



Center News

Quarterly Newsletter • September 2021



A Transition For ADAC

ADAC Executive Director Departs to Help a New Arctic Initiative; Jeff Libby joins as Executive Director

By: Maj. Gen. USAF (Ret.) Randy "Church" Kee, ADAC Emeritus

I finished my last task as the ADAC Executive Director at 11:45 PM on Sunday, 22 August 2021, with 15 minutes to spare per my agreed to departure date in service to the Center and the University of Alaska and in particular, the University of Alaska Anchorage. At 8 AM on Monday, 23 August 2021, I was sworn in as the Senior Advisor on Arctic Security Affairs to the U.S. Department of Defense. This is the first step of what will hopefully be an exciting adventure in supporting DoD on a new Arctic initiative, with more details to follow.

While I have departed ADAC and the University of Alaska family, I am hopeful to help foster a new and important relationship from my new duties and the University, again, with details to follow. My "collateral duties" (which include U.S. Arctic Research Commissioner, Global Fellow at Wilson Center Polar Institute, Network Member of the North American and Arctic Defense and Security Network, U.S. Situational Awareness Working Group lead for the Office of Naval Research International Cooperative Engagement Program for Polar Research and the Co-Chair of the Alaska Civilian Armed Services Team (ACAST...an advisory board to the Alaska Governor)) are all under DoD legal review in what I can continue vs what I can conclude. More to follow for those who may be affected on this matter.

Please join me in welcoming ADAC's new Executive Director, Mr. Jeff Libby, the Director of UAA's Applied Environmental Research Center, associated with the UAA Business Enterprise Institute. He will work closely with the ADAC leadership team to prosecute the ADAC Year 8 Workplan and Long Range Calendar. I have worked with Jeff in ADAC-AERC collaboration

since 2017 and have great trust and confidence in his ability to guide the team to complete the ADAC Year 8 workplan and the associated DHS S&T OUP Terms and Conditions. Jason Roe, Heather Paulsen, Ellee Matthews, Connor Keesecker and Kelsey Frazier, all of whom support ADAC on a daily basis, provide Jeff an incredible advantage of center management teamwork...that did not exist when I reported aboard with Dr. Causey in January 2016. Added to this day to day team is the focus of Dr. Shawn Butler on project transition, (already this is a huge help in Program Year 8).

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Message from ADAC Executive Director Jeff Libby

"Church and I were introduced in 2016 and over the years we were able to collaborate on projects, grants, and several events. It's been an absolute pleasure to work with him over the years and watch the Arctic Domain Awareness Center become what it is today. The Center's accomplishments and remarkable reputation are largely due to his hard work, long hours and dedication to ensure its overall success. I am honored to become the new Executive Director and more honored to call Church a true friend. I look forward to helping ADAC continue its exceptional reputation as we make this transition. I am also eager to work with all of the stakeholders and support the great researchers associated with ADAC's past and current projects. Additionally, I anticipate working with several of you as ADAC makes this transition and begins exploring new research opportunities in the Arctic and beyond. This is an opportunity for all of us to strategize, build new research and expand knowledge on existing problems. The University of Alaska is here to help bridge that gap and serve as a leader in research while also providing a pathway for DoD, DHS, and other federal entities by affording them with exceptional subject matter experts to assist them with effectively meeting or exceeding their mission and goals. Lastly, I sincerely look forward to continuing this collaborative effort with Church as he starts a new journey. Church, you will forever have my support and utmost respect. Thank you for being you. You're an exceptional person, one of the best..."

-Jeff

Jeff Libby Joins ADAC as Executive Director

Jeff Libby is the newly appointed Executive Director for the Arctic Domain Awareness Center. He also serves as the Director for the Center of Strategic Partnerships and Research (CSPR) and the Director for the Applied Environmental Research Center (AERC) which operates on a Cooperative Agreement with the United States Army Corps of Engineers and Department of Defense. He previously served as an Associate Dean for UAA's Community and Technical College at UAA. Jeff holds an MBA and an M.S. in Project Management. Jeff also has a Bachelor of Science in Natural Sciences with a concentration in Environmental studies and a diploma in Expertise in Coaching and Neuro-Linguistic Programming (NLP). Mr. Libby is

passionate about the Arctic, environmental impacts and climate change. He has been instrumental with student engagement opportunities and is known for developing the first federally recognized and approved research technician apprenticeship program authorized by the U.S. Department of Labor.



ADAC Launches Eighth Program Year

By: Jason "Olaf" Roe, ADAC Associate Director and Senior Research Professional

September is now upon us and as light snow begins to accumulate on the mountain tops near Anchorage it seems to be a good time to reflect upon the first few months of ADAC's Program Year 8. July and August saw outstanding final progress on reports and final knowledge products for several important research projects including Arctic Mussels, Arctic Copepods, and Oil Spill modeling. These past few months have also included a busy and highly productive series of operational tests for the LRAUV Team, making great strides in long range communications, navigation, and docking behaviors. Lastly, July and August have included a transition in leadership on ADAC with the departure of Executive Director Church Kee and onboarding of the new ADAC Executive Director, Mr. Jeff Libby.

Arctic Maritime Horizons 2021 Exercise

By: Connor "Conan" Keesecker, ADAC Research and Communications Associate

On May 5 and 6 2021, ADAC hosted a tabletop exercise entitled "Arctic Maritime Horizons 2021." The purpose of the exercise was to advance discussions on the modernization of the Arctic Marine Transportation System (MTS) in support of the U.S. Coast Guard's Arctic Strategic Outlook. The exercise was conducted in accordance with ADAC's Medium-and-Long-Term Environment (MaLTE) exercise processes, the Center, in partnership with HQ U.S. Coast Guard (USCG) Director of Maritime Transportation Systems and Senior Arctic Policy Advisor.

As a first for the Center, the exercise was conducted as a hybrid event with both in-person and online participants. A limited number of participants were hosted on the University of Alaska Anchorage (UAA) campus in full compliance with social distancing measures in place due to COVID-19.

ADAC was honored by the presence of community leaders from the U.S. Arctic including Mayor Lucy Nelson of the Northwest Arctic Borough and Mayor Harry Brower of the North Slope Borough. Representatives from Head Quarters USCG included USCG Director of the Maritime Transportation System Mike Emerson and USCG Senior Arctic Policy Advisor Shannon Jenkins were also present to observe and lend their insights. Many more participated online from across the United States and Circumpolar North.



Through the exercise, participants identified gaps within the U.S. Arctic MTS and provided constructive insights on how these issues could be addressed by the community of Arctic operators and government. Ultimately these conversations highlighted the need for cooperation and collaboration between industry, government, and local communities as challenges in the Arctic are too great for a single entity to meet alone. A summary of the event's activities and key findings from the exercise were collected into a comprehensive knowledge product. The Report is currently under review and will be released in Fall 2021.

ADAC Welcomes Interim Center Principal Investigator Dr. Aaron Dotson

Dr. Aaron Dotson has graciously agreed to stand in as ADAC PI during the fall semester while Dr. Doug Causey is on sabbatical. Dr. Aaron Dotson is the Vice Chancellor for Research and a Professor in Civil Engineering at the University of Alaska Anchorage and an affiliate

research faculty at the UA-Fairbanks Water Environment Research Center. He has served as a PI or co-PI on research funded by EPA, IRD, USDA and industry related to water/wastewater treatment, monitoring and industrial processing. His research focuses on advancing water/wastewater treatment and practices in small communities with a focus on the developing and cold regions. He serves on the board of directors for his local water utility and has 26 peer-reviewed journal article publications, 2 book chapters, and nearly 100 conference presentations.



Remote Unmanned Aerial System Project Launched for the Bering Sea Region

By: Margaret W. Hall, Associate Director, Model Forest Policy Program

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 situational 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, Arctic Emergency Management Specialist, USCG Sector Anchorage. In addition to Dr. Garron's oversight and work, ACUASI is also providing 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 the coordination of the 2022 Community Project Fair and final webinar(s).

The pilot trainees were chosen in March, each bringing to the table diverse, but complementary, background and 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. 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 2021. COVID-19 permitting, ACUASI's flight instructors will provide on-site training. Research and assessment of regional expansion will take place in 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 Spring 2022.

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It has truly been an honor and privilege to serve at the University of Alaska and University of Alaska Anchorage since January 2016 in support of the ADAC mission for DHS S&T OUP and the U.S. Coast Guard. The only mission that could draw me away from ADAC service at the University is the one that I have been asked to lead (and again, I look forward to sharing these details with you soonest). Through 5 years and 8 months of service, it has been a joy and considerable adventure to serve with ADAC to help move from a Center that was struggling to meet its mission to one that is highly respected across the community of Arctic research across the U.S. and across the pan Arctic region. In earning nearly \$22M in federal award, conducting 26 major research investigations, developing nearly 40 student fellows for the Homeland Security Enterprise to conducting more than 15 major workshops and exercises (while supporting countless events hosted by others), I respectfully believe the ADAC team has delivered well in meeting the expectations of a DHS S&T Office of University Programs Center of Excellence. While many of our products are available via our website (most of which represent a direct/personal involvement), I was reminded by the ADAC team of the significant amount of electronic correspondence provided during my tenure of service (which from 4 January 2016 to 22 August 2021 was just over 68,700 sent emails). As such, if folks need to transition my call sign from Church to "Chaff"...I will so understand. While the research, the products (be in hardware, software, firmware, symposia, workshops, exercises, etc.) ADAC has created since January 2016 have been quite remarkable, the aspect that was the most satisfying to help was ADAC's "peopleware." By June 2022, ADAC will complete just nearly 40 undergraduate or graduate student fellow, prepared to support the Homeland Security Enterprise...and COVID19 permitting, finishing up the student program with a return to the Barrow Arctic Research Center near Pt Barrow Alaska for ADAC's Year 8 Arctic Summer Intern Project.

Please know that I am leaving the Arctic Domain Awareness Center in good hands at UAA. The ADAC staff and ADAC research team we have carefully established over the past few years and who have been approved (and well underway) in the Year 8 Workplan will continue to serve and complete the mission of prosecuting the UAA-DHS S&T OUP ADAC Cooperative Agreement. I wish each of you the very, very best. Please know, that I will support the ADAC team as best I possibly can from my new position. What is somewhat amazing to me...was the similarities of January 2016 to August 2021 in terms of the need for my quick transition. In January 2016, DHS S&T OUP needed ADAC to quickly move in a different direction than they had been and I was brought aboard UAA on an extremely fast timeline for the University. Now in August 2021, I have been asked to rapidly move from ADAC on an equally compressed timeline in order to support the new DoD Arctic Initiative. Accordingly, as this recent action may be a bit jarring to many, please accept my apologies for the very short notice of departure from this remarkable Center. Quite certainly, my head is spinning in how fast this has materialized. I am grateful to the University of Alaska and in particular to UAA, DHS S&T OUP and the ADAC leadership team...all...for their forbearance. Very Respectfully, Church

Fall 2021 Fellows Join ADAC Education Program

By: Ellee Matthews, ADAC Education and Administrative Manager

In the Spring semester of 2021, the ADAC community had the great privilege of saying farewell to five of its student fellows as they graduated from their respective degrees and the fellowship program. As a result, this upcoming fall semester, ADAC has the opportunity to welcome four new undergraduate students to its cohort of student fellows, Caitlynn Hanna, Tori Sweet, Talha Ali, and Benjamin Good.

Caitlynn Hanna, a born and raised Alaskan, is currently studying Civil Engineering at the University of Alaska Fairbanks (UAF). While Caitlynn was raised in Anchorage, she has enjoyed many summers in her parents' hometowns of Nome and Kotzebue, Alaska, where she is active in many cultural activities, including kayaking, fishing, berry picking, skin sewing, beading, and fishing at her family's fish camp. Caitlynn will be working with ADAC's Arctic Facilities and Infrastructure Environmental Change Risk Index (ERI) Project, where she will work under the mentorship of Dr. Craig Tweedie, Dr. Matt Calhoun, and Ms. Kelsey Frazier. Currently a senior in her degree, Caitlynn is greatly looking forward to continuing her education with a masters degree in Civil Engineering following her graduation in May of 2022.

Our most "long distance" fellow, Tori Howard, is an undergraduate student studying Environmental Engineering at the University of New Hampshire (UNH). Born and raised in New Hampshire, Tori is an avid hiker in the White Mountains, where she is currently striving to complete New Hampshire's 48 4,000 ft. hikes. When she is not exploring in the mountains, Tori is working with Dr. Nancy Kinner on ADAC's Oil Spill Modeling for Improved Response to Arctic Maritime Spills (AMSM) Project. Like Caitlynn, Tori is also a senior with plans to pursue a masters degree in Civil Engineering following her graduation in May of 2022.

Talha Ali is an undergraduate student at the University of Anchorage (UAA) where he is studying Computer Science. While Talha was born in Karachi, Pakistan, he has lived with his family in Anchorage, Alaska for roughly 11 years. Like many Alaskans, in his free time, Talha enjoys both hiking and camping, and even plays table tennis and soccer. An upcoming junior at UAA, Talha will be working on ADAC's Arctic and Alaska Maritime Communications and Connectivity Analysis (AAMCCA) project under the mentorship of the Center's Associate Director and Senior Research Professional, Jason "Olaf" Roe. Following his graduation in 2023, Talha hopes to pursue a career in the IT field or as a software engineer.

Last, but most definitely not least, Benjamin Good is also an undergraduate student studying Computer Science at UAA. Another born and raised Alaskan, Benjamin is currently living in Palmer, Alaska, but he has also spent significant time in both California and Nevada. In his free time, Benjamin greatly enjoys studying history and philosophy, and also has great interest in mathematics. During his fellowship, Benjamin will be working under the mentorship of Dr. Shawn Butler, the Principal Investigator of ADAC's Arctic Vessel Monitoring, Geofencing, & Alert Awareness Project. Following his graduation in the spring of 2022, Benjamin is hoping to pursue a career in Artificial Intelligence, with an emphasis on either evolutionary computing or computational theory.

The ADAC team couldn't be more thrilled to have these four students join our team for ADAC's Program Year 8, and we greatly look forward to all of the accomplishments they are sure to achieve. Welcome, Caitlynn, Tori, Talha, and Benjamin!

Upcoming Events

[Arctic Facilities and Infrastructure Environmental Change Risk Index Virtual Workshop](#) 29-30 September. The Arctic Domain Awareness Center, in collaboration with the U.S. Coast Guard District 17 and Sector Anchorage, is hosting a two-day workshop on the development of an environmental risk index. Aware that the Arctic region is exposed to the impacts of climate change, increasing coastal erosion, and more frequent precipitation, USCG seeks to develop a risk index as an operator decision support tool focused on bulk oil/fuel facilities. This two-day workshop will bring together experts from a wide range of disciplines and utilize a collaborative group setting to identify data sources, evaluate inputs to a proposed decision support tool, and determine which models will advance the development of the risk index.

[Alaska and Arctic Maritime Communications and Connectivity Analysis Project Virtual Assessment](#) 12-14 October 2021. The Virtual Assessment will consist of USCG Leadership presentations on communications challenges and future uses for increased connectivity along with industry participation in highlighting emerging technologies. The Virtual Assessment will include liberal use of virtual breakout groups to discuss near-term, mid-term, and long-term technologies and identify connectivity transition, utilization, and integration strategies and pathways.

[ADAC Customers and Partners Roundtable \(Rescheduled\)](#), Oct. 7, 2021. The Center will host its First Program Year 8, Customer and Partner's Roundtable via webinar on Oct. 7. The interactive forum will include a Center update, Project Reviews and associated Customer and Partner Feedback Discussions from 1:00-5:00 PM Eastern Daylight Time (9:00 AM-1:00 PM Alaska Daylight Time).

[The Maritime Risk Symposium 2021](#) is now a virtual conference due to the challenges of COVID19 that will take place 1-5 November 2021. The Symposium is hosted by the University of Houston College of Technology and is highlighting the areas of Decarbonization and the Transition to Green Technologies, Autonomous Vessels and Systems, Cyber-security, Security and Resilience of the Maritime Supply Chain, and The Arctic Maritime.

POSTPONED [Arctic Symposium](#), 5-8 April 2022. Alaskan Command Arctic Symposium 2021 is now postponed to April of 2022 due to on-going concerns about COVID19. On behalf of USNORTHCOM, US Alaskan Command invites defense and security professionals to Arctic Symposium. Information on registration will be announced at a later date.



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

ADAC's Mission

The Arctic Domain Awareness Center, led by the University of Alaska, develops and transitions technology solutions, innovative products, and educational programs to improve situational awareness and crisis response capabilities related to emerging maritime challenges posed by the dynamic Arctic environment.



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