



Launch Mission Execution Forecast

Mission: Falcon 9 NASA CRS-24

Issued: 18 Dec 2021 / 0900L (1400Z)

Valid: 21 Dec 2021 / 0501 – 0511L (1001 – 1011Z)



Forecast Discussion: An unsettled pattern will be in place across Central Florida and the Spaceport for the first half of the upcoming week as a frontal boundary arrives in the state on Sunday and stalls out by early Monday. South-southeasterly flow will bring scattered showers and a few storms each day through Monday along the stalled boundary, before a surface low develops along the boundary in the Gulf of Mexico. Models differ on exactly where it crosses the state, and how strong this low will be when it does on Tuesday. However, confidence in increased shower and storm coverage along with extensive mid-level cloud cover bringing less than favorable conditions for the primary launch attempt early Tuesday morning is high. The main concerns associated with this weather will be the Cumulus Cloud Rule, Thick Cloud Layer Rule, and Surface Electric Field Rule.

The low is forecast to move across the state and into the Atlantic by late Tuesday. There will be an opportunity for breezy west-northwest winds to wrap drier air around the low into the Spaceport as the low moves east, allowing for some improvement in conditions into the backup launch window early Wednesday morning. The main concerns will be the Cumulus Cloud Rule and Thick Cloud Layer Rule with any fast moving lingering activity.

		Probability of Violating Weather Constraints					
Launch Day	60%	Primary Concerns: Cumulus Cloud Rule, Thick Cloud Layer Rule, Surface Electric Field Rule					
	Weather Conditions				Additional Risk Criteria		
	Weather/Visibility: Sct. Showers / 7 mi.	Clouds			Upper-Level Wind Shear: Low		
	Temp/Humidity: 70°F / 90%	Type	Coverage	Base (ft)	Tops (ft)	Booster Recovery Weather: Moderate	
Liftoff Winds (200'): 170° 7 - 12 mph	Cumulus	Broken	3,000	8,000	Solar Activity: Low		
	Altostratus	Overcast	10,000	16,000			
		Probability of Violating Weather Constraints					
24-Hour Delay	40%	Primary Concerns: Cumulus Cloud Rule, Thick Cloud Layer Rule					
	Weather Conditions				Additional Risk Criteria		
	Weather/Visibility: Isold. Showers / 7 mi.	Clouds			Upper-Level Wind Shear: Moderate		
	Temp/Humidity: 58°F / 80%	Type	Coverage	Base (ft)	Tops (ft)	Booster Recovery Weather: Moderate	
Liftoff Winds (200'): 280° 15 - 20 mph	Cumulus	Scattered	2,500	6,000	Solar Activity: Low		
	Cirrus	Broken	20,000	25,000			
<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>							
Next Forecast Will Be Issued		19 Dec 2021					