



Remote Unmanned Aircraft System (UAS) Inspection and Response Team Development in the Bering Strait Region

Spring 2021, Issue I

Project Leads

Dr. Jessica Garron
Principal Investigator
Science Team Lead, Alaska
Center for Unmanned
Aircraft Systems Integration,
University of Alaska
Fairbanks

John P. Henry, Jr.
Deputy Director, Native
Village of Unalakleet

Margaret W. Hall
Associate Director, Model
Forest Policy Program

CDR Jereme Altendorf
Arctic Emergency
Management Specialist,
USCG Sector Anchorage

Project Funder

Arctic Domain Awareness
Center, A Department of
Homeland Security Center of
Excellence

Land

Acknowledgement

The University of Alaska
Fairbanks is located on the
traditional land of the Lower
Tanana Dene people in an
area that is now known as
Fairbanks, Alaska.

Unalakleet, Alaska, the focal
point of this project, is on
the traditional lands of the
Inupiat and Yupik people.

The Model Forest Policy
Program's home base is
Bonner County, Idaho, the
traditional lands of the
Kalispel, speakers of a dialect
of Interior Salish.

Remote UAS Project Officially Launched—February 2021

Despite communities dealing with COVID-19 and its challenges, an exciting new project has been launched in the Alaskan Native Village of Unalakleet (NVU). On February 25th, a virtual forum was held to inform interested NVU community members about the "Remote Unmanned Aircraft System (UAS) Inspection and Response Team Development in the Bering Strait Region" project (the "UAS Project"). The event was held not only to share project details but to recruit 6 NVU individuals, to join the NVU Project Lead—John P. Henry Jr., to undertake training to become FAA Part 107 Certified Remote Pilots. The ultimate goal is to have a set of trained pilots and flyable UAS staged in the Bering Strait region, prepared to efficiently support infrastructure inspection and emergency response needs if/as desired by U.S. Coast Guard or others.

As many are aware in the Norton Sound region, oil spills are of increasing concern and have grown in probability because of the reduction in sea ice and climate change. More on-the-ground monitoring of a community's infrastructure (e.g. bulk fuel tanks and water tanks) has also become critical, especially for those structures that may be located in coastal inundation or flood zones. Search and Rescue efforts have also become more challenging because of the shifting climate in the Norton Sound and Arctic region. This *UAS Project* is designed to develop the use of UASs to increase situation-



Unalakleet tank farm.

Photo courtesy of Unalakleet Economic Development Plan 2014-2019.

al awareness with regards to oil spills, as well as the use of UASs in assessing critical community infrastructure and responding to Search and Rescue missions.

The *UAS Project*, which is funded by the Arctic Domain Awareness Center (ADAC), A Department of Homeland Security Center of Excellence, is scheduled to run from the end of February 2021 to the end of April 2022. Over the course of 14 months, the *UAS Project* will work to accomplish the following objectives:

- **Train pilot teams in the regional hub of Unalakleet to**
 - ◇ Acquire real-time/near real-time situational awareness.
- **Develop operational UAS protocols to**
 - ◇ Monitor infrastructure for compliance and potential oil discharge prevention by developing infrastructure inspection protocol, specifically bulk fuel tank farm; and

- ◇ Support emergency response through regional preparedness by developing Search and Rescue, oil spill detection and mapping, and flood mapping protocols.

- **Conduct Bering Strait regional feasibility assessment to**

- ◇ Use as a possible case study by U.S. Coast Guard (USCG) and other interested stakeholders for additional implementation.

The *UAS Project* is led by Dr. Jessica Garron, Science Team Lead, Alaska Center for Unmanned Aircraft Systems Integration (ACUASI), University of Alaska Fairbanks. The NVU Lead is John Henry, NVU Deputy Director. John was the Project Lead on the recently completed BIA-funded *Feasibility Study* related to the use of UASs. The two other leads are Margaret Hall, Associate Director of the Model Forest Policy Program (MFPP), and Commander Jereme Altendorf,

Officially Launched cont.



Contact / Web Info

Jessica Garron
jigarron@alaska.edu
<https://acuasi.alaska.edu/>

John Henry
john.henry@unkira.org
www.nativevillageofunalakleet.org/

Margaret Hall
margv@mfpp.org
www.mfpp.org

ADAC's Project Website
arcticdomainawarenesscenter.org/
P29 UAS

ACUASI



ARCTIC DOMAIN
AWARENESS CENTER
A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE

Officially Launched— cont.

Arctic Emergency Management Specialist, USCG Sector Anchorage. In addition to Dr. Garron's oversight and work, ACUASI is also providing the virtual classroom instruction, assistance with identification of applicable equipment, development of protocols, and on-the-ground instruction. MFPP and its team will undertake the feasibility study, develop outreach materials, and assist in coordination of 2022 Community Project Fair and final webinar(s).

Where Are We Now & Where Are We Going?

The pilot trainees were chosen in March, each bringing to the table diverse, but complementary, background/expertise that should provide a strong support group for each other. The first virtual FAA Part 107 Remote UAS Pilot Training was held mid-April, with the last expected to take place in June. After completion of the virtual sessions, the trainees will travel to Anchorage to sit for the FAA Part 107 exam. The Project Team will coproduce flight and operational protocols in early summer. Mid-summer, the ACUASI's flight instructors, COVID-19 permitting, will provide on-site training. Research and assessment of regional expansion will take place in summer and fall. The Community Fair is scheduled for February 2022. Depending on COVID restrictions, or not, it may be a combination of in-person and virtual with final webinar(s) to take place first part of Spring 2022.

Stay tune for future updates ...



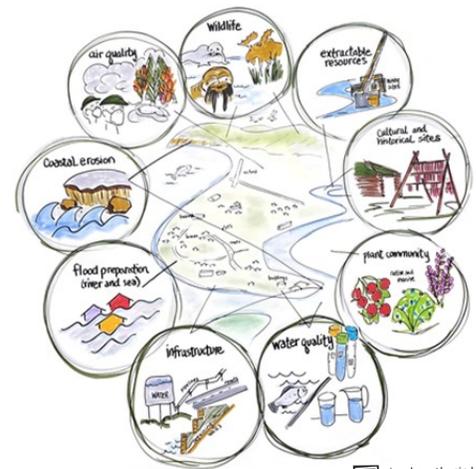
Top: North of Unalakleet along the coast.
Bottom: Looking south over Unalakleet.
Photos courtesy of Les Kayokluk.

The Background Story—The "Feasibility Study"

The *Feasibility of Improving Local Decision Making in Alaskan Communities with Unmanned Aircraft Systems and Online Climate Data Tools (Feasibility Study)* is the culmination of a project analyzing the feasibility of establishing a regional data collection program utilizing an unmanned aircraft system (UAS) compared to other data collection systems.

In 2018, the Alaska Native Village of Unalakleet (NVU) received funding from the Bureau of Indian Affairs' Tribal Resilience and Ocean and Coastal Management and Planning Program. The project goal and objectives were to build local capacity to: (1) Address future climate related ocean and coastal management planning and challenges; and (2) Build long-term resilience through the establishment of a self-sustaining, localized and on-going data collection and analysis program.

To address the climate risks that NVU and other Norton Sound Native Villages face, research was conducted under nine scientific study areas: coastal erosion, flood preparation (river and sea), infrastructure, water quality, plant community, cultural and historical sites, extractable materials, wildlife, and air quality. Individually researched final documents include: UAS Operational Solutions Matrix, Online Tools Comparison Matrix, Environmental Monitoring with Unmanned Aerial Vehicles: Cost Estimating &



visual synthesis by
anne@TheDoodleBiz.com

Analysis, Integration and Applications of UAS and Online Climate Tools Data - Document Review, Partnership Options/Considerations template, and a related survey summary.

The *UAS in the Bering Strait Region* project has provided the opportunity to apply lessons learned from the *Feasibility Study* to real-life.

[Release of the final Feasibility Study is pending approval by Unalakleet.]