



Launch Mission Execution Forecast

Mission: Falcon 9 RRT-1

Issued: 12 Dec 2024 / 1215L (1715Z)

Valid: 13 Dec 2024 / 1830 – 2200L (2330 – 14/0300Z)



Forecast Discussion: Strong onshore flow with coastal showers will be the weather pattern for the launch and backup days after a cold front passed through yesterday. Behind the front, a very strong area of high pressure is building into the eastern US, creating a very tight pressure gradient through the end of the week and into the weekend. This will bring elevated east-northeasterly winds along with isolated coastal showers tomorrow evening. Dry mid-level air will cap off any significant vertical development of the showers, limiting them to only a flight through concern. Because of this, the primary concerns are low-level winds approaching liftoff limits and the Cumulus Cloud Rule.

Conditions look very similar for the backup day, but a surface trough in the southwestern Atlantic will bring elevated moisture to the region. Shower coverage will likely be higher and there will be less mid-level dry air to cap vertical development. Thus, the concerns remain the same with an increased probability of violation.

Launch Day		Probability of Violating Weather Constraints ¹					
		20%	Primary Concerns: Liftoff Winds, Cumulus Cloud Rule				
		Weather Conditions				Additional Risk Criteria ²	
		Weather/Visibility: Isold Showers / 7 mi.	Clouds				Upper-Level Wind Shear: Low
			Type	Coverage	Base (ft)	Tops (ft)	Booster Recovery Weather: Moderate
		Temp/Humidity: 69°F / 70%	Cumulus	Scattered	3,000	8,000	Solar Activity: Low
		Liftoff Winds (200'): 060° 25 - 30 mph					
24-Hour Delay		Probability of Violating Weather Constraints					
		40%	Primary Concerns: Cumulus Cloud Rule, Liftoff Winds				
		Weather Conditions				Additional Risk Criteria	
		Weather/Visibility: Sct Showers / 7 mi.	Clouds				Upper-Level Wind Shear: Low
			Type	Coverage	Base (ft)	Tops (ft)	Booster Recovery Weather: High
		Temp/Humidity: 71°F / 85%	Cumulus	Broken	2,500	14,000	Solar Activity: Low
		Liftoff Winds (200'): 060° 25 - 30 mph	Cirrus	Scattered	35,000	38,000	
Notes	<ol style="list-style-type: none"> 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						
Next Forecast Will Be Issued		As Required					