

NATIONAL SEARCH AND RESCUE SECRETARIAT



Canadian Search and Rescue in the Arctic

IAP Workshop, Copenhagen, Denmark - 12 March 2012

Outline

- SAR in Canada
- Roles and Mandates
- SAR in the North
- Recent Northern Incidents
- Northern Issues

Canada's search and rescue mandates

- SAR response to **aircraft incidents** anywhere in Canada
FEDERAL
Canadian Forces SAR
CASARA
- SAR response to **marine incidents** in tidal and international waters (oceans, Great Lakes, St. Lawrence)
FEDERAL
Canadian Forces SAR
Canadian Coast Guard
CCGA
- SAR response to **ground and inland water incidents***
PROVINCIAL/TERRITORIAL
Police forces
Volunteer GSAR

FEDERAL:
Parks Canada / RCMP

**except national parks, military bases and training areas which are federal responsibility (Parks Canada /DND)*

Shared Responsibility

Geographic and Activity Based

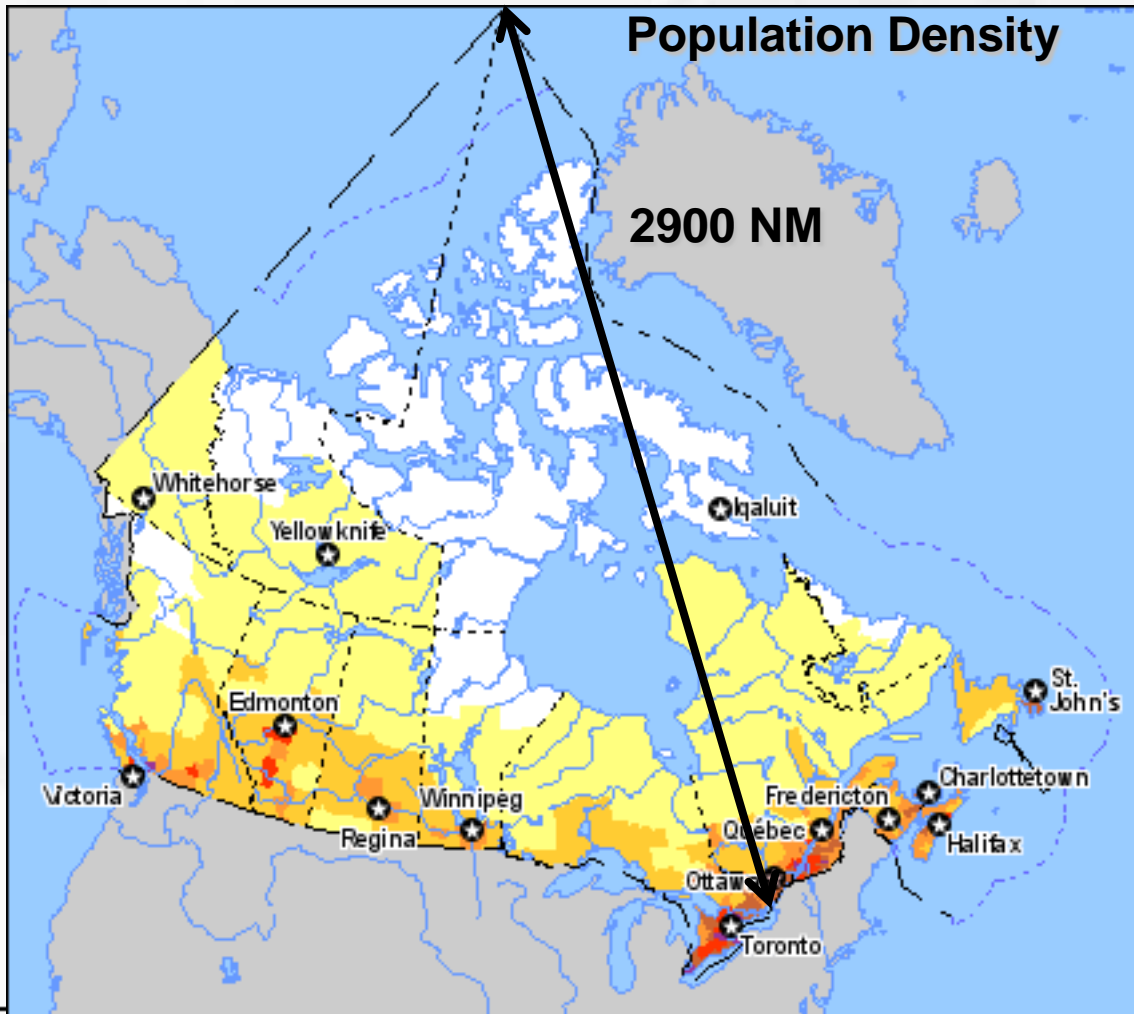
■ Federal Mandates:

- Aeronautical SAR (international convention)
- Maritime SAR (international convention + federally controlled waterways)
- Ground SAR + inland waters **within National Parks/Reserves**

■ Provincial/Territorial Mandate:

- Ground SAR + inland Waters SAR **within respective areas of responsibility**

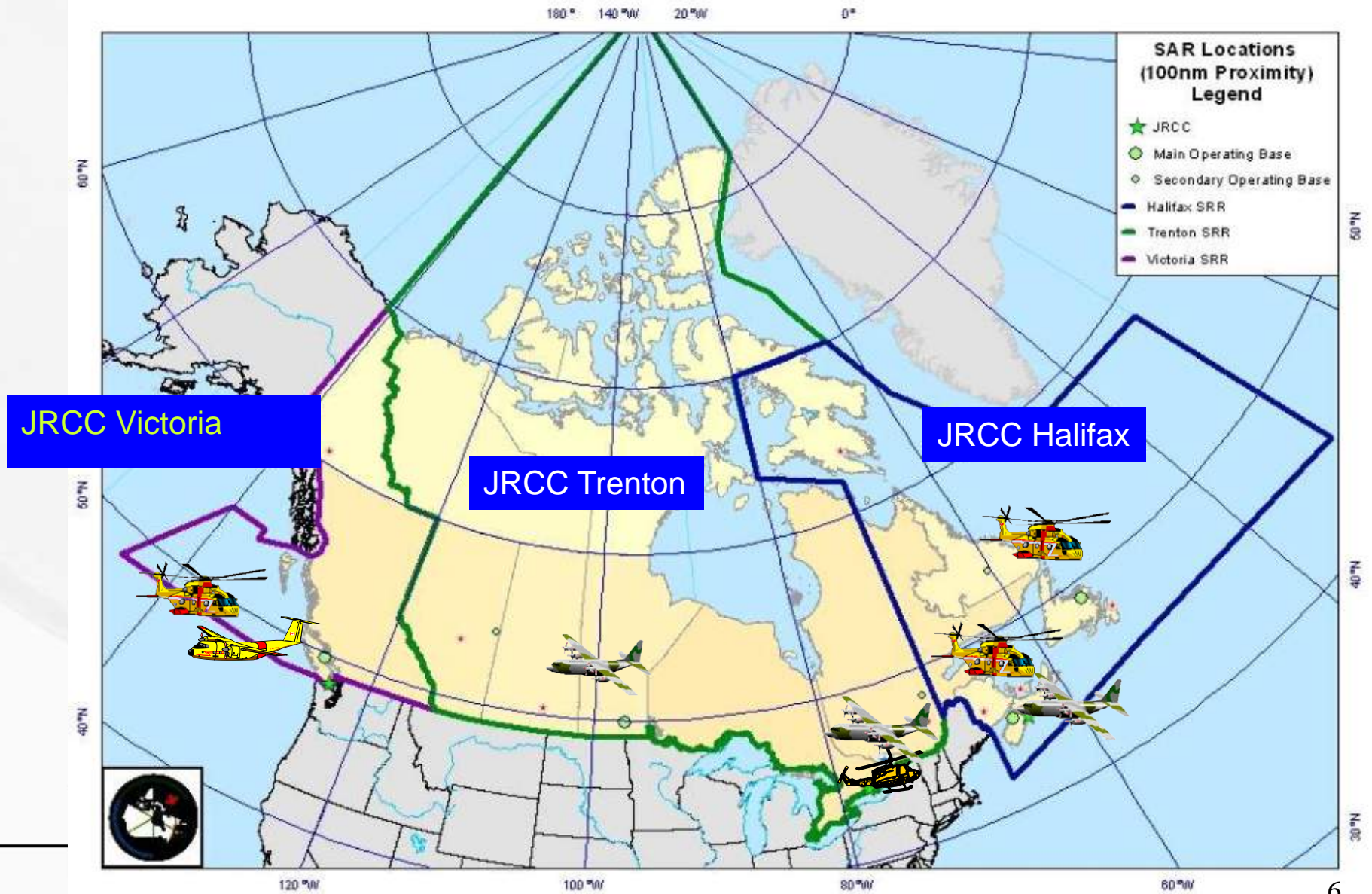
Canadian SAR Area of Responsibility - Demographics



15,000,000 km²
33,000,000 people

Persons / km ²	
	Less than 0.1
	0.1 to 0.9
	1.0 to 3.5
	3.6 to 19.9
	20.0 to 49.9
	50.0 to 150
	Greater than 150

Zones of Federal SAR Responsibility



Primary SAR Aircraft Resources



COMOX, BC

- CC115 Buffalo
- CH149 Cormorant

WINNIPEG, MB

- CC130 Hercules

TRENTON, ON

- CC130 Hercules
- CH146 Griffon

**GREENWOOD,
NS**

- CC130 Hercules
- CH149 Cormorant

GANDER, NL

- CH149 Cormorant

**At each location, 1 of each aircraft type
on continuous response 24/7/365**

**Can deliver assistance to the most
remote location within the AOR.
Distance = Time**

Primary SAR AIR Resources

Standby posture (time to takeoff)

- 30 min. 0800 –1600L Mon. to Fri.
- 2 Hrs all other times



Primary SAR Marine Resources

30 min. standby 24/7



Secondary Resources

- Federal government vessels, aircraft or other equipment not designated SAR
- No standby posture
 - May or may not be SAR trained and equipped



National SAR Program Volunteers

- Over 25,000 volunteers across Canada support public agencies in the delivery of SAR services:



Air: Civil Air Search and Rescue Association



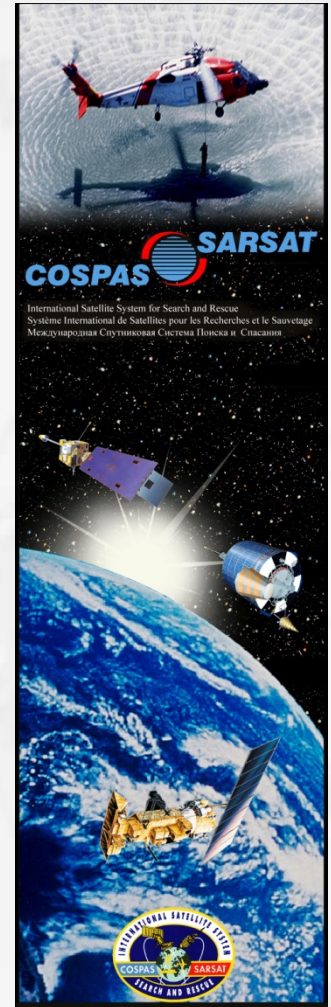
Marine: Canadian Coast Guard Auxiliary



Ground & Inland Waters: Search and Rescue Volunteer Association of Canada

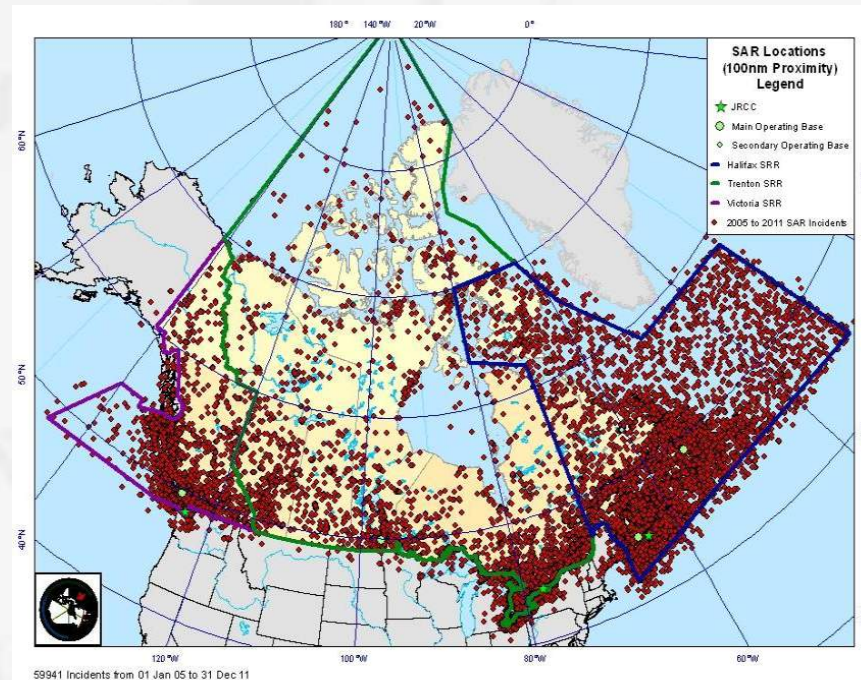
COSPAS-SARSAT

- COSPAS-SARSAT plays an important role in providing alert and location data to Canada's aeronautical and federal maritime SAR response.
- This is especially true in maintaining Canada's Arctic SAR coverage and capability
- Canada continues to actively participate as a space segment provider in the COSPAS-SARSAT Programme.
- As COSPAS-SARSAT moves towards the MEOSAR system, Canada's efforts are focused on
 - Building the necessary infrastructure for the MEOSAR Demonstration & Evaluation (D&E) and
 - Providing SAR Repeaters to the GPS constellation.



SAR Coverage

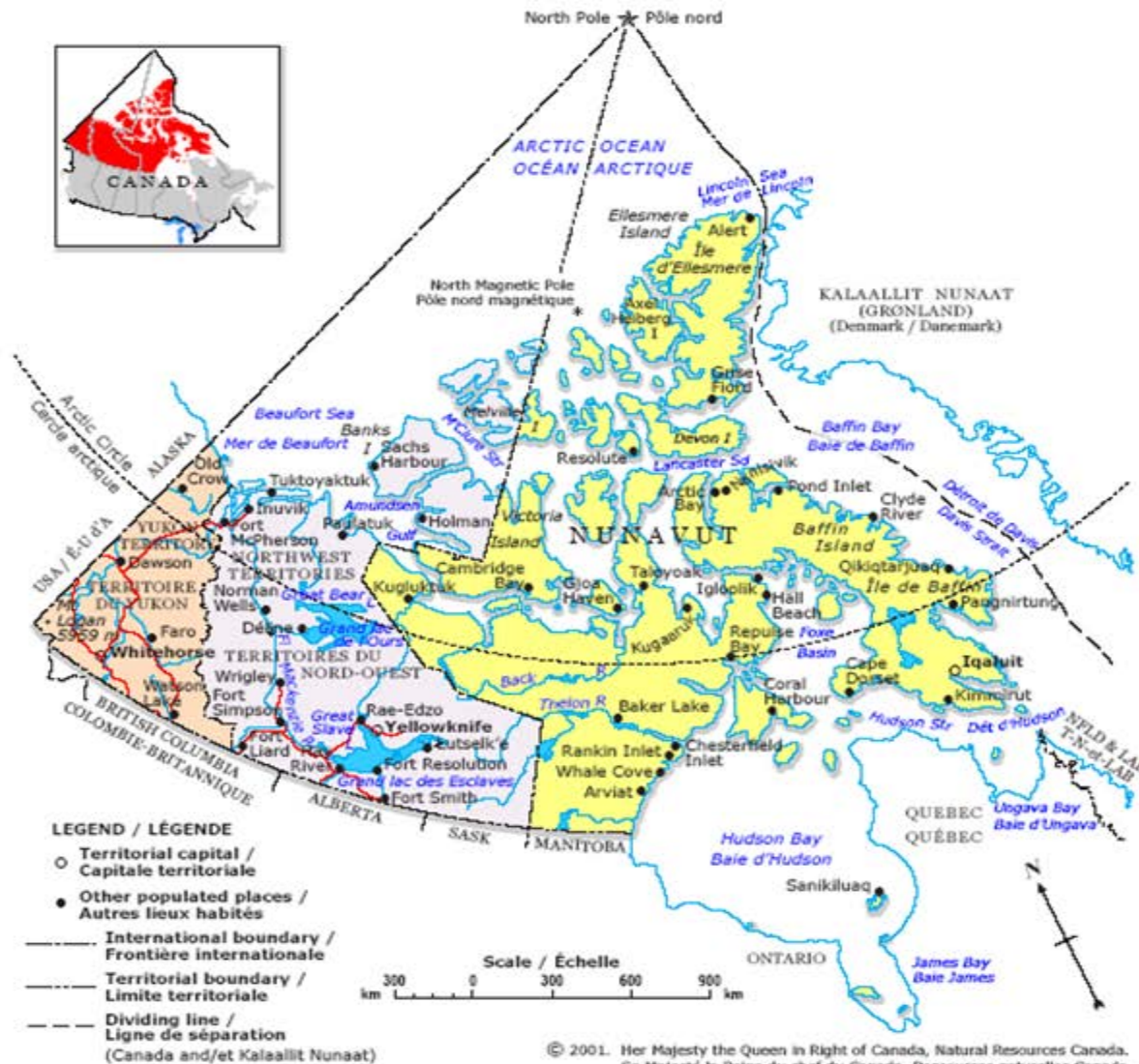
- Limited number of resources.
- Respond to the greatest number of cases in the least amount of time.
 - Commence search/assistance operations:
 - 90% of incidents (historical distribution) within 4 hours of notification
 - 100% of incidents within 11 hours of notification
 - 2700 NM to the pole



The National SAR Program: Many jurisdictions, one horizontal program



Canada's North

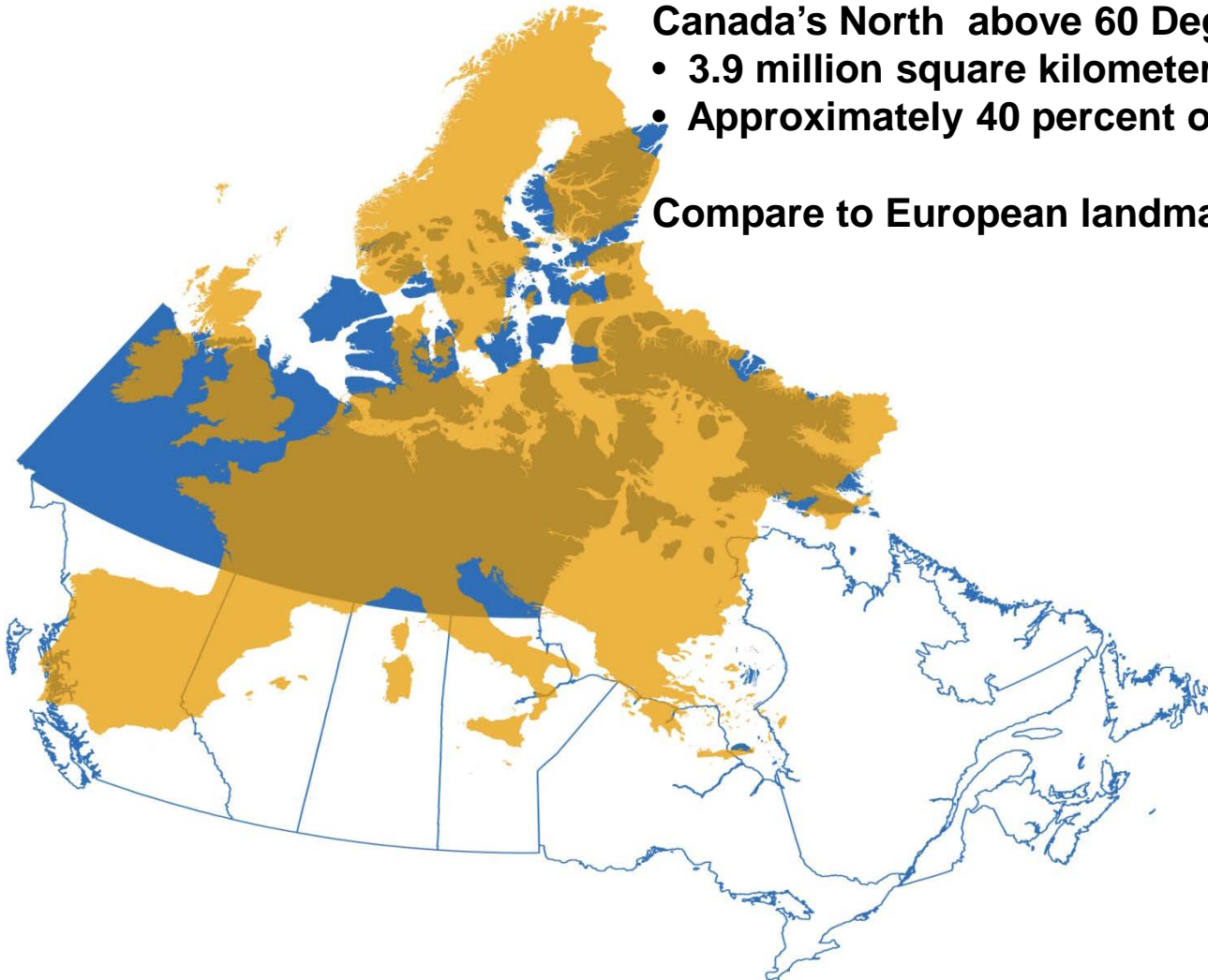


Another Perspective

Canada's North above 60 Degrees N

- 3.9 million square kilometers
- Approximately 40 percent of Canada

Compare to European landmass



SAR in the North today

- Multiple partners are involved in Northern SAR response
- Each territory (and the RCMP, as the police force of jurisdiction) has the mandate for ground SAR in the Yukon, NWT and Nunavut respectively. This includes searches for lost/missing persons on land including inland bodies of water.
- National Parks Canada is responsible for lost/missing person(s) within National Park boundaries in any of the territories.
- Canadian Forces and Canadian Coast Guard are responsible for aircraft in distress and vessels in distress within coastal marine waters.

Federal SAR response

- Primary air and marine SAR missions are coordinated from three Joint Coordination Rescue Centres in Victoria, Trenton and Halifax.
- Aircraft are staged from military bases in Comox, Winnipeg, Trenton and Greenwood
- Marine SAR missions during the Arctic shipping season are handled by nearest CCG ship in the area and/or other vessels of opportunity
- Depending on circumstances, secondary air and/or marine SAR resources may be engaged
- Where available, northern based CASARA, CCGA and Canadian Ranger units may also be tasked

Northern SAR Overview

- Two significantly different SAR challenges in the North
 - Large ship or aircraft in distress
 - Northern resident engaged in traditional hunting/fishing
- Each represents different risks and responses
- Balancing the SAR response capacity of federal/territorial partners
- Response will depend on mandate
 - Federal – Air, Marine incidents
 - Territorial - Ground incidents (includes landfast ice)

Cultural Issues

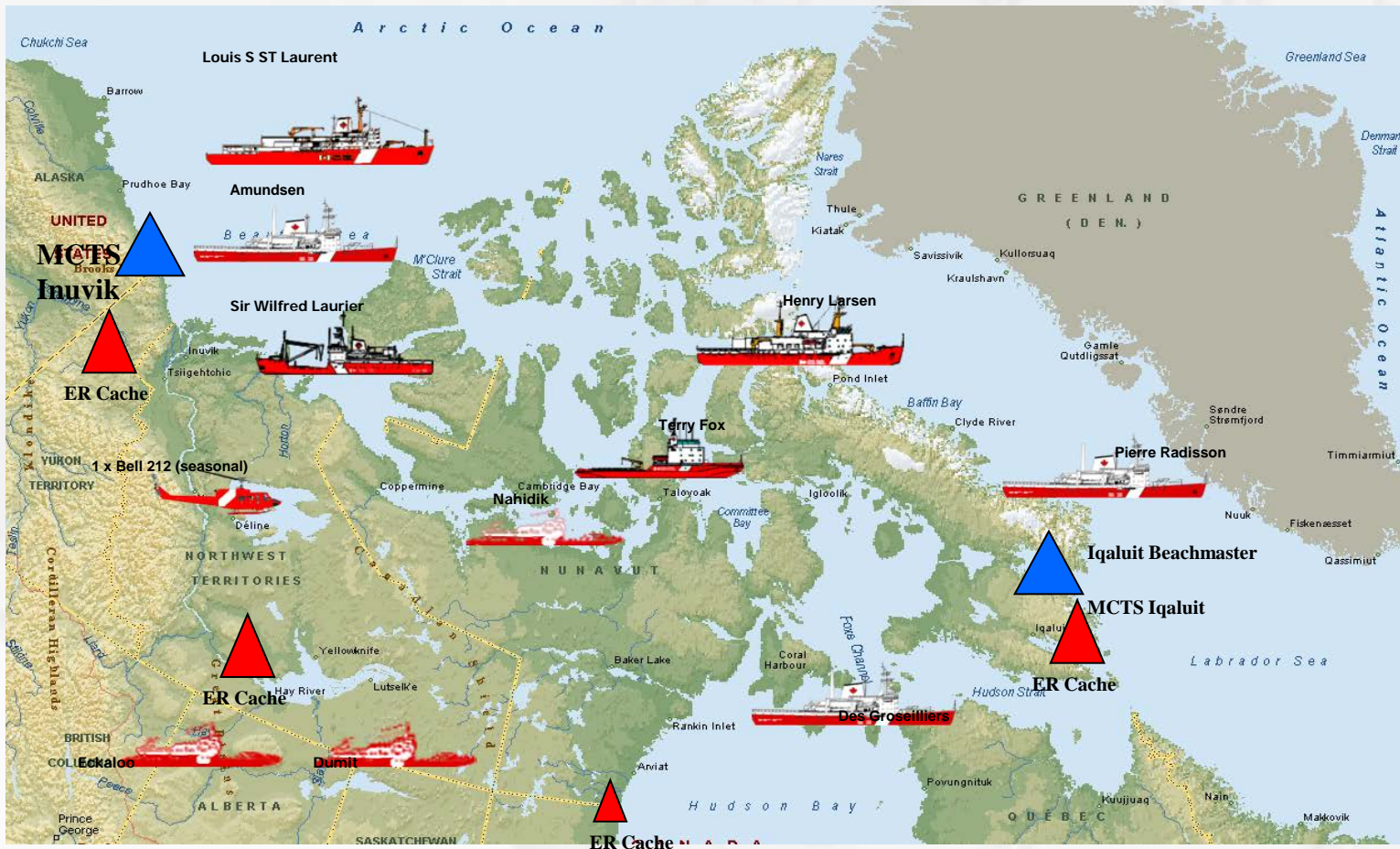
- Many territorial searches involve subsistence hunters. Lack of financial resources and cultural factors may contribute to individuals not using Personal Locator Beacons, GPS units or communication devices.
- The perception of risk must be viewed with the cultural context of the Arctic –Inuit hunters are comfortable living off the land.

Primary SAR AIR Resources*



- Northern SAR missions share common resources that serve other parts of the country

CCG Arctic Resources (July- Oct)



COSPAS-SARSAT In the North

- Currently, COSPAS-SARSAT is considered to be the only space-based resource that meets all federal operational/ technical criteria and data distribution protocols.
- However, in Canada's Arctic, commercially available satellite notification devices and services have been employed by ground SAR authorities, (outside of the federal response).



2011 Federal SAR Incidents*

	TOTALS	AIR	MARINE	HUMANITARIAN
▪ HALIFAX -	2651	195	1590	138
▪ TRENTON -	3664	565	2418	301
▪ VICTORIA -	2868	210	2062	412
▪ Total	9183			

Total North of 55 N 338 (~4%)

CAT 1 & 2 North of 55 (59) (~0.6%)

- Note : Federal data only
- Excludes Territorial Ground SAR data

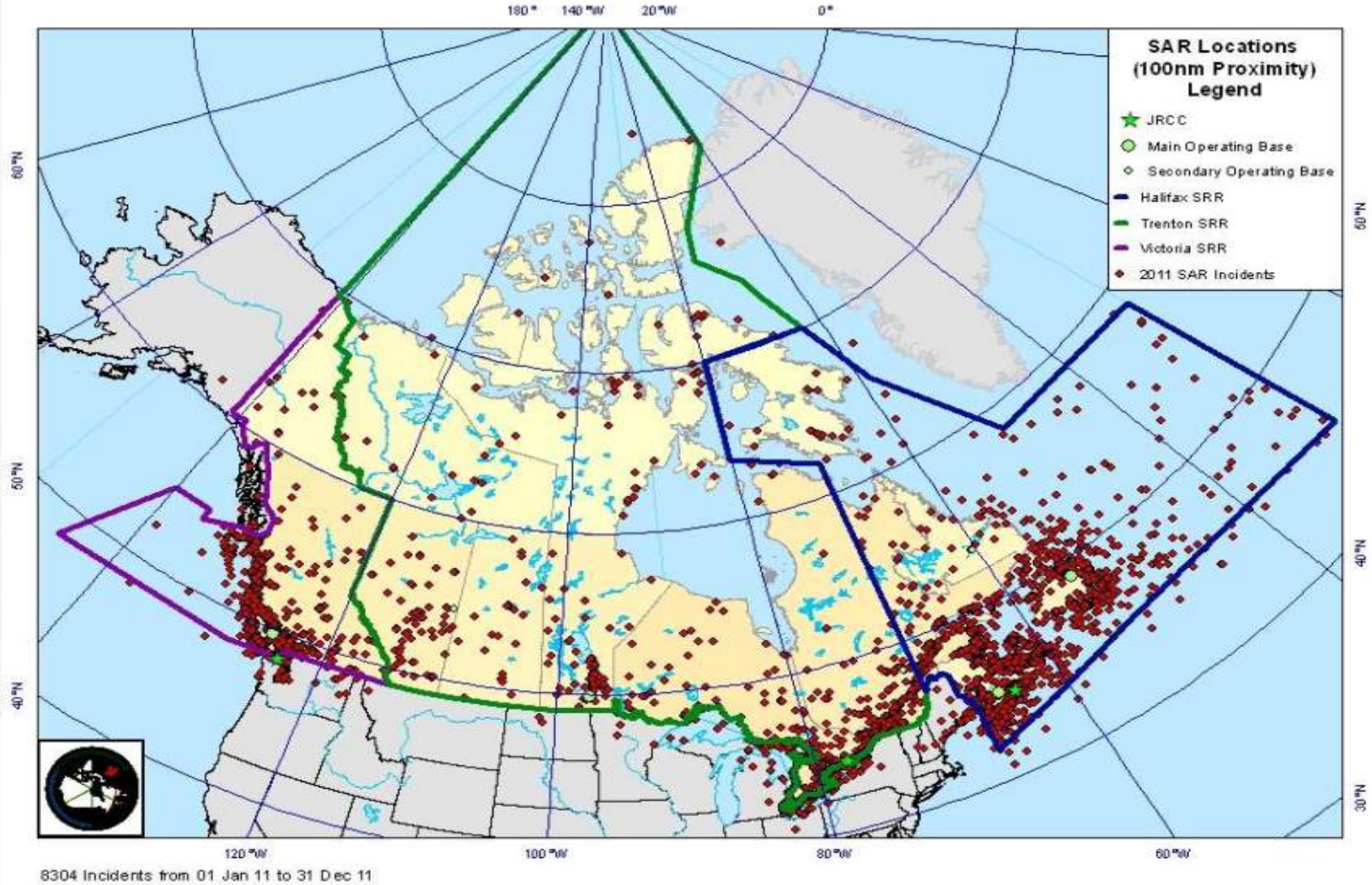
Actual Distress Cases

CAT 1 and 2 NORTH OF 55 (actual distress cases)

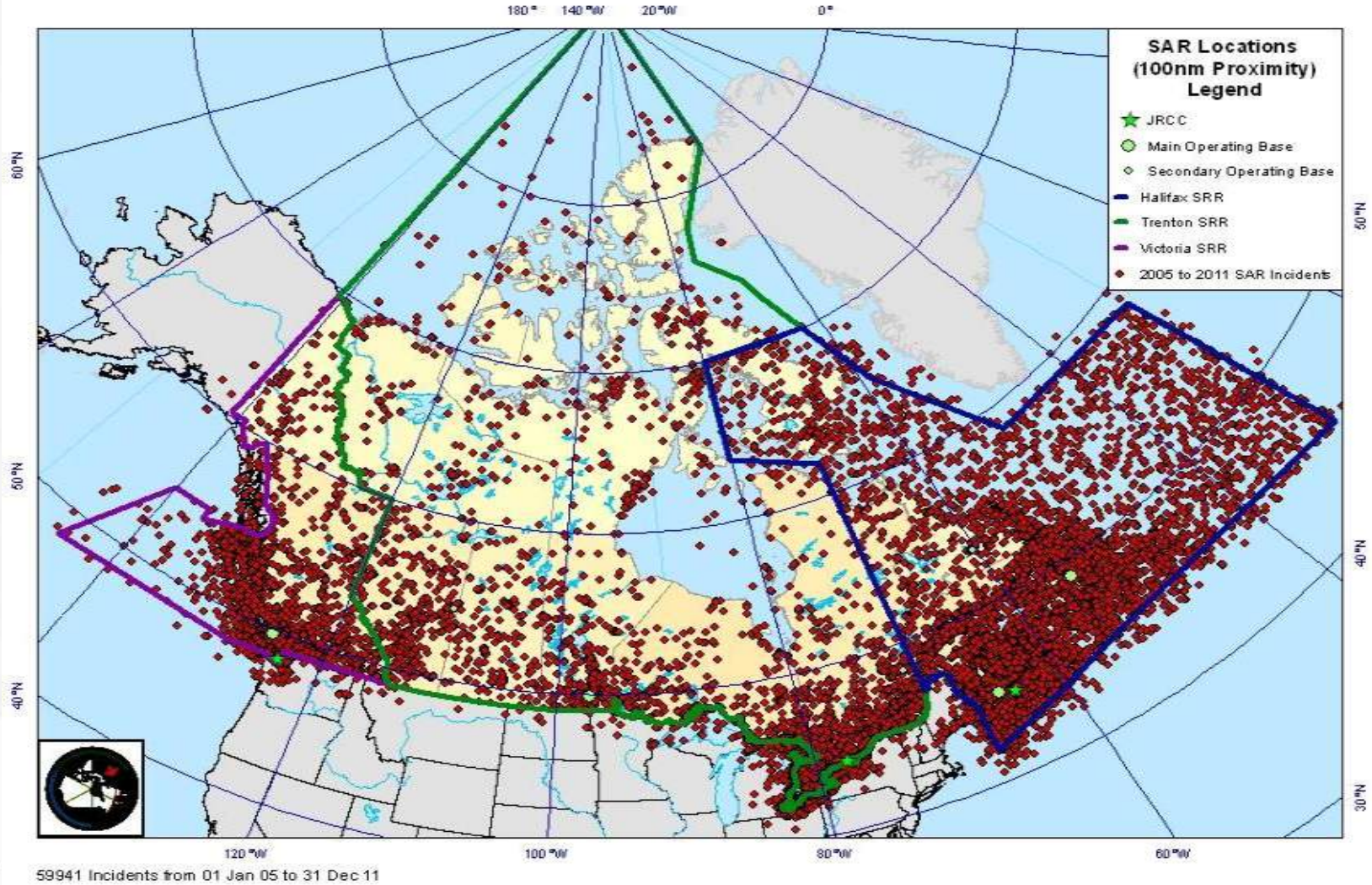
SRR	2007	2008	2009	2010	2011
HALIFAX	19	17	06	8	16
TRENTON	26	31	22	26	34
VICTORIA	09	19	02	08	9
Totals	54	67	30	42	59



SAR Incident Analysis - 2011

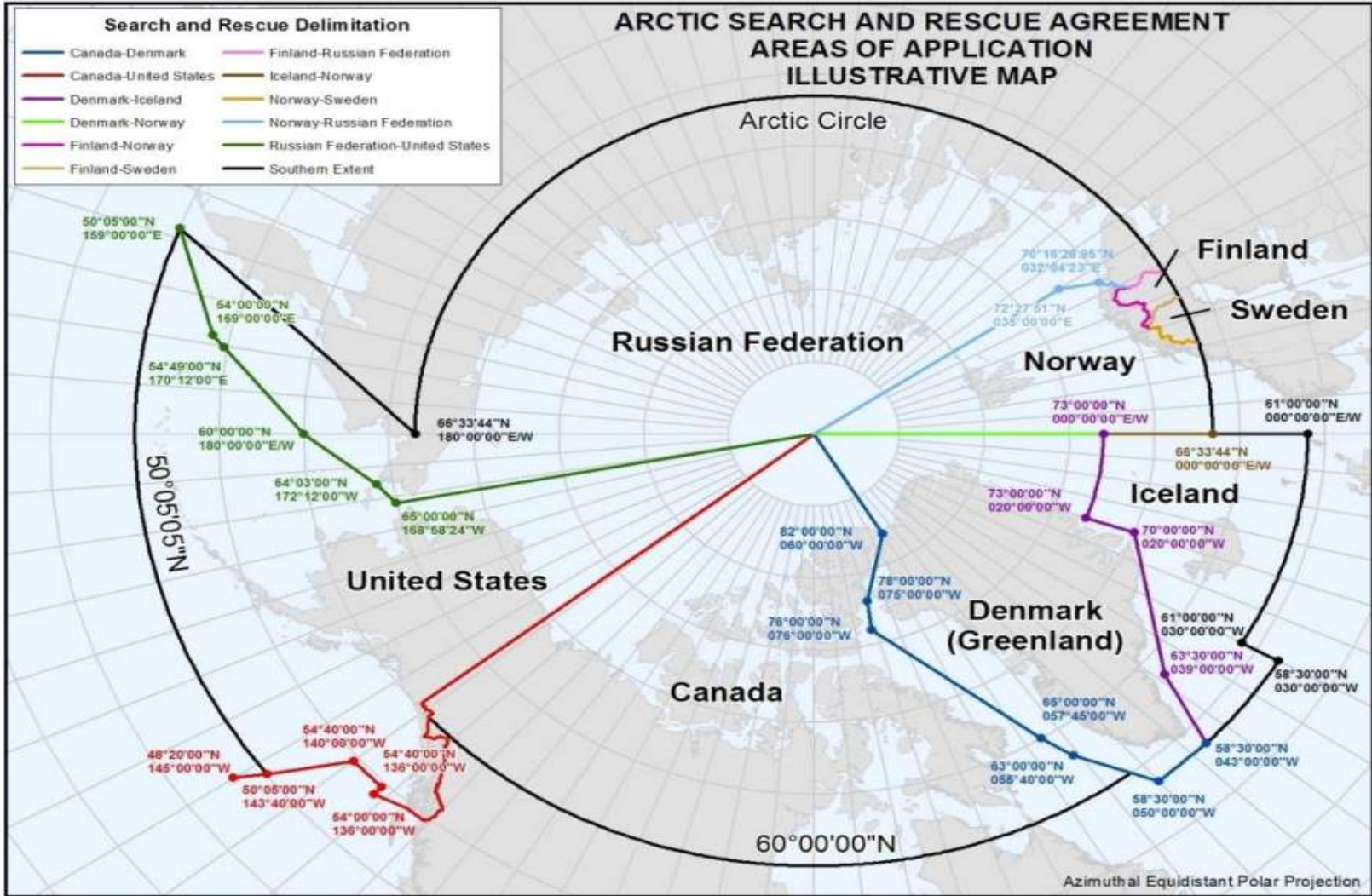


SAR Incident Analysis 2006-2011



Arctic Council Search and Rescue Agreement

- Agreement applicable to aeronautical and maritime SAR
- Formalized the process of SAR coordination among neighbouring nations in the manner in which Canada currently conducts such business (so...Status Quo)
 - Canadian SAR practices will not change as Canada is already in compliance with articles of the Agreement
- No new operational or resource requirements
- The Agreement is about enhancing cooperation and communication on SAR operations in the Arctic, harmonising procedures, encouraging exercises and training, and facilitating the exchange of information, expertise, and resources in response to real requirements
- Canada hosted the first Table Top Exercise, Oct 2011



Significant Arctic SAR Cases 2010/11

- Cruise ship “Clipper Adventurer” aground in Western Arctic.
- M/T “Nanny” aground in area of Gjoa Haven
- F/V “Nain Banker” May 2011
- First Air 737 Resolute Bay August 2011



M/T Nanny

- Ran aground in the eastern approach to the Simpson Strait near Gjoa Haven, Nunavut Sept. 1, 2010
- CCGS Henry Larsen tasked at 8:00 AM to proceed and investigate.
- CG 360 (Larsen's helo) on scene at 12:30 PM Sept. 1st.
- No danger to 17 crew members so Search and rescue monitored situation and case was handed over to Emergency Response (Pollution) at 5:22 PM Sept. 1st.
- M/T "Nanny" was successfully refloated early on the morning of Sept. 15.

Cruise Ship “Clipper Adventurer – Aug 2010

- 197 persons on board
- Aground at 9:15 PM on 27th of Aug
- CCGS Amundsen tasked at 9:21 PM Aug 27th.
- Amundsen on scene at 2:29 PM Aug 29th. 41 hours to transit to the scene.
- Evacuation complete and all passengers ashore (128) at Kuglugtuk at 7:35 AM on the 30th of Aug.

An example of international cooperation



First Air B737 - 20 Aug 2011

- At 1142 Central Daylight Time, during the approach to Runway 35T, First Air Flight 6560 impacted a hill at 396 feet above sea level (asl) and about 1 nautical mile east of the midpoint of the Resolute Bay Airport runway which, itself, is at 215 feet asl.
- The aircraft was destroyed by impact forces and an ensuing post-crash fire. Eight passengers and the four crew members suffered fatal injuries. Three passengers suffered serious injuries and were rescued by Canadian military personnel who were in Resolute Bay as part of a military exercise*

Northern challenges in Arctic countries *

- **Continued Sea Ice Retreat ~ Increased Access**
- **Lack of Integrated Governance-Regulatory Framework**
- **Winter Arctic Sea Ice Cover Remains**
- **New Ship Technologies ~ Allow Greater Access & Independent Operations (No Convoys)**
- **Balancing Freedom of Navigation with Coastal State Marine Safety & Environmental Protection Interests**
- **Minimal Arctic Infrastructure to Support Expanded Marine Activity & Provide Adequate Safety Net**
- **Many Sectors: Oil & Gas, Hard Minerals, Tourism, Fishing & Water**
- **Lack of Experienced Mariners**

Factors to be considered in Arctic SAR

- The North is not homogeneous
 - Geography, Demographics
 - Culture, Language
 - Economic activity, lifestyle
- Ground, marine, air SAR distinctions are artificial
 - A person in distress is a person in distress
- Capacity constraints
- Future trends that will shape SAR requirements
 - Weather, environment
 - Economic development – oil, minerals
 - Marine expansion – shipping, fishing, eco-tourism
 - Impact of technology (e.g. satellites, UAV's)

Some Northern SAR implications

- The North is different – threats, response time, culture
- “One-size does not fit all” – response has to be tailored
- Build for the future, manage the present
- Building future air and marine capacity is critical
- Capital equipment decisions take time and money
- Need for integrated capability – institutionalized interoperability
- Regional approach to SAR instead of current divisions of air/ground/marine

Contact Us



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