

Weather Study – Attachment 1
NCAR GTG and GTGN Products

METEOROLOGY

DCA20CA038

Case 20191216

Background info on case

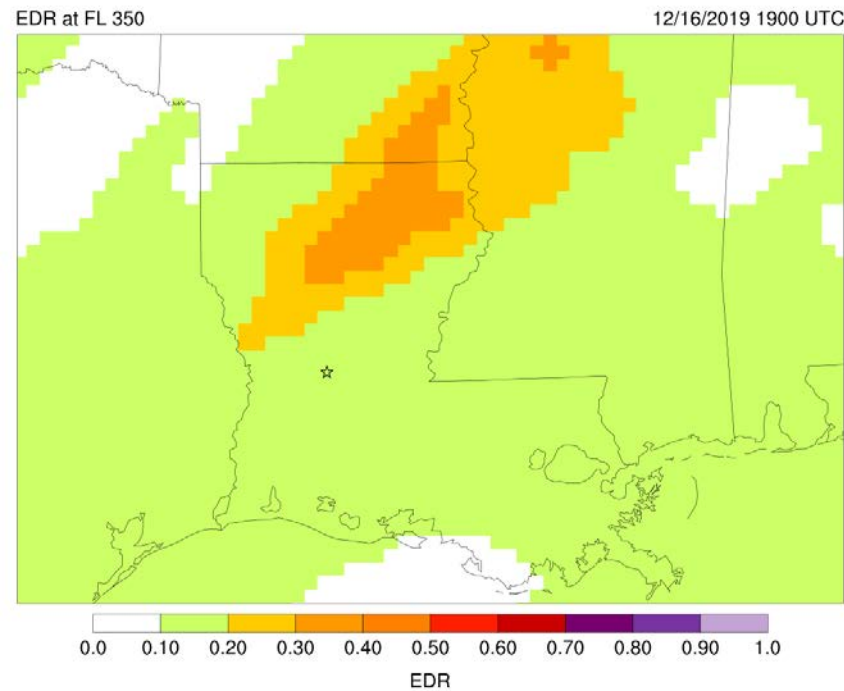
NTSB Case: DCA20CA038 – Alexandria, LA
Date: December 16, 2019
Time: 1323 CST (1923Z)
Location: 31.1075° N, -092.7165° W
Aircraft: Envoy Air (American Eagle) flight 33960 EMB-140, N805AE
Altitude: FL370
Route of flight: DFW-GNV

Pilot statement: operating in IMC made announcement of turbulence and advised flight attendant to be seated, then encountered severe turbulence.

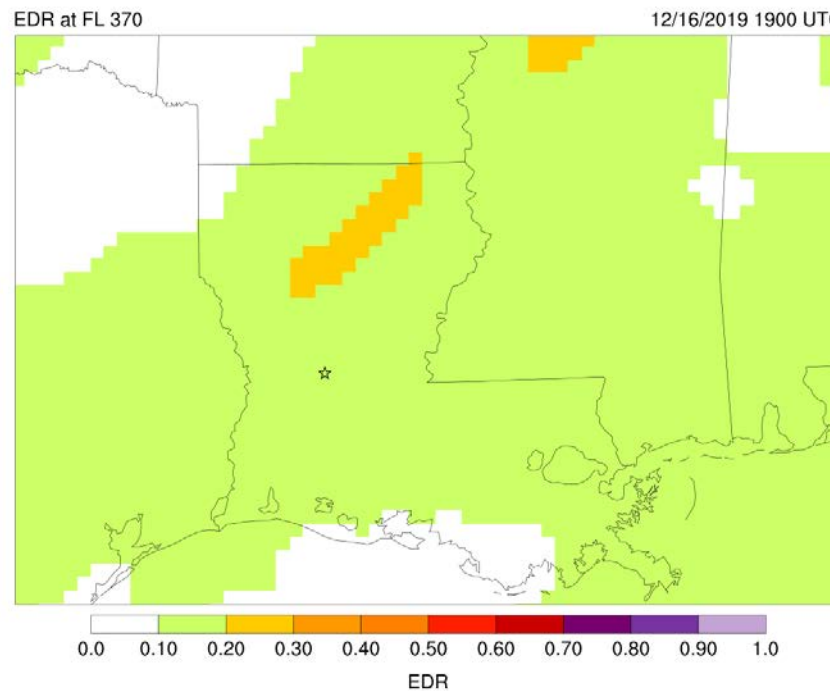
Summary

- Location of the event (31.1075° N, -92.7165° W) denoted with a star
- Plots included with and without flight track for reference
- The 2 hour GTG forecast valid at 1900Z, shows EDRs between 0.1-0.2 at the event location, which would correspond to light or light to moderate turbulence for a medium sized aircraft
- GTGN, however, nowcast EDRs much higher at and around the event location between 1900-1930Z, with values between 0.3-0.6, which would correspond to moderate to severe turbulence for a medium sized aircraft.
- Cross sections of GTGN along the approximate flight track also show elevated turbulence all the way down to the surface.
- The increase in EDR from GTG to GTGN can be attributed to the inclusion of the RADAR based turbulence observations from the NEXRAD Turbulence Detection Algorithm, which measures turbulence in cloud.

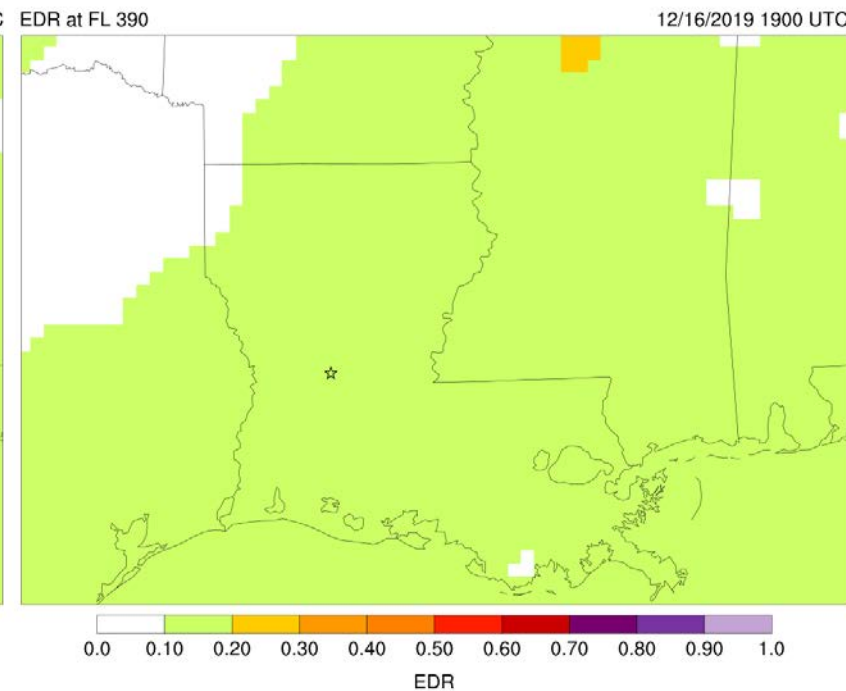
2hr GTG forecast initialized at 17Z, valid 19Z



FL350

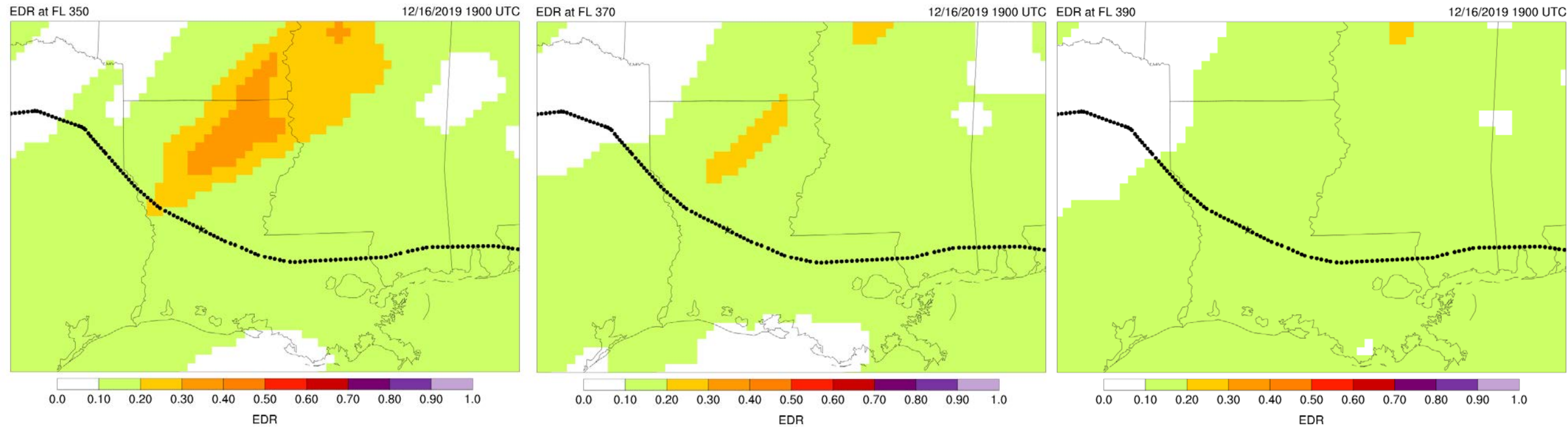


FL370



FL390

2hr GTG forecast initialized at 17Z, valid 19Z; flight track overlaid

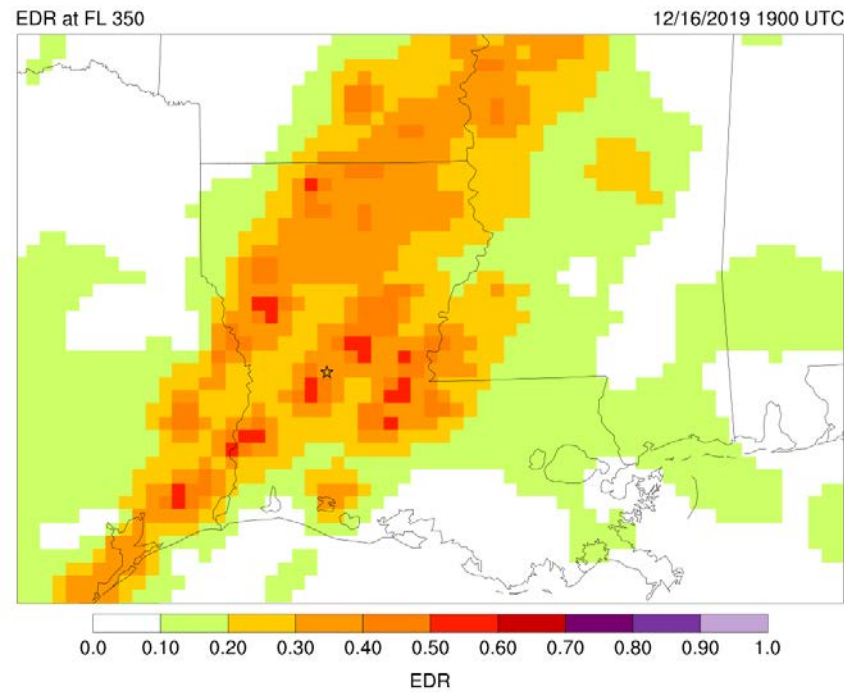


FL350

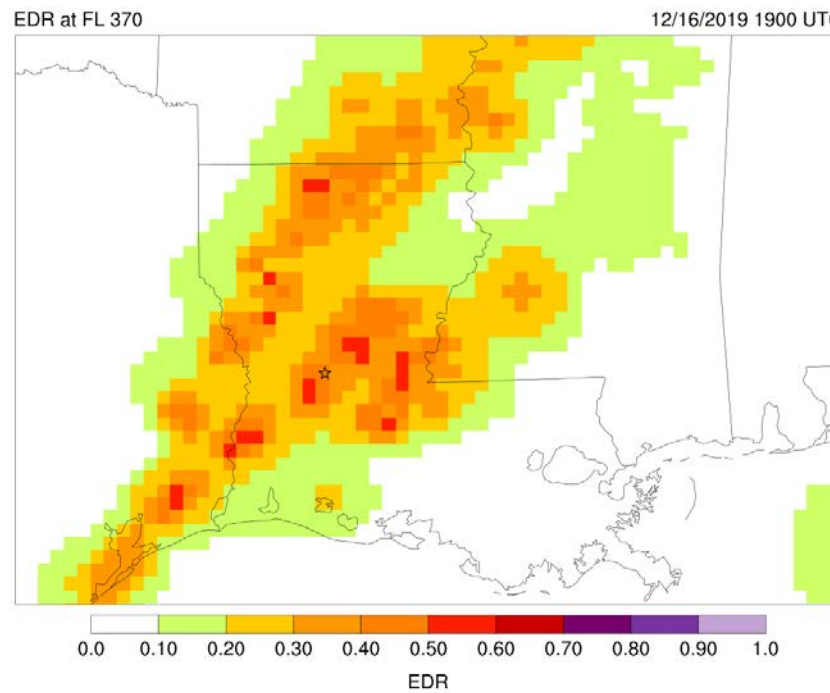
FL370

FL390

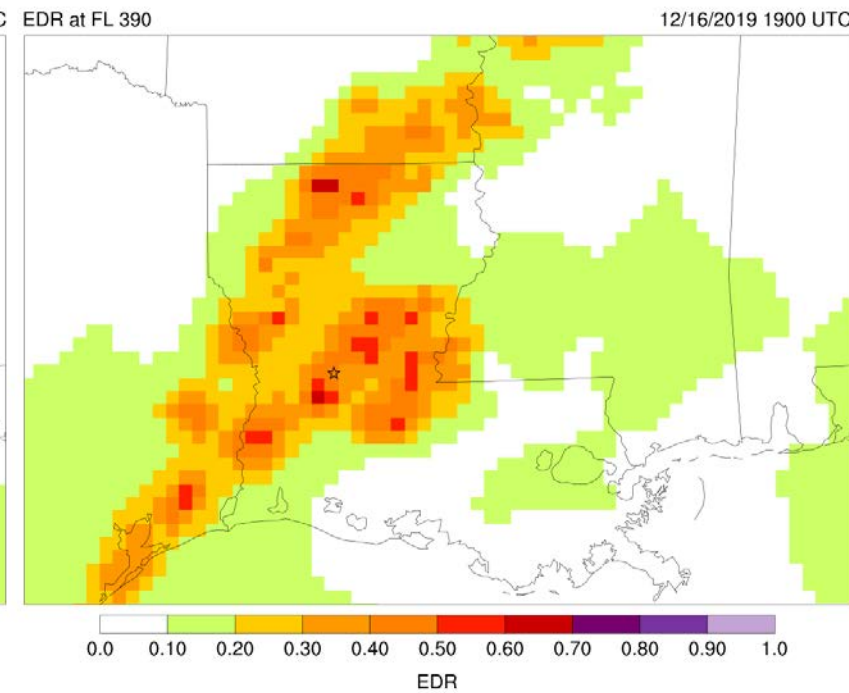
GTGN valid at 1900Z



FL350

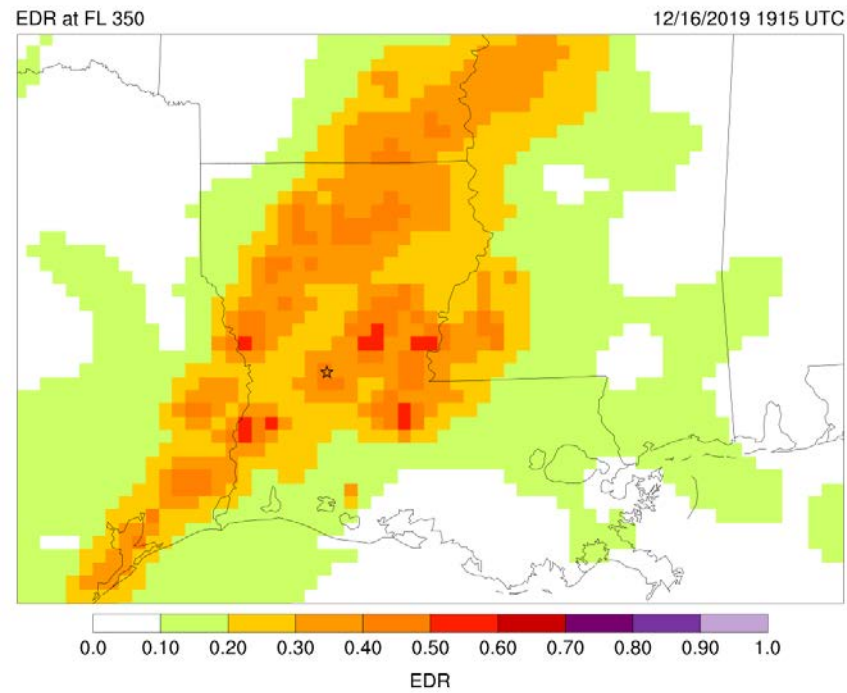


FL370

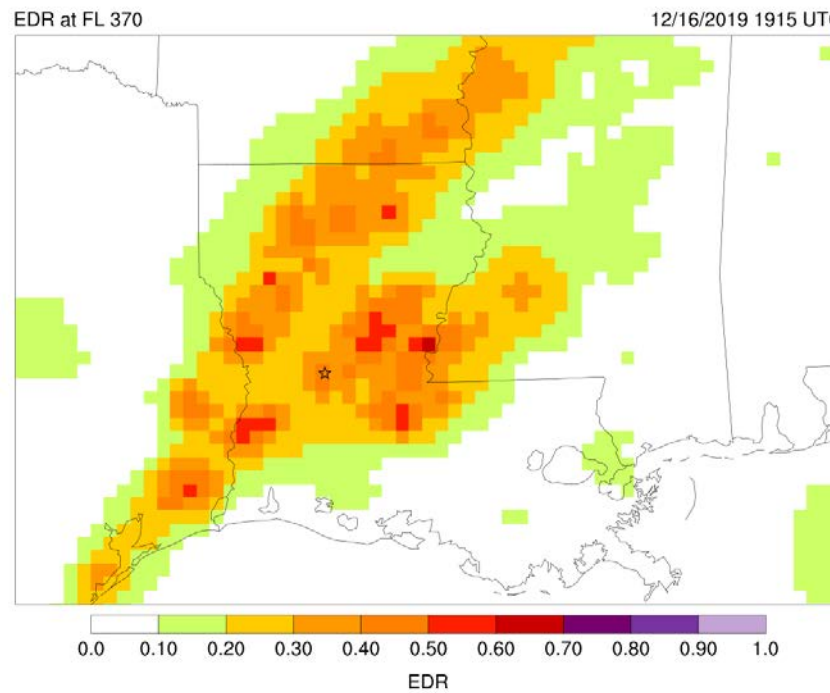


FL390

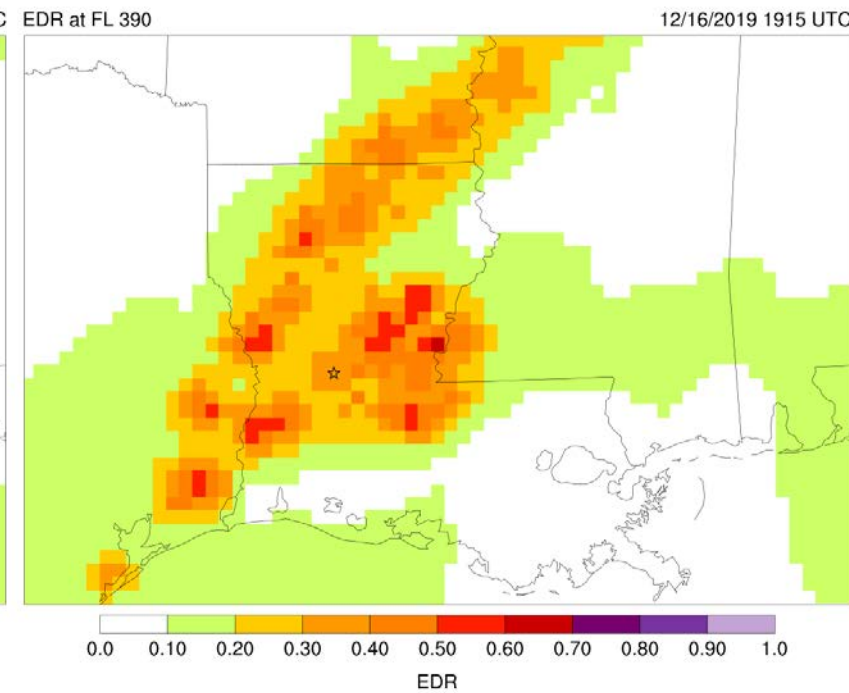
GTGN valid at 1915Z



FL350

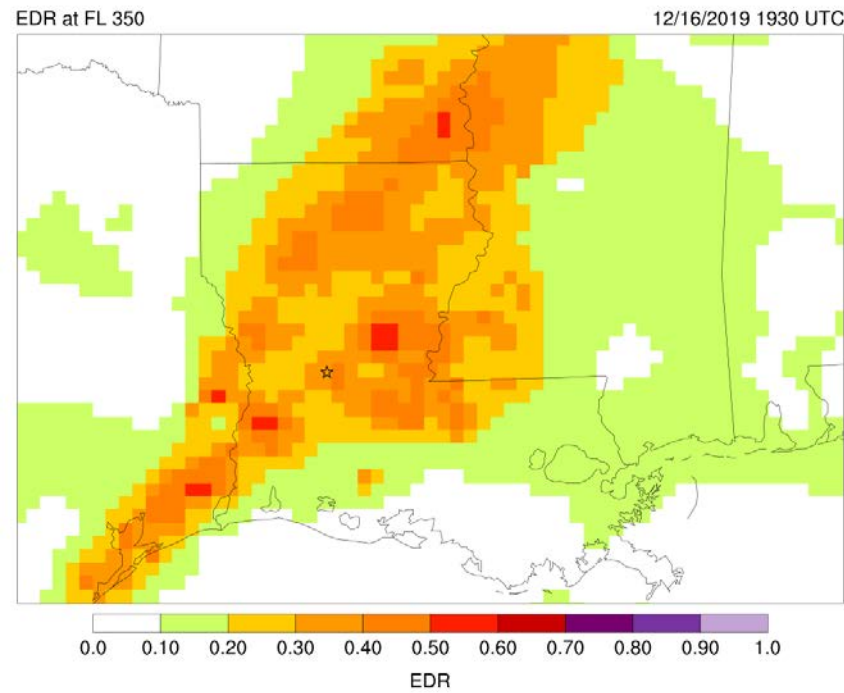


FL370

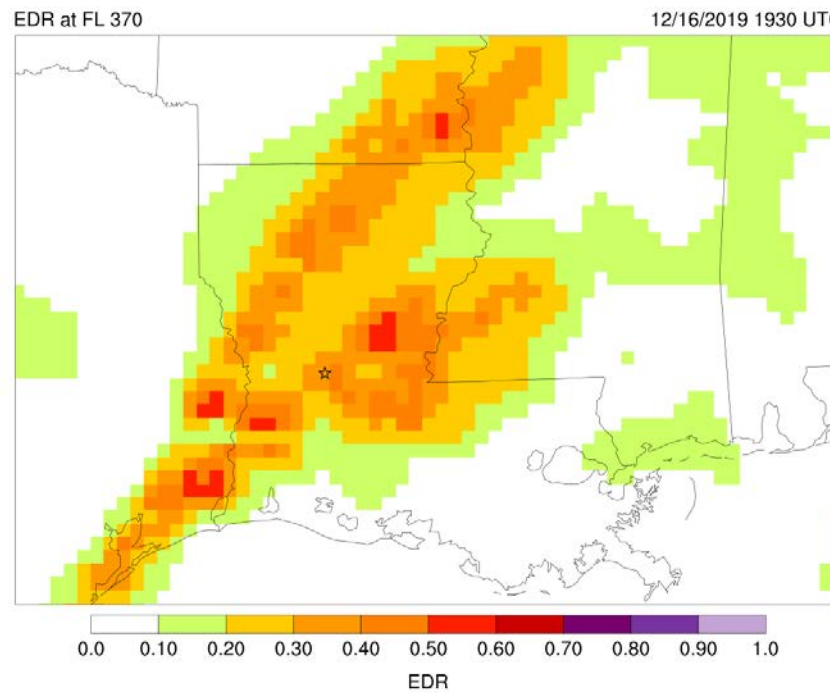


FL390

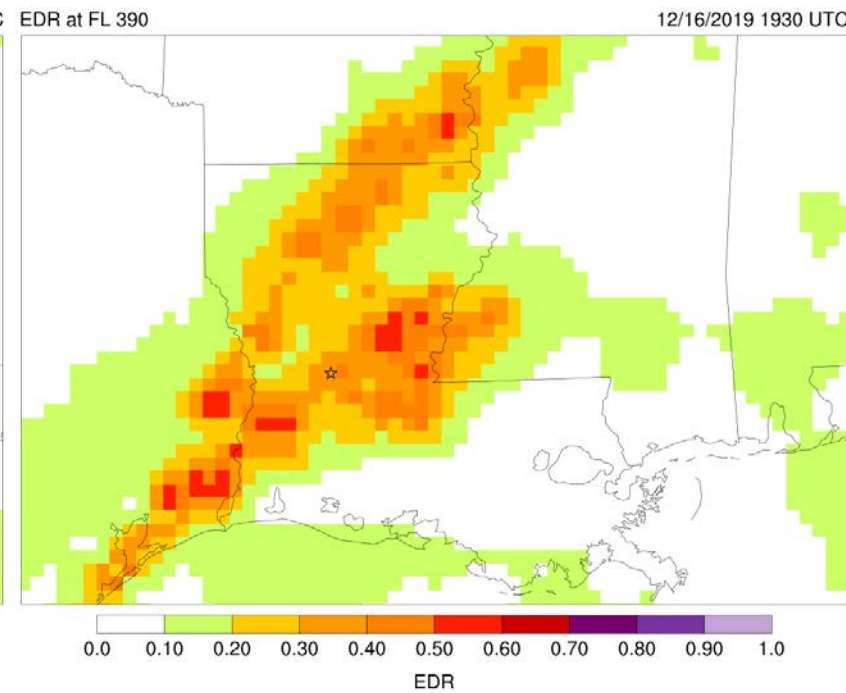
GTGN valid at 1930Z



FL350

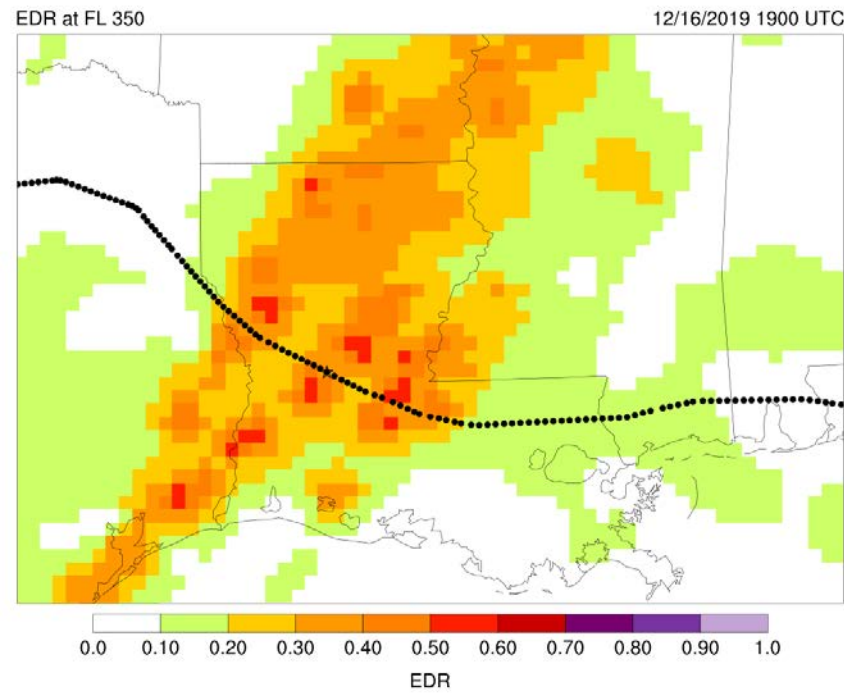


FL370

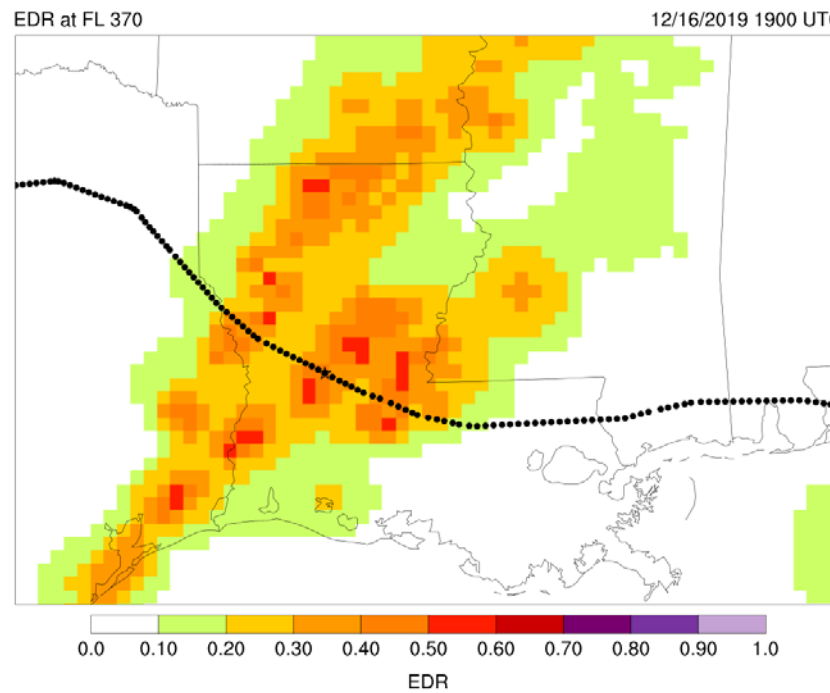


FL390

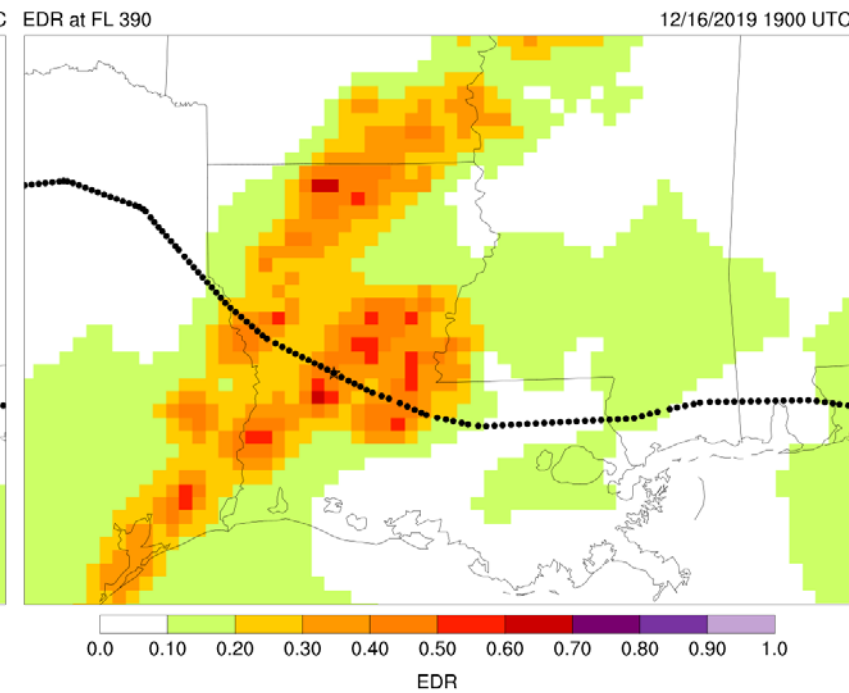
GTGN valid at 1900Z



FL350

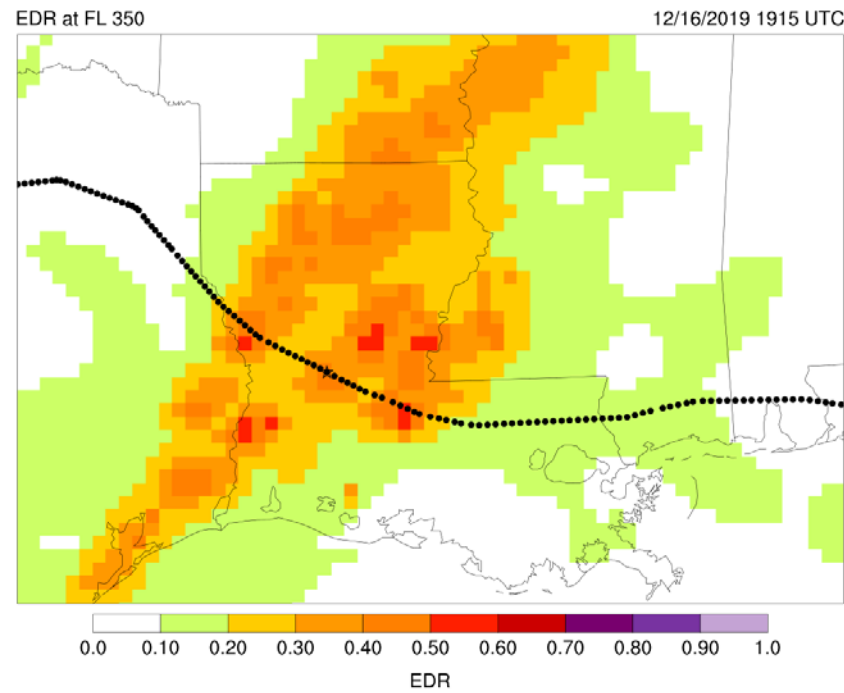


FL370

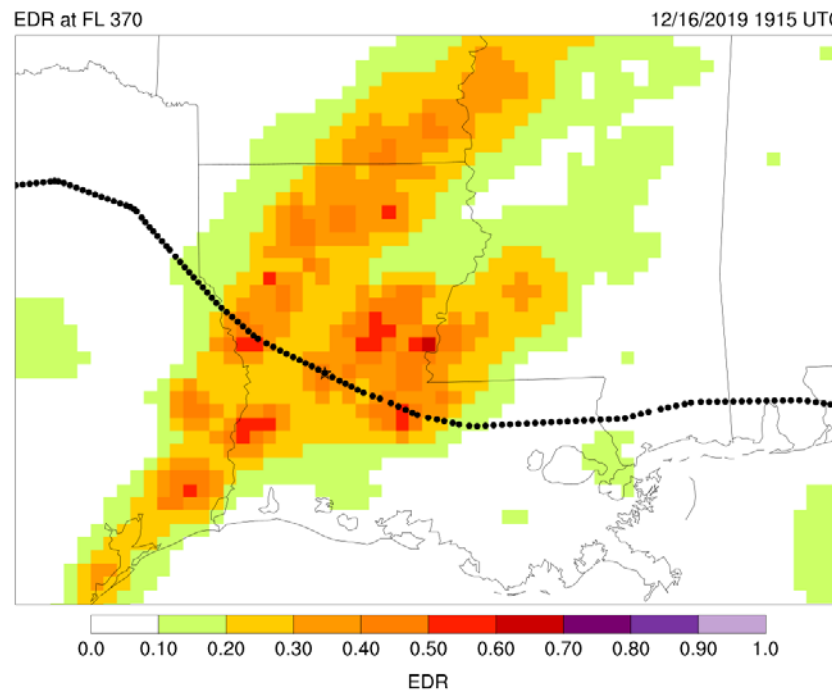


FL390

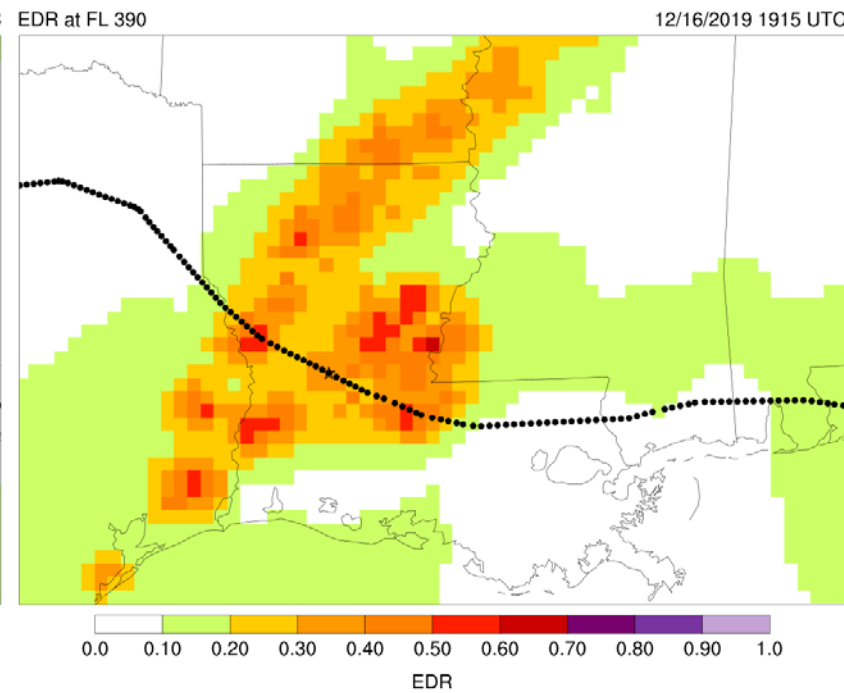
GTGN valid at 1915Z



FL350

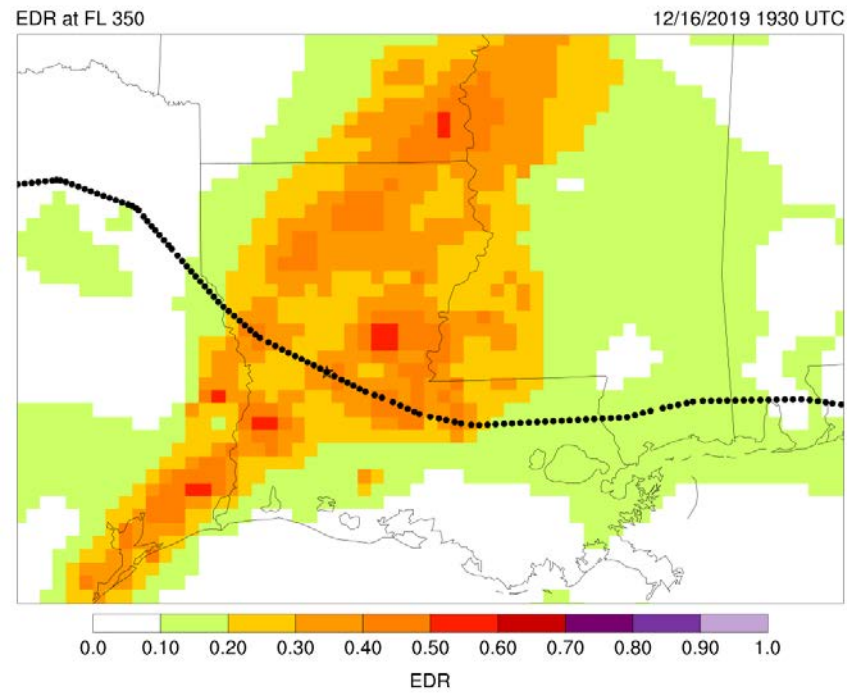


FL370

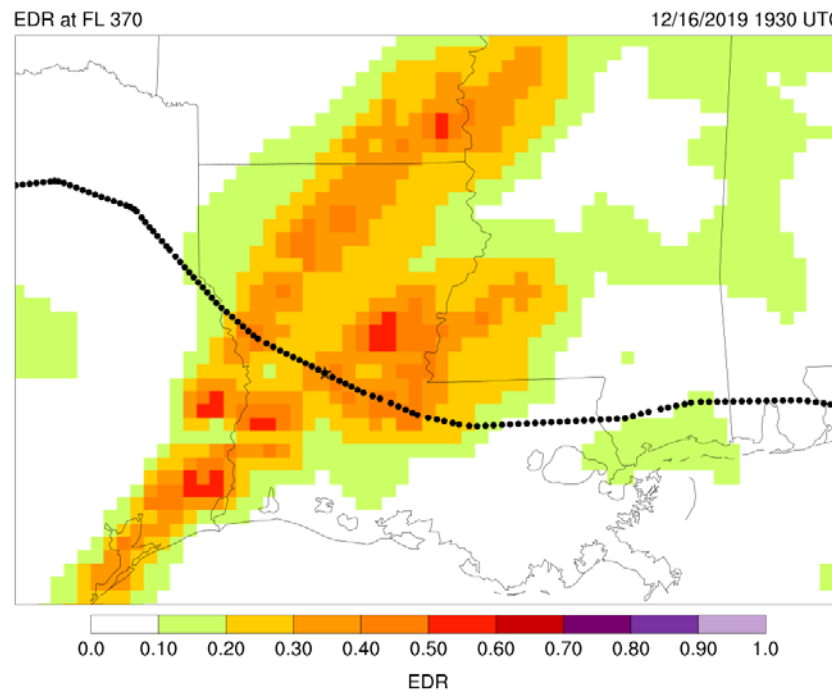


FL390

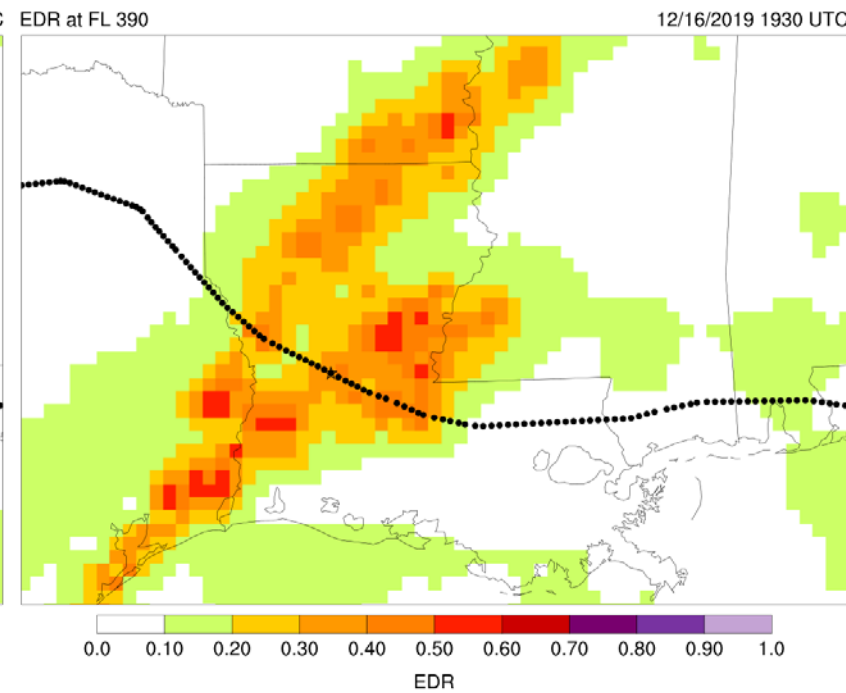
GTGN valid at 1930Z



FL350



FL370



FL390

GTGN Cross sections

