



# Launch Mission Execution Forecast

**Mission:** Falcon 9 Starlink 4-1

**Issued:** 9 Nov 2021 / 0830L (1330Z)

**Valid:** 12 Nov 2021 / 0701 - 0801L (12/1201 - 1301Z)



**Forecast Discussion:** High pressure centered over the southeast US this morning will maintain mostly dry conditions throughout the day. As the high pushes into the Atlantic, winds will become more easterly and trigger increased chances for light showers along the coast tonight through Wednesday morning. By Thursday, established southeasterly flow will bring a better chance for Atlantic showers in the vicinity of the Spaceport. The next storm system moves across the northern tier of the US late this week, bringing another cold front through the eastern third of the US. Abundant moisture and vertical forcing along a pre-frontal trough will spur the development of thick low-level cloud layers, making Thick Clouds and Disturbed Weather the main launch concerns for the primary launch window Friday morning.

Winds turning northwesterly will bring a drier Saturday morning to the Spaceport, reducing cloud coverage and precipitation chances through the backup launch window until the front reaches the area. High pressure is expected to build in the wake of the front, bringing cooler and drier air through the rest of the weekend. The main concerns for the 24-hour backup launch window remain Thick Clouds and Disturbed Weather due to trough and frontal passage timing variability.

		Probability of Violating Weather Constraints						
<b>Launch Day</b>	<b>40%</b>	<b>Primary Concerns:</b> Thick Cloud Layers Rule, Disturbed Weather Rule						
	Weather Conditions				Additional Risk Criteria			
	<b>Weather:</b>	Scattered Showers	Clouds				<b>Upper-Level Wind Shear:</b>	Low
	<b>Visibility:</b>	7 miles	Type	Coverage	Base (ft)	Tops (ft)	<b>Booster Recovery Weather:</b>	Moderate
	<b>Temp/Humidity:</b>	74°F / 90%	Stratocumulus	Broken	2,000	9,000	<b>Solar Activity:</b>	Low
<b>Liftoff Winds (200'):</b>	100° 5-10 mph	Cirrus	Broken	25,000	33,000			
		Probability of Violating Weather Constraints						
<b>24-Hour Delay</b>	<b>20%</b>	<b>Primary Concerns:</b> Thick Cloud Layers Rule, Disturbed Weather Rule						
	Weather Conditions				Additional Risk Criteria			
	<b>Weather:</b>	Isolated Showers	Clouds				<b>Upper-Level Wind Shear:</b>	Low
	<b>Visibility:</b>	7 miles	Type	Coverage	Base (ft)	Tops (ft)	<b>Booster Recovery Weather:</b>	Low
	<b>Temp/Humidity:</b>	72°F / 94%	Stratocumulus	Scattered	1,000	3,000	<b>Solar Activity:</b>	Low
<b>Liftoff Winds (200'):</b>	310° 12 - 17 mph							
<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>								
<b>Next Forecast Will Be Issued</b>		10 Nov 2021						