



Launch Mission Execution Forecast

Mission: Falcon 9 Starlink L-17

Issued: 31 Jan 2021/ 0930L (1430Z)

Valid: 2 Feb 2021/ 0609 – 0630L (1109 – 1130Z)



Forecast Discussion: High pressure exits to our east today as an energetic low pressure system approaches the Southeastern US from the Midwest. Temperatures will be warmer today in the upper 70s as southwesterly winds increase ahead of the approaching cold front. Rain chances will increase after sunset tonight but will be highest from midnight to 6 AM across the Spaceport, ending abruptly with the frontal passage just before sunrise Monday morning. Thunderstorms will be possible with the passing front, but weak instability will keep storm coverage isolated at best. Behind the front, a strong upper level trough will dig into the deep south, maximizing cold air advection across the state as windy northwest flow continues. Clouds will gradually decrease in coverage across the Spaceport, but moisture wrapping around the low off the Carolinas will keep a stratocumulus deck in place Monday and into Tuesday, present during the launch window. Due to the very low freezing heights, there is a small possibility of a Thick Cloud Layer Rule violation should any of these clouds become sufficiently tall. However, the primary concern for the launch window will be Liftoff Winds due to sustained flow out of the west-northwest near 30 mph. Temperatures will be near 40 degrees during expected liftoff.

Conditions improve Tuesday into early Wednesday as the strong low pressure system accelerates from the Mid-Atlantic Coastline to New England. The local pressure gradient will begin to gradually relax, allowing winds to slowly decrease across the Spaceport. Northwest flow will remain in place, keeping temperatures below average. Cloud coverage should be on the downtrend with the departing low as well. For the backup launch window, the main question will be how much the pressure gradient loosens by the opening of the launch window. The primary concern will again be Liftoff Winds. Temperatures may be in the upper 30s during the backup window.

		Probability of Violating Weather Constraints					
Launch Day	60%	Primary Concern: Liftoff Winds, Thick Cloud Layer Rule					
	Weather Conditions				Additional Risk Criteria		
	Weather/Visibility: None / 7 mi.	Clouds			Upper-Level Wind Shear: Moderate		
	Temp/Humidity: 41°F / 80%	Type	Coverage	Base (ft)	Tops (ft)	Booster Recovery Weather: High	
Liftoff Winds (200'): 300° 25-30 mph	Stratocumulus	Scattered	2,000	5,000	Solar Activity: Low		
		Probability of Violating Weather Constraints					
24-Hour Delay	30%	Primary Concerns: Liftoff Winds					
	Weather Conditions				Additional Risk Criteria		
	Weather/Visibility: None / 7 mi.	Clouds			Upper-Level Wind Shear: Low		
	Temp/Humidity: 37°F / 80%	Type	Coverage	Base (ft)	Tops (ft)	Booster Recovery Weather: High	
Liftoff Winds (200'): 310° 17 - 22 mph	Stratocumulus	Few	3,000	4,000	Solar Activity: Low		
<p><i>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.</i></p>							
Next Forecast Will Be Issued		1 Feb 2021					