



ARCTIC DOMAIN AWARENESS CENTER

A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE

***Welcome to the first-ever ADAC Arctic-Related
Incidents of National Significance (Arctic IoNS)
workshop***

***The University of Alaska (UAA) and ADAC are pleased
to welcome you to Anchorage***

ADAC welcome by Principal Investigator, Dr
Douglas Causey, UAA

Introductions and plan of the workshop and
Scenario overview by ADAC Executive
Director, Church Kee, UAA



Arctic IoNS Administration

Primary evacuation: left turn, down the hall, out west entrance of building, rally in the parking lot.

Secondary evacuation: Right turn out entrance on southeast corner, walk to west side parking lot.

Latrines: by elevator at west end of the floor, same configuration each floor.

Breakfast, snacks and lunch: provided at west end of floor.

Dinner tonight or other logistics: see *Lorenzo, Heather or Elyce.*

Shuttle Schedule: Included in welcome packets.

Room configuration and technical details: Primary and overflow rooms are “hot miked” (what you say can be heard next door)

Day 2 breakout groups: 2 x room, and return to Day 1 configuration for closing session

Day 1 Plenary Presentations: Please provide overview, and maintain time control.

Day 2 Breakout groups: Assigned, with 2 x Facilitators and 1 x Note Taker

Arctic IoNS Introductions:

VIPs/DVs

Operators

Researchers

Institutions Represented

Defence R&D Canada

Canada Coast Guard

Canada Weather Service

Canada Armed Forces

National Research Council of Canada

U.S. Department of Homeland Security

Headquarters U.S. Coast Guard

USCG District 17

USCG Research and Development

Center

Institutions Represented

(Continued)

**National Oceanic and Atmospheric
Administration and National Weather
Service**

US Arctic Research Commission

US Fish and Wildlife Service

**NASA and OSD's Arctic Collaborative
Environment**

Federal Bureau of Investigation

Alaskan Command

US Army Alaska



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Institutions Represented: ***(Continued)***

State of Alaska
Alaska National Guard
State of Alaska Emergency
Management
Alaska Ocean Observation System
Memorial University, St Johns
Newfoundland
Texas A&M University
Rutgers University
University of Houston
Loyola University
University of New Hampshire

Providence Regional Medical Center,
Everett Washington
Princess Cruise Lines
ASRC Federal Mission Solutions
Nova Dine and Kestrel Corporations
Axiom Data Services
University of Alaska Anchorage
University of Alaska Fairbanks
University of Idaho
University of Washington



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***The June 21-22 2016 Arctic IoNS workshop
seeks to conduct:***

***... “operator driven research” to address operator
derived focused concerns...***

***...in rescue and recovery of fictitious disabled cruise
ship in Arctic waters.***

**“Arctic IoNS Operator Workgroup” consisted of
participating members from USCG Exercise
NORTHWEST PASSAGE, April 2016.**



Scenario...disabled cruise ship in Arctic Waters (Beaufort Sea En route to NW Passage).



- ***Vessel impacted ice 500 NM NE of Deadhorse (in vicinity of extended CANUS Border).***
- ***1700 souls.***
- ***Listing to port, eventually unable to steam.***
- ***Deteriorating weather (clouds, wind and waves).***

★ = ship location.

Arctic IoNS Operator workgroup provided requirements...6 themes:

- ***Total accountability*** of crew and passengers in a MRO;
- ***Medical/rescue technology*** to assist marginally or non-mobile passengers from disabled ship to recovery vessels;
- ***Arctic communications***, specifically, nearer term solutions for necessary communications in time of crisis, for creation of localized solutions to cope with the crisis;
- ***Drifting sea-ice, pack ice, and weather conditions*** that may create hazardous conditions for further transit or further impact a disabled vessel;
- ***Arctic bathymetry***, particularly understanding of sea floor hazards in the vicinity of a crisis;
- ***Shared Situational Awareness (SSA)***, this includes appropriate day-to-day domain awareness, pre-planning and mitigation, before an emergency actually exists as well as crisis response SSA.

Taking Operator Concerns for Action: Arctic IoNS Day 1: Plenary Panels. ***“Understanding the current body of research”***

Operator Panel: “What is of most concern” in responding to a disabled cruise ship in Arctic Waters.

Research Panel 1: Current/known research in Addressing Ship Total Accountability in an Arctic Emergency.

Research Panel 2: Current/known research gaining Arctic emergency response Shared Situational Awareness (SSA).

Research Panel 3: Current/known research addressing Cruise Ship Medical Rescue/Technology. Panel order of presentations:

Research Panel 4: Current/known research advancing Arctic Communications.

Research Panel 5: Accounting for Drifting Sea and Pack Ice, mitigating Arctic weather hazards in rescue scenarios and improving understanding of Arctic Bathymetry in an emergency.



Assessing gaps and shortfall: Arctic IoNS Day 2: Breakout Groups

1. Achieving total accountability of personnel in a crisis.

Facilitators: Dr. Larry Hinzman, ADAC and UAF, and Dr. Rob Brown, Memorial University, St Johns, Newfoundland
Note taker: Mr. James Matthews, UAA

2. Improving medical preparedness and response with rescue and recovery in an Arctic region MRO.

Facilitators: Dr. Ioannis Kakadiaris, University of Houston and Dr. Doug Causey, ADAC & UAA
Note taker: Mr. Kyle Alvarado, UAA

Goals of the Breakout groups: Generate Research questions that address gaps and shortfalls of known research and capabilities

3. Identifying and mitigating related/relevant hazards to Arctic Major Response Operations.

Facilitators: Dr. Andy Mahoney, UAF and Ms. Amy Holman, NOAA
Note taker: Mr. Seth Campbell, Bethune-Cookman University

4. Advancing Arctic region rescue response coordination, awareness, and communications

Facilitators: Dr. Dennis Egan, Rutgers University and Dr Lil Alessa, University of Idaho
Note taker: Mr. Leif Hammes, UAA

Note: Each IoNS participants is tentatively assigned a workgroup, striving for an array of balances.



So what? Following Arctic IoNS:

...Breakout group Note Takers summaries and research questions formed are developed into rapporteurs report,

...then ADAC coordinates with DHS for a late summer Request for Proposal to solicit research

...translation: Potential for research opportunities.



Into the future...

- *Arctic-related IoNS*
- *Arctic-focused Medium and Long Term Environment workshops*

Result: ADAC hosts a workshop every 6 months:

IoNS = Operator driven

MaLTE = Research futures driven



...Now a word from our senior members attending:

Dr. Paul Hubbard, Defence R&D Canada

Mr. Theo Gemelas, U.S. Department of Homeland Security, Science and Technology, Office of University Programs

RADM Mike McAllister, Commander, U.S. Coast Guard District 17

RDML Francis “Stash” Pelkowski, Headquarters, U.S. Coast Guard

BG Laurie Hummel, Commissioner, Department of Military and Veterans Affairs, State of Alaska/The Adjutant General, Alaska National Guard



Operator Panel:

RADM Mike McAllister, USCG D-17

BG Laurie Hummel, State of AK Adjutant General

Mr. Mike O'Hare, State of AK Emergency Manager

Ms. Susan Pickrell, Canada Coast Guard

Maj Mike Susin, Canada Armed Forces

Mr. Carven Scott, NOAA/NWS

Mr. "Dusty" Finley, ALCOM and US Army AK
representative



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Panel 1: Current/known research in Addressing Ship Total Accountability in an Arctic Emergency. Panel order of presentations:

1. Mr. Tom Schofield/Representative, Princess Cruise Lines
(Remote Participant)
2. Mr. Rob Brown, Memorial University, St Johns Newfoundland
3. CAPT, USN (Ret) Jim Pettigrew and Dr. Joan Mileski (via remote participation) Texas A&M University
4. Mr. Eric Velte, ASRC Federal Mission Solutions
5. Ms. Wendy Chaves U.S. Coast Guard Research and Development



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Panel 2: Current/known research gaining Arctic emergency response Shared Situational Awareness (SSA).

1. Dr. Theresa Jefferson, Loyola University
2. Dr. Dennis Egan and Dr. Paul Kantor, DIMACS and CCICADA, Rutgers University
3. Ms. Molly McCammon, Alaska Ocean Observation System
4. Dr. Kenrick Mock, UAA ADAC, and Mr. Tom Heinrichs, UAF ADAC (Arctic Information Fusion Capability (AIFC) PIs)
5. Mr. Robb White, NOAA
6. Dr. Lil Alessa, University of Idaho ADAC, PI for Community-based Observer Network for Situational Awareness (CBON-SA)

Panel 3: Current/known research addressing Cruise Ship Medical Rescue/Technology. Panel order of presentations:

1. Dr. Jon Power National Research Council of Canada and Dr. Rob Brown, Memorial University, St Johns, Newfoundland, Canada
2. Dr. Christi Artuso, Providence Hospital, Everett, Washington
3. MAJ Joshua Zeldin, Alaskan Command J-4



Panel 4: Current/known research advancing Arctic Communications.

1. Ms. Holly Wendelin, U.S. Coast Guard Research and Development
2. Dr. Steve Spehn and Dr. John Walsh, NASA-DoD Arctic Collaborative Environment
3. Dr. Nettie La Belle-Hamer, UAF Geophysical Institute
4. Mr. Eric Velte, ASRC Federal Mission Solutions
5. Mr. Kenneth Kucharzak, Alaskan Command J-6



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Panel 5: Accounting for Drifting Sea and Pack Ice, mitigating Arctic weather hazards in rescue scenarios and improving understanding of Arctic Bathymetry in an emergency. Panel order of presentations:

1. Ms. Darlene Langlois, Canada Weather Service
2. Dr. Larry Mayer, University of New Hampshire
3. Ms. Becki Heim, NOAA/NWS
4. Dr. Tom Ravens, UAA ADAC (and coordination with Dr. Jinlun Zhang, University of Washington Polar Sciences)
5. Dr. Andy Mahoney, UAF ADAC
6. Mr. Ben Matheson, US Fish and Wildlife, Aleutian Bering Sea Island Landscape Conservation Cooperative





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Questions?

Backup follows:



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ADAC's Leadership

Douglas Causey, PhD, Principal Investigator, University of Alaska, Anchorage (UAA)

Larry Hinzman, PhD, Research Director, University of Alaska Fairbanks (UAF)

Randy Kee, Maj Gen (Ret) USAF, Executive Director (UAA)

Heather Paulsen, MBA, Finance Director (UAA)

LuAnn Piccard, MSE PMP, Project Management Director (UAA)

Elyce Hackley, Associate Director, (UAA)

ADAC is hosted by the University of Alaska, with work conducted at UA campuses in Anchorage and Fairbanks...and across a community of academic centers

ADAC's mission

- *develop and transition technology solutions, innovative products, and educational programs*
- *improve situational awareness and crisis response capabilities related to emerging maritime challenges posed by the dynamic Arctic environment*

ADAC's principal customer: United States Coast Guard (District 17, Arctic)

- *Search and Rescue, Humanitarian Assistance and Disaster Response*

ADAC seeks to connect with an array of federal, state, local, tribal, industry and academic partners to collectively advance domain awareness of the Arctic region.

ADAC seeks to serve as a Hub of Arctic Domain Awareness connected to an array of Arctic related academic research



ADAC's primary focus is to collaborate and conduct basic and applied research to address DHS Science and Technology Directorate's visionary goal *to Enable the Decision Maker*

DHS Expectations...

Build partnerships...

ADAC is constructing a network approach with academics, Industry, State and other Federal Departments, Significant “mutual interests” with NOAA/NWS

Address gaps and operational deficiencies...

ADAC’s work improves USCG preparedness and responsiveness...contributing to safer Arctic operations.

Develop future workforce...

Creating ADAC Fellows Program...Mentoring Students



ADAC's current partners

Academic Partners:

- Embry Riddle University
- Maine Maritime Academy
- University of Idaho
- University of Washington
- Woods Hole Oceanographic Institute
- US Coast Guard Academy and their Center for Arctic Study and Policy

Industry Partners:

- Axiom Data Science
- Alaska Marine Exchange
- Dubai Business Services

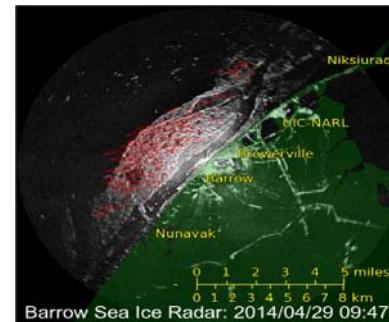
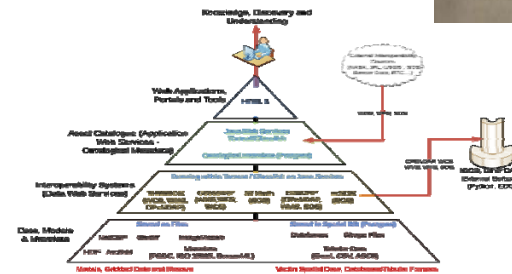
Cooperative Organizations:

- Alaska Ocean Observation System
- USCG Headquarters, Research & Development Center, and District 17
- NOAA & National Weather Service
- DoD Alaska Command and Alaska NORAD Region
- NASA Arctic Collaborative Environment

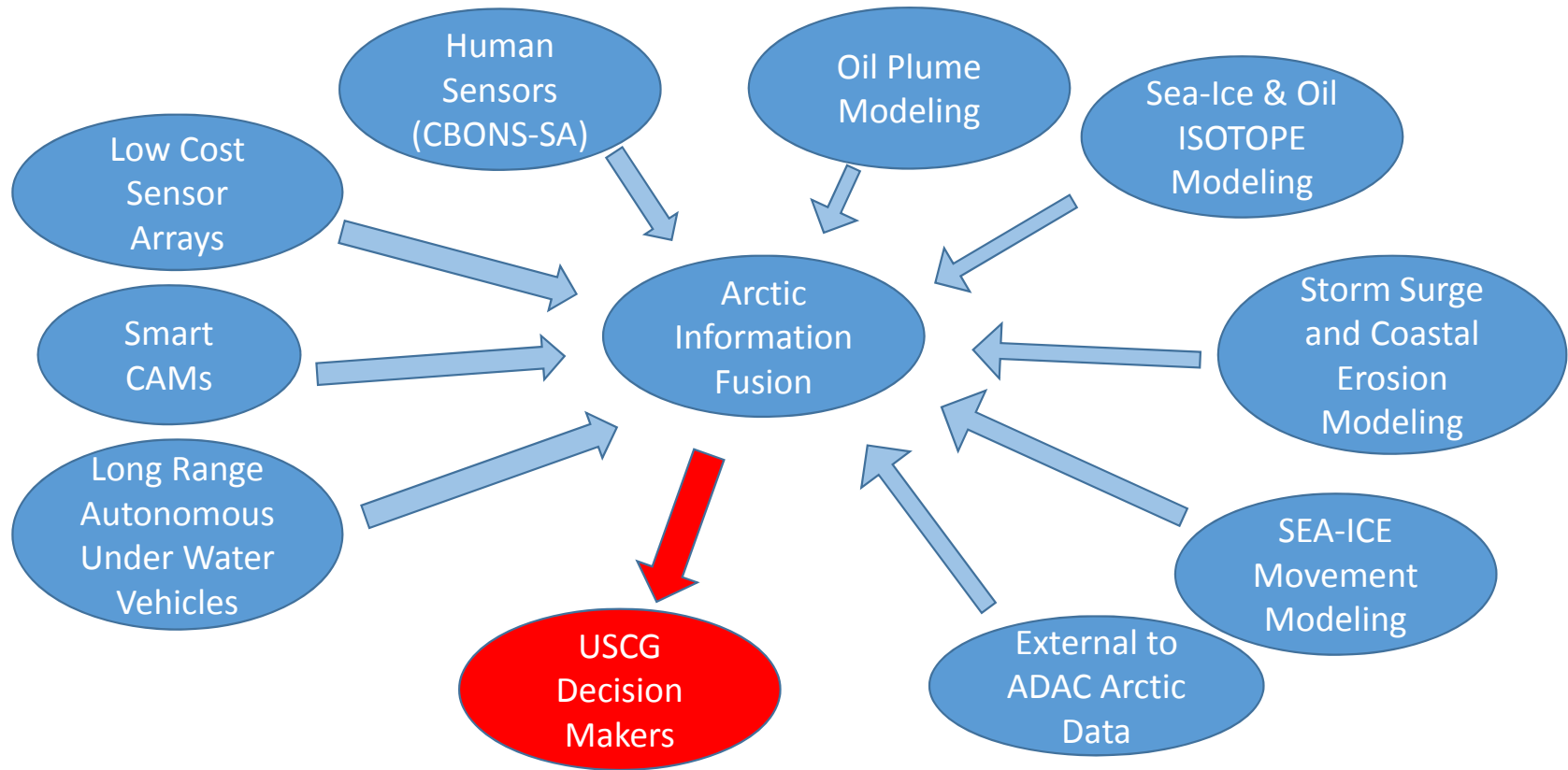


ADAC's Projects "at a glance"

- Sensors...both machine and people
 - People...via Community based observers applied research
- Autonomous Platforms
 - In order to put "sensors on scene"
- Modeling...(principally environmental factors)
 - Storm Surge, Sea Ice Forecasts, Coastal Erosion and Oil plume
- Fusion of Arctic related data and information for Agile Decision Support
- Professional Arctic Mariner Development
- Education Outreach and Workforce Development
- Arctic-Related Incidents of National Significance Workshops



ADAC Project Inter-relation



ADAC's additional partners for 2016-2017

Additional Academic Partners:

- Texas A&M University
- University of New Mexico *
- University of Texas El Paso *

Additional Industry Partners:

- NOVA DINE-Kestrel **
- ASRC Federal Mission Solutions **

* Federally Designated Minority Serving Institutions (MSI)

** Federally Designated Tribal Organizations (FDTO)

Additional Collaborative Organizations:

- DHS Centers of Excellence at Rutgers University, Stevens Institute and University of Houston
- National Science Foundation



Arctic-related Incidents of National Significance (IONS) & Arctic-Focused Medium and Long Term Environment (MaLTE) Workshops

Partnerships:

IONS: Canada and US Operators and researchers

MaLTE: Canada and US researchers

Goal: to advance deep thinking and to tackle tough problems with academic rigor

Workshop format: Joint Canada-US collaborative forum hosted by University of Alaska

Context:

IONS: Operator driven research by USCG Arctic mariners to provide research and development ready solutions

MaLTE: Addressing Science and Technology in future scenarios 10-20 years distant



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ADAC ...Seeking opportunity

- ***ADAC is working to advance partnerships across the Arctic, to include Canadian professionals, in Arctic response & preparedness and academia communities.***
- ***Collaborating in the advance of Arctic related science and technology.***

*...in support of the operator and
to the benefit of the public good.*

More to come...



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