

Weather Study – Attachment 1
NCAR Graphic Turbulence Guidance (GTG) Product

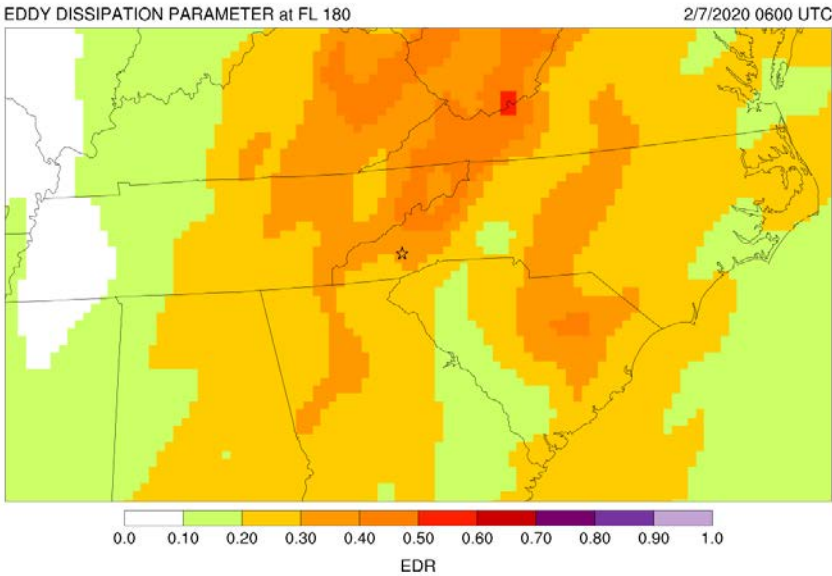
METEOROLOGY

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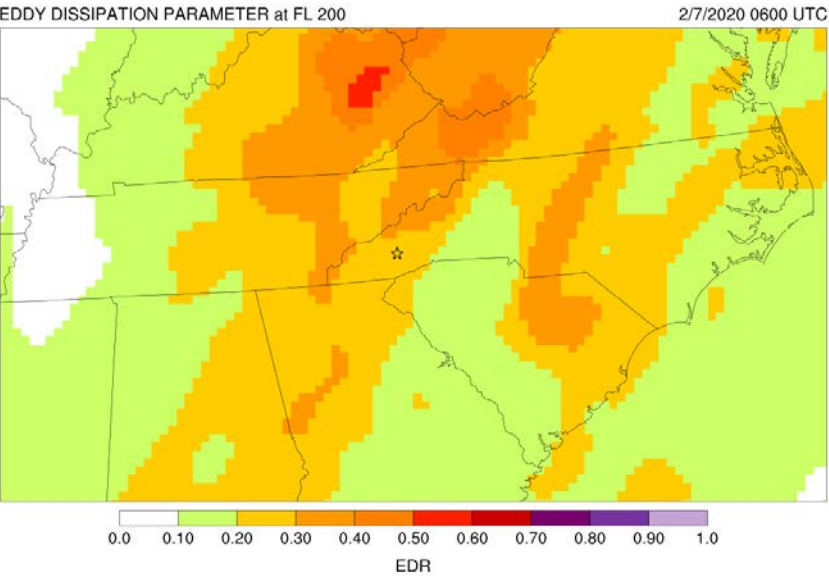
Summary

- Location of the event (35.362586° N -83.021217° W) denoted with a star
- The 2 hour GTG forecast valid at 0600Z had EDR values between about 0.2 to 0.4 at the location of the event, with the EDR values increasing with decreases in altitude.
- The GTGN valid at 0600Z had higher EDR values, between about 0.3 to 0.6, with values between 0.6 and 0.8 within close proximity.
- 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 updates every 5 minutes and measures turbulence in cloud.
- The 3 GTGN updates from 0545 to 0615 show the evolution of the convectively induced turbulence in the region.
- GTGN valid at 0545 and 0615 also show elevated EDRs at the event location and within close proximity.
- Sharman, et al 2014, gives approximate thresholds for moderate turbulence for small to medium sized aircraft between 0.18 to 0.22 and between 0.41 to 0.49 for severe turbulence.

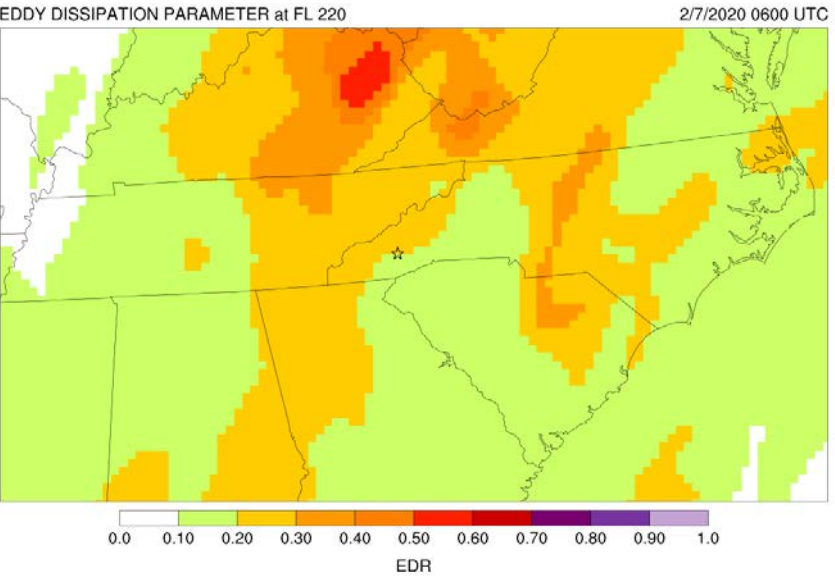
Combined 2hr GTG forecast valid at 0600Z on 20200207



FL180

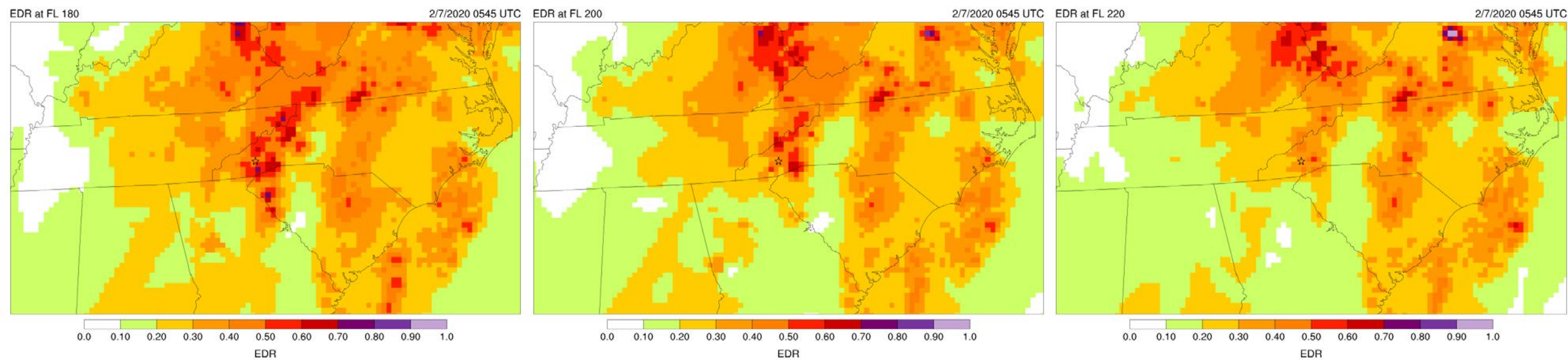


FL200



FL220

GTGN valid at 0545Z on 20200207

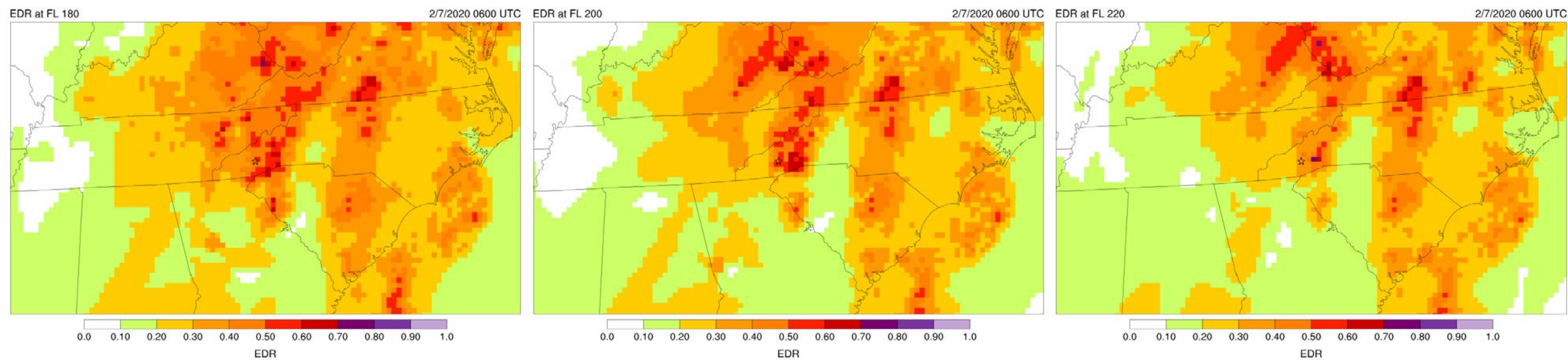


FL180

FL200

FL220

GTGN valid at 0600Z on 20200207

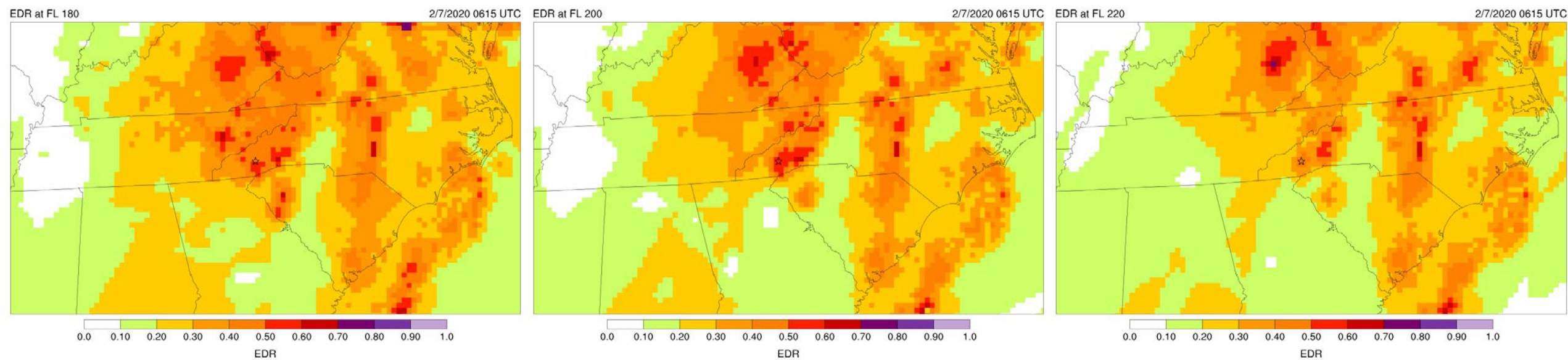


FL180

FL200

FL220

GTGN valid at 0615Z on 20200207



FL180

FL200

FL220