



# ICE PPR

United States of America

**U.S. Situational Awareness Working Group (USSAWG)**

Update for Chief of Naval Research

17 Nov 2020

# ICE PPR SAWG Overview



## USSAWG Focus

- Navigation (in particular, non-GPS aided)
- Communications (both terrestrial and space based)
- Radars
- Sensors (which rightly should include buoys)
- Decision Support and Domain Awareness tools (which include multisource data aggregation and integration)



Working  
Groups (WG)



Situational  
Awareness WG

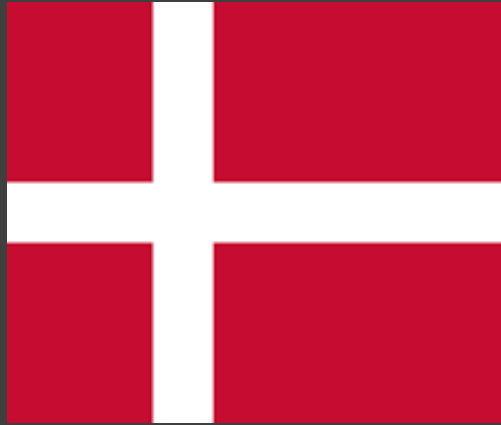
## U.S. ICE PPR SAWG Delegation...35 strong and growing

- Navy, Air Force, Army, DHS S&T, Coast Guard, National Labs, and Academic
- Meeting approximately monthly since May 2020
- US Team maintaining Good alignment with SAWG Lead

# U.S. ICE-PPR SAWG Overall Points of Discussion



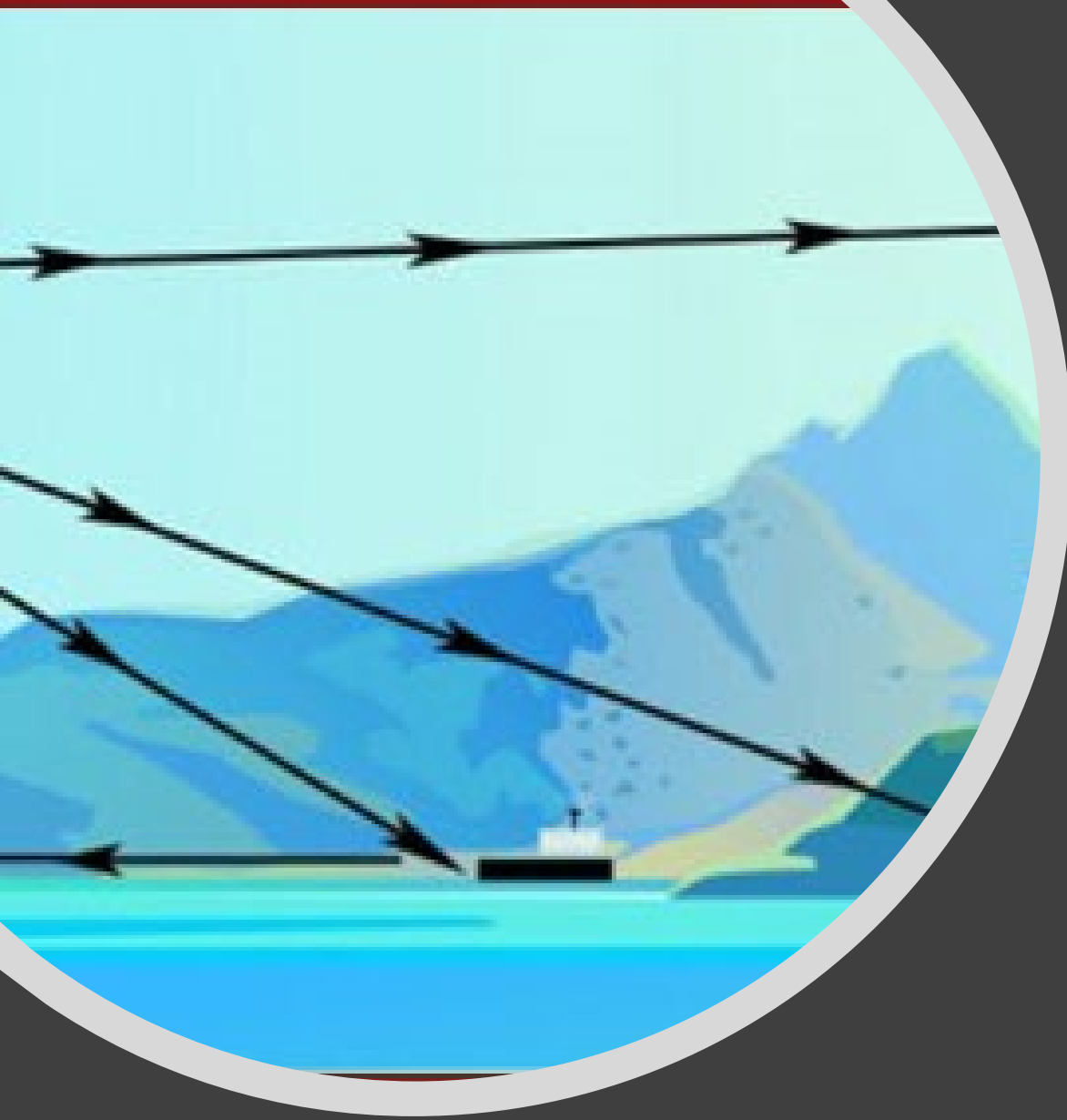
- U.S. ICE-PPR SAWG: A network of networks across U.S. military operations, Defense and Security Research Centers and even the now the likelihood of U.S. National Laboratories.
- Monthly meetings have been focused to establish baseline of interests for collaboration
- Monthly sessions have introduced areas of emerging S&T to generate understanding and discussions.
- Developing a Working Group Term of Reference
- Starting discussions for future Project Agreements
- Using web portal to stay connected and facilitate intercessional work
- Striving for a few quick wins
- Being good team players...



# SAWG Developing Framework



- Sea, Air and land navigation in a non-GPS area
- Improvement and validation of existing communication technologies in the polar region.
- Development of new OTH communication technologies in the polar region.
- Best practice and improvement in delivery of information using low bandwidth and/or high latency communications channels.
- Best practice and improvement of existing OTH radar in polar regions
- Remote sensing – new products of existing data
- Leveraging the (local) population



# USSAWG

## Developing/recent Initiatives



- AFRL: GPS-denied navigation: Link-16 Satellite Experiment
- NAVEUR: ABBA (Nordic S&T Working Group)
- USCG Pac Area:
  - GPS-denied navigation
    - eLORAN
    - Diamond quantum magnetometer magnetic anomaly detection positioning
  - Detection & tracking
    - Quantum magnetometers and gravimeters
  - Improved data acquisition and predictive modeling of 'Space Weather' (Aural disturbances):
    - New satellite data to further predictive modeling



# USSAWG Emerging Discussions

- DHS S&T OUP Arctic Domain Awareness Center contributions:
  - Arctic Communications and Connectivity Assessment
  - Arctic Ice Conditions Index (ARCTICE)
  - Arctic Environmental Data acquisition, integration and presentation to improve Arctic operator decision making
- Inputs from National Labs, Industry and more just starting to catalyze



# USSAWG Next Steps

- Continue to inquire, collate and curate discussions on emerging technology oriented to the framework
- Establish draft Project Agreements ISO partner interests
  - Intra USAWG and Inter overall SAWG
- Support Danish Lead in generating interest, activity and commitment across the delegations
- Respond to US ICE PPR Executive and cross coordinate across US ICE PPR Principals



Ready for discussions





Backups follow



# ICEPPR SAWG Framework with Details Page 1

- **Sea, Air and land navigation in a non-GPS area**
  - Best practice of navigation in polar regions with low or none GPS coverage.
  - Both impact from the environment (For example space weather) and the low coverage on high latitudes.
  - Feedback from warfighter/operators – What do they need? Warning on low coverage period and blackout?
- **Improvement and validation of existing communication technologies in the polar region.**
  - Improvement of Link 16 with satellites coverage?
  - Impact from the environment (For example space weather, land mass).
  - New satellites communications platforms (Only if we expect a 5 year timespan to archive operational level => we can go out and buy it).
- **Development of new OTH communication technologies in the polar region.**
  - Link 22?
- **Best practice and improvement in delivery of information using low bandwidth and/or high latency communications channels.**
  - How little do we actually have to send to a warfighter/operator, so he/she can make a solid decisions?
  - Exchange of current product that are used – icecharts, weather data, etc.
  - We need feedback from the warfighter/operator => Usergroups?

# ICEPPR SAWG Framework with Details Page 2



- **Best practice and improvement of existing OTH radar in polar region?**
  - What do we need from the environment working group?
  - What do we need of infrastructure, beyond what we have in our own country?
- **Remote sensing – new products of existing data**
  - This will have some overlap with environment
  - What can we detect, that we did not think of before?
- **What do you need, to improve your product, who has that information?**
- **Using the (local) population**
  - Sensor deployment.
  - Services that will increase local interaction, and increase the information flow upwards.