# Launch Mission Execution Forecast

**Mission**: Falcon 9 Axiom-2
**Issued**: 20 May 2023 / 0830L (1230Z)
**Valid**: 21 May 2023 / 1732-1743L (2132-2143Z)

**Forecast Discussion**: A boundary will approach the Southeastern U.S. today, providing another day of only isolated showers and thunderstorms across Central Florida, which will mostly favor the western half of the peninsula. On Sunday, the boundary will be in North Florida, providing ingredients for an earlier start and greater coverage of convection. Luckily, the weak flow will allow the east coast sea breeze to move inland, keeping most storms away from the Spaceport by launch time. Upper-level winds will likely push anvils from the inland storms eastward however, making anvil clouds the primary launch weather concern with a slight concern for lingering cumulus clouds in the area.

On Monday, long range guidance suggests a low pressure area will form somewhere on the boundary, creating messy pattern across Central Florida with widespread convection likely. The primary launch weather concerns for a Monday evening attempt include cumulus, debris, and anvil clouds associated with the thunderstorms.

The low pressure area will deepen and move towards Bermuda on Tuesday, creating strong onshore flow at the Spaceport and high winds along the ascent corridor. The primary launch weather concerns for a Tuesday attempt are Flight Through Precipitation and the Cumulus Cloud Rule associated with the onshore flow showers.

## Launch Day

### Probability of Violating Weather Constraints [1]

**40%** — **Primary Concerns**: Anvil Cloud Rules, Cumulus Cloud Rule

| Weather Conditions | | Clouds | | | | Additional Risk Criteria [2] | |
|---|---|---|---|---|---|---|---|
| | | Type | Coverage | Base (ft) | Tops (ft) | | |
| **Weather/Visibility**: | Isold Showers / 7 mi. | | | | | **Upper-Level Wind Shear**: | Low |
| **Temp/Humidity:** | 82°F / 70% | Cumulus | Scattered | 3,000 | 12,000 | **Ascent Corridor Recovery**: | Low |
| **Liftoff Winds (200')**: | 090° 12 - 17 mph | Cirrostratus | Scattered | 28,000 | 30,000 | **Solar Activity**: | Low |

## 24-HR Delay

### Probability of Violating Weather Constraints

**80%** — **Primary Concerns**: Anvil Cloud Rules, Cumulus Cloud Rule, Debris Cloud Rule

| Weather Conditions | | Clouds | | | | Additional Risk Criteria | |
|---|---|---|---|---|---|---|---|
| | | Type | Coverage | Base (ft) | Tops (ft) | | |
| **Weather/Visibility**: | Sct Storms / 5 mi. | | | | | **Upper-Level Wind Shear**: | Low |
| **Temp/Humidity:** | 80°F / 80% | Cumulus | Scattered | 3,000 | 20,000 | **Ascent Corridor Recovery**: | Low-Mod |
| **Liftoff Winds (200')**: | 120° 12 - 17 mph | Altostratus | Broken | 10,000 | 16,000 | **Solar Activity**: | Low |

## 48-HR Delay

### Probability of Violating Weather Constraints

**70%** — **Primary Concerns**: Flight Through Precipitation, Cumulus Cloud Rule, Anvil Cloud Rules

| Weather Conditions | | Clouds | | | | Additional Risk Criteria | |
|---|---|---|---|---|---|---|---|
| | | Type | Coverage | Base (ft) | Tops (ft) | | |
| **Weather/Visibility**: | Sct Showers / 7 mi. | | | | | **Upper-Level Wind Shear**: | Low |
| **Temp/Humidity:** | 80°F / 75% | Cumulus | Scattered | 3,000 | 18,000 | **Ascent Corridor Recovery**: | Mod-High |
| **Liftoff Winds (200')**: | 050° 15 – 20 mph | Altostratus | Broken | 12,000 | 16,000 | **Solar Activity**: | Low |

## 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** | As Required |
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