

U.S. Airspace Traffic Integration

ICAO UNOOSA Aerospace Symposium Day

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U.S. Federal Aviation Administration

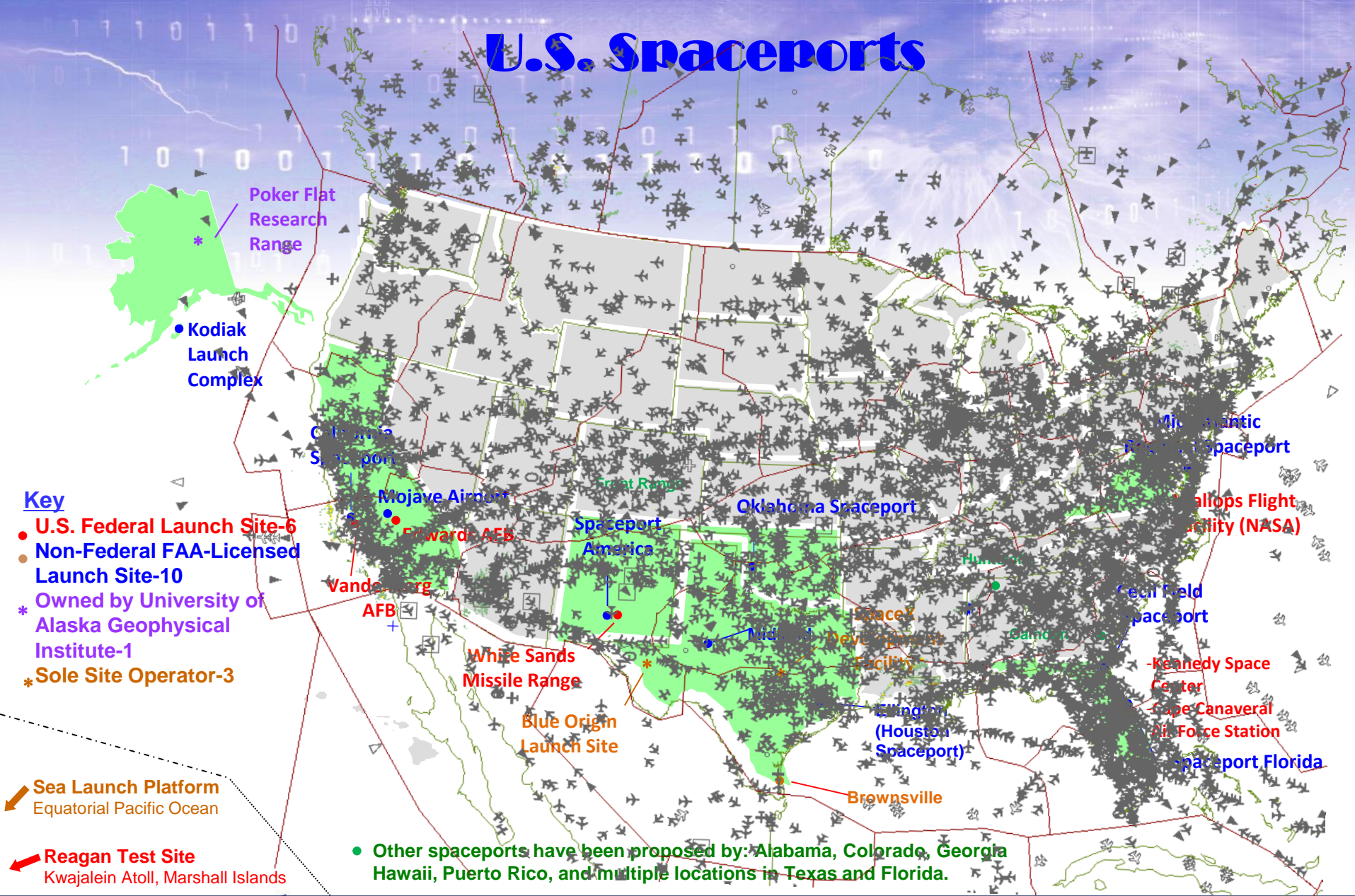
Air Traffic Organization

August 30, 2017



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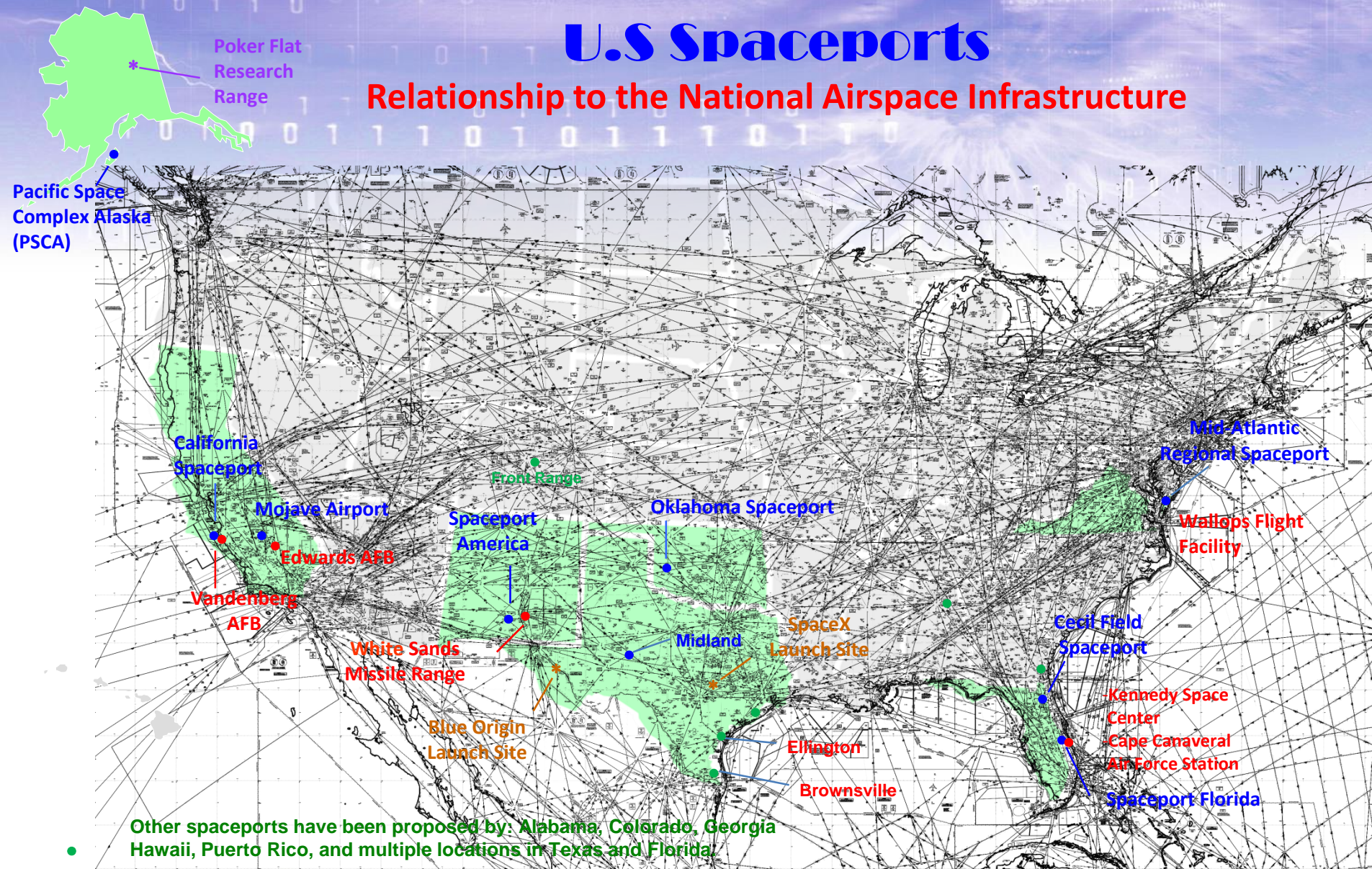
U.S. Spaceports



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U.S. Spaceports

Relationship to the National Airspace Infrastructure



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U.S. Spaceports

New Activity: Reusable Launch Vehicles and Space Tourism

Challenges
include:

Potential for
multiple
operations in a
week or even day.

Tracking



U.S. Spaceports

New Activity: Reusable Launch Vehicles and Space Tourism



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Airspace Volume Available for Launch



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Northbound traffic via J53

J79 traffic to J45

Red Areas are for flyback attempt to SLC-13

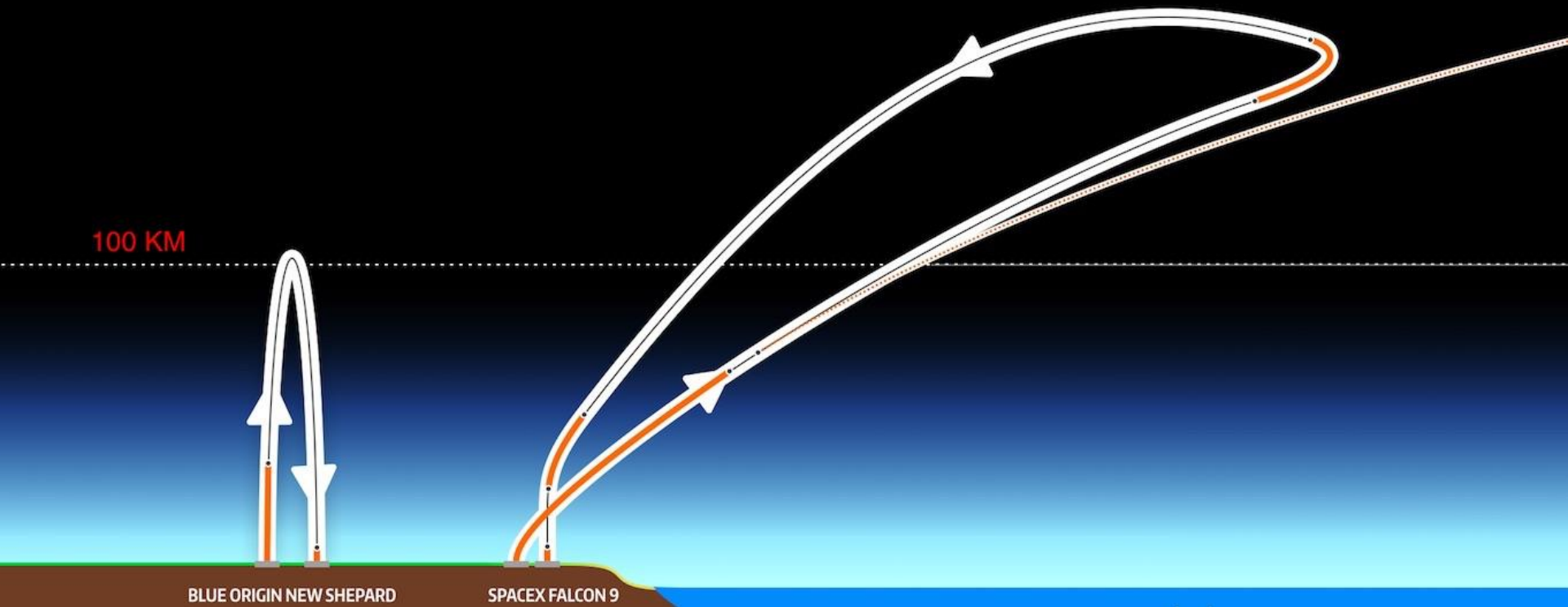
All Atlantic Routes will be closed



Flyback

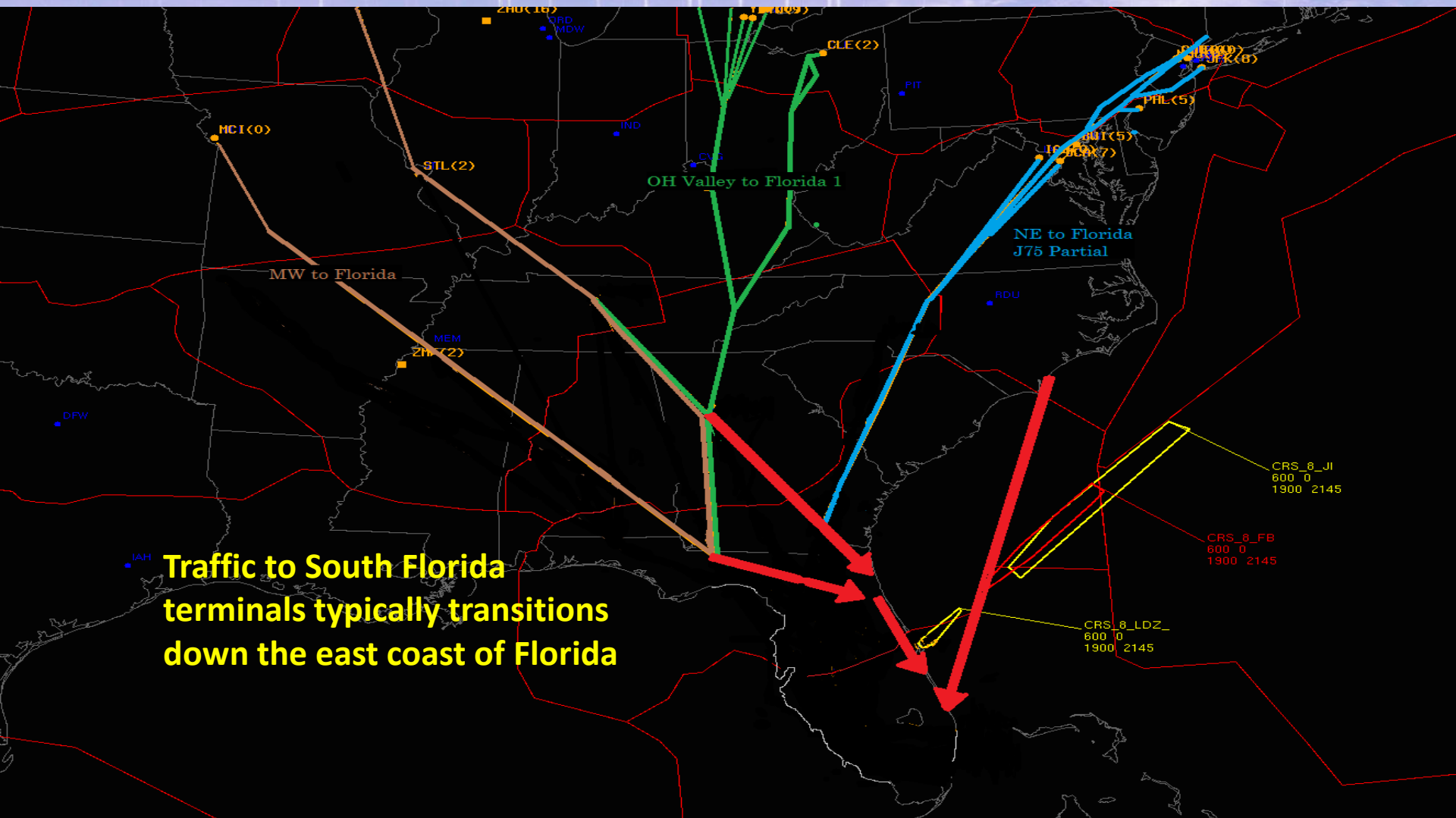
BLUE ORIGIN NEW SHEPARD VS SPACEX FALCON 9

NOTE: SECOND STAGE TRAJECTORY NOT TO SCALE



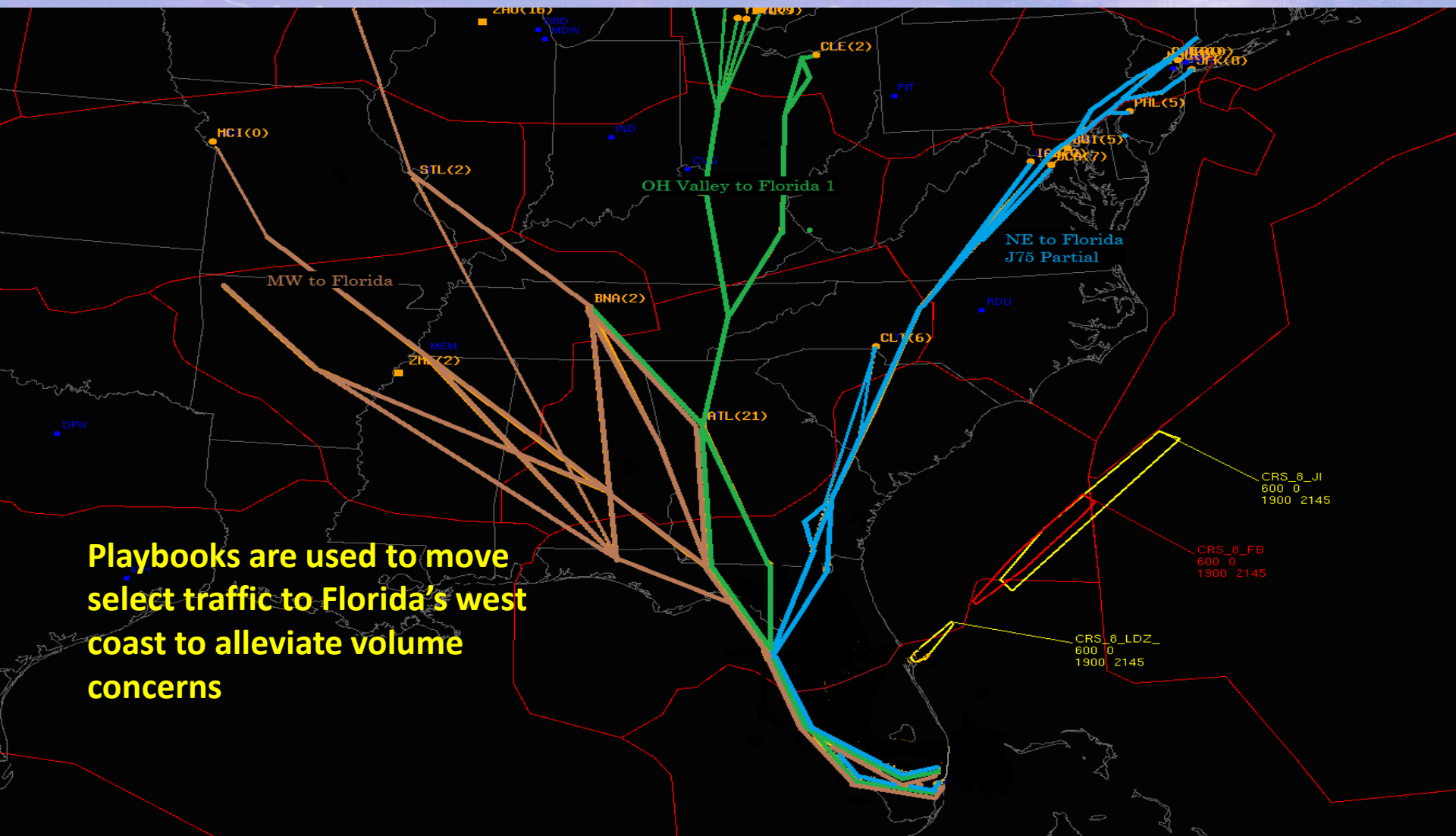
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Airspace Management Plan



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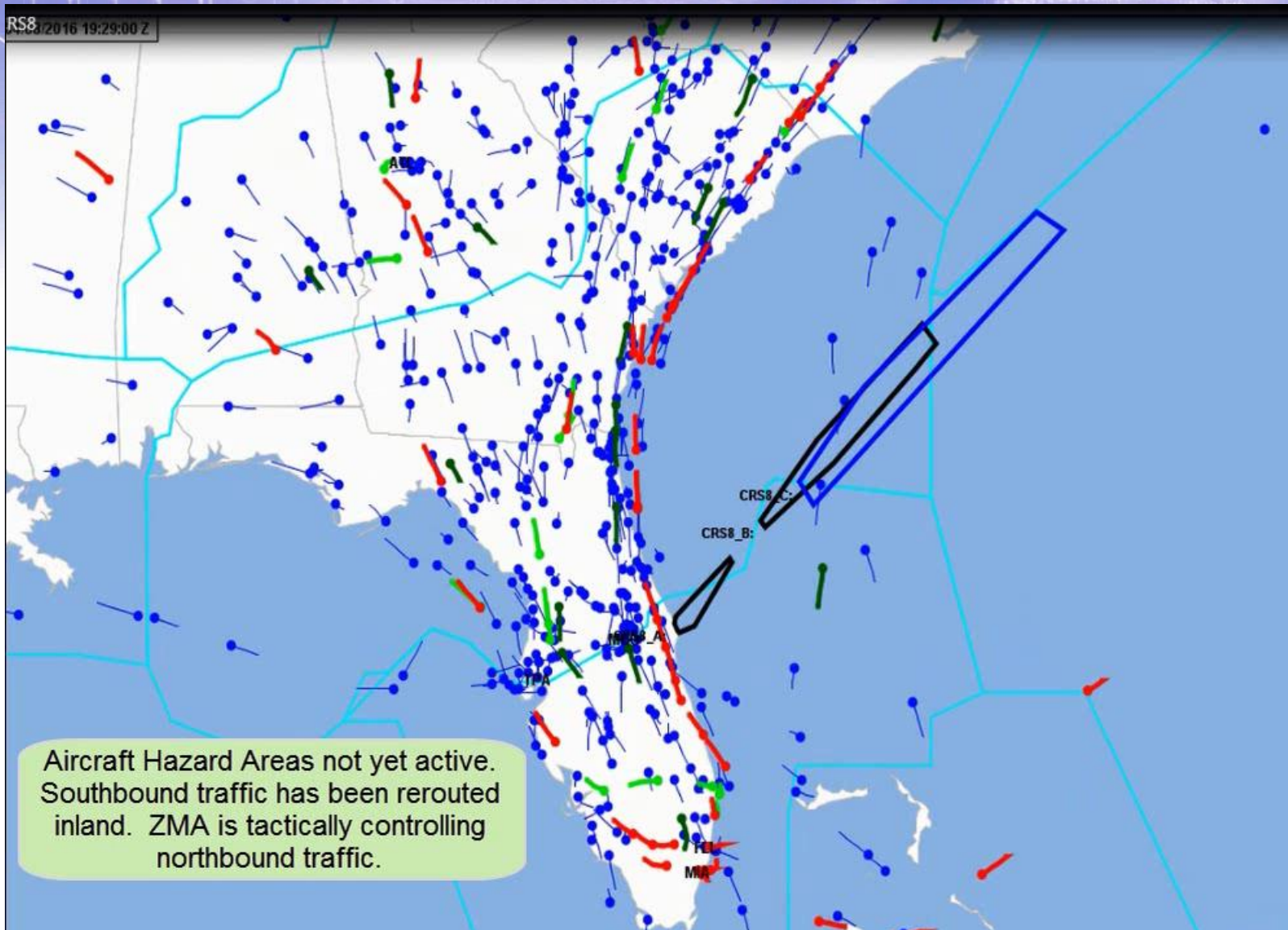
Airspace Management Plan



Playbooks are used to move select traffic to Florida's west coast to alleviate volume concerns



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Space Data Integrator



- Being developed by the FAA to provide a space vehicle tracking capability.
- Testing at the Air Traffic Control System Command Center and FAA Technical Center.
- Real-time tracking demonstrated in August of 2016
 - SpaceX Dragon Capsule using live telemetry.



Space Data Integrator

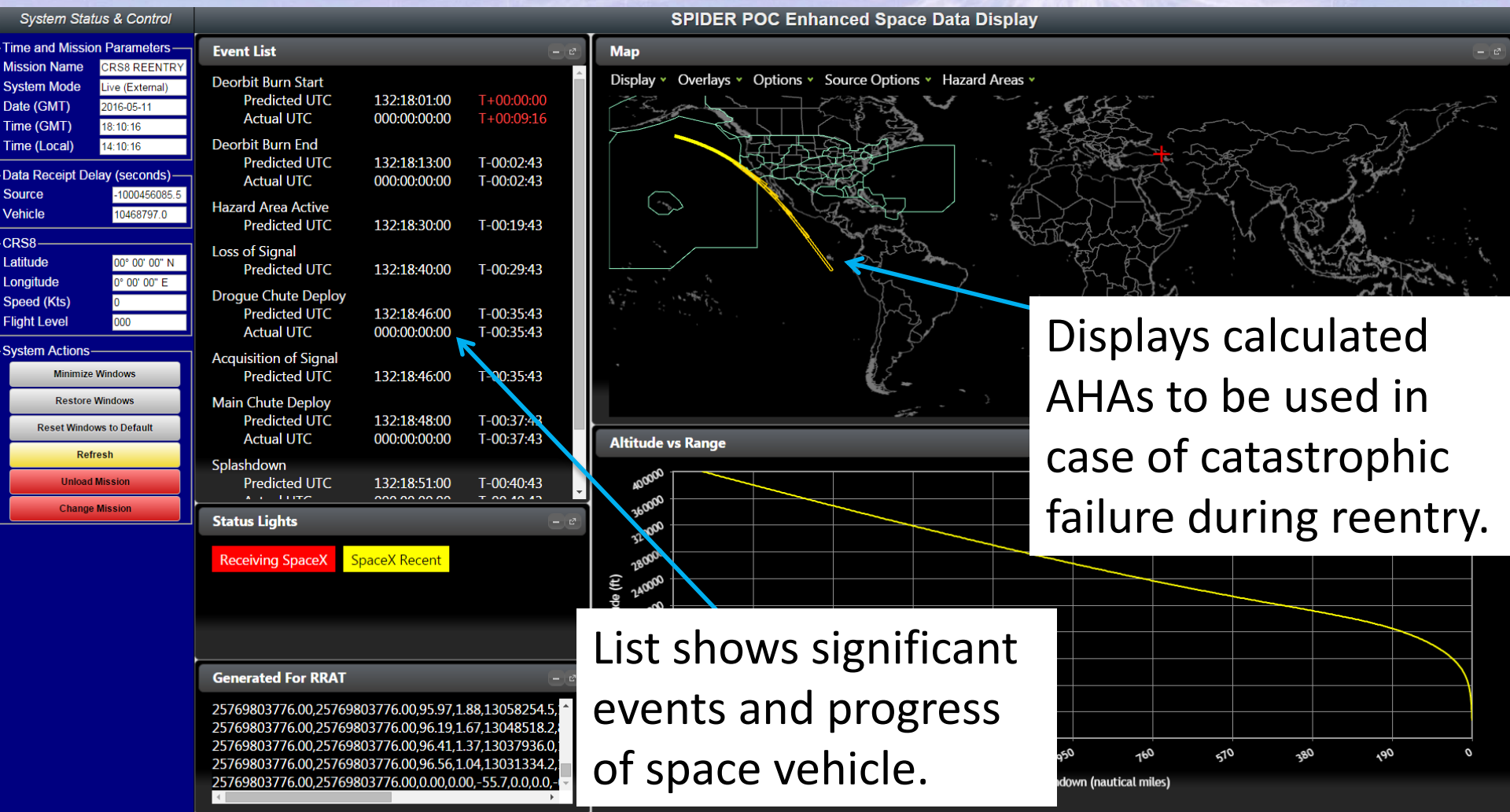
Enhanced Space Data Display



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Space Data Integrator

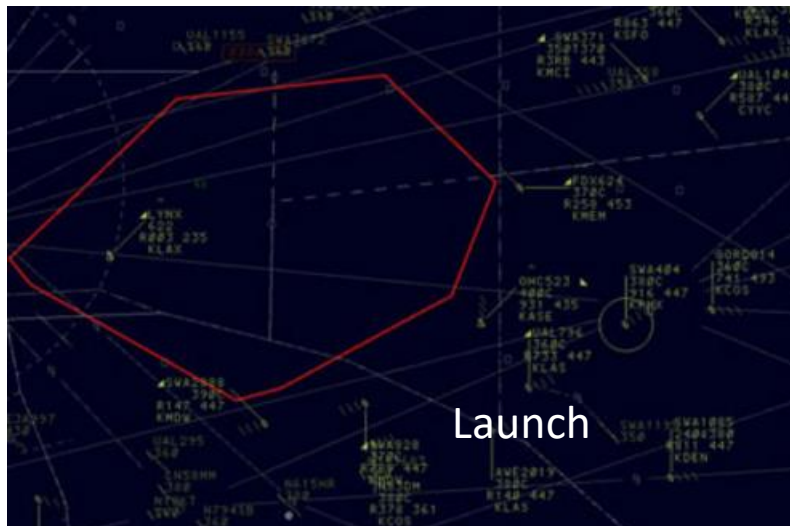
Enhanced Space Data Display



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Hazard Risk Assessment and Management (HRAM)

- Being developed by NEXTGEN to allow dynamic airspace management during launch and reentry operations.
- Will protect aircraft from debris from space vehicle malfunctions.
- Tested with controller teams during Human in the Loop (HITL) concept testing.



National Airspace System Capacity

- May lead to new assumptions regarding ATO operations and management of launch operations.
- Will help determine overall NAS impact expected year over year.
- Integrated space operations will benefit due to a reduced level of fear from competing NAS stakeholders.
- May help the ATO make informed decisions regarding capital investment for space operations.



Questions?

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