

Project EPIC

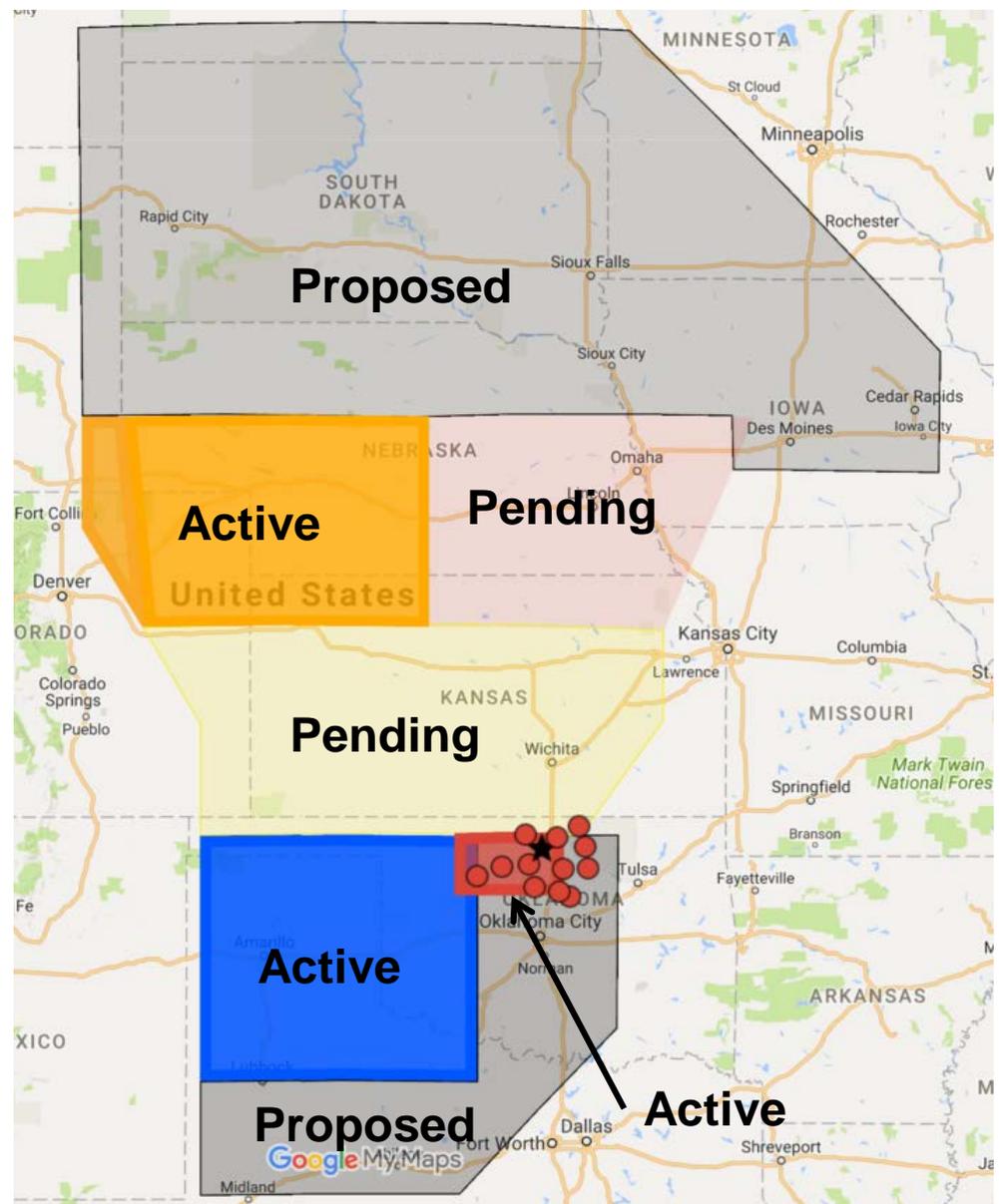
Tempest/TTwistor Performance and Airspace Update

21 September 2016

SEEING THE WORLD IN 4D

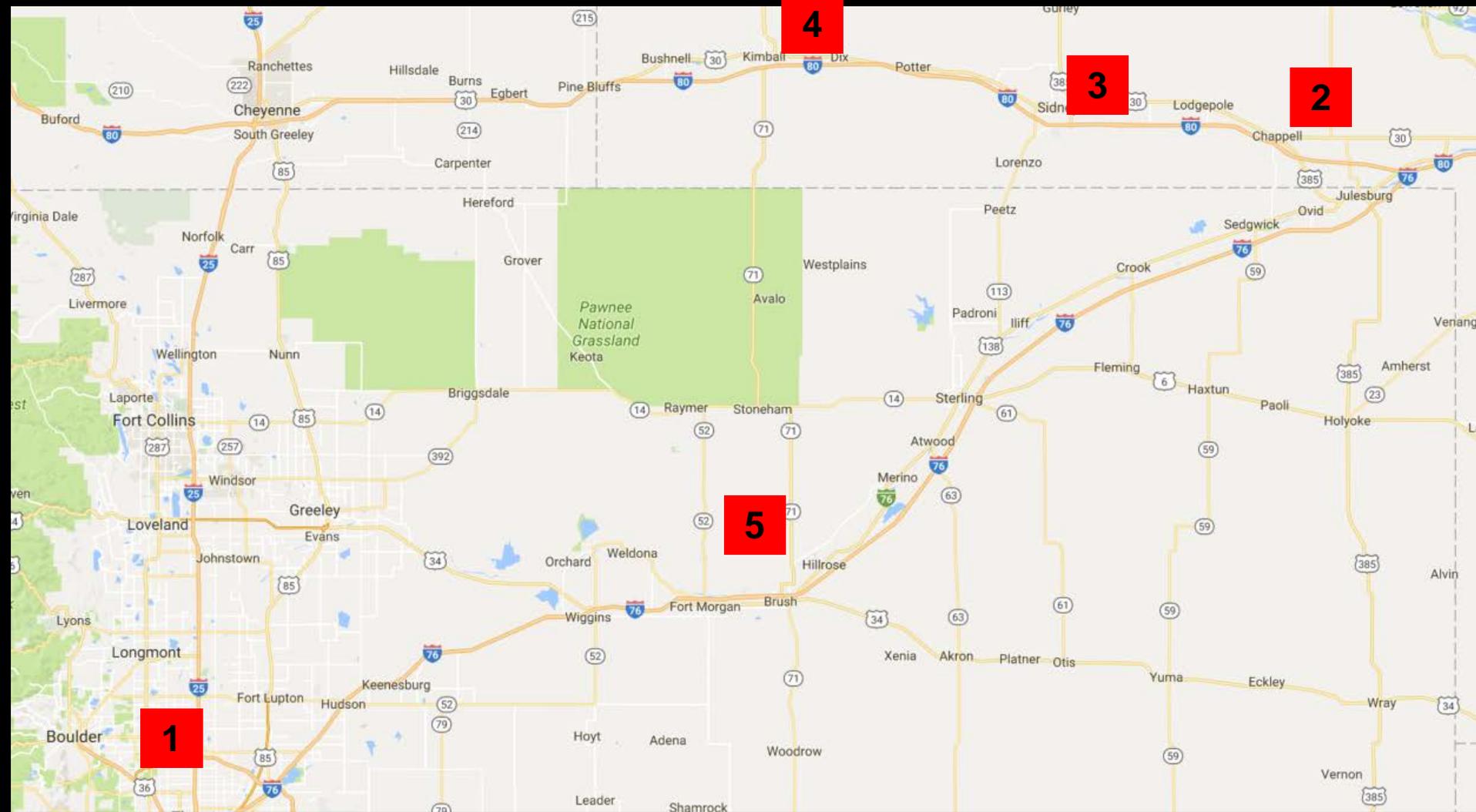


Active, Pending, Proposed COAs and EPIC Sites



STORM YEAR-1

28 June: Mission Success



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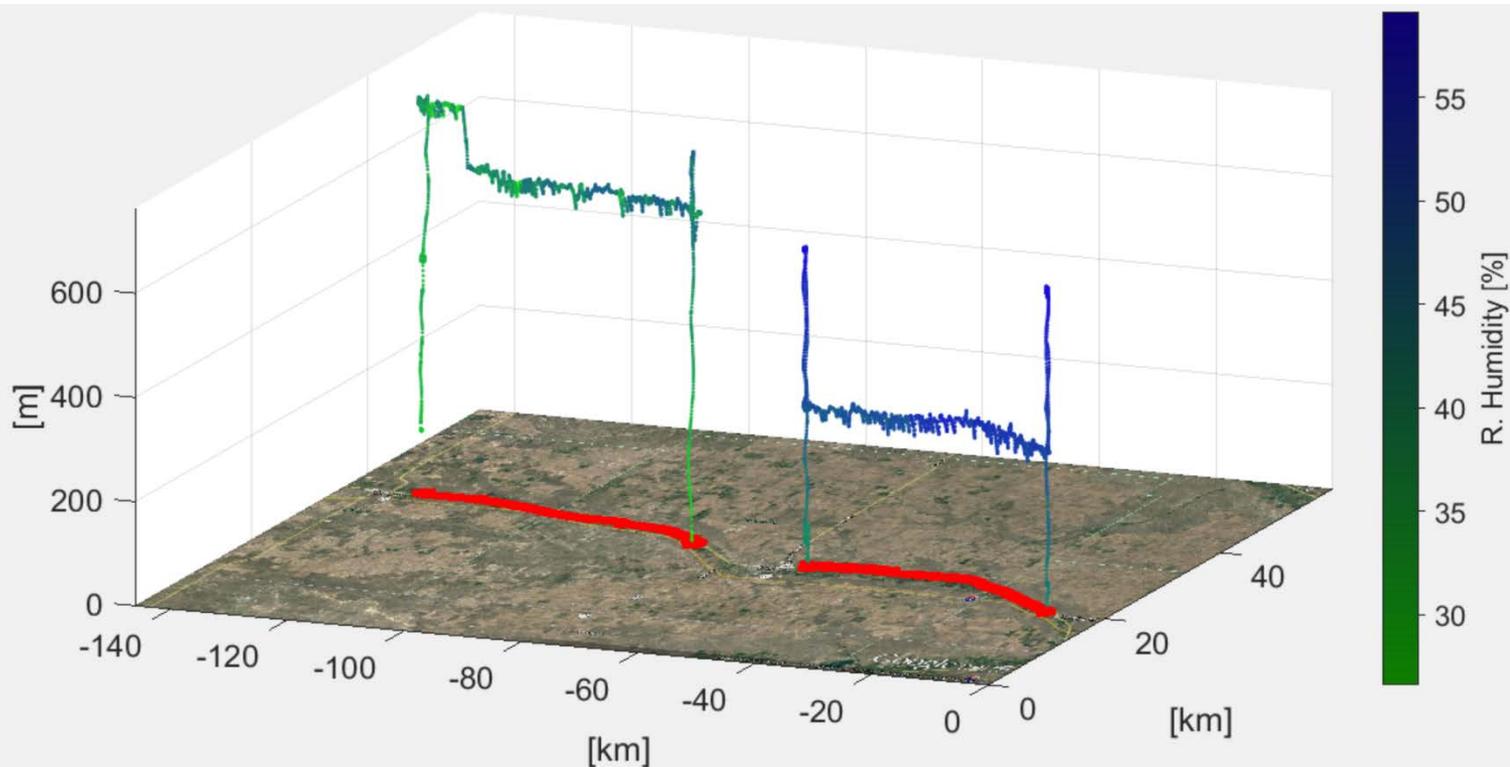
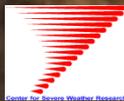
Description: Full motion video, obtained from a VTOL, showing the launch and spiraling ascent of the TTwistor fixed wing platform, prior to its mission of obtaining atmospheric data along a two horizontal transects above and along the county road, shown in this snap shot.

Please contact Brian Argrow (brian.argrow@colorado.edu) for the original version of this briefing and/or a copy of this video.



STORM UPDATE

28 JUNE 2016: NEBRASKA-COLORADO



Integrated Remote and
In Situ Sensing (IRISS)

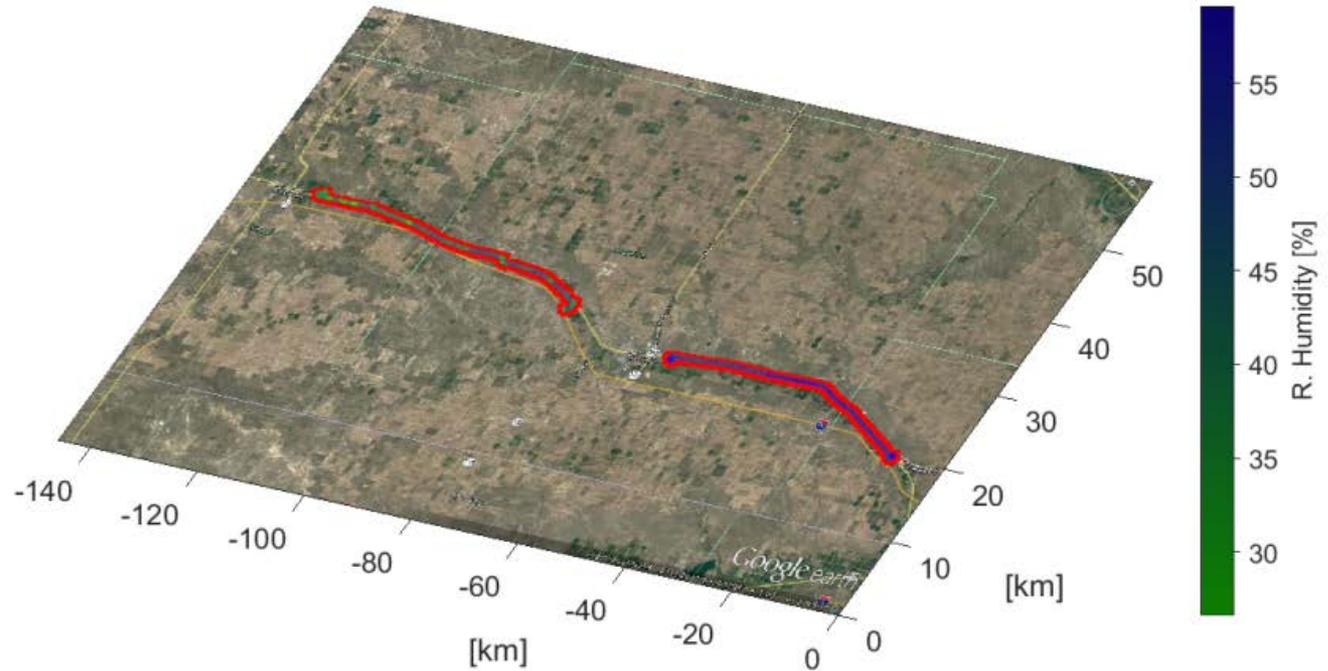
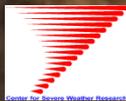
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OUR SPACE.
OUR FUTURE.



STORM UPDATE

28 JUNE 2016: NEBRASKA-COLORADO



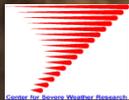
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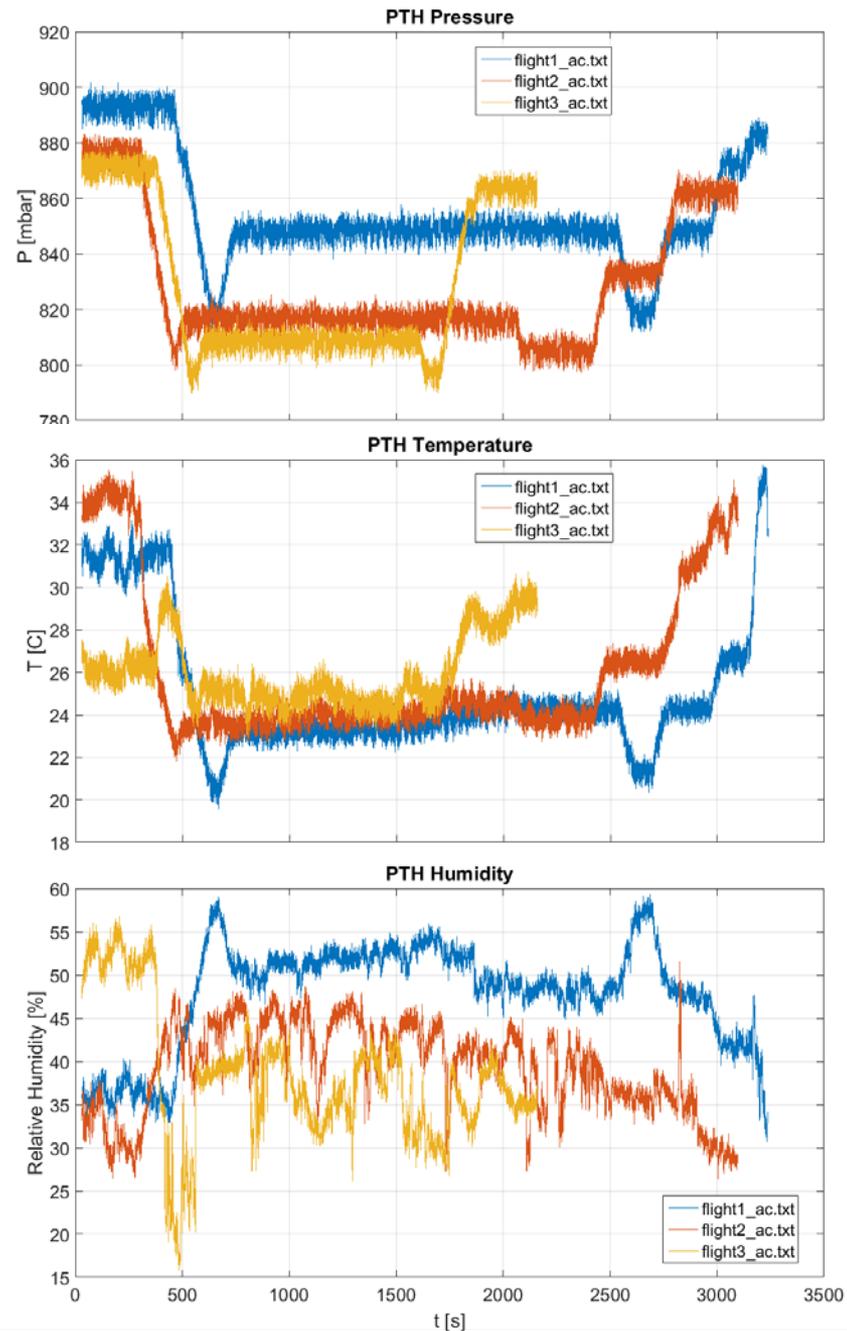


STORM UPDATE



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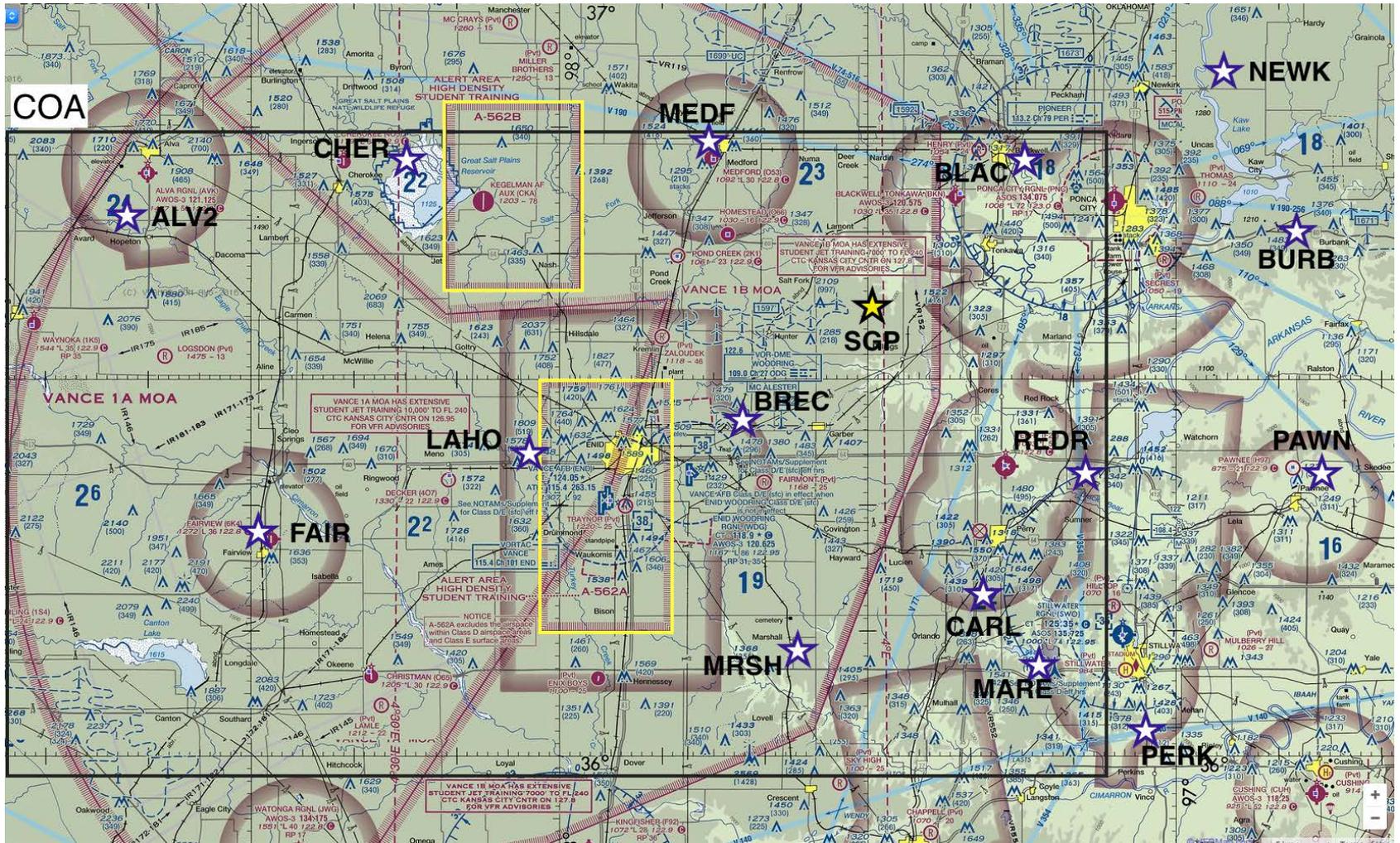
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OUR FUTURE.



Recent Airspace/Mesonet Site Update



Other Airspace Issues

Concerns

- 200-ft altitude requirement
- Coordination with Vance AFB
 - May restrict to weekend
 - May need precise waypoint tracking times



Mitigations

- Advance trip to Vance for face-to-face coordination
- Precise waypoint crossing times forecast
- Communicate precise (± 10 s) crossing times for IR/VR routes to Vance RAPCON



Tempest/TTwistor Performance Testing Update



Tempest with wing-mounted Aeroprobe (June 2015)



TTwistor performance test flight (July 2016)



Tempest roof-launch test flight (Aug 2016)

UA	Tempest	TTwistor
Max endurance (min)	118	171
Cruise speed (m/s)	14-17	18
Max Range (km)	110	192
Max-range speed (m/s)	17	18
Max level speed (m/s)	40	N/A



Roof Launch

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Description: Full motion video, of the Tempest fixed wing UAS begin launched from the roof of a moving vehicle.

Please contact Brian Argrow (brian.argrow@colorado.edu) for the original version of this briefing and/or a copy of this video.



CU EPIC Personnel

- Daniel Hesselius (Engineer/Pilot; licensed pilot): PIC, manual pilot
- Steven Borenstein (Engineer/Pilot; licensed pilot): UAS operator, alternate PIC, alternate manual pilot
- Douglas Weibel (Engineer/Pilot; licensed pilot): UAS operator, alternate PIC, alternate manual pilot
- Roger Laurence, III (Grad Research Asst): visual observer
- Eric Frew (Co-PI): tracker driver, alternate airspace liaison
- Brian Argrow (PI): airspace liaison, alternate tracker driver

