

Happy Thanksgiving and November update from ADAC at the University of Alaska, 25 Nov 2020



Dear and Distinguished Colleagues,

Good evening from 61+ degrees North from your friends at the Arctic Domain Awareness Center at the University of Alaska. In advance of taking a bit of time to spend with family, wanted to provide you ADAC's November Update. It has been a very busy fall and the pace is only going to quicken over the coming weeks.

Upfront, our research agenda has been moving forward at a steady pace in accordance with the Center's Year 7 workplan. Here's a quick look at our research highlights:

- Since our last note, we formally started the *Remote Unmanned Aircraft System (UAS) Inspection and Response Team Development in the Bering Strait Region* project led by Dr. Jessica Garron at the Alaska Center for Unmanned Aerial Systems Integration (ACUASI) at the University of Alaska Fairbanks, in partnership with the Alaska Native Village at Unalakleet in Western Alaska and other supporting members in accordance with their awarded submission to ADAC's solicitation to the Arctic Incidents of National Significance Workshop 2019. We congratulate Dr. Garron and her team and are excited to see this new project underway.
- The *Arctic Ice Conditions Index* and *Ice Conditions Index for the Great Lakes Region* led by Dr. Jifeng Pen, Dr. Shawn Butler at the UAA College of Engineering jointly with ADAC's Kelsey Frazier continue their respective efforts towards supporting decision making for vessel masters. The Great Lakes ICECON is prepared to support U.S. Coast Guard District 9, U.S. National Ice Center and participating vessel operators in the Great Lakes region for the upcoming ice season with calculated plots, ice geographic files and phone application for operators to provide updated ice conditions.
- The *Propeller Driven Long Range AUV* jointly led by Dr. Jim Bellingham & Amy Kukulya at Woods Hole Oceanographic Institution and Brett Hobson at Monterey Bay Aquarium Research Institute continues in fabricating the second platform, testing new systems integration to include Inertial Navigation System and Multibeam Sonar. New Hard and Software improvements continue as well to include operating to and from the Arctic buoys, to

include new advances in reverse propulsion to safely back away from the cable/antenna assembly extending below the buoy and long duration operations in the waters off of Cape Cod.

- ADAC's *Geofencing/Vessel Alert* project led by Dr. Shawn Butler UAA and closely supported by our partners at Axiom Data Sciences continues in designing the application to reside within U.S. Coast Guard's CG1View command and control application, creating a parallel approach to the completed Geofencing application which resides with the Alaska Marine Exchange in support of both USCG and general marine vessel operators.
- The *Oil Spill Modeling for Improved Response to Arctic Maritime Spills* project led by Dr. Nancy Kinner at the Center for Spills in the Environment at the University of New Hampshire continues on course and speed in developing their comprehensive "next generation spill modeling needs for the Arctic" via their underway integration workshops following a number of months in specific workgroup endeavors.
- The *Mitigating the Damage to Arctic Copepods from Surface Oil Spills: When to Apply Dispersants*, led by Dr. David Fields and Dr. Christoph Aeppli at Bigelow Ocean Laboratories are advancing through their tests of copepods exposed to oil and dispersants in a laboratory environment. Their research is well underway in providing important knowledge to support U.S. Coast Guard and other Federal On-scene responders if ever called to respond to an Arctic maritime oil spill.
- The same holds true for *Photo-enhanced toxicity of dispersed and burned crude oil to Arctic mussels* led by Dr. Pat Tomco at the UAA College of Arts and Sciences, with important partnering with project investigators at Dr. Phoebe Zito at the University of New Orleans and Dr. Katrina Counihan at the Alaska Sea Life Center in Seward. Whereas the copepod project is principally focused on how these animals respond in the water column, the mussels project is focused more on what happens internally when exposed to dispersed and burned oil, sunlight, and darkness. Their research will also prove invaluable to on scene response to an Arctic maritime oil spill.
- Lastly, we remain engaged with Dr. Marcus Boyd at the University of Maryland in finalizing *Arctic webGIS* with real/near real time vessel traffic in order to complete the software work within the Homeland Security Information Network (HSIN).
- For a detailed readout of ADAC's *Program Year 6*...please see the attached report which highlights the Center's research, education and convening accomplishments from 1 July 2019 to 30 June 2020.

ADAC's *Education Program* continues at full speed as developing "peopleware" remains a high priority for our Center. We are happy, proud and a bit melancholic in seeing a group of our ADAC Fellows complete their research assistance-ship and move on to either continued educational pursuits or into the Homeland Security Enterprise as they complete Fall Semester 2020 in a few weeks.

Over the past few weeks, we had the opportunity to participate in a number of convening activities, to include

- The 2020 Annual Alaska Federation of Natives (virtual) meeting.
- The 11th U.S. Coast Guard Maritime Risk Symposium conducted with the Critical Infrastructure Resilience Institute at the University of Illinois Urbana-Champaign and the U.S. Coast Guard HQ DCO-X "Evergreen" team.



- The Maritime and Arctic Safety and Security (MASS) Conference (virtual), normally held at St. John Newfoundland.



For the 3 weeks following Thanksgiving break are going to be an apex of busy for ADAC and many others. These virtual activities include:

- Part 3 of Dr. Kinner’s Arctic Maritime Oil Spill Modeling workshop on 30 Nov 2020
- Arctic Futures Symposium 2020
- “Lunch and Learn—solving Present and Future Arctic Challenges at the USCG Academy Center of Arctic Study and Policy, 1 Dec 2020
- Arctic and Western Alaska Area Committee Meeting, 2-3 Dec 2020
- U.S. Army Alaska Arctic Conference on 4 Dec 2020
- Rescheduled hearing of the Senate Security subcommittee of the Transportation, Commerce and Science Committee on U.S. Coast Guard Arctic operations on 8 Dec 2020.
- Alaska Coastal Mapping Summit on 9-10 Dec 2020.
- The Alaska Federation of Natives Winter Roundtable focused on the Bristol Bay region is the morning of 11 Dec 2020 (starting at 9 AM Alaska Standard Time)
- The Woodrow Wilson Center Polar Institute and ADAC Arctic Security Series, focusing on the U.S. Army’s Arctic Strategy on 11 Dec 2020, starting on at 12 Noon Alaska Standard Time.
Note: this will be posted for registration to ADAC’s Website early next week and announced via Wilson’s email distribution system as well.

As a result of the “December crush” of activities, ADAC is slipping its 2nd Quarter, Program Year 7



“**Customers and Partners’ Roundtable** featuring Center activities, project details and future events from December to Friday, 15 Jan 2021. The agenda is attached and will be posted to ADAC’s website early next week.

Looking into 2021, ADAC is pleased to relay that our “**Arctic Maritime Horizons’ Maritime**



Transportation System Exercise” is in advance planning for 2-4 February in support of HQ U.S. Coast Guard’s Arctic Strategic Outlook and the Maritime Commerce Strategic Outlook for the Bering, Chukchi and Beaufort Sea regions.

Further into 2021, ADAC is pleased to announce **ACCUSARS II. Advancing Collaboration in Canada-**



U.S. Arctic Regional Security Invitational Virtual Workshop. The purpose of ACCUSARS II is to create a Strategic Foresight Assessment (SFA) for the North American Arctic. ACCUSARS I provided an initial SFA for the Canadian Arctic, which

provided an initial baseline to be further developed. We plan to conduct ACCUSARS II as a virtual meeting and kindly invite Canadian and American participants from ACCUSARS I to rejoin us for the meeting.

A highlight of our Spring 2021 convening events is planning and supporting Alaskan Command for **Arctic Senior Leader Summit 21 (ASLS 21)** a virtual engagement. In support of U.S. Northern Command's Arctic mission, please consider joining Lt General David Krumm, USAF, Commander Alaska Command, Alaska NORAD



Region and 11th Air Force and a host of Defense and Security Leaders for Arctic Senior Leader Summit 2021 (ASLS 21) 10-11 March 2021. This event is oriented to addressing senior leader strategic views on the developing range of security and defense matters affecting the Arctic region. Due to the on-going complications of in-person meetings as a result of COVID 19, Arctic Senior Summit 2021 will be conducted via electronic conference call. Day 1 of ASLS 2021 is focused on Plenary presentations and follow-on strategic discussions. Day 2 ASLS 2021 is a planned tabletop exercise.

On the innovation side, ADAC announces our Arctic Challenges, Innovation, and Commerce Expo (Arctic CICE) for 16-17 Mar 2021. Arctic CICE elevates Arctic-focused technologies to enable commercial entrance into the Arctic domain. Using an interdisciplinary and collaborative approach, this conference will foster conversations around the current state of the Arctic, efforts to drive Arctic focused R&D, gap analysis of investment and innovation, and the future of business in the Arctic. Participants will see state-of-the-art hardware, software, and equipment to address their needs for domain awareness, risk mitigation, and Arctic operations.



For further insights, please take a look at our current Program Year 7 Long Range Schedule and stay tuned to our website at <https://arcticdomainawarenesscenter.org/>

As we look at this upcoming holiday season, we have much to be thankful for...despite the grief and trauma caused to so many across our network of friends, collaborators and partners.

We wish you and yours the very best, and please stay safe and be well.

Warmest wishes and very respectfully, Church

*Randy "Church" Kee, Maj Gen, USAF (Ret)
Arctic Domain Awareness Center Executive Director
University of Alaska
Commissioner, U.S. Arctic Research Commission*

