

NATIONAL SEARCH AND RESCUE SECRETARIAT

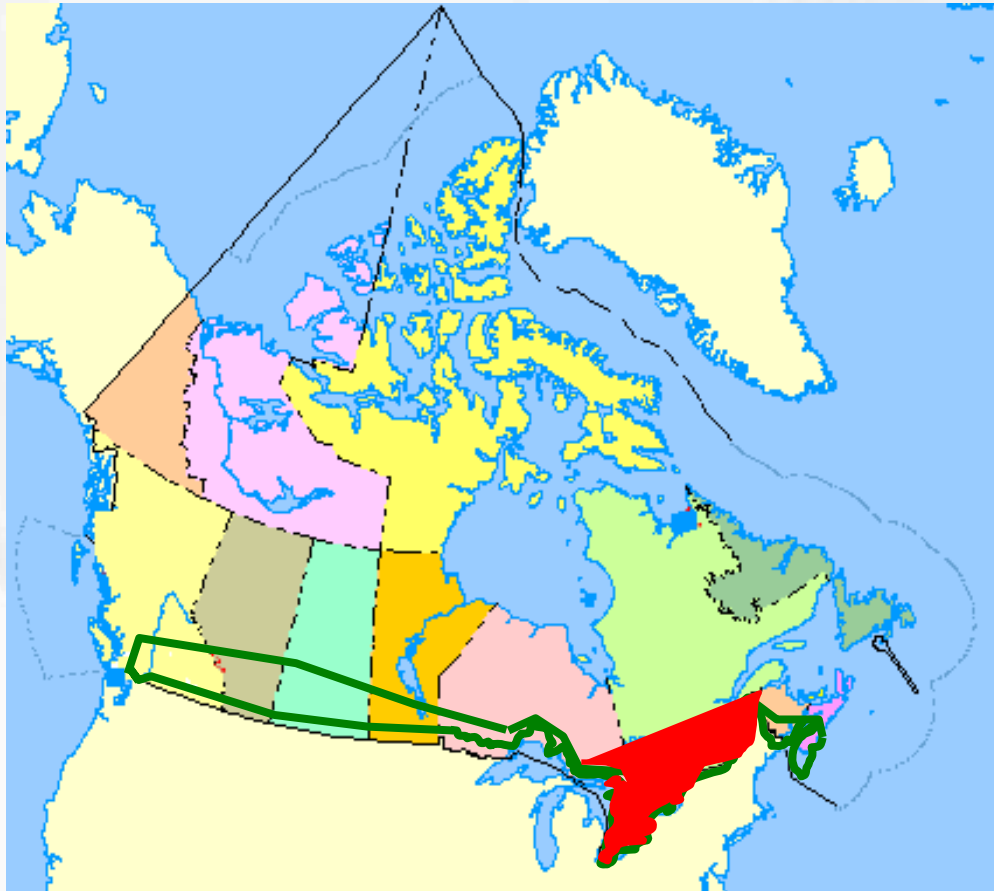
Emerging Technology in SAR in the Canadian Context: Challenges, Risks and Strategies

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Canada at a glance



- World's second largest country (9,970,610 km²)
- World's longest coastline (243,000 km)
- Extensive mountains
- 3 million lakes
- Population: 32.6M

 80% of Canadian pop.

 60% of Canadian pop.

Outline

- Many jurisdictions, one horizontal program
- National Search and Rescue Program
- Examples multi-jurisdictional issues
- Emerging Technologies - Emergency Notification Devices
 - Challenges and risks
 - Strategies to mitigate
 - Way forward

The National SAR Program: Many jurisdictions, one horizontal program



Program delivery: responsibilities



National SAR Secretariat

Head of Delegation to

- COSPAS-SARSAT
 - MEOSAR
 - 121.5 phase out
 - Policy and comms pertaining to 406 MHz beacon registry
- COSPAS SARSAT is mature and robust
- The gold standard in satellite alerting



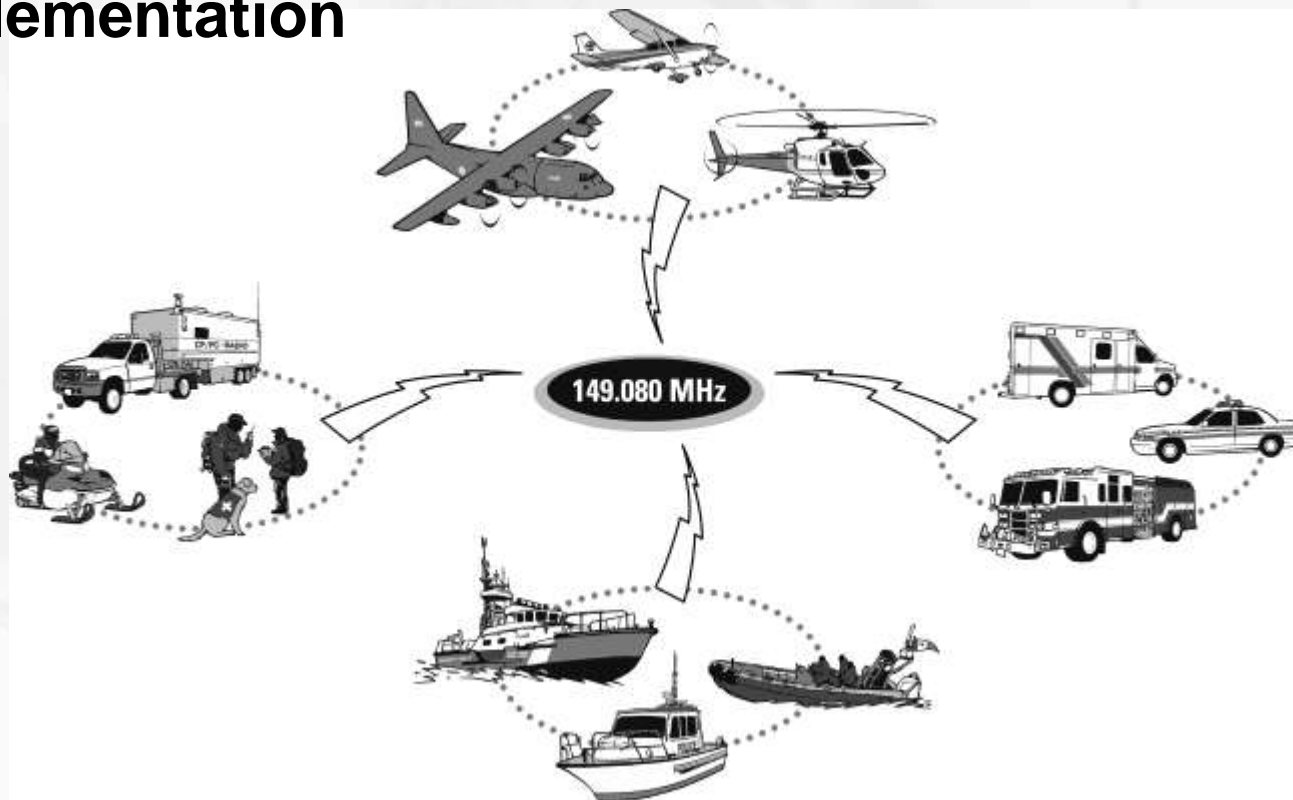
Current National SAR Program challenges

- Northern SAR Strategy



Current National SAR Program challenges_(cont'd)

- Support for SAR Interagency Frequency (SAR-IF) implementation



Current National SAR Program challenges

(cont'd)

- **Beacon Awareness Campaign**



Emerging Technology (Context)

Notification Devices/ services that are not compliant with COSPAS SARSAT

- Satellite Emergency Notification Devices (SENDs)
- Location, Tracking and Emergency Notification Devices
- Commercial Emergency Notification and Locating Devices (CENALDs)
- Cellular phones

Those affected by these SENDs include

- Member and Contracting States (SAR Authorities),
- Service Providers, (business models)
- End Users, (those in distress)

Emerging Technology - SENDs

Advantages to End User

- Multipurpose - offering added value in tracking, personal communication and emergency notification (gadget factor)
- Inexpensive and readily available

Disadvantages to End User (unknown by many users)

- Risk in using a non-standardized device/ system
- Prolonged SAR response, - Service Providers do not know the correct points of contact within SAR Systems
- Terms and Conditions limit the liability of the Service Provider
- Ambiguous terminology such as “Global” and “Insurance”

Emerging Technology - SENDs

Advantages to SAR Authorities

- Additional source of incidental information

Disadvantages to SAR Authorities

- Uncoordinated SAR response, - Service Providers do not know the correct points of contact within our SAR System
- Must work outside of convention to communicate with different service providers
ie: communications protocols and access to data.
- In a word, these devices are “disruptive”.

Emerging Risks

- Disruptive inputs to the SAR system require extra resources and time
 - to analyze and process incoming information
 - to coordinate and communicate between authorities
 - to manage counterproductive efforts
- The lack of proper coordination and communication protocols increase the risk to both the end users and the SAR responders

Emerging Challenges

- The challenge is to mitigate the associated risks through,
 - the development of relevant regulations, standards, policies and protocols,
 - the development and roll-out of public education programs - this goes to managing expectations (and homeostatic levels of risk),
- These mitigating measures must be coordinated and harmonized amongst all of the SAR authorities in Canada,

Emerging Strategy (Baseline)

- NSS considers Cospas Sarsat and 406 MHz beacons as **the** standard in alerting technologies,
 - All regulations, standards, policies and protocols should meet those of Cospas Sarsat, to the extent possible
 - Share our experience with the international community,
 - Leverage existing conventional practices
 - ICAO IMO JWG on SAR
 - Radio Technical Commission for Maritime Services
Technical standards
 - National Search and Rescue Committee (USCG)
Operational criteria and interface control
 - SAR Forum UAE and ICAO

Emerging Strategy (Actions to Date)

- Engaged international parties,
 - ICAO/ IMO JWG 16 final report “Appendix H”,
 - Cospas/Sarsat Council,
 - Input our needs, issues and concerns through
 - **RTCM Special Committee 128,**
 - **NSARC (USCG)**
- Engaged domestic regulators,
 - Transport Canada (Civil Aviation and Marine Safety)
 - Industry Canada (Spectrum and Consumer Protection)
- Engaged Service Providers
- Engaged Canadian Public,
 - Development of comms products *“Making the right call”*

JWG 16 Final Report Appendix H

- On the subject of commercially available locating, tracking, and emergency notification devices, the ICAO IMO JWG 16 on SAR provided an information circular to both ICAO and IMO recommending...
- ...If an emergency notification device or service falls short of COSPAS SARSAT performance standards and operational criteria, transparency would require that the **limitations** are clearly indicated to the user by the manufacturer...

JWVG 16 Final Report Appendix H

- These limitations may include, but not be limited to reduced, diminished or lack of:
 - global coverage,
 - timeliness of alert to the responsible SAR authority,
 - location accuracy and homing signal,
 - automatic activation and survivability in the aeronautical and maritime environments,
 - distressed user identifier capability.

JWVG 16 Final Report Appendix H

- In order to ensure seamless, timely and effective alert notification to the responsible SAR authority, States may require providers of non-406 MHz emergency notification devices and services to
 - establish and maintain a **user database** that can be correlated with the transmitted data,
 - establish and maintain **reliable contacts** with relevant SAR authorities.

JWVG 16 Final Report Appendix H

- agree to **procedures and protocols** with the State concerned including test procedures, provision of data on demand, acceptable format and resolution of false alerts,
- demonstrate that they can **alert** the relevant SAR authorities **within 5 minutes**,
- demonstrate that they have **robust processes** and effective procedures for distribution of alert notification. This would include training processes and back-up systems to ensure resilience.

JWVG 16 Final Report Appendix H

- Also, for the benefit of the users, States may require service providers to provide users with a list of those **States with which systemised arrangements** have been made and in whose territories **claims of coverage** have been made.
- In short, all efforts must be made to facilitate better coordination and communication amongst all of the members of the SAR community including, States, commercial providers and end users.

Way Forward

- Encourage all international partners to embrace the message of the ICAO IMO JWG on the Harmonization of SAR, (JWG 16, Appendix H).
- Encourage device and service providers to heed the concerns of the international search and rescue community.
- Educate the public on their choices.

Questions?

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