



# Launch Mission Execution Forecast

**Mission:** Falcon 9 CRS-21

**Issued:** 03 Dec 2020 / 0800L (1300Z)

**Valid:** 05 Dec 2020 / 1134 – 1145L (1634 – 1645Z)



**Forecast Discussion:** Expect warming temperatures today as winds shift onshore, while high pressure ridge remains anchored across the Deep South, keeping conditions dry. This ridge will begin to give way tomorrow, as a low pressure system brewing near the central Gulf Coast begins to shift eastward. Expect rain chances and clouds ahead of the system to begin increasing Friday. A weakening cold front is expected to push through Central Florida near or during the launch window, with most of the associated rainfall impacting the Spaceport prior to the launch. At a minimum, widespread clouds and isolated showers can be expected. Primary weather concerns during the launch window will be the Cumulus Cloud Rule, Thick Cloud Layer Rule, and Flight Through Precipitation.

Behind the departing front, weak high pressure will move over Florida, diminishing shower coverage across Central Florida. However, a weak low pressure system may develop across the Central Gulf, which may potentially send an influx of mid-level clouds across the state. The primary weather concerns during the backup launch window will be the Thick Cloud Layer Rule and Cumulus Cloud Rule.

		Probability of Violating Weather Constraints																							
<b>Launch Day</b>	<b>60%</b>	<b>Primary Concerns:</b> Cumulus Cloud Rule, Thick Cloud Layer Rule, Flight Through Precipitation																							
	Weather Conditions			Additional Risk Criteria																					
	<b>Weather/Visibility:</b> Isol showers / 7 mi.	<table border="1"> <thead> <tr> <th colspan="4">Clouds</th> </tr> <tr> <th>Type</th> <th>Coverage</th> <th>Base (ft)</th> <th>Tops (ft)</th> </tr> </thead> <tbody> <tr> <td>Cumulus</td> <td>Scattered</td> <td>2,500</td> <td>4,000</td> </tr> <tr> <td>Alto cumulus</td> <td>Broken</td> <td>6,500</td> <td>10,000</td> </tr> <tr> <td>Altostratus</td> <td>Scattered</td> <td>12,000</td> <td>19,000</td> </tr> </tbody> </table>			Clouds				Type	Coverage	Base (ft)	Tops (ft)	Cumulus	Scattered	2,500	4,000	Alto cumulus	Broken	6,500	10,000	Altostratus	Scattered	12,000	19,000	<b>Upper-Level Wind Shear:</b> Moderate
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<b>Temp/Humidity:</b> 71°F / 70%				<b>Booster Recovery Weather:</b> High																					
<b>Liftoff Winds (200'):</b> 230° 15 – 20 mph				<b>Solar Activity:</b> Low																					
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<b>24-Hour Delay</b>	<b>20%</b>	<b>Primary Concerns:</b> Thick Cloud Layer Rule, Cumulus Cloud Rule																							
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	<b>Weather/Visibility:</b> None / 7 mi.	<table border="1"> <thead> <tr> <th colspan="4">Clouds</th> </tr> <tr> <th>Type</th> <th>Coverage</th> <th>Base (ft)</th> <th>Tops (ft)</th> </tr> </thead> <tbody> <tr> <td>Altostratus</td> <td>Broken</td> <td>13,000</td> <td>17,000</td> </tr> </tbody> </table>			Clouds				Type	Coverage	Base (ft)	Tops (ft)	Altostratus	Broken	13,000	17,000	<b>Upper-Level Wind Shear:</b> Moderate								
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<b>Temp/Humidity:</b> 62°F / 70%				<b>Booster Recovery Weather:</b> Low																					
<b>Liftoff Winds (200'):</b> 315° 10 - 15 mph				<b>Solar Activity:</b> Low																					
<b>Next Forecast Will Be Issued</b>		04 Dec 2020																							

*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.*