Launch Mission Execution Forecast

Mission: Falcon 9 Inspiration-4
Issued: 15 Sep 2021 / 1000L (1400Z)
Valid: 15 Sep 2021 / 2002 – 16/0113L (16/0002 – 0513Z)

Forecast Discussion: Central Florida is sandwiched between two tropical systems with the remnants of Nicholas over Louisiana and newly formed tropical circulation northeast of the Bahamas. This creates weak low-level flow along the Space Coast, which allows the east coast sea breeze to migrate inland prior to afternoon convection initiation. All indications are the thunderstorm activity will remain west of the Spaceport throughout the launch window. The elevated winds and enhanced precipitation coverage associated with the Atlantic tropical circulation will likely stay south and east of the ascent corridor for the first half of the launch window at least. The primary launch weather concerns are Flight Through Precipitation with coastal showers and the Anvil Cloud Rule associated with inland storms.

On Thursday, the Atlantic tropical system is forecast to move east of South Carolina as the remnants of Nicholas approach the Florida Panhandle. This will change the overall wind pattern across Central Florida, making it southwesterly which brings afternoon/evening convection to the east side of the peninsula. The opening of the window looks worse, as the thunderstorm activity will need time to dissipate through the evening. The probability of launch weather violations begin at 60% at the opening of the window, decreasing steadily to 30% by window close. The primary weather concerns for a Thursday launch attempt are Flight Through Precipitation and the myriad of rules associated with thunderstorms; including the Lightning, Cumulus, Anvil, and Debris Cloud Rules from the afternoon's convection.

Launch Day

Probability of Violating Weather Constraints

10%

Primary Concerns: Flight Through Precipitation, Anvil Cloud Rule

Weather Conditions

Weather/Visibility:	Isold Showers / 7 mi.
Temp/Humidity:	78°F / 84%
Liftoff Winds (200'):	120° 10 - 15 mph

Clouds

Type	Coverage	Base (ft)	Tops (ft)
Cumulus	Few	3,000	10,000
Altocumulus	Scattered	12,000	15,000

Additional Risk Criteria

Onshore Winds:	Low
Recovery/Ascent Weather:	Low-Mod
Solar Activity:	Low

24-Hour Delay

Probability of Violating Weather Constraints

40%

Primary Concerns: Flight Through Precipitation, Lightning/Cumulus/Anvil/Debris Cloud Rules

Weather Conditions

Weather/Visibility:	Isold Showers / 7 mi.
Temp/Humidity:	82°F / 80%
Liftoff Winds (200'):	200° 10 - 15 mph

Clouds

Type	Coverage	Base (ft)	Tops (ft)
Cumulus	Scattered	3,000	30,000
Altocumulus	Overcast	12,000	15,000

Additional Risk Criteria

Onshore Winds:	Low
Recovery/Ascent Weather:	Low
Solar Activity:	Low

***Note**: The Probability of Violation (POV) is the chance that a Lightning Launch Commit Criteria (LLCC) or certain user constraints (surface winds, precipitation, and temperatures, etc.) will be violated during the launch window. It does not take into account upper-level wind shear, booster recovery weather, and solar activity.*

Next Forecast Will Be Issued	As Required