Launch Mission Execution Forecast

Mission: Atlas V Lucy
Issued: 12 Oct 2021 / 0800L (1200Z)
Valid: 16 Oct 2021 / 0534 – 0649L (0934 – 1049Z)

Forecast Discussion: For MLP Roll day Thu, a surface high over the southeast will bring winds from the northeast up to 18kt during the day. This onshore flow will bring a few showers moving towards the coast, but a mid-level ridge building into central FL from the Gulf of Mexico will squash any chances for thunderstorms. For launch day on Sat, the surface high sits right over central FL with the mid-level ridge still over us. This brings pleasant weather and light winds with just a few Cumulus Clouds possible. For backup day on Sun, long range models are in agreement on a cool front moving through sometime Sun morning, stalling just south of the Cape. With limited mid-level support and instability with this front, the main concerns will be showers and a slight potential for Thick mid-level clouds. Therefore, the primary concerns for the 24-hr backup day are the Cumulus Cloud Rule and the Thick Cloud Layer Rule. For the 48-hr backup day on Mon, the front remains stalled near the area leaving higher chances for rain showers with high pressure building over the Carolina's bringing a tighter pressure gradient. Therefore, the primary concerns for Monday are the Cumulus Cloud Rule and Ground Winds.

Launch Day

Probability of Violating Weather Constraints

10% **Primary Concerns:** Cumulus Cloud Rule

Weather Conditions		Clouds				Additional Risk Criteria	
		Type	Coverage	Base (ft)	Tops (ft)		
Weather/Visibility:	None / 7 mi.						
Temp/Humidity:	74-76°F / 80%	Cumulus	Few	2,000	4,000	**Solar Activity**:	Low
Ground Winds (230'):	080° @ 5 knots	Cirrus	Few	28,000	32,000		

24-Hour Delay

Probability of Violating Weather Constraints

40% **Primary Concerns:** Cumulus Cloud Rule, Thick Cloud Layer Rule

Weather Conditions		Clouds				Additional Risk Criteria	
		Type	Coverage	Base (ft)	Tops (ft)		
Weather/Visibility:	Few Showers / 7 mi.						
Temp/Humidity:	75-77°F / 84%	Cumulus	Scattered	2,000	12,000	**Solar Activity**:	Low
Ground Winds (230'):	300° @ 10 - 14 knots	Cirrostratus	Scattered	20,000	25,000		

48-Hour Delay

Probability of Violating Weather Constraints

40% **Primary Concerns:** Cumulus Cloud Rule, Ground Winds

Weather Conditions		Clouds				Additional Risk Criteria	
		Type	Coverage	Base (ft)	Tops (ft)		
Weather/Visibility:	Few Showers / 7 mi.						
Temp/Humidity:	74-76°F / 86%	Cumulus	Scattered	2,000	18,000	**Solar Activity**:	Low
Ground Winds (230'):	040° @ 12 - 18 knots						

***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 and solar activity.*

Next Forecast Will Be Issued	13 Oct 2021