



# 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

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION <b>CERTIFICATE OF WAIVER</b>	
ISSUED TO	<b>Issued To: University of Alaska Fairbanks Responsible Party: Nicholas Adkins Waiver Number: 107W-2019-03901</b>
ADDRESS--	<b>Address: 2160 Koyukuk Dr. Fairbanks, AK 99775</b>
This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.	
OPERATIONS AUTHORIZED	Small unmanned aircraft system (sUAS) operations beyond the visual line of sight of the remote pilot in command (PIC) and Visual Observer (VO), in lieu of visual line of sight (VLOS).
LIST OF WAIVED REGULATIONS BY SECTION AND TITLE	<b>14 CFR § 107.31 — Visual line of sight aircraft operation, 14 CFR § 107.33(b) and (c)(2) — Visual observer, and</b>
<b>STANDARD PROVISIONS</b>	
<ol style="list-style-type: none"><li>1. A copy of the application made for this certificate shall be attached to and become a part hereof.</li><li>2. This certificate shall be presented for inspection upon the request of any authorized representative of the Administrator of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.</li><li>3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.</li><li>4. This certificate is nontransferable.</li></ol>	
NOTE—This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.	
<b>SPECIAL PROVISIONS</b>	
Special Provisions Nos. 1 to 37, inclusive, are set forth on the attached pages.	
This Certificate of Waiver is effective from July 26, 2019, to October 31, 2020, and is subject to cancellation at any time upon notice by the Administrator or an authorized representative.	
<b>Office of the Executive Director</b> <b>DAVID M MENZIMER</b> Flight Standards Service	
Digitally signed by DAVID M MENZIMER Date: 2019.07.24 14:31:49 -0700	

# 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;

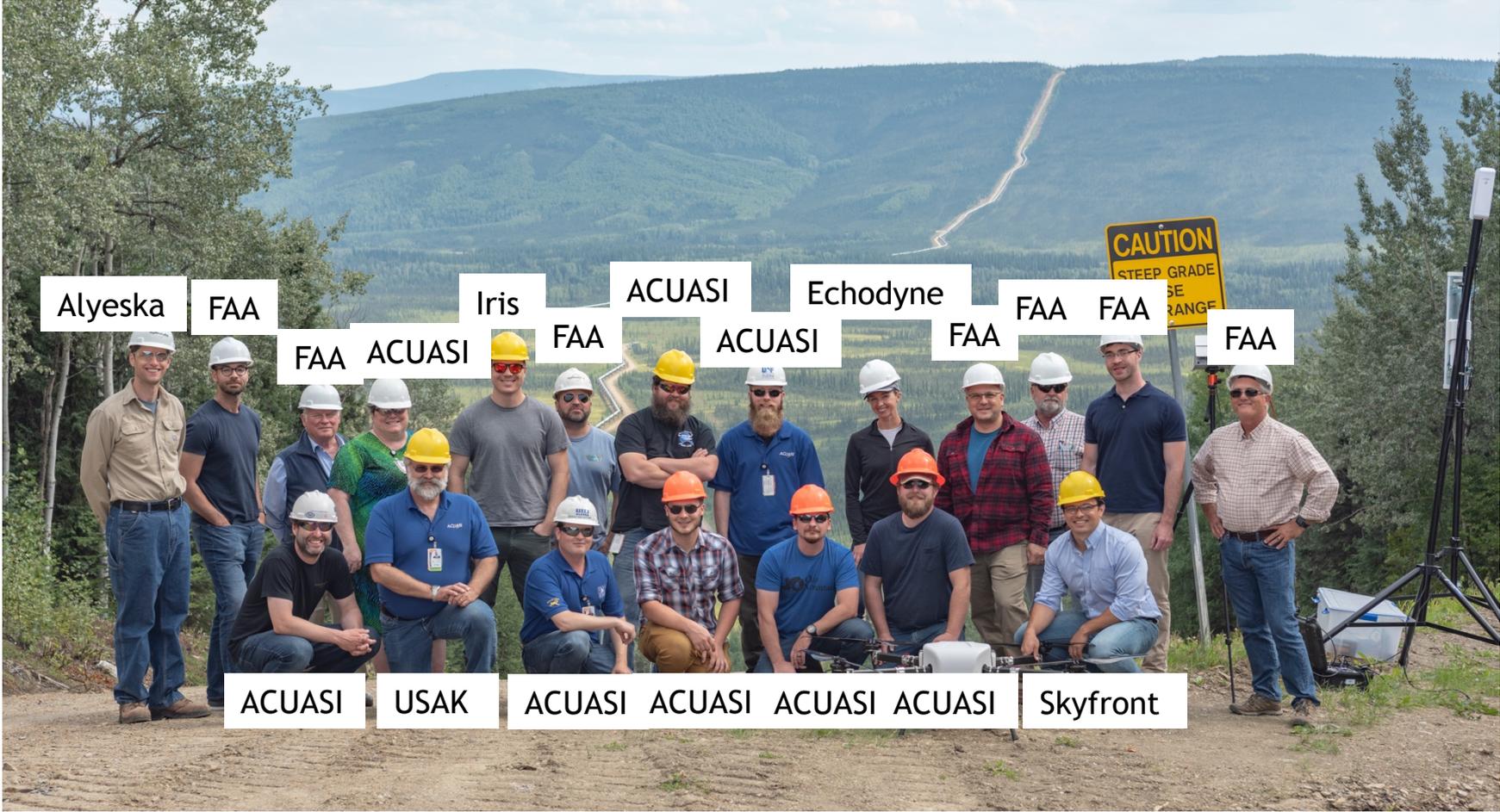


Skyfront Perimeter UAS

# Team that Flew the First True BVLOS Flight under the Small UAS Rule



# Team that Flew the First True BVLOS Flight under the Small UAS Rule



# 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

Follow



The right of way goes to the [#RightWhale!](#)  
Our [#drone](#) is taking off in [#Gaspé](#), [#QC](#) to  
monitor the [#NARW](#) population with  
[@FishOceansCAN](#) 



12:00 PM - 30 Aug 2019

# 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?

