



Arctic Domain Awareness Center (ADAC)

***A DHS Science and Technology Office of University Programs,
Center for Maritime Research***

FINAL Plan (Change 1) for

Arctic-Related Incidents of National Significance Workshop on

Maritime Mass Rescue Operations

21-22 June 2016

Anchorage Alaska

As of 15 June 2016 1600 Alaska Daylight Time

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Introduction: *Arctic-related Incidents of National Significance, (Arctic-related IoNS) an opportunity for operator driven and longer looking research in the Arctic region.*

In late June 2016, the Arctic Domain Awareness Center (ADAC), a Department of Homeland Security, Science and Technology, Office of University Programs Center of Excellence, plans to host the inaugural Arctic-related Incidents of National Significance (Arctic-related IoNS) workshop at the University of Alaska, Anchorage.

The Arctic IoNS workshops are intended to be accomplished on an approximate annual event cycle as bi-national Canada-U.S. events. Complementing the Arctic-related IoNS workshop, ADAC plans to conduct an annual Arctic-focused Medium and Long Term Environment (MaLTE) workshop to understand and address the medium and long term research needs specific to the Arctic environment. Arctic-focused MaLTE workshops will be off-set approximately 6 months from Arctic-related IoNS.

These two Arctic-focused IoNS workshops will exercise a similar methodology and are planned to be conducted in close coordination with DHS S&T OUP, Headquarters USCG, USCG District 17, and USCG RDC and Canadian counterparts.

ADAC will conduct the Arctic-related IoNS workshop with select expert Arctic skilled operator and researchers from both Canada and the United States, based on scenarios and defined operator problems formulated by USCG and Canadian operational counterparts. Similarly, ADAC will conduct the Arctic-focused MaLTE workshop with well-qualified Arctic researchers from Canada and the United States, based on topics defined by DHS S&T, HQ USCG, USCG RDC and Canadian counterparts.

Arctic-related IoNS workshops are designed as two-day forums, presenting the current body of research aligned to areas identified by the Arctic IoNS operator work group for Day 1. The second day will have teams break into workgroups, in order to determine research and technology gaps, to then discern appropriate research questions.

Critical for the workshop series of presentations: a comprehensive read ahead. In order to allow Day 1 to get through all the areas of research, *it will be important for presenters to send papers/briefings that describe their area of research, past and present aligned to the presentation topic.*

First Arctic-IoNS Workshop, 21-22 June 2016, Anchorage Alaska: “Research to address Maritime Mass Rescue Operations.” ADAC plans to host the inaugural Arctic-related IoNS workshop to address a Major Arctic Response event, focused on specific challenges faced by Canada and U.S. “First-Responders.” These first responders are principally U.S. and Canada Coast Guard, Alaska Command, and State of Alaska and Canada Joint Operations Command. The scenario used to derive specific challenges for the first responder operational community is similar to the U.S. Coast Guard Table Top Scenario hosted on 13-14 April 2016, the NORTHWEST PASSAGE exercise. The workshop will address operational challenges faced in conducting a major response in rescue

and recovery of an Adventure class cruise ship experiencing a catastrophic emergency in Arctic waters in remote and austere conditions.

Inputs from Arctic IoNS Operator Work Group. A bi-national Canada-U.S. Arctic IoNS operator work group participated in the U.S. Coast Guard exercise, NORTHWEST PASSAGE. This group determined as priorities:

1. Critical and under-researched:

- Total accountability of crew and passengers in a Major Response Operation (MRO);
- Medical/rescue technology to assist marginally or non-mobile passengers from disabled ship to recovery vessels;
- Arctic Communications.

2. Sufficiently researched:

- Drifting sea-ice, pack ice, and weather conditions may create hazardous conditions for further transit or further impact a disabled vessel;
- Incomplete Arctic Bathymetry.

3. Important but deferred for future discussion/workshops:

- Desire for shared situational awareness;
- Remotely piloted aircraft to provide sensors on scene in remote, austere Arctic maritime regions;
- Risk Management for Emergency Responders;
- MRO decision and logistics modeling.

ADAC response. ADAC assessed and developed a plan in support of the Arctic-related IoNS MRO to rescue and recover an endangered adventure cruise ship workshop. This plan is based on a comprehensive literature review from Operator inputs and assessment of sufficiency of existing or projected research. Accordingly, ADAC recommends there is a need to conduct further research on the following topics at the inaugural workshop:

- 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.

In order to account for operator-researcher workgroups needed to discern research and technology gaps and define research questions as intended for the conference, ADAC plans to combine the topics previously described into five panel presentations on Day 1, and four themes for break out groups on Day 2:

1. Achieving total accountability of personnel;
2. Improving medical preparedness and response with rescue and recovery in an Arctic region MRO;
3. Identifying and mitigating related/relevant hazards to Arctic major response operations;
4. Advancing Arctic region rescue response coordination, awareness, and communications.

An agenda corresponding to the above plan follows.

Arctic-related IoNS Workshop: Maritime Mass Rescue Operations.

Addressing a Major Response Operation (MRO) to rescue and recover an endangered cruise ship.

Draft Agenda

Monday, June 20th

Participants arrive at Anchorage and check-into accommodations as appropriate.

Evening event/icebreaker at the Whale's Tail, Captain Cook Hotel, Anchorage, 1700-1900 Alaska Daylight Time. Dress: Business casual.

Tuesday, June 21st

Arctic-related IoNS Conference Day 1 at the University of Alaska, Anchorage (UAA), Engineering & Industry Building (EIB), second floor, on UAA campus (2900 Spirit Dr). Dress: Business casual/military, Uniform of the Day (UOD).

0730-0800 Continental Breakfast, Check-in.

0800-0820: **Welcome remarks by University of Alaska leading representative.** Followed by Introductions, Plan of the Workshop & Scenario Overview by ADAC leadership.

0820-0850: **Remarks by Senior Government leaders present on need for the workshop and the views of operational and government leaders to address Arctic-related IoNS:** Canada Delegation, U.S. Department of Homeland Security, U.S. Coast Guard, Alaskan Command, State of Alaska and other VIPs as announced. Respectfully request member's presentations be limited to 5-7 minutes each. Planning for remarks from:

1. Dr. Paul Hubbard, Defence R&D Canada
2. Mr. Theo Gemelas, U.S. Department of Homeland Security, Science and Technology, Office of University Programs
3. RADM Mike McAllister, Commander, U.S. Coast Guard District 17
4. RDML Francis "Stash" Pelkowski, Headquarters, U.S. Coast Guard
5. BG (AK) Laurie Hummel. Commissioner, Department of Military and Veterans Affairs, State of Alaska/The Adjutant General, Alaska National Guard

0850-0950: **Operator Panel presents their problem set.** The goal is to hear from the operators their challenges associated in responding to the scenario. General Officer/Flag Officers/Senior Government Officials (in particular), are greatly encouraged to relay "**what is of most concern**" in addressing preparedness and response to cope with the Workshop scenario. Panel consists of senior members present from:

Canada Coast Guard, Canada Armed Forces (CAF), Alaskan Command, U.S. Coast Guard, U.S. Army Alaska, US NOAA/NWS, State of Alaska, and other Operational Leaders as announced.

Panel order of presentations:

1. RADM Mike McAllister, USCG D-17
2. BG (AK) Laurie Hummel, State of AK Adjutant General
3. Mr. Mike O'Hare, State of AK Emergency Manager
4. Ms. Susan Pickrell, Canada Coast Guard
5. Maj Mike Susin, Canada Armed Forces
6. Mr. Carven Scott, NOAA/NWS
7. Mr. "Dusty" Finley, ALCOM and US Army AK representative

Respectfully request each senior head of operational delegation present for approximately 8-10 minutes each.

0950-1005: Break.

1005-1050: 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 for combined efforts from Texas A&M Galveston & Mary Kay O'Conner Safety Center, Texas A&M University, College Station, Texas (potential for Dr. Joan Mileski to Skype in support of the presentation)
4. Mr. Eric Velte, ASRC Federal Mission Solutions
5. Ms. Wendy Chaves U.S. Coast Guard Research and Development

Request each presenter provide an approximate 10-12-minute overview:

- Current challenges faced in gaining total accountability in a crisis;
- Prior research conducted by the presenter, or prior research the presenter is familiar with that links to this topic;
- Baseline of technology, known gaps and shortfalls;
- Any recommendations from prior/current research.

1050-1100: Short Break.

1100-1215: Panel 2: Current/known research gaining Arctic emergency response 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. Panel order of presentations:

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 Wright, NOAA

6. Dr. Lil Alessa, University of Idaho ADAC, PI for Community-based Observer Network for Situational Awareness (CBON-SA)

Request each presenter provide an approximate 10-minute overview:

- Current challenges faced in gaining SSA (in emergency or steady state as appropriate);
- Prior research conducted by the presenter, or prior research the presenter is familiar with that links to this topic;
- Baseline of technology, known gaps and shortfalls;
- Any recommendations from prior/current research.

1215-1315: Lunch.

1315-1415: 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

Request each presenter provide a 12-14-minute overview (as appropriate):

- Current challenges faced in addressing Cruise Ship Medical Rescue/Technology;
- Prior research conducted by the presenter, or prior research the presenter is familiar with that links to this topic;
- Baseline of technology, known gaps and shortfalls;
- Any recommendations from prior/current research.

1415-1430: Break.

1430-1530: Panel 4: Current/known research advancing Arctic Communications. Specifically, nearer term solutions for necessary communications in time of crisis, for creation of localized solutions to cope with the crisis may be acceptable. Panel order of presentations:

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

Request each presenter provide a 10-12-minute overview:

- Current challenges faced in Arctic communications (in emergency or steady state as appropriate);
- Prior research conducted by the presenter, or prior research the presenter is familiar with that links to this topic;

- Baseline of technology, known gaps and shortfalls;
- Any recommendations from prior/current research.

1530-1630: 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

Request each presenter provide a 10-minute overview:

- Current challenges faced in accounting for Drifting Sea and Pack Ice, mitigating Arctic weather hazards in rescue scenarios and improving understanding of Arctic Bathymetry in an emergency (as appropriate);
- Prior research conducted by the presenter, or prior research the presenter is familiar with that links to this topic;
- Baseline of technology, known gaps and shortfalls;
- Any recommendations from prior/current research.

1630-1700: Breakout groups established and Day 1 conclusions.

1700-1730: Break.

1730-2000: Depart for dinner at the Crow's Nest, top floor of the Captain Cook Hotel. Dress: Business casual.

Wednesday, June 22nd

IoNS Conference Day 2 at the UAA EIB, second floor, on UAA campus (2900 Spirit Dr). Dress: Business casual/UOD.

0800-0830: Continental breakfast.

0830-1000: Breakout sessions by themes:

- Achieving total accountability of personnel;
- Improving medical preparedness and response with rescue and recovery in an Arctic region MRO;

- Identifying and mitigating related/relevant hazards to Arctic MROs;
- Advancing Arctic region rescue response coordination, awareness, and communications.

1000-1015: Break.

1015-1200: Breakout sessions by themes (continued).

1200-1300: Lunch.

1300-1345: Breakout sessions by themes (conclude).

1345-1400: Break.

1400-1500: Breakout groups report (20 minutes each).

1500-1530: Concluding remarks and way ahead.

1530: Workshop concludes and participants depart.