

# Alaska Center for UAS Integration



## A Year of Progress



**SCOAR 2016**

Ro Bailey

Senior Advisor, ACUASI

[rbailey11@alaska.edu](mailto:rbailey11@alaska.edu)

# Today's Topics

- Thunderstorm
- Circle Yukon River Ice Survey
- NASA UAS Traffic Management (UTM) Builds 1 & 2
- Walrus monitoring
- Update on Herder Burner project
- Upcoming projects
- FAA Small UAS Rule – Part 107
  - And what's next with the rules



# Thunderstorm



- Search and Rescue Demonstration
- Guiding search team into a potential hotspot for Identification

# Thunderstorm



Demonstrated use of FLIR technology for ship inspection.

# Circle Yukon River Ice Survey

- National Weather Service project
- ACUASI flew missions over the Yukon river near the city of Circle Alaska
- Goal: determine usefulness of UAS for surveying flood potential during the annual breakup cycle.



# NASA UAS Traffic Management System

- Demonstration project with multiple “builds” to grow a nationwide system
- All six test sites, each with 4 simultaneous flights, at least 2 different UAS types plus numerous manufacturers participated
- Goal: to establish a self-forming traffic management system requiring little or no FAA management or controllers

# NASA UTM Build 1



During the UTM scheduled time, ACUASI flew four UAS of three different designs at the same time



# NASA UTM Build 2



- NASA UTM revisited
- UAF part of the support for next test of NASA's UTM project in the fall
- Focus: beyond line of sight operations

# Walrus Monitoring



- Monitoring a challenge due to walrus reactions to aircraft (manned)
- Theory: small UAS present smaller visual and aural signature
- Project: assess reactions at various altitudes & standoff angles

# Finding the Right Altitude

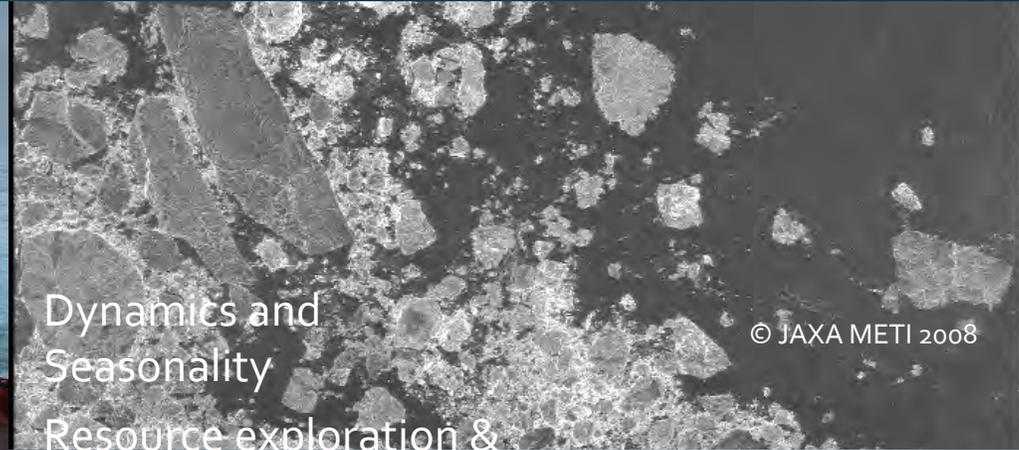


Flying at 80 meters, the walrus were not happy.



Flying at 120 meters they didn't seem to care.

# Arctic Marine Environment Changes & Oil Spill Risks



# Marine Oil Spill Response Techniques - Arctic



Fire boom and ISB

[www.Sintef.no](http://www.Sintef.no)



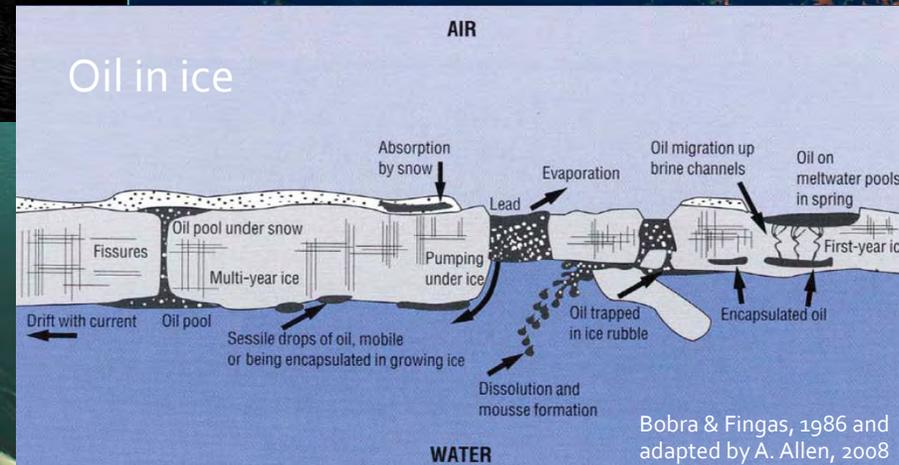
Skimmers

[www.elastec.com](http://www.elastec.com)



Dispersant

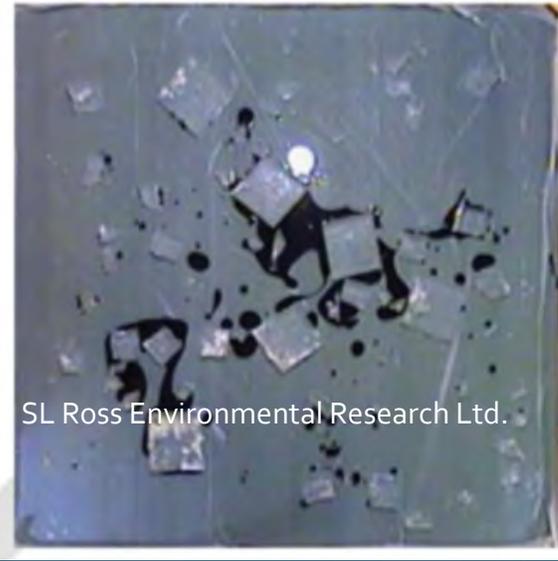
<https://seanettors.wordpress.com/>



Bobra & Fingas, 1986 and adapted by A. Allen, 2008

# Chemical Herders, In Situ Burning, the Experiment

- Surfactant
- In use since 1970s
- Supports ISB and manual collection
- NEVER BEFORE APPLIED AERIALY



SL Ross Environmental Research Ltd.



[www.pewtrusts.org](http://www.pewtrusts.org) [jgarron@alaska.edu](mailto:jgarron@alaska.edu)



**ARCTIC  
RESPONSE  
TECHNOLOGY**  
OIL SPILL PREPAREDNESS

Jessica Garron

[jgarron@alaska.edu](mailto:jgarron@alaska.edu)



[www.arcticresponsetechnology.com](http://www.arcticresponsetechnology.com)

# Oil, Herder, and Fire



Aerial application of fire



Ground-based oil release



Measurable efficiencies

Photos courtesy of L. Zabilansky



Aerial application of herder

# Herder Burner Footage



Jessica Garron  
jgarron@alaska.edu



Jessica Garron  
jigarron@alaska.edu

# Upcoming Projects



- Alaska Pipeline aerial survey
  - Monitor for security, leaks
- U.S. Forest Service
  - Determine insect/plant disease impact on Alaska boreal forest
- Assist international client with off-shore whale monitoring (Africa)
- Canadian Coast Guard project
- Testing UAS, sensors, at test ranges

# FAA Small UAS Rule – Part 107

- More flexible than expected, more freedom than ICAO
- Changes to visual observer, first person view
- Class G ops with no ATC permission; Class B, C, D & E okay with ATC permission
- New small UAS "remote pilot" qualification process
  - Knowledge exam specific to sUAS only
- Can continue using Sec 333 exemption
- Waivers offered
- Future rules

## [50% Discount on Online, Self-Paced Drone Piloting Class For Part 107](#)

Signup via The Center for Innovations in Education (CIE) and pay only \$150.

Base 11 in partnership with [Aerodrome](#) provides online classes for FAA UAS Part 107 drone pilot test preparation. Get this course for half the retail price when you sign-up below.

[Learn How to Get A Drone Certification \(Part 107 / FAA 333\).](#)

# Wrapping up...

- UAF is busier than ever
  - But role is changing – more testing, demos, emergency ops
- UAS are legally, procedurally more viable than ever before
  - FAA moves from small rule to rules for larger, more capable UAS
- Oceanographic use growing steadily
  - ICAO now behind FAA on rules



Thank you

