

WEATHER FOR EMERGING MODES OF TRANSPORTATION

Weather and Automation Standards Requirements

Presented to: FPAW

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CURRENT REQUIREMENTS FOR UNMANNED AIRCRAFT BY CFR PART

- **Certificate holders, parts 91, 107, 135, and 137 must use specific sources or facilities for obtaining weather reports and forecasts**
 - Some weather sources are specified by regulation
 - Other weather sources approved at the discretion of the Administrator
- **Required weather information includes:**
 - Preflight planning
 - Departure
 - En route
 - Arrival



WEATHER REQUIREMENTS

14 CFR Part 91 - § 91.103 – Preflight action.

- Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight.(Section 44807 exemptions)

14 CFR Part 135 – §135.213 - Weather reports and forecasts.

- Operations must use the U.S. National Weather Service, a source approved by the U.S. National Weather Service, or a source approved by the Administrator.

14 CFR Part 107 - § 107.49 – Preflight familiarization, inspection, and actions for aircraft operation.

- Prior to flight, the remote pilot in command must assess the operating environment, considering risks to persons and property in the immediate vicinity both on the surface and in the air. This assessment must include local weather conditions. (waivers included under part 107)

14 CFR Part 137 – Conditions and Limitations

- UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Operations may not be conducted under special visual flight rules (SVFR).



REQUIREMENTS FOR PART 91

§91.103 Preflight action -14 CFR Part 91, § 91.103 states, in part, that each pilot in command, before beginning a flight, shall become familiar with all available information concerning the flight to include -

- ❖ Weather reports, forecasts, fuel, alternates, runway information, takeoff and landing data, performance, wind, temperature and more
 - Pilots rely on the internet to compile information from a variety of sites and approved weather sources
 - Portable and installed equipment in aircraft today provide real time weather for pilots
 - Pilots access weather through automation and/or by contacting Flight Service



REQUIREMENTS FOR PART 107

14 CFR part 107 - §107.51 - Operating limitations for small unmanned aircraft.

A remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system must comply with all of the following operating limitations when operating a small unmanned aircraft system:

(c) The minimum flight visibility, as observed from the location of the control station must be no less than 3 statute miles. For purposes of this section, flight visibility means the average slant distance from the control station at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

(d) The minimum distance of the small unmanned aircraft from clouds must be no less than:

- (1) 500 feet below the cloud; and
- (2) 2,000 feet horizontally from the cloud.



EMERGING WEATHER REQUIREMENTS

- **SERVICES AVAILABLE TO UAS PILOTS**
 - METAR, TAF, SIGMET, AIRMET, PIREP, Significant Weather Charts, Wind and Temp Aloft, ASOS, AWOS, ATIS, NOTAMs, FAA Weather Cameras (AK), TWEB...
- **AVIATION DIGITAL DATA SYSTEM (ADDS) HEMS TOOL – possible product for use in UAS operations (VFR only)**
 - Tool developed by NWS to provide ceiling and visibility assessment in areas between METAR and TAF reporting/forecasting sites
 - ADDS HEMS tool allows user to identify gridded weather assessments in 5 km x 5 km blocks, including ceiling, visibility, radar, convection, icing, temperature, relative humidity, wind.
 - Overlays on graphical data includes wind barbs, METARs, PIREPs, AIRMETS/SIGMETs, TAFs, VORs, state and county boundaries, base map of terrain and cultural information
- **UAS OPERATORS**
 - Possible approval for operators to become qualified weather observers

