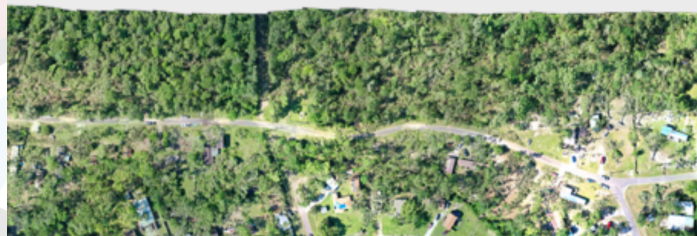


Best Practices for Small Unmanned Aerial Systems for Tornadoes



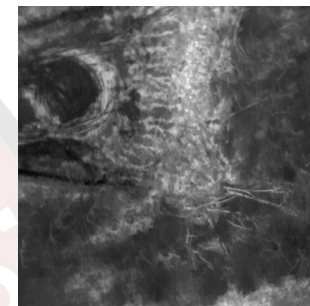
Real-time images and video

Good for tactical operations, streaming if internet permits



Maps of large areas

A squad can cover ~175 acres in half a day, then 1 to 12 hours to create map



Thermal Imaging

But generally fuzzy, hard to assess damage

Incident Commanders: It's As Simple as 1-2-3!

1 Too many cooks spoil the broth: Put someone who understands airspace, SUAS, emergency response in charge.

Match the pilot and UAS to the mission.

All pilots should have Part 107, insurance, proficiency working in extreme conditions and heavily trafficked airspace, and are paired with a trained airspace visual observer.

- Tactical missions: pilots with FPV skills and UAS that supports FPV
- Mapping missions: pilots have familiarity with, and access to, post-processing mapping software such as Pix4Dreact, Pix4D, Hanger 360, DroneDeploy, Agisoft
- Night missions: pilot must have additional waiver, thermal camera payload

3 Make sure the pilots know the data belongs to the agency and how to label and process the data before the first flight.

Pilots should follow the agency's mission and data labeling convention. If there is none, relabel folders to indicate the event, date, location of LZ, with subfolders by mission. Wherever possible, images should be labeled with cardinal and ordinal directions

Pilots: Flight Strategies

Capture the path and extent of the tornado- with a wide enough view to see roads and access points. Most viewers will prefer a slightly oblique angle like they were looking out of an airplane window than a bird's eye (nadir) view, which can be hard to mentally process.

Avoid mixing objectives on a single flight. For example fly to capture the width and breadth of the tornado's path, then re-fly to circle and zoom in on damage assessment, rather than a single long flight with loop-de-loops around structures.

Establish context! Is that damaged house in the middle of a forest? In a subdivision? A town? Apps like Hanger 360 can automate panoramas.

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