WEATHER REPORTING IN THE NAS: CURRENT AND FUTURE NEEDS

PANEL 3, PRESENTATION 1

KEVIN JOHNSTON / FAA

Weather Reporting in the NAS: Current and Future Needs

Options for Solutions: Unmanned Aircraft Systems Research

Presented to: Friends and Partners of Aviation Weather

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Policy and Requirements Branch

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Federal Aviation Administration

FAA UAS Integration Research Plan (2019-2024)

- Presents framework to manage UAS-related research activities for safe integration of UAS into the NAS
- FAA worked with partners across industry, academia, and federal agencies to compile a comprehensive list of research, forming the backbone of this five-year rolling Plan
- Identifies possible gaps in current research that should be explored and aligns with the Agency's strategic priorities and initiatives
- Supports key FAA missions and functions to publish regulations, policies, procedures and guidance

FAA UAS Integration Research Plan (2019-2024)

- Identifies Weather as one of 12 Focus Areas
  - Other Areas include Command and Control, Human Factors, Environment, Communication, Detect and Avoid, Navigation, Reliability, Safety Management, Security, Surveillance, Traffic Management
- Focus Area defined as representing a key challenge for the safe and effective integration of UAS operations in the NAS

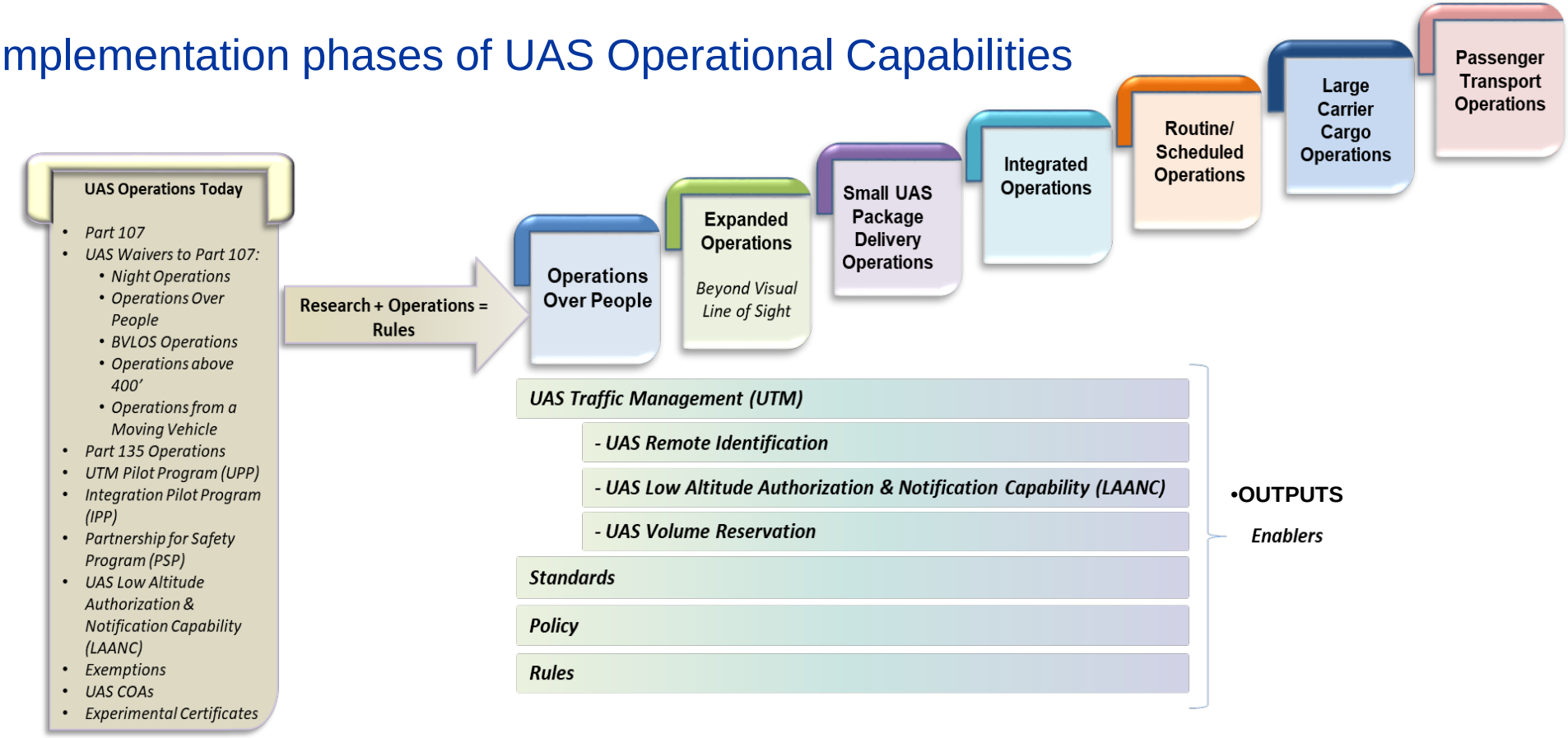
Weather as Focus Area

- Weather research activities focus on informing outcomes such as
  - Standards
  - Requirements
  - Capabilities
  - Systems for weather information robustness, resiliency and effectiveness
  - Mitigation strategies to address the impact of weather (e.g., wind, precipitation, visibility, icing and other meteorological conditions on UAS performance
  - Also includes the identification, distribution, and display of weather information on UAS flight paths to improve decision making

UAS Integration Operational Capabilities

Plan identifies Weather R&D Needs

with the implementation phases of UAS Operational Capabilities



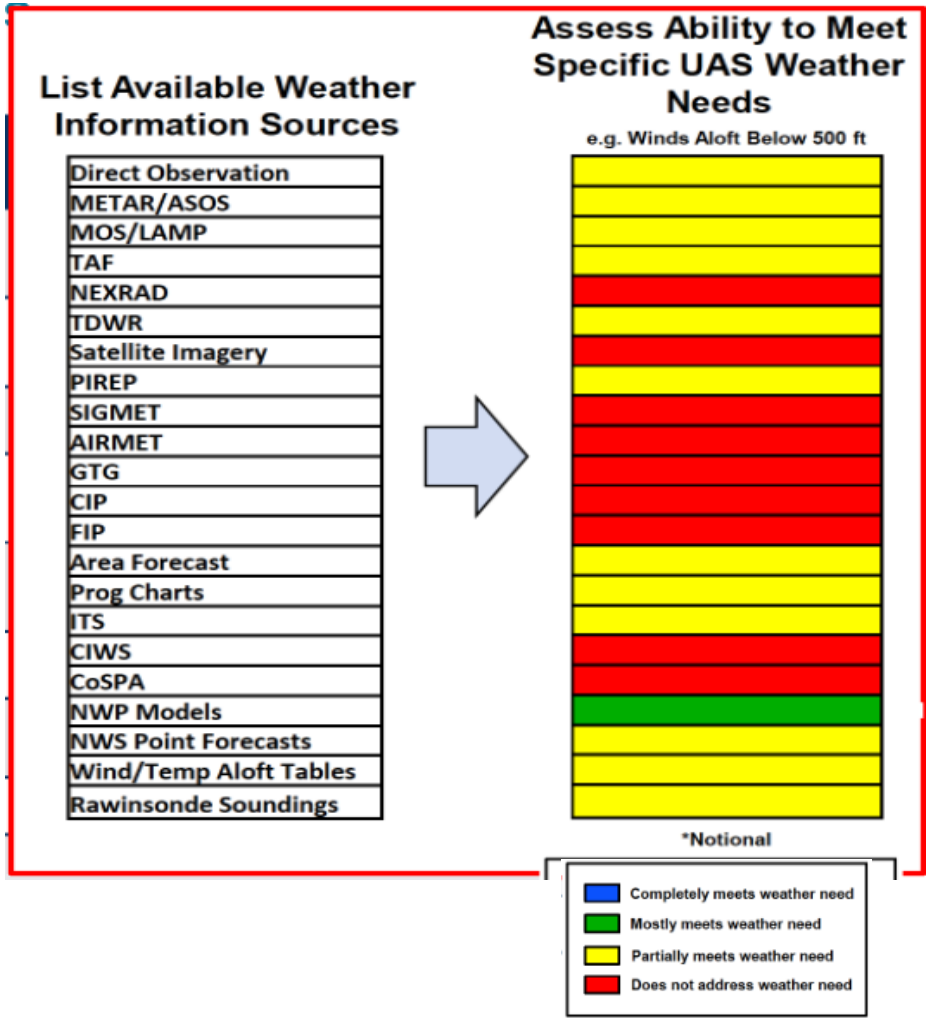
UAS Wx Request for FY22

- Effort to get “foundational” R&D projects started
  - Operational Feedback from UAS Test Sites
  - Assess current weather research to determine alignment with gaps
  - Investigate accessibility of existing weather technology and information to UAS operations
- Related and complimentary proposals submitted by Flight Standards, Aircraft Certification and Aviation Weather Division (understanding UAS weather hazards)

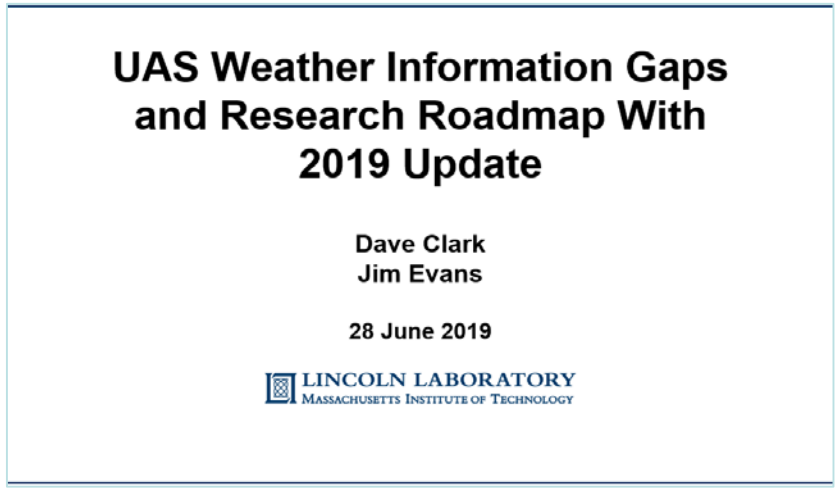
Backup Slides

UAS/UTM WEATHER PROBLEM

- MIT LL Study says current government weather products are not “good enough”
- Current published weather data standards by NOAA, WMO, ICAO, and others do not have sufficient resolution for certain types of UAS operations
- Gaps in low altitude and boundary layer airspaces
- Need to improve awareness of UAS weather: winds, icing, turbulence, thermals, etc.
- Latency of weather information
- No published or in-development standards for UAS
- Commercial weather providers may significantly alter NWS products



- Plan is consistent with Gap Analysis and Recommendations in the Roadmap for UAS Standardization (Dec 2018) published by American National Standards Institute (ANSI) and an ANG-C6 sponsored MIT/LL Analysis (2017)



UAS Weather Information Gaps and Research Roadmap With 2019 Update

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Jim Evans

28 June 2019

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