ADAC Summary for CMR
26 Aug 2020

A presentation by

Arctic Domain Awareness Center
University of Alaska Executive Director

ADAC: Research for the Arctic Operator... For Today and For the Future
Upfront: Addressing ADAC’s contributions to Homeland Security

ADAC is a DHS S&T UP Center of Excellence in Maritime Research, hosted by the University of Alaska.

ADAC is a research network with its hub located at the University of Alaska Anchorage.

ADAC advances Arctic Science in the following categories of research:

- Geophysical environmental modeling;
- Marine robotics;
- Decision support science;
- Biological & marine environmental science;
- Satellite support;
- Civil engineering;
- Big data analytics;
- Social science...to include gaining insights from rural Alaska and Arctic communities.
University of Alaska’s Arctic Domain Awareness Center...

- “Operator driven research” to support the Arctic maritime mission of the U.S. Coast Guard...
- ...and other U.S. federal maritime security and safety activities
- ...and to support the public good.

Meet our customers

Courtesy Defense news.com

Courtesy The Arctic Institute

Courtesy The Alaska Eskimo Whaling Commission

Courtesy NASA.gov
ADAC’s strategic approach Advance S&T, Convene and Educate

1. Lead Arctic focused Science and technology research

2. Convening experts via Arctic focused workshops to create new understandings and solve problems

3. Conduct a educational Programs
(Some) of the Challenges faced by the maritime operator

- Weather
- Illumination
- Distances
- Sea ice (its more complicated than one may think)
- Logistics
- Infrastructure
- Communications
- Bathymetry (what’s below the waves?)

Helping the operator...means improving the...
- Ability to locate people who need help
- Ability to locating people who are doing illegal activities
- Ability to suitably respond to disasters
- Ability to identify threats and risks to our interests
- In sum...an ability to respond

Accordingly...ADAC’s Mission = an opportunity to help via:
- S&T Solutions
- Knowledge Products
- Convening experts to study, discern and propose
- Educate next generation of HSE professionals...steeped in science

Goal = Strengthening Research Partnerships in support of Operations
ADAC...operator driven science & technology...for the Arctic

- Models on the Physical Characteristics of the Arctic, such as fine scale sea-ice characterization at various scales.
- Decision support tools for Marine operations in the Bering, Chukchi & Beaufort Seas and Great Lakes ice conditions characterized and tailored for vessel types.
- Tactical tools for mariner use based on localized sea-ice hazards.
- Oil spill studies to understand impact to Arctic mussels and copepods, & future Arctic spill modeling.
- Induced polarization to characterize oil spills within sea ice conditions
- Big Data analytics to support NOAA bathymetric survey prioritized on vessel traffic.
- Models to support disaster response: Oil Spills in Arctic Ocean environments and Storm Surge in Western Alaska.
- Long-range Autonomous Platforms to support oil spill response characterization and other physical aspects
- Geo-spatially oriented data aggregation for all hazards & geofencing for USCG command centers
- Support to small satellites to improve Arctic communications.
- Sensors, chemical isotope detection, smart camera development & community based observations
- Mariner training in support of IMO polar code.
Ready for Questions & Discussion

...Thank you for your attention!