



Launch Mission Execution Forecast



Mission: Falcon 9 Starlink 4-17

Issued: 05 May 2022 / 0915L (1315Z)

Valid: 06 May 2022 / 0521 – 0621L (0921 – 1021Z)

Forecast Discussion: A hot and sunny day is in store for the Spaceport as high pressure ridging dominates our weather pattern. Showers will be harder to come by than yesterday, but a few may form along the east-coast sea breeze as it pushes inland this afternoon. By tomorrow morning, a mid-latitude storm system will move through the Mississippi Valley and push the high pressure ridge farther to our east. This will cause our winds to shift to the south-southwest and offshore, which will squash any chance of a coastal shower during the primary launch window. Aside from possible wind shear aloft, the weather looks excellent for a launch attempt Friday morning, with the Cumulus Cloud Rule being the only concern.

Conditions change for the backup window Saturday morning as a cold front begins to approach and dig into the Deep South. Local wind flow becomes more southwesterly in nature and increases to near 20 mph, and moisture rises across the spaceport. Higher cloud coverage and isolated showers will be in the forecast for Saturday, but the weather looks decent for the backup launch window, with the Cumulus Cloud Rule and Thick Cloud Layer Rule being the main concerns.

Probability of Violating Weather Constraints ¹																													
Launch Day	<10% Primary Concerns: Cumulus Cloud Rule																												
	Weather Conditions																												
	<table border="1"> <thead> <tr> <th rowspan="2">Weather/Visibility:</th> <th rowspan="2">None / 7 mi.</th> <th colspan="4">Clouds</th> <th rowspan="2">Upper-Level Wind Shear:</th> <th rowspan="2">Moderate</th> </tr> <tr> <th>Type</th> <th>Coverage</th> <th>Base (ft)</th> <th>Tops (ft)</th> </tr> </thead> <tbody> <tr> <td>Temp/Humidity:</td> <td>71°F / 90%</td> <td>Cumulus</td> <td>Few</td> <td>3,500</td> <td>5,000</td> <td>Booster Recovery Weather:</td> <td>Low</td> </tr> <tr> <td>Liftoff Winds (200'):</td> <td>210° 10 - 15 mph</td> <td></td> <td></td> <td></td> <td></td> <td>Solar Activity:</td> <td>Low</td> </tr> </tbody> </table>	Weather/Visibility:	None / 7 mi.	Clouds				Upper-Level Wind Shear:	Moderate	Type	Coverage	Base (ft)	Tops (ft)	Temp/Humidity:	71°F / 90%	Cumulus	Few	3,500	5,000	Booster Recovery Weather:	Low	Liftoff Winds (200'):	210° 10 - 15 mph					Solar Activity:	Low
	Weather/Visibility:			None / 7 mi.	Clouds					Upper-Level Wind Shear:	Moderate																		
Type		Coverage	Base (ft)		Tops (ft)																								
Temp/Humidity:	71°F / 90%	Cumulus	Few	3,500	5,000	Booster Recovery Weather:	Low																						
Liftoff Winds (200'):	210° 10 - 15 mph					Solar Activity:	Low																						
Additional Risk Criteria ²																													
Probability of Violating Weather Constraints																													
24-Hour Delay	20% Primary Concerns: Cumulus Cloud Rule, Thick Cloud Layer Rule																												
	Weather Conditions																												
	<table border="1"> <thead> <tr> <th rowspan="2">Weather/Visibility:</th> <th rowspan="2">Iso Showers / 7 mi.</th> <th colspan="4">Clouds</th> <th rowspan="2">Upper-Level Wind Shear:</th> <th rowspan="2">Low</th> </tr> <tr> <th>Type</th> <th>Coverage</th> <th>Base (ft)</th> <th>Tops (ft)</th> </tr> </thead> <tbody> <tr> <td>Temp/Humidity:</td> <td>72°F / 90%</td> <td>Cumulus</td> <td>Scattered</td> <td>2,500</td> <td>3,500</td> <td>Booster Recovery Weather:</td> <td>Moderate</td> </tr> <tr> <td>Liftoff Winds (200'):</td> <td>250° 17 - 22 mph</td> <td>Altostratus</td> <td>Scattered</td> <td>15,000</td> <td>18,000</td> <td>Solar Activity:</td> <td>Low</td> </tr> </tbody> </table>	Weather/Visibility:	Iso Showers / 7 mi.	Clouds				Upper-Level Wind Shear:	Low	Type	Coverage	Base (ft)	Tops (ft)	Temp/Humidity:	72°F / 90%	Cumulus	Scattered	2,500	3,500	Booster Recovery Weather:	Moderate	Liftoff Winds (200'):	250° 17 - 22 mph	Altostratus	Scattered	15,000	18,000	Solar Activity:	Low
	Weather/Visibility:			Iso Showers / 7 mi.	Clouds					Upper-Level Wind Shear:	Low																		
Type		Coverage	Base (ft)		Tops (ft)																								
Temp/Humidity:	72°F / 90%	Cumulus	Scattered	2,500	3,500	Booster Recovery Weather:	Moderate																						
Liftoff Winds (200'):	250° 17 - 22 mph	Altostratus	Scattered	15,000	18,000	Solar Activity:	Low																						
Additional Risk Criteria																													
Notes	<ol style="list-style-type: none"> The Probability of Violation (PoV) is the chance of a local safety or customer constraint violation occurring anytime 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																												