UAF UAV Operations

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Alaska Center for UAS Integration (ACUASI)

- ACUASI is the University of Alaska’s UAS research program
- Lead for the FAA-Approved Alaska UAS Test Site (a.k.a. the Pan-Pacific UAS Test Range Complex)
  - Alaska, Hawaii, Oregon, Mississippi conduct UAS activities
  - Kansas conducts UAS on lakes
Goal of ACUASI

To enable 24 hours a day, 7 days a week, 365 days a year, BVLOS operations
Testing New Safety Features

• Detect and Avoid (DAA)
  – Ground-based and on-aircraft radars
    • Echodyne MESA-DAA airborne radar
    • Echodyne EchoGuard ground-based radar
  – Optical systems
    • IRIS automation Casia [visual distance]
DAA Intercomparisons

• Allow us to test the best DAA technologies for potential use in our safety cases
• Most conducted under the FAA’s Center of Excellence for UAS Research (ASSURE)
• UAF conducted a week-long DAA campaign in March at the Poker Flat Research Range
• UAF conducting another Detect and Avoid (DAA) intercomparison at the end of August at the Poker Flat Research Range
Part 107 Waiver

- First waiver of its kind granted
- Key provision is in ‘operational provisions’ number 8
Part 107 Waiver

Waiver Specific Special Provisions. sUAS operations beyond the visual line of sight (BVLOS) of the remote PIC and VO(s) may be conducted under this waiver when the operation complies with the following provisions:

OPERATIONAL PROVISIONS

8. Operations under this Waiver must utilize at least one VO. The VO may use unaided human vision or the Detect systems described in the application to identify non-participating aircraft;

9. If not using the Detect systems described in the waiver application, the remote PIC must ensure sufficient VO(s) are used to observe the airspace to detect and track all air traffic or hazards;

Skyfront Perimeter UAS
Team that Flew the First True BVLOS Flight under the Small UAS Rule
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Arctic Operations

- Flights at Kuparkuk, AK in October 2018.
- These flights were part of NOAA’s support of the 2018 Stratified Ocean Dynamics of the Arctic mission to study the ocean ice during freeze-up.

SeaHunter flying over the North Slope of Alaska in October. Photo courtesy of Jordan W. Murdock and Robert J. Edison.
Larger Aircraft - SeaHunter
DRS Sentry HP UAS

- UAF has acquired CIRPAS’s excess DRS Sentry HP UAS
- The Sentries will be used for maritime missions in the Alaskan Arctic
First UAF Sentry Flights
(April, 2019)
Current Operations

Transport Canada
@Transport_gc

The right of way goes to the #RightWhale! Our #drone is taking off in #Gaspé, #QC to monitor the #NARW population with @FishOceansCAN 🐋
HAPS
High Altitude Platform Station

Wingspan: 78m

HAWK 30
Cargo Delivery

• Unmanned Systems Alaska pursuing a Part 135 (Air Carrier) Certification under U.S. DOT’s UAS Integration Pilot Program

• Other efforts under NDA for:
  – Development of large UAS
  – Conversion of manned aircraft to Optionally Piloted Vehicle
Where Do We Want To Be?
Questions?