



# Launch Mission Execution Forecast



**Mission:** Falcon 9 Cygnus NG-21

**Issued:** 2 Aug 2024 / 1230L (1630Z)

**Valid:** 3 Aug 2024 / 1124 – 1134L (1524 – 1534Z)

**Forecast Discussion:** Deep moisture with weak southeasterly flow will continue today, promoting sea-breeze inspired thunderstorms along the Florida east-coast this afternoon. Convective activity should push into interior Florida by the early evening hours. For the weekend weather, all eyes will remain on Potential Tropical Cyclone Four (PTC 4) as it lifts out of the Greater Antilles and into the Gulf of Mexico. The official forecast from the National Hurricane Center has the system becoming a named storm Saturday and skirting the western Florida Peninsula Sunday, potentially making landfall as a Tropical Storm anywhere from the Florida Big Bend to southwest Florida. Regardless of where the center of the storm makes landfall, the Space Coast will be on the eastern side of the system, and weather is likely to deteriorate with time from Saturday afternoon into Sunday. For the initial launch window, scattered showers are expected to approach the coastline out of the southeast and potentially move onshore. For the backup launch window, the weather is expected to be significantly worse as the center of PTC 4 nears, with higher coverage of showers and clouds, as well as higher sustained winds, and possibly even an isolated tornado.

Launch Day	Probability of Violating Weather Constraints <sup>1</sup>					
	<b>50%</b>	Primary Concerns: Cumulus Cloud Rule, Surface Electric Fields Rule, Thick Cloud Layers Rule				
	Weather Conditions				Additional Risk Criteria <sup>2</sup>	
	<b>Weather/Visibility:</b> Sct showers / 7 mi.	<b>Clouds</b>				<b>Upper-Level Wind Shear:</b> Low
	Type	Coverage	Base (ft)	Tops (ft)		
<b>Temp/Humidity:</b> 87°F / 70%	Cumulus	Scattered	3,000	10,000	<b>Booster Recovery Weather:</b> Low	
<b>Liftoff Winds (200'):</b> 160° 12 - 17 mph	Alto cumulus	Scattered	12,000	25,000	<b>Solar Activity:</b> Low	

24-Hour Delay	Probability of Violating Weather Constraints					
	<b>90%</b>	Primary Concerns: Cumulus Cloud Rule, Thick Cloud Layers Rule, Surface Winds				
	Weather Conditions				Additional Risk Criteria	
	<b>Weather/Visibility:</b> Num showers / 7 mi.	<b>Clouds</b>				<b>Upper-Level Wind Shear:</b> Low
	Type	Coverage	Base (ft)	Tops (ft)		
<b>Temp/Humidity:</b> 87°F / 80%	Cumulus	Scattered	3,000	12,000	<b>Booster Recovery Weather:</b> Low	
<b>Liftoff Winds (200'):</b> 150° 25 - 30 mph	Alto cumulus	Broken	16,000	28,000	<b>Solar Activity:</b> Low	

**Notes**

- The Probability of Violation (PoV) is the chance of a local safety or customer constraint violation occurring any random time during the launch window.
- Additional Risk Criteria, which are not included in the PoV, are mission-specific constraints that may not include all phenomena within each risk factor.

See <https://www.patrick.spaceforce.mil/Portals/14/Weather/LaunchFAQ.pdf> for more information

<b>Next Forecast Will Be Issued</b>	As Required
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