCT035 BKN050
TEMPO 2922/3002 VRB20G30KT 3SM TSRA BR BKN035
FM300300 14006KT P6SM -SHRA SCT008 BKN025
FM300700 09005KT 5SM BR SCT004 OVC008
TEMPO 3009/3015 3SM BR BKN004
FM301600 04014G24KT 5SM -RA BR OVC015
FM302000 02017G26KT 4SM -RA BR OVC012
PROB20 3021/3100 -TSRA
FM310200 35013G22KT P6SM BKN015 OVC025
RMK DL TAF BY Edwards

DISCUSSION - SCT SHWRS AND CLUSTERS OF TSTMS MVG
FROM SOUTH TO NORTH ACROSS THE AREA THRU LATE-EVNG
TUES. LOW CIGS RETURN OVERNIGHT INTO STARTUP WED.
LGT RAIN AND BREEZY NNE WINDS MOVE IN MIDDAY WED
ASSOC WITH IDALIA. POSSIBILITY FOR STRONGER CROSS
WINDS IF IDALIA TRACKS SLGTLY FARTHER WEST. SLGT CHC
FOR A TSTM WED AFTN.

KATL METARS

ATL ARR INFO G 2301Z SPECIAL. 16005KT 10SM TS FEW035CB SCT060 BKN100 OVC200 28/21 A2983 (TWO NINER EIGHT THREE) RMK AO2 TSB01 OCNL LTGICCG VC N-NE TS VC N-NE MOV N TCU W-N NE. SIMULTANEOUS APCHS IN USE ILS 8L, ILS 9R, ILS 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. WIND SHEAR ADZYS IN EFCT. BIRD ACTIVITY VC OF ARPT. CONDITION CODES FOR ALL RWYS ,, 5 ,, 5 ,, 5 ,,AT,, ,, 2252Z . OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO G.
RECEIVED AT 08/29/2023 2310Z FROM ARINC

ATL ARR INFO F 2301Z SPECIAL. 16005KT 10SM TS FEW035CB SCT060 BKN100 OVC200 28/21 A2983 (TWO NINER EIGHT THREE) RMK AO2 TSB01 OCNL LTGICCG VC N-NE TS VC N-NE MOV N TCU W-N NE. SIMULTANEOUS APCHS IN USE, ILS 8L, ILS PRM 9R, ILS PRM 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. WIND SHEAR ADZYS IN EFCT. BIRD ACTIVITY VC OF ARPT. CONDITION CODES FOR ALL RWYS ,, 5 ,, 5 ,, 5 ,,AT,, ,, 2252Z . OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO F.
RECEIVED AT 08/29/2023 2307Z FROM ARINC

ATL ARR INFO E 2252Z. 16005KT 10SM FEW038CB SCT055 BKN110 OVC200 28/21 A2983 (TWO NINER EIGHT THREE) RMK AO2 LTG DSNT NE AND E SLP089 RAB14E24 CB W-NW DSNT NE-SE MOV N TCU NW-NE P0000. SIMULTANEOUS APCHS IN USE, ILS 8L, ILS PRM 9R, ILS PRM 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. WIND SHEAR ADZYS IN EFCT. BIRD ACTIVITY VC OF ARPT. CONDITION CODES FOR ALL RWYS ,, 5 ,, 5 ,, 5 ,,AT,, ,, 2252Z . OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO E.
RECEIVED AT 08/29/2023 2254Z FROM ARINC

ATL ARR INFO D 2224Z. 16012G19KT 10SM SCT040TCU BKN070 BKN200 BKN250 31/22 A2982 (TWO NINER EIGHT TWO) RMK AO2 LTG DSNT E AND SE SLP086 CB DSNT E SE-S TCU E-OHD-W ALQDS. SIMULTANEOUS APCHS IN USE, ILS 8L, ILS PRM 9R, ILS PRM 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. WIND SHEAR ADZYS IN EFCT. BIRD ACTIVITY VC OF ARPT. OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO D.
RECEIVED AT 08/29/2023 2226Z FROM ARINC

ATL ARR INFO C 2152Z. 16012G19KT 10SM SCT040TCU BKN070 BKN200 BKN250 31/22 A2982 (TWO NINER EIGHT TWO) RMK AO2 LTG DSNT E AND SE SLP086 CB DSNT E SE-S TCU E-OHD-W ALQDS. SIMULTANEOUS APCHS IN USE, ILS 8L, ILS PRM 9R, ILS PRM 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. BIRD ACTIVITY VC OF ARPT. OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO C.
RECEIVED AT 08/29/2023 2153Z FROM ARINC

ATL ARR INFO B 2152Z. 16012G19KT 10SM SCT040TCU BKN070 BKN200 BKN250 31/22 A2982 (TWO NINER EIGHT TWO) RMK AO2 LTG DSNT E AND SE SLP086 CB DSNT E SE-S TCU E-OHD-W ALQDS. SIMULTANEOUS APCHS IN USE ILS 8L, ILS 9R, ILS 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. BIRD ACTIVITY VC OF ARPT. OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO B.
RECEIVED AT 08/29/2023 2153Z FROM ARINC

ATL ARR INFO A 2052Z. 09005KT 10SM FEW040TCU SCT070 SCT200 BKN250 32/22 A2981 (TWO NINER EIGHT ONE). SIMULTANEOUS APCHS IN USE VIS 8L, ILS 9R, VIS 10. NOTAMS... TWY SC CLSD BTN TWY R AND TWY SJ1. TWY L EDGE LIGHTS BETWEEN RAMP 1 AND TWY D U/S. DME PORTION OF ILS RWY 9L OTS. HAZD WX INFO FOR ATLANTA AREA AVBL FM FSS. BIRD ACTIVITY VC OF ARPT. OPERATE TRANSPONDER WITH MODE C ON ALL RAMPS, TWYS AND RWYS.. ...ADVS YOU HAVE INFO A.
RECEIVED AT 08/29/2023 2053Z FROM ARINC