



Launch Mission Execution Forecast

Mission: Falcon 9 NASA Crew-9

Issued: 26 Sep 2024 / 0930L (1330Z)

Valid: 28 Sep 2024 / 1312 - 1323L (1712 - 1723Z)



Forecast Discussion: Today, all eyes are on Hurricane Helene as it strengthens and tracks northwards in the eastern Gulf of Mexico. The latest NHC advisory as of this morning (26/1200Z) has Hurricane Helene making landfall in the Big Bend region of Florida as a major hurricane on Thursday evening and tracking into Tennessee by Friday. While the Space Coast will generally avoid the worst of the impacts, heavy rain from outer bands, wind gusts over 50 mph, and isolated tornadoes are expected in the area today and tonight.

In Helene's wake, wind speeds will significantly decrease as the day progresses on Friday, but the storm will leave behind a frontal boundary that will concentrate moisture over Central Florida through the weekend. This feature, combined with deep southwesterly flow and diurnal heating, will increase shower and storm chances at the Spaceport on Saturday afternoon. While the highest rain/lightning chances are likely later in the afternoon, scattered showers are likely to develop over the Florida peninsula and track eastwards towards the coast around T-0. This will introduce the risk of a Cumulus Cloud Rule, Flight Through Precipitation, and Surface Electric Fields Rule violations. Overall weather conditions look very similar for both backup days as the front remains stagnant over the area, but the launch window shifting earlier will slightly improve the POV each day.

Launch Day	Probability of Violating Weather Constraints ¹						
	45%	Primary Concerns: Cumulus Cloud Rule, Flight Through Precipitation, Surface Electric Fields Rule					
Launch Day	Weather Conditions			Additional Risk Criteria ²			
	Weather:	Isolated Showers	Clouds			Upper-Level Wind Shear: Low	
			Type	Coverage	Base (ft)	Tops (ft)	Ascent Corridor Weather: Moderate
	Visibility:	7 miles	Cumulus	Scattered	2,500	18,000	Booster Recovery Weather: Low
	Temp/Humidity:	88°F / 70%	Cirrus	Scattered	35,000	38,000	Solar Activity: Low
Liftoff Winds (200'):	200° 12 - 17 mph						
24-Hour Delay	Probability of Violating Weather Constraints						
	40%	Primary Concerns: Cumulus Cloud Rule, Flight Through Precipitation, Surface Electric Fields Rule					
24-Hour Delay	Weather Conditions			Additional Risk Criteria			
	Weather:	Isolated Showers	Clouds			Upper-Level Wind Shear: Low	
			Type	Coverage	Base (ft)	Tops (ft)	Ascent Corridor Weather: Moderate
	Visibility:	7 miles	Cumulus	Scattered	2,500	16,000	Booster Recovery Weather: Low
	Temp/Humidity:	86°F / 70%					Solar Activity: Low
Liftoff Winds (200'):	220° 10 - 15 mph						
48-Hour Delay	Probability of Violating Weather Constraints						
	35%	Primary Concerns: Cumulus Cloud Rule, Flight Through Precipitation, Surface Electric Fields Rule					
48-Hour Delay	Weather Conditions			Additional Risk Criteria			
	Weather:	Isolated Showers	Clouds			Upper-Level Wind Shear: Low	
			Type	Coverage	Base (ft)	Tops (ft)	Ascent Corridor Weather: Moderate
	Visibility:	7 miles	Cumulus	Scattered	2,500	14,000	Booster Recovery Weather: Low
	Temp/Humidity:	86°F / 70%					Solar Activity: Low
Liftoff Winds (200'):	200° 7 - 12 mph						
Notes	1. The Probability of Violation (PoV) is the chance of a local safety or customer constraint violation occurring any random time during the launch window.						
	2. 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						

Next Forecast Will Be Issued 27 Sep 2024