



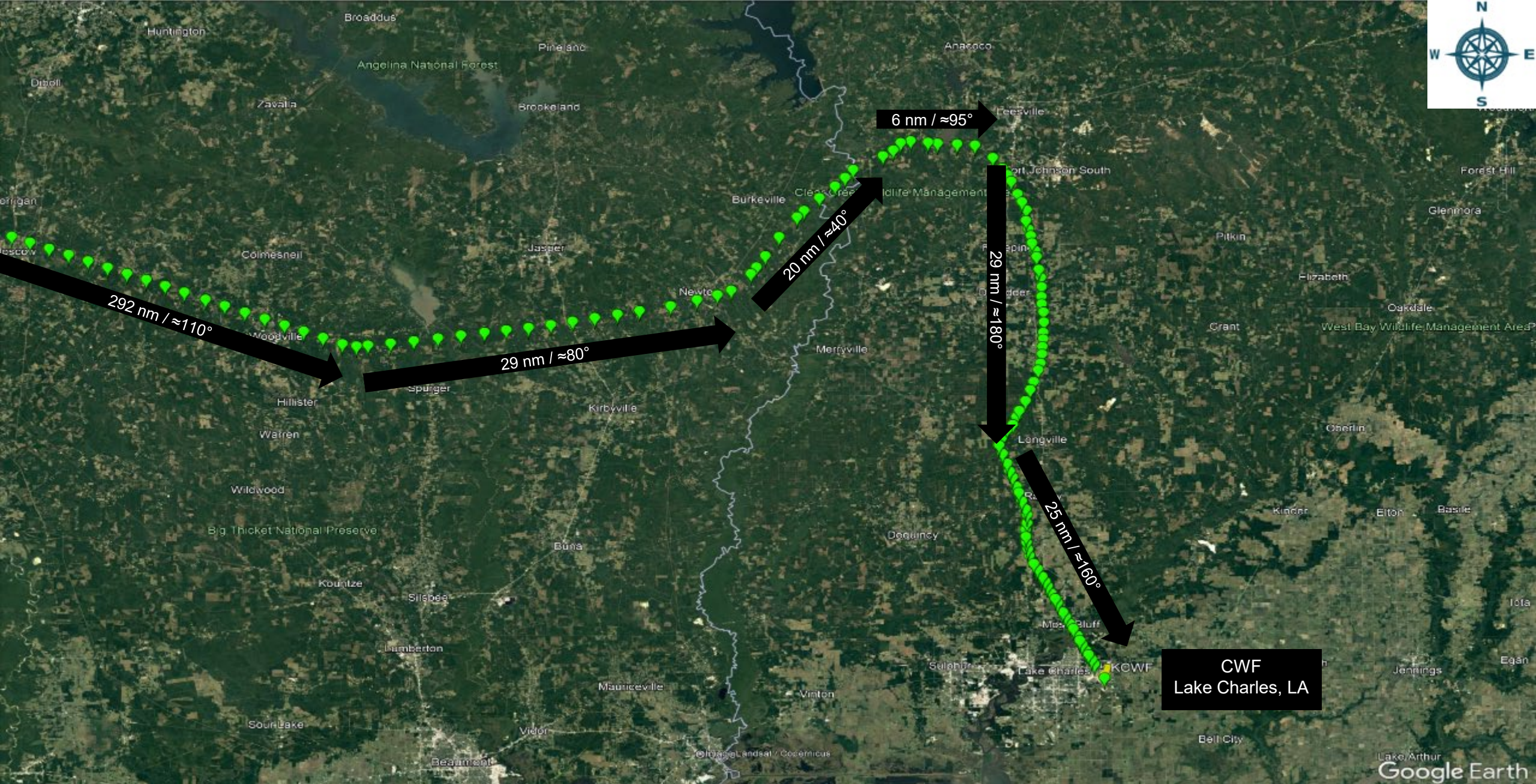
Optional - Presentation title and date

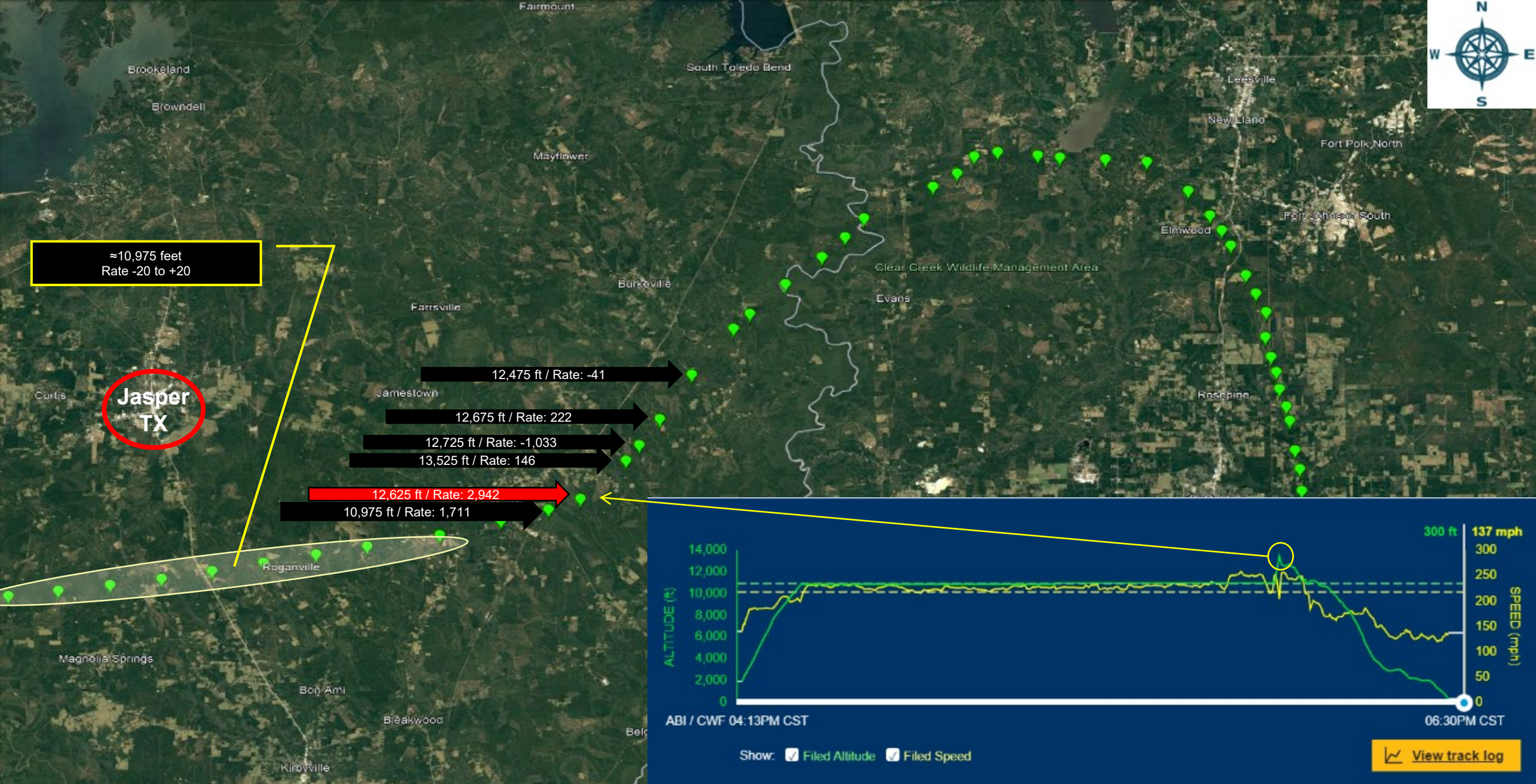
Intended Route of Flight



Optional - Presentation title and date

ADS-B Data





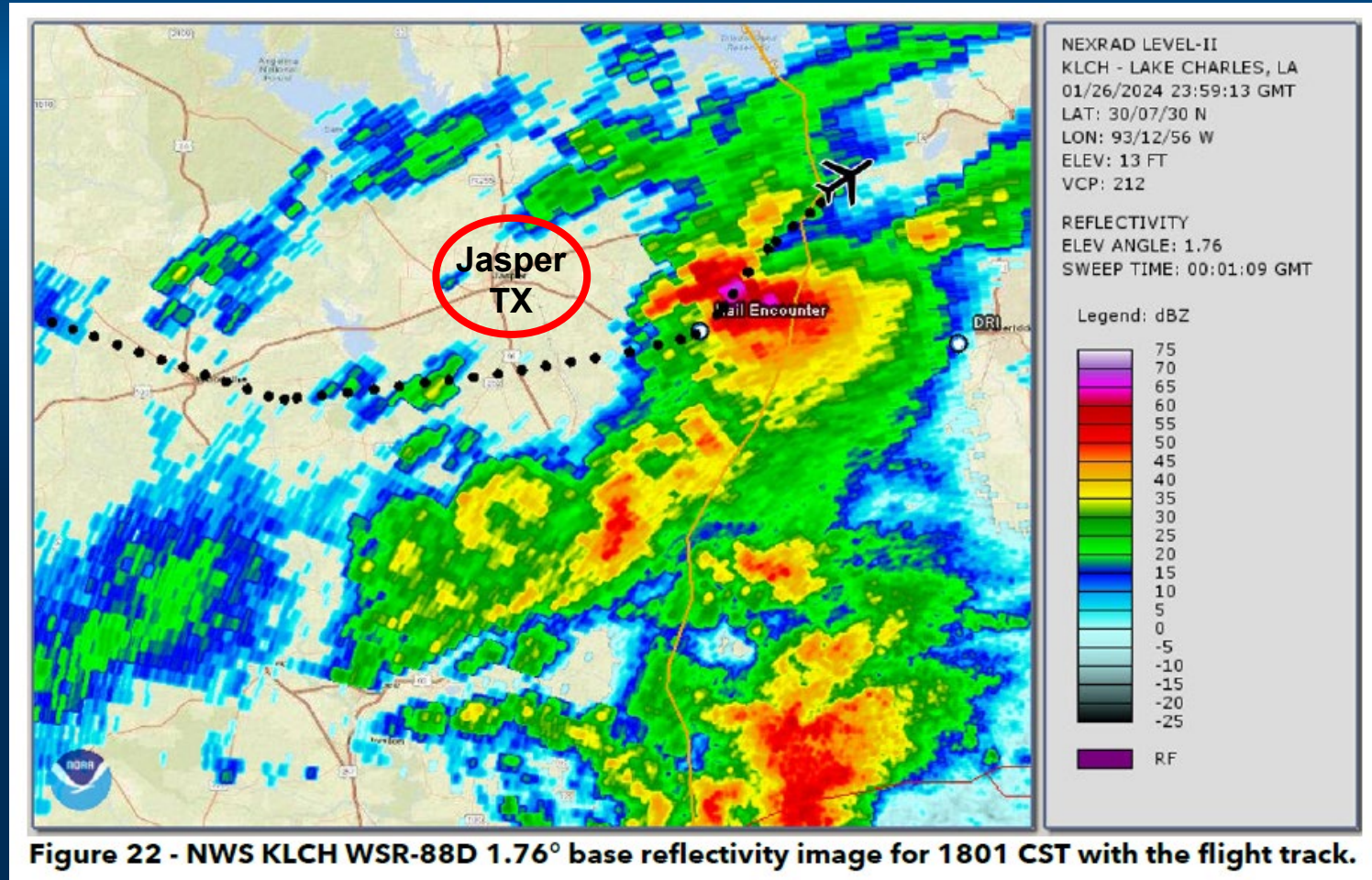
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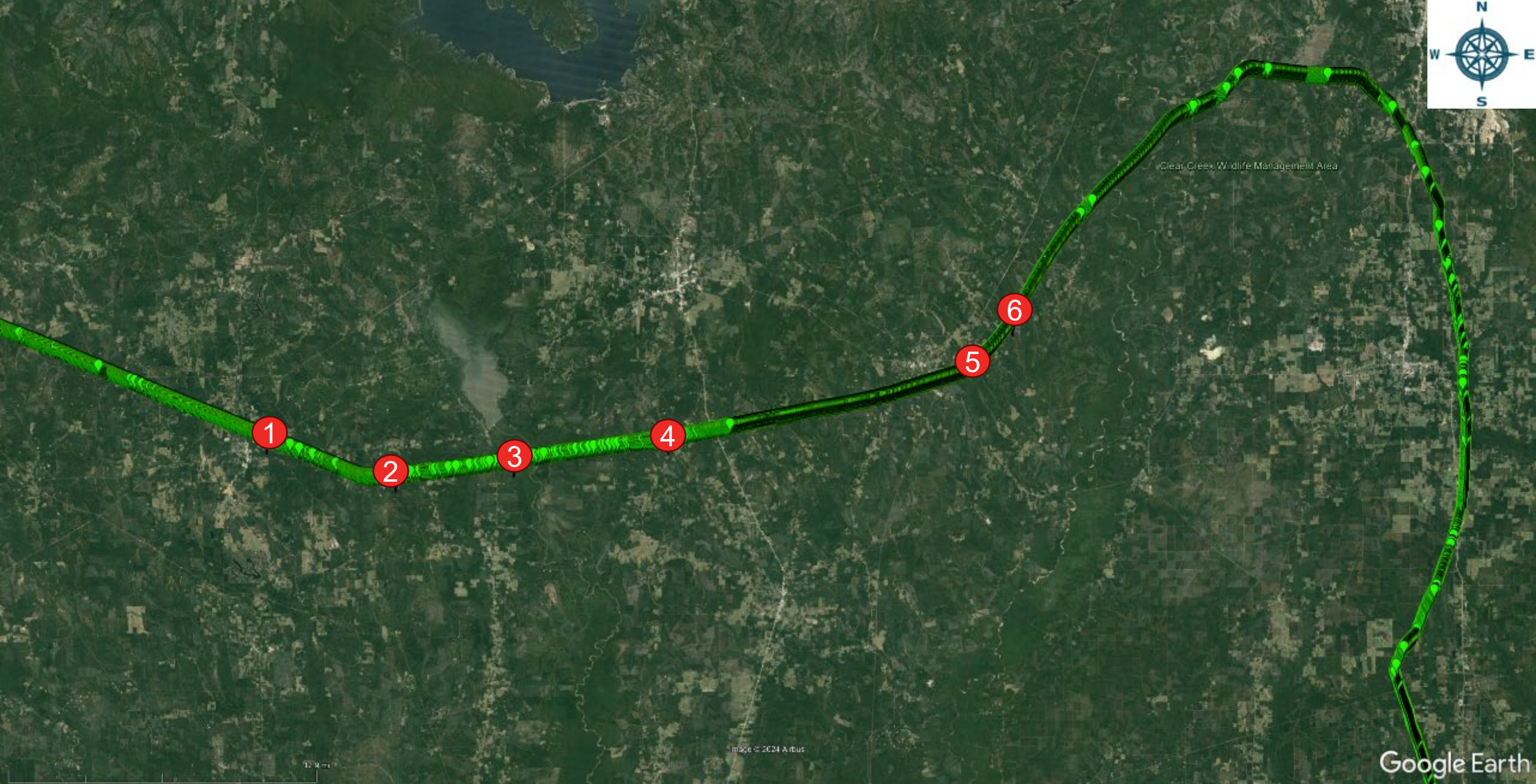
FlightAware Data

### Echo Tops Product

The WSR-88D echo tops product provides the estimate height of the 18.5 dBZ return in thousands of ft. The resolution is 1 km (0.54 nm) x 1° at 1,000 ft intervals. The product is typically used to identify those storms with the greatest vertical development and assist in identifying storm structure. Observations of collapsing echo tops can also aid in the timing of the onset of severe weather events at the surface.

The NWS KLCH WSR-88D 1.76° base reflectivity and echo tops product displayed using the GR2 Analyst software<sup>36</sup> for 1754 CST is included as figure 23, with the NWS severe thunderstorm watches (section 8.4 below) in yellow and the radar indicated hail<sup>37</sup> indicated by the green triangle. At the time of the scan the radar hail algorithm was indicating hail to 2.51 inches in the immediate vicinity of the accident. The echo tops product depicted radar indicated tops<sup>38</sup> to 39,000 ft over the accident location with higher tops immediately north-northeast to 44,900 ft. The yellow polygons on the images depict the NWS KLCH severe thunderstorm warnings issued immediately surrounding the period and are documented in section 9.2 of this report.

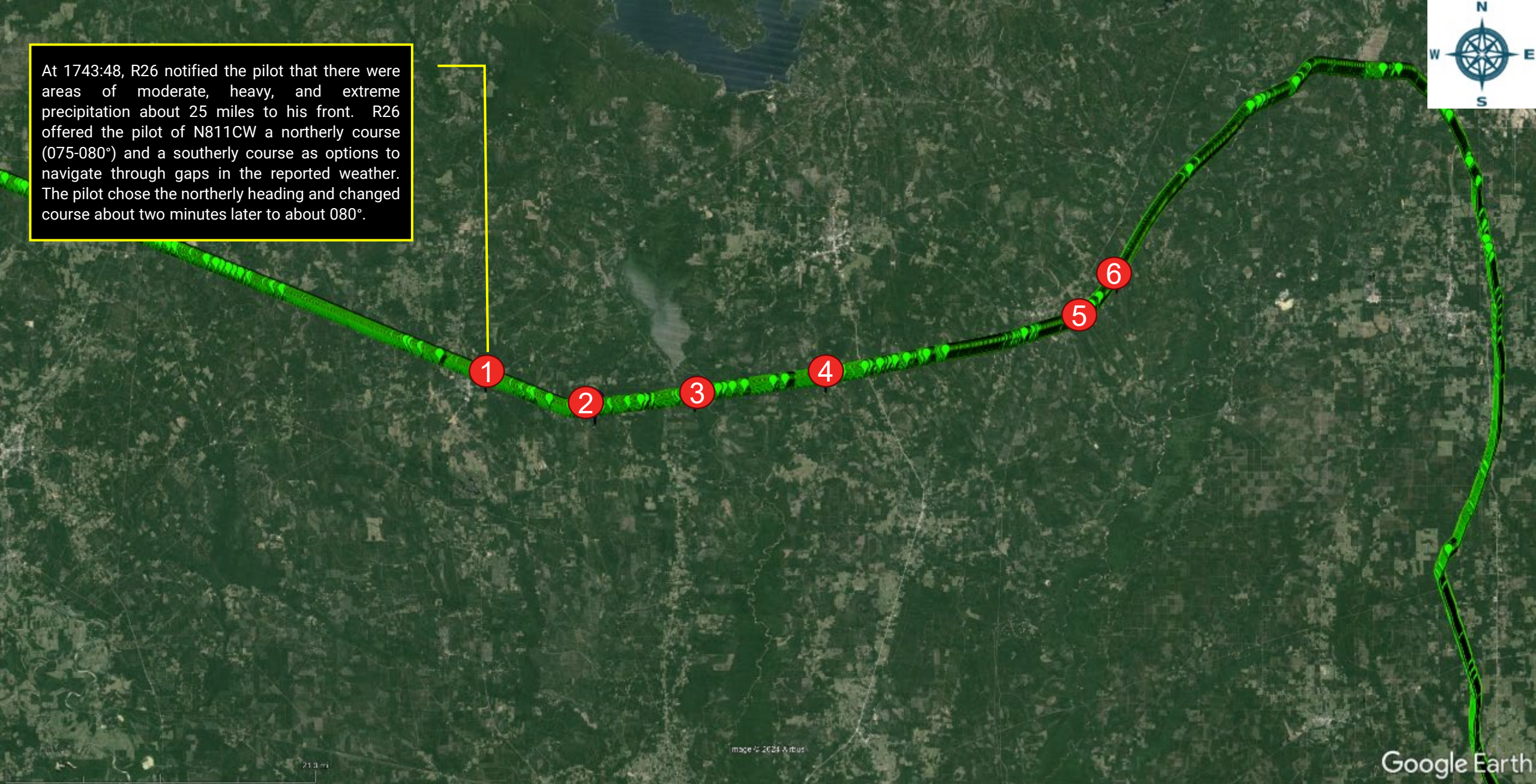




# Final Report Diagram

(ADS-B data & ATC recording used to construct)

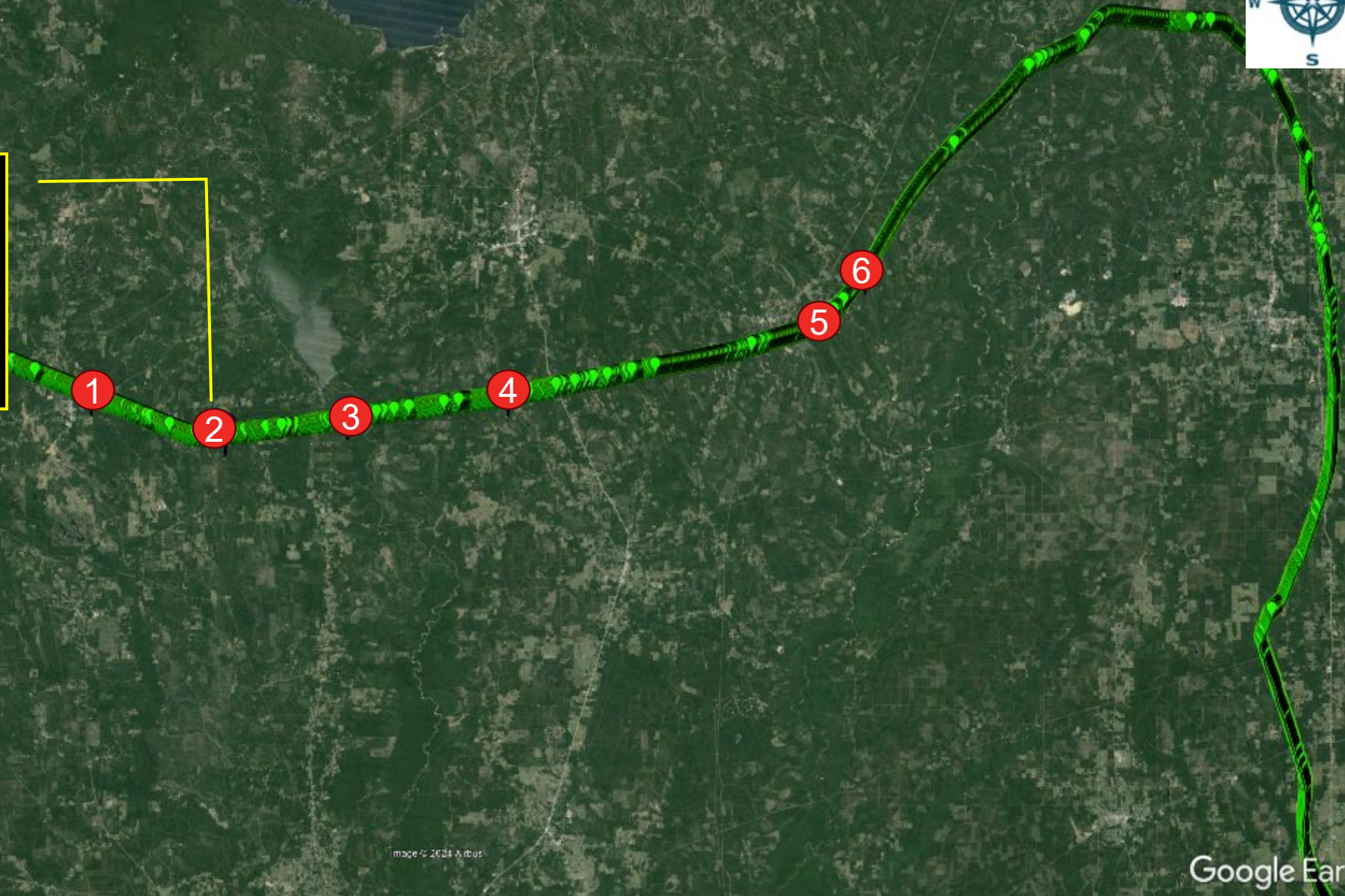
At 1743:48, R26 notified the pilot that there were areas of moderate, heavy, and extreme precipitation about 25 miles to his front. R26 offered the pilot of N811CW a northerly course (075-080°) and a southerly course as options to navigate through gaps in the reported weather. The pilot chose the northerly heading and changed course about two minutes later to about 080°.



## ADS-B Data & Summarized ATC Communications



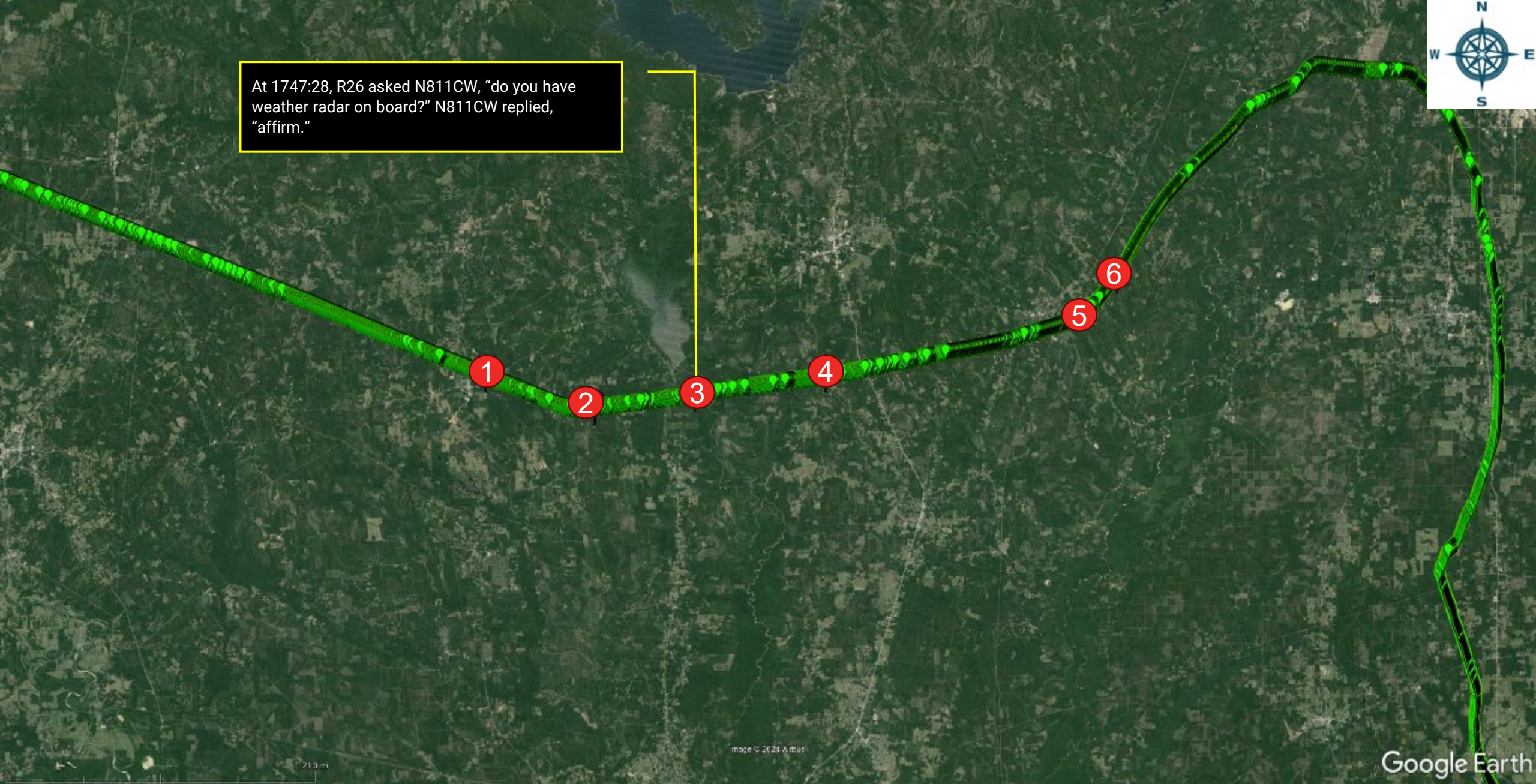
At 1745:27, shortly after N811CW turned to the 080° heading, R26 offered a third option of flying 025-030° further north before turning east. R26 explained that this would put N811CW in a larger area of moderate precipitation but would avoid having to fly through a gap in the weather cells. The pilot replied that he would maintain his current heading and let ATC know if he decided to turn to the 025-030° heading.



## ADS-B Data & Summarized ATC Communications



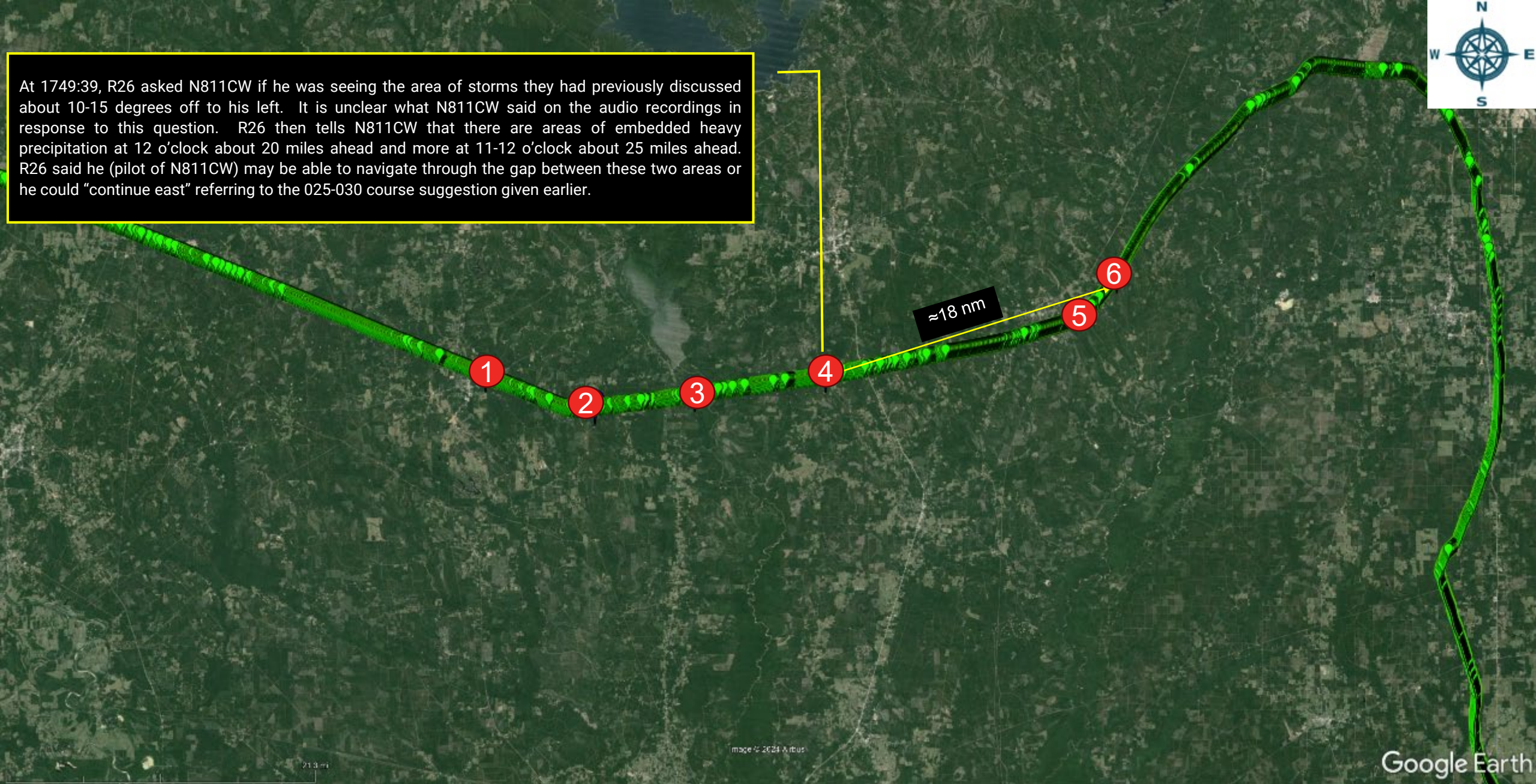
At 1747:28, R26 asked N811CW, "do you have weather radar on board?" N811CW replied, "affirm."



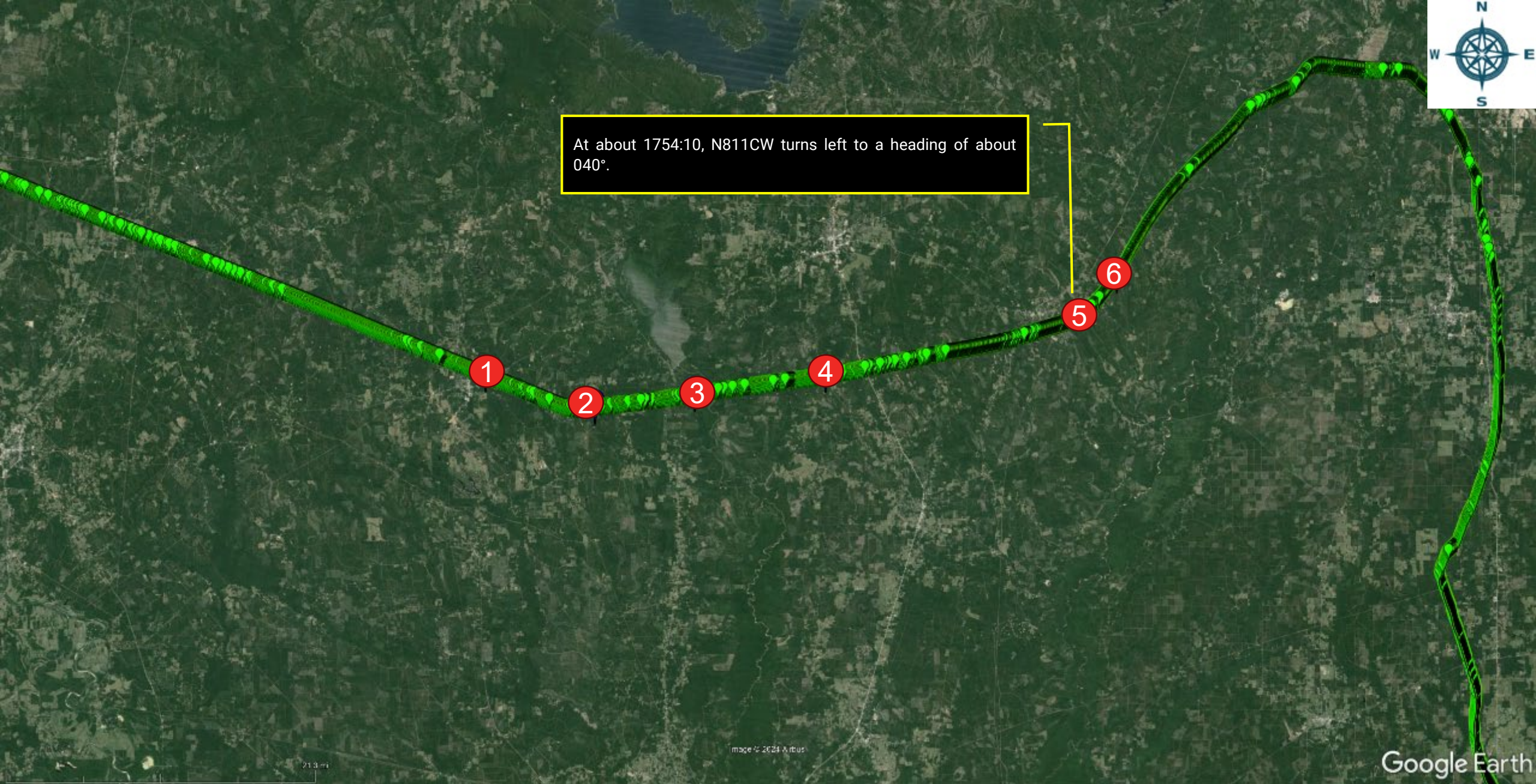
## ADS-B Data & Summarized ATC Communications



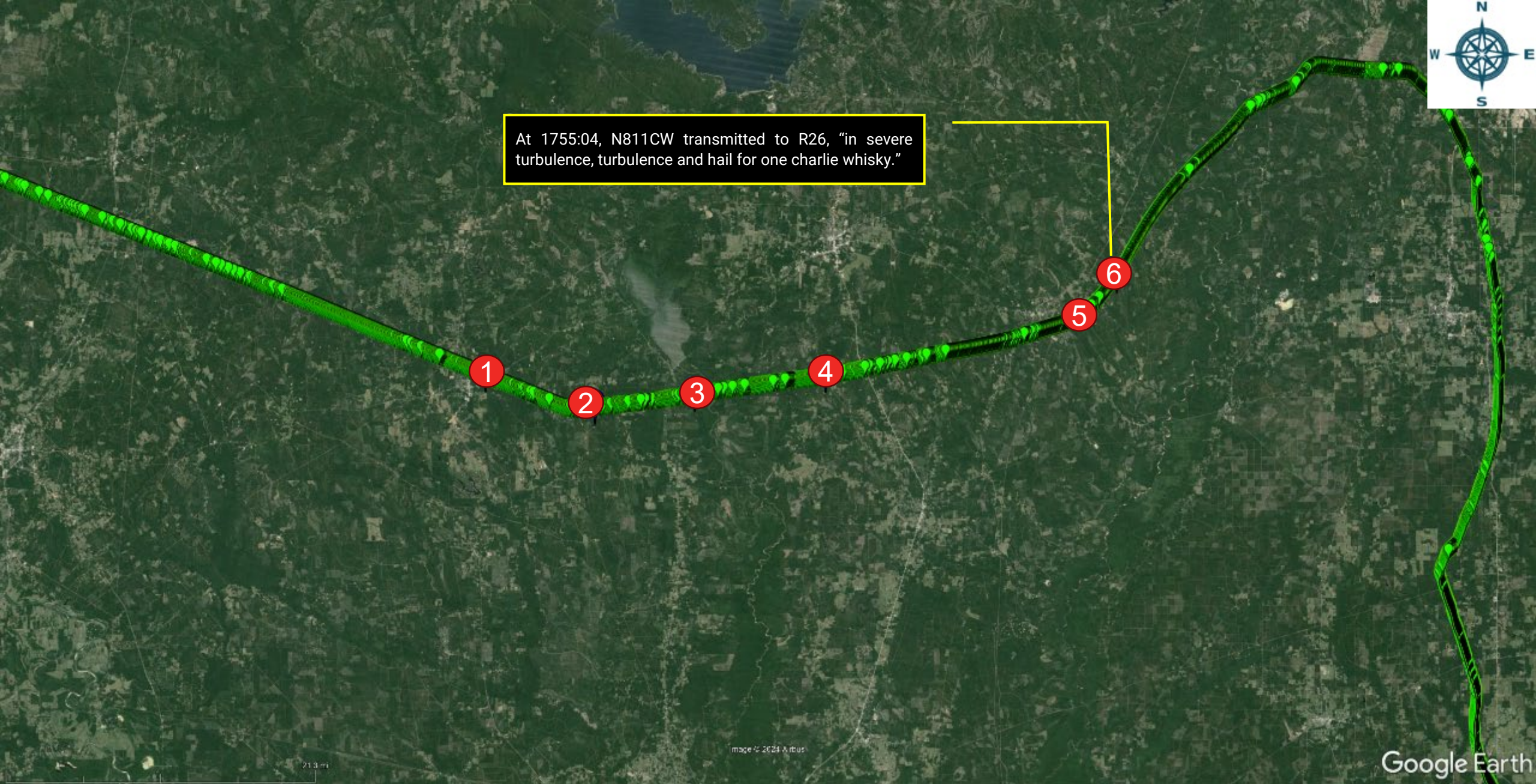
At 1749:39, R26 asked N811CW if he was seeing the area of storms they had previously discussed about 10-15 degrees off to his left. It is unclear what N811CW said on the audio recordings in response to this question. R26 then tells N811CW that there are areas of embedded heavy precipitation at 12 o'clock about 20 miles ahead and more at 11-12 o'clock about 25 miles ahead. R26 said he (pilot of N811CW) may be able to navigate through the gap between these two areas or he could "continue east" referring to the 025-030 course suggestion given earlier.



**ADS-B Data & Summarized ATC Communications**



## ADS-B Data & Summarized ATC Communications



## ADS-B Data & Summarized ATC Communications