

A vertical strip of seven small images on the left side of the slide, showing various aerospace-related scenes: a rocket launch, a spacecraft, a lunar surface, a person in a space suit, a satellite, a rocket engine, and a person in a space suit.

# Safety of Small Unmanned Aircraft Systems (sUAS) Operations at NASA

## Coordinating Requirements for Operation within the National Airspace System

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# Proliferation of Small UAS

- Small UAS operations are expanding outside the historical role of research to include:
  - Security
  - Emergency response
  - Inspections
  - Environmental compliance
  - Educational use
  - Aerial photography/videography



- NASA is a leader in UAS technology development but also must maintain high safety and internal controls for new and expanding operational roles

# Oversight of sUAS Operations

- NASA is authorized to conduct public aircraft operations and is required to maintain oversight for all aircraft/UAS/sUAS operations
- NASA has oversight of many areas that the FAA would otherwise regulate including:
  - Airworthiness/Engineering
  - Maintenance/Inspections
  - Aircrew Training/Proficiency
  - Range Safety



# sUAS Access to the National Airspace System

- The Center Aircraft Flight Operations Office is responsible for ensuring all sUAS operations are conducted in accordance with NASA policy and Federal regulations
  - All aircraft operations that require access to airspace must obtain authorization from the Flight Operations Office prior to flight

- NASA may operate sUAS under any one of the following:

Special Use Airspace

Requires pre-authorization from airspace owner and internal authorization from Center flight operations

Certificate of Authorization (COA)

Requires pre-authorization from FAA and internal authorization from Center flight operations

Memorandum of Agreement (MOA)

Requires 24-hour notification (Notice to Airmen) and internal authorization from Center flight operations

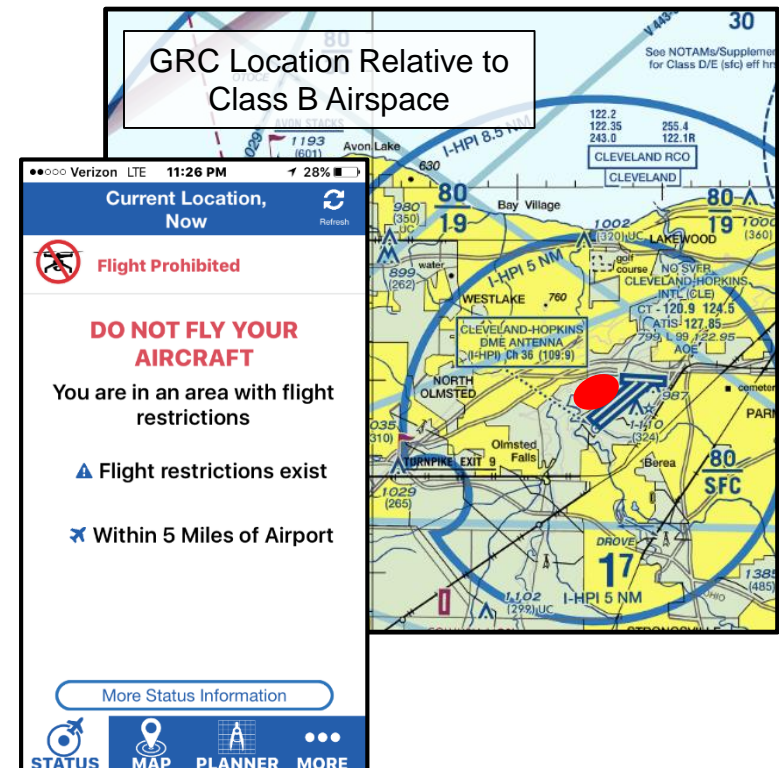
**NEW**

Title 14 Part 107 Rules

Requires internal authorization from Center flight operations

# Title 14 Part 107

- Title 14, Part 107 rules can be utilized at NASA only where approval is obtained from the Center Chief of Flight Operations
- Policy has been integrated into the update of NPR 7900.3C, Aircraft Operations Management Manual
- Consider the potential limitations:
  - Visual Line-of-Sight of the remote pilot
  - Operations above people are prohibited
  - Access to Class G uncontrolled airspace
  - Generally requires separation of 5 miles from airports, heliports, etc.
  - Less than 55 pounds
  - Only daylight and civil twilight flight
  - Maximum of 400 feet Above Ground Level
  - FAA Remote Pilot Airmen Certification
  - Remote Pilot has no other duties
  - Rules regarding modifications/cargo
  - Other restrictions

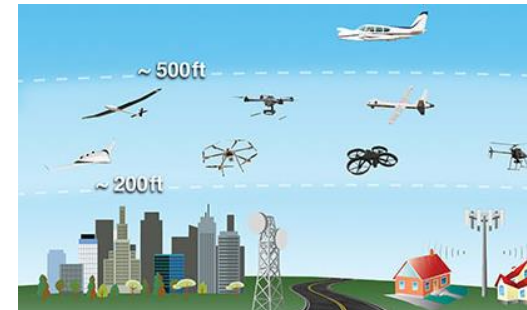




# sUAS Operations

- NASA employees and contractors are required to obtain approval from a Center Aircraft Flight Operations Office prior to conducting sUAS operations for NASA

- Factors considered:
  - Pilot/crew training and proficiency
  - Airworthiness
  - Flight readiness/mission readiness review
  - Range safety/weather considerations



- Center Director approval required to procure sUAS below Agency Capital Asset Threshold
- NASA Safety and Operational Requirements:
  - NPR 7900.3C, Aircraft Operations Management Manual and NPR 8715.3, General Safety Program Requirements
- Early coordination with the Center Aircraft Flight Operations Office during Program/Project development ensures appropriate airspace access is authorized