



U.S. Coast Guard SAR



UN/USA SARSAT Training
Miami Beach, FL Jan 2009



U.S. Coast Guard SAR



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Overview



- U.S. SAR System
- U.S. Coast Guard SAR
- U.S.C.G. RCC Functions & Operations
- Coordination with other countries
 - International Cospas-Sarsat Program
 - Amver
- SAR Incidents and Statistics
- SARSAT Projects

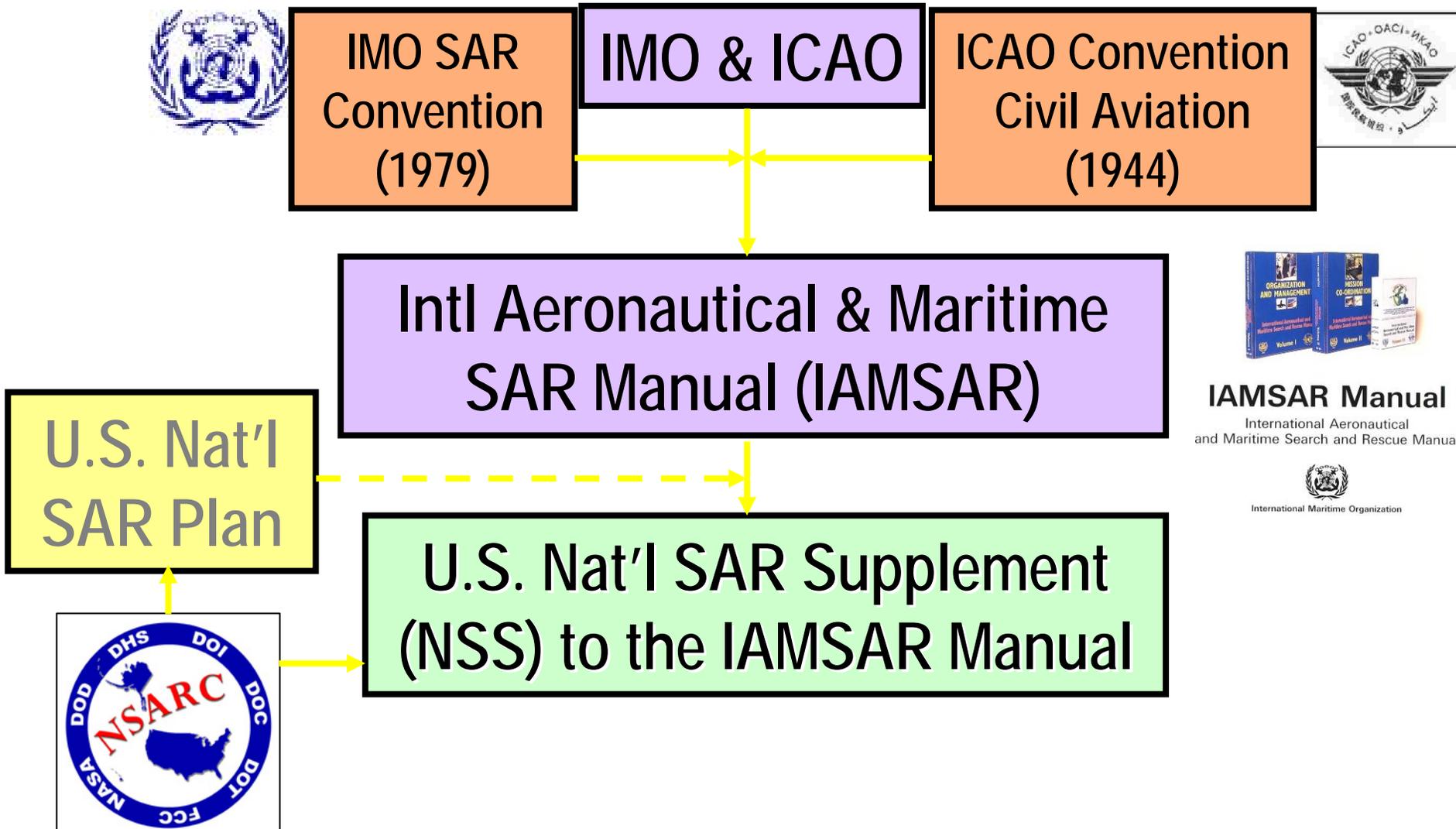


U.S. Navy Photo by Photographer's Mate Airman Dustin Howell

➤ United States SAR system



United States SAR System:



United States: National SAR Committee (NSARC)

Member Agencies

- Department of Defense
- Department of Interior
- Department of Commerce
- Department of Transportation
- Federal Communications Commission
- National Aeronautics and Space Administration
- Department of Homeland Security (2007)



Coast Guard Chairs the Committee!





United States: National SAR Committee (NSARC)

Two Primary Documents

1. National Search and Rescue Plan of the United States

- 19-Page Plan: for “. . .coordinating search and rescue (SAR) services to meet domestic needs and international commitments.”

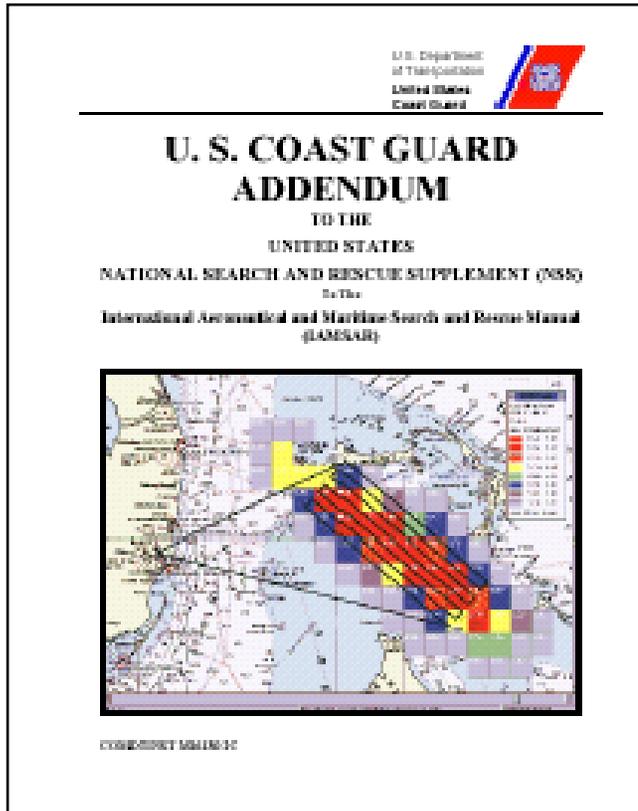
2. National SAR Supplement (NSS) to the IAMSAR Manual

- Implements the Nat'l SAR Plan
- Provides guidance to federal agencies in support of the IAMSAR Manual and the IMO/ICAO SAR conventions.

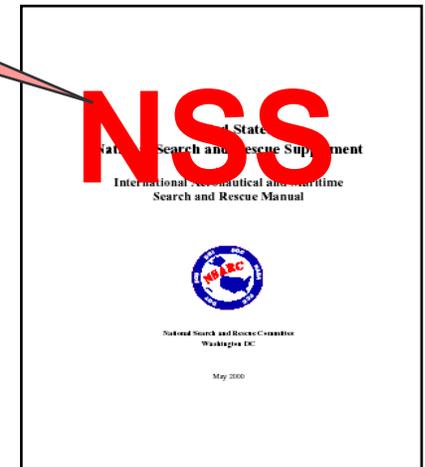
National SAR Plan and USCG Addendum



National SAR Plan Appendix A



USCG Addendum to the NSS



- Provides detailed guidance and policy on how the Coast Guard will conduct SAR



➤ U.S. Coast Guard SAR





U.S.C.G. SAR Program Purpose

- **Save Lives and Property at Sea**
- Authority to conduct SAR missions is contained in Title 14, Sections 2, 88, and 141 of the U.S. Code.
- The code states that the Coast Guard **shall** develop, establish, maintain and operate SAR facilities.
- and **may** render aid to distressed persons and protect and save property on and under the high seas.
- Coast Guard performance of SAR is essentially permissive in nature.
- Search and Rescue activity may be considered a mandated function, but no specific level of performance has been cited under the legislative authority.



U.S.C.G. SAR Program Objectives

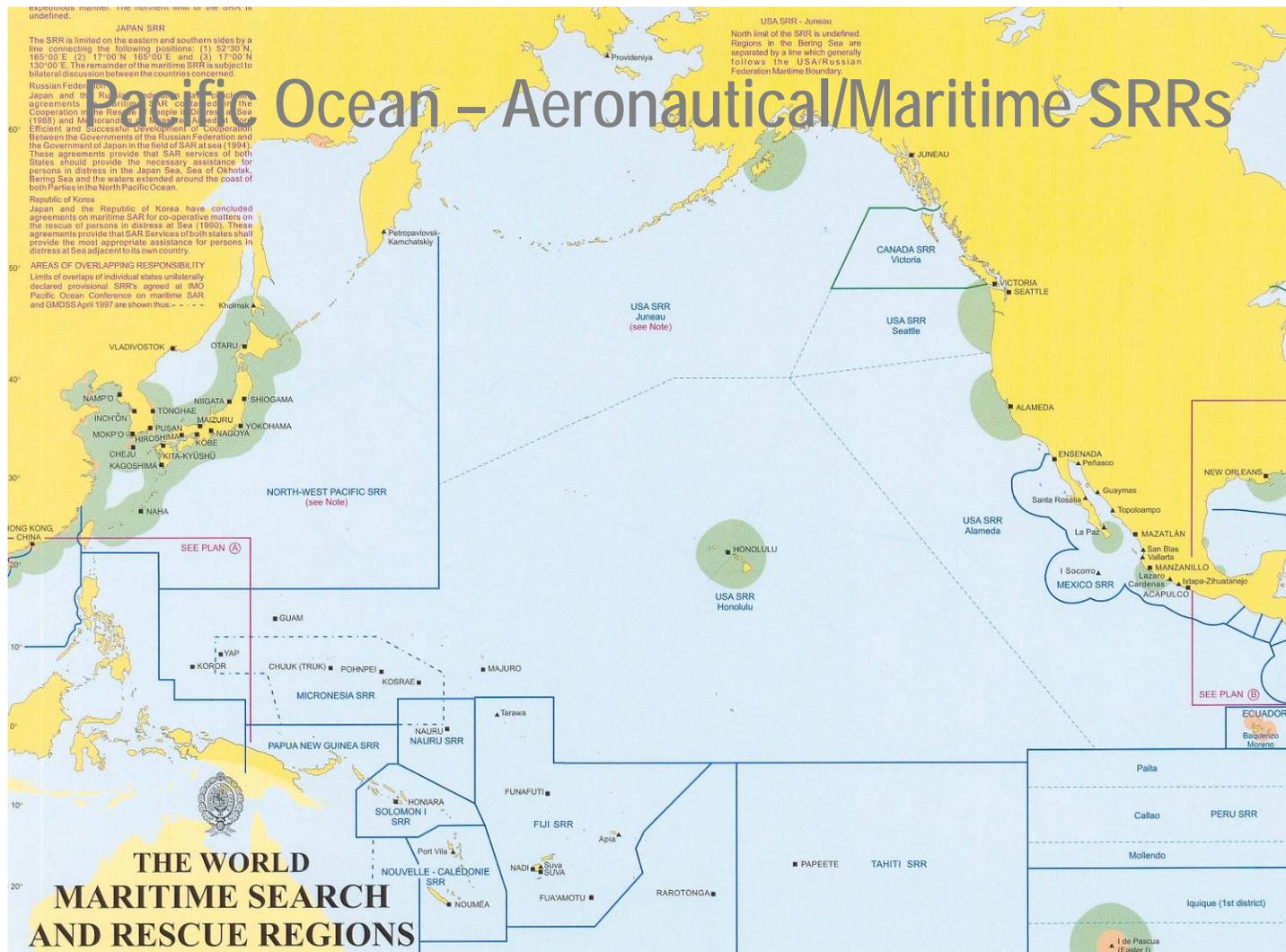
- Four general objectives provide direction for the SAR Program:
 - Minimize loss of life, injury, and property loss and damage in the maritime environment;
 - Minimize crew risk during SAR missions;
 - Optimize use of resources in conducting SAR;
 - Maintain a world leadership position in maritime SAR.



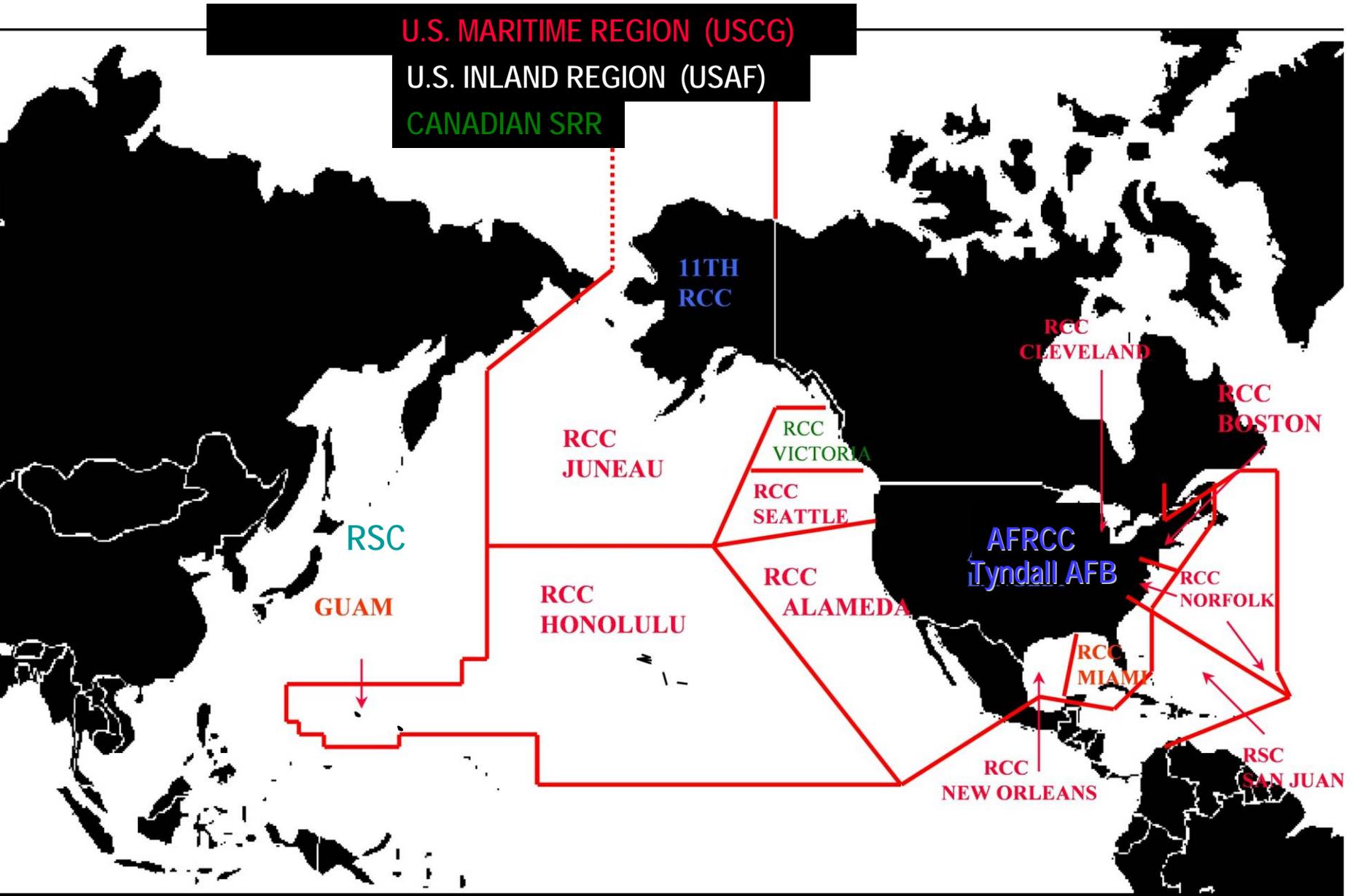
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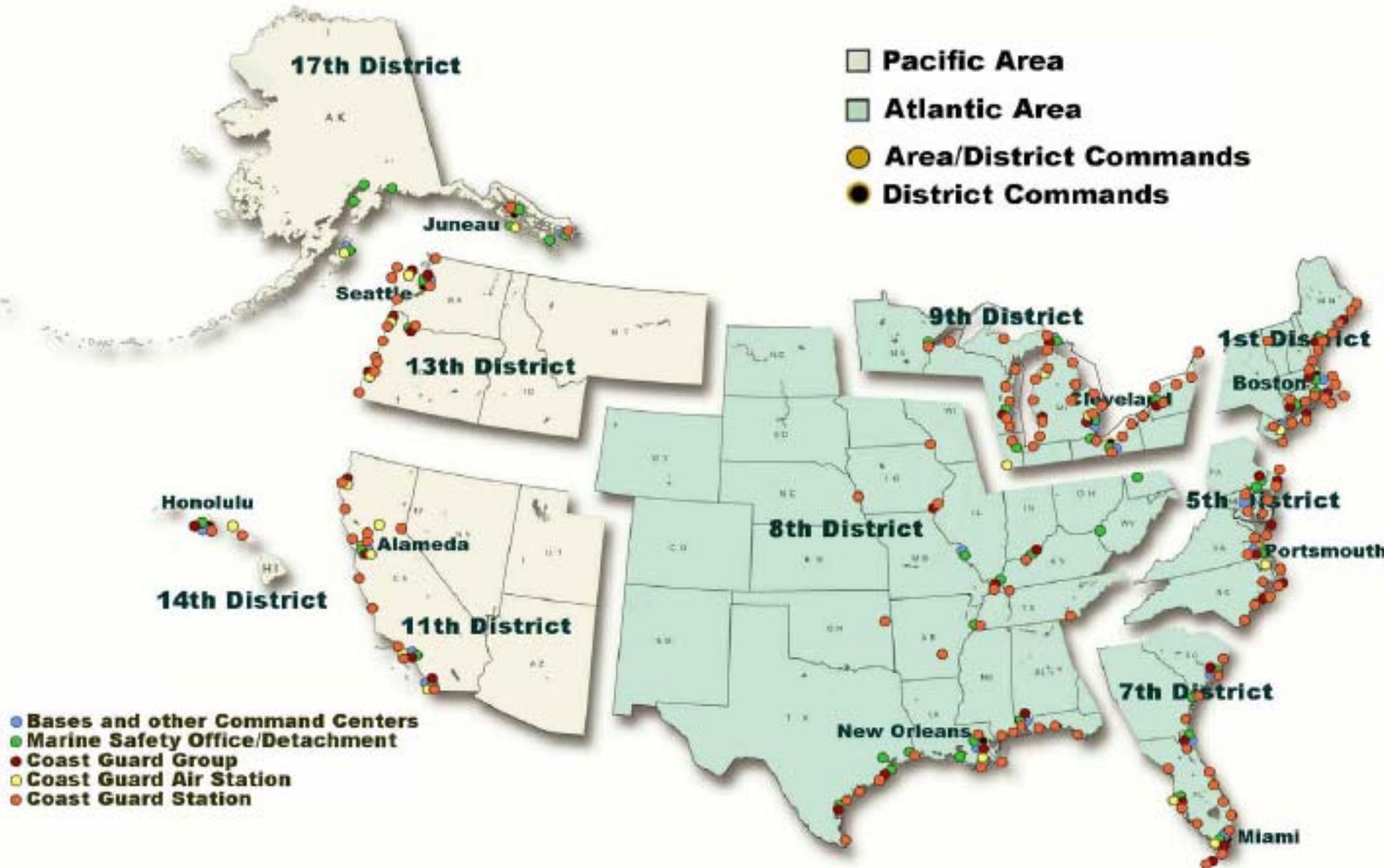
United States Coast Guard: Recognized SAR Coordinator for all other United States aeronautical and maritime SRRs. This includes the State of Hawaii as well as waters over which the United States has jurisdiction, such as navigable waters of the United States.



U.S. SRR: divided into Coast Guard Districts



Coast Guard Districts...



➤ U.S.C.G. RCC Functions & Operations

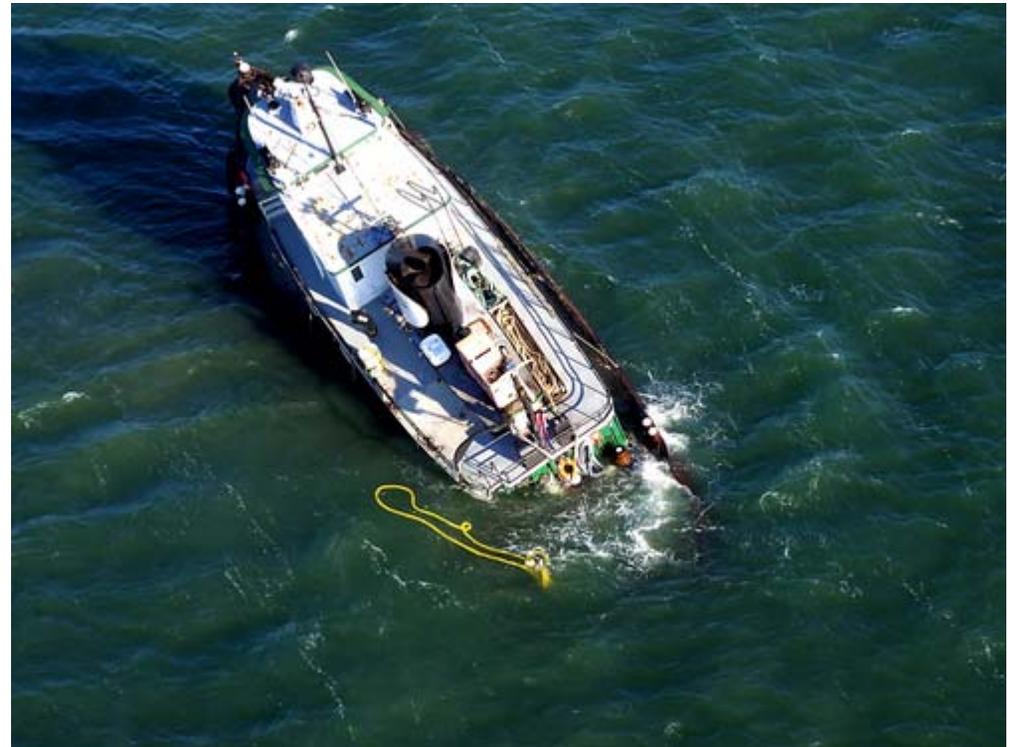


U.S.C.G. RCCs Response

- International SAR: District RCC
- Local SAR: Sector



D1 RCC, Boston, MA



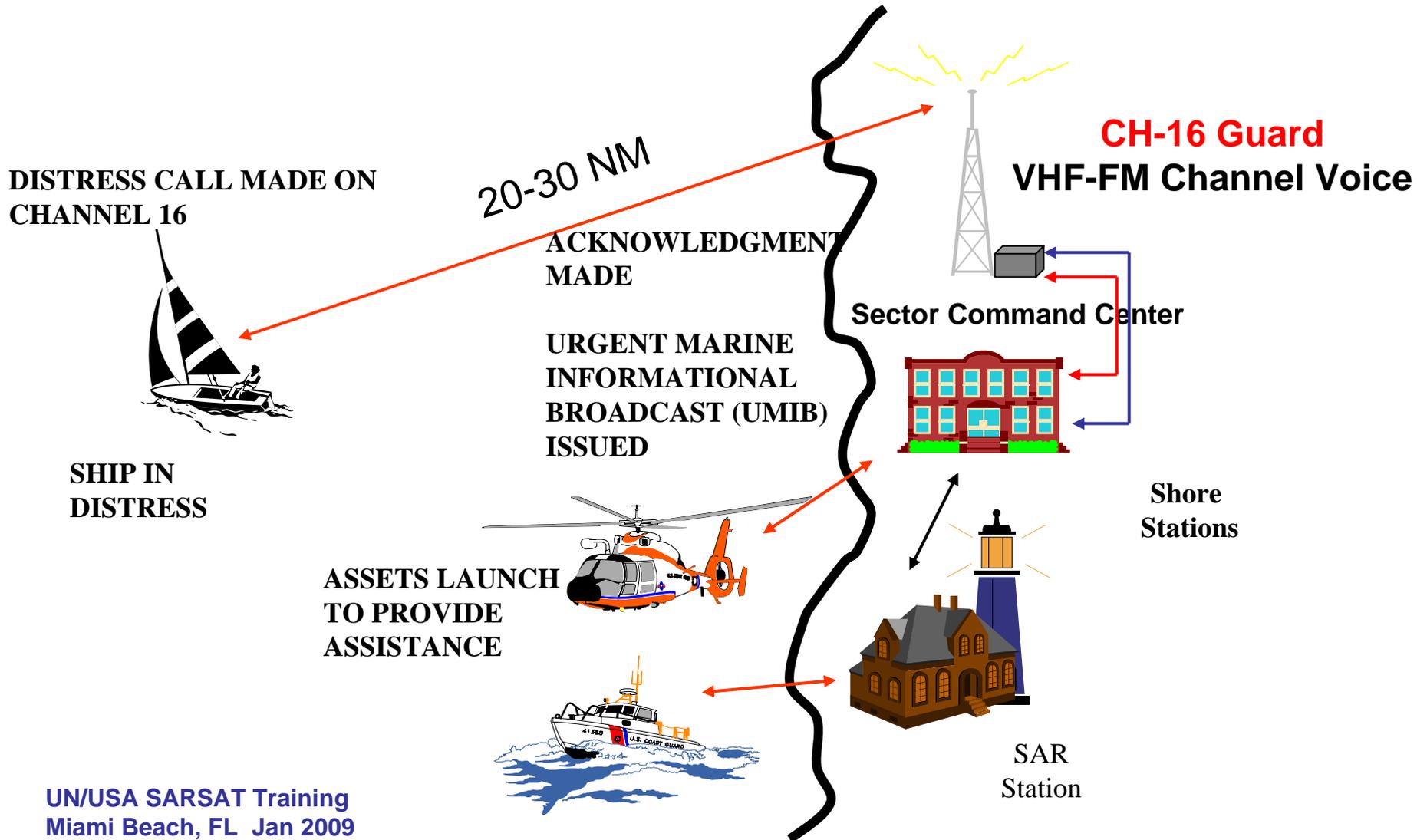
U.S.C.G. RCCs Response



D14 JRCC, Honolulu, Hawaii



Typical SAR Scenario



SAR Response Assets

➤ Coast Guard assets

- Airborne
- Afloat

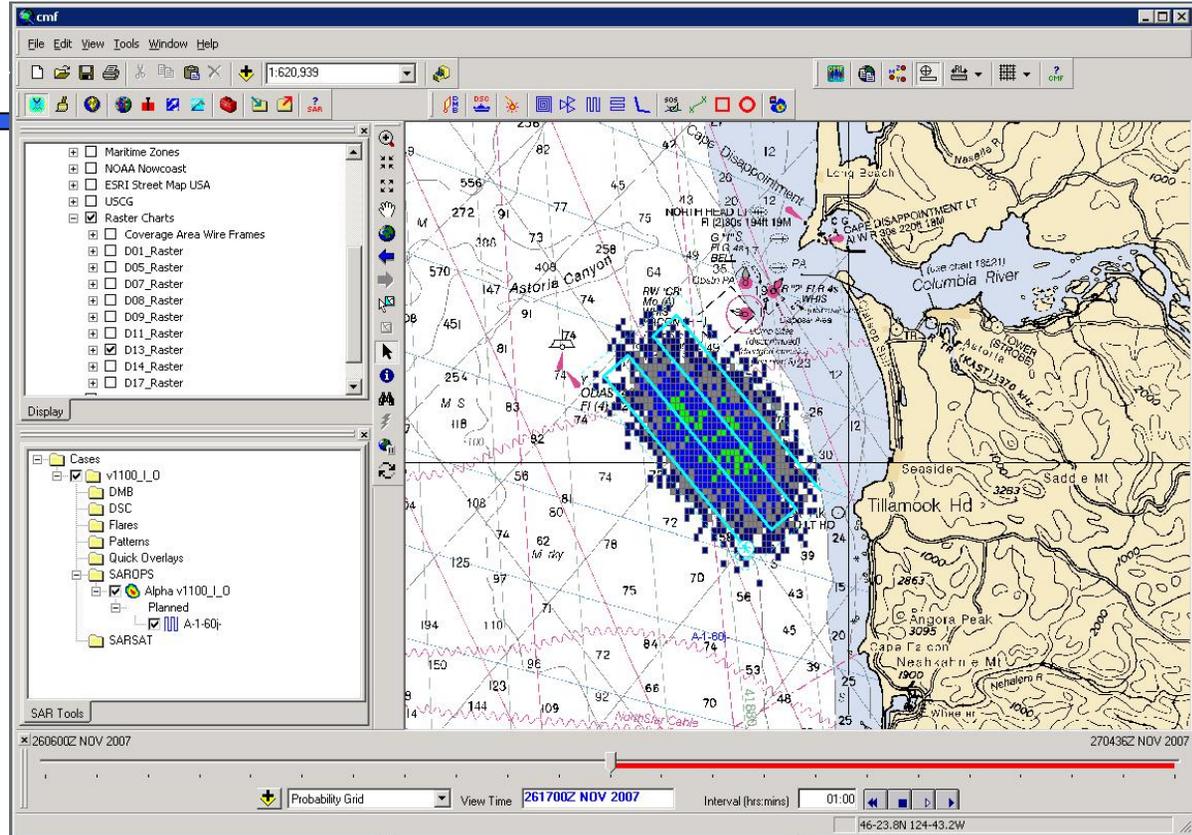


SAR Response Assets cont.

- Other Federal, State, Local agencies
- Commercial services
- Volunteer agencies
- Fellow mariners (“Good Samaritans”)



SAROPS



SAROPS - SAROPS is an operational Mission Essential Application (MEA) that operates within the standard workstation environment to support the SAR community and overall Maritime Domain Awareness via a rich geographical display. Key features include search event modeling, display animation and optimized search plan determination as well as interface support for SARSAT. The SAROPS system consists of the C/JMTK based Mapping Framework custom extensions and spatial databases.

➤ SAR Coordination With Other Countries



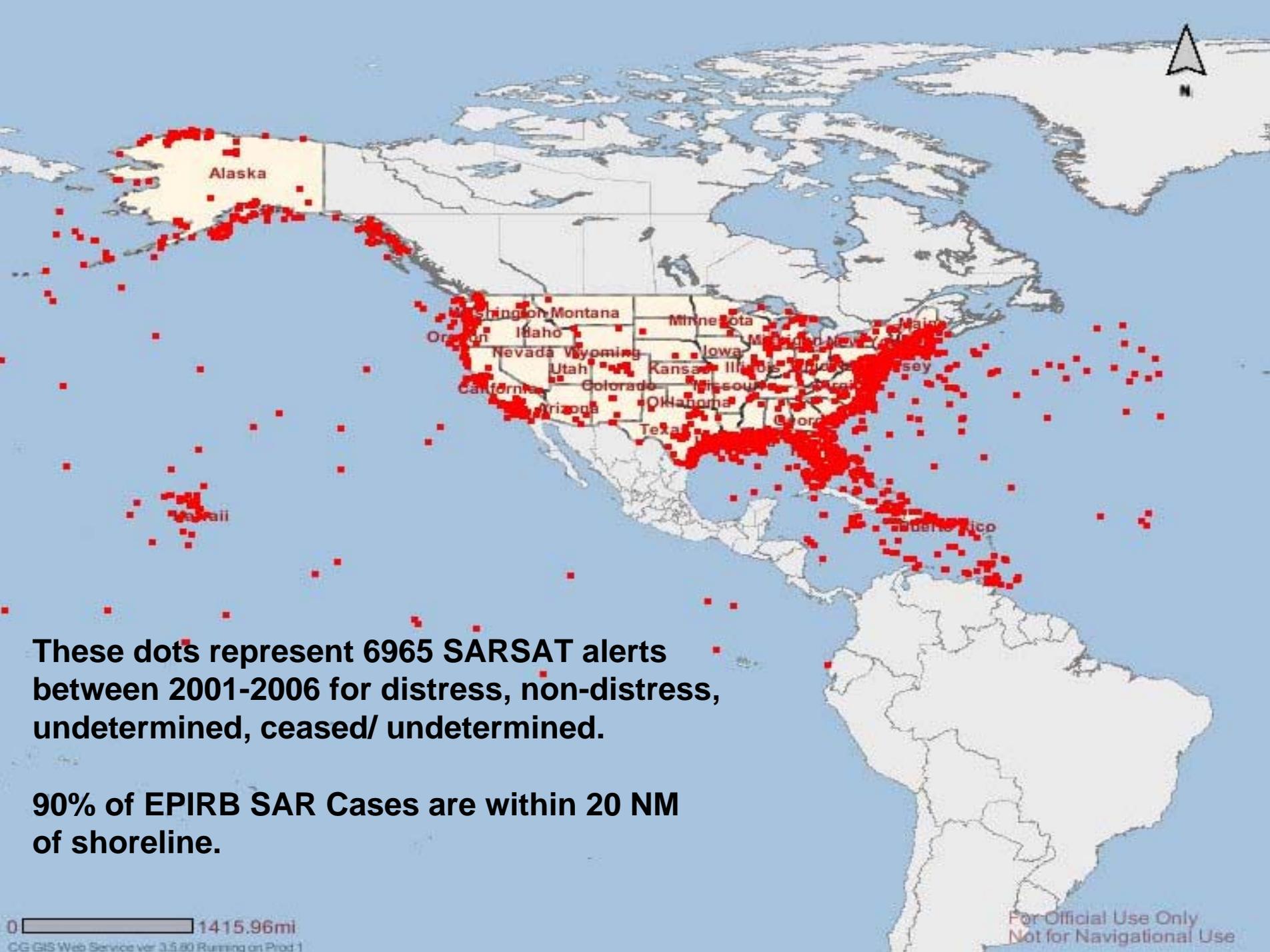
➤ Coordination With Other Countries

➤ International Cospas-Sarsat Program



➤ Amver Program





These dots represent 6965 SAR alert locations between 2001-2006 for distress, non-distress, undetermined, ceased/ undetermined.

90% of EPIRB SAR Cases are within 20 NM of shoreline.



SARSAT Rescues



SARSAT Rescues in the U.S.

2008

Total: 283

Rescues at sea: 203 people

Aviation rescues: 12 people

PLB rescues: 68 people

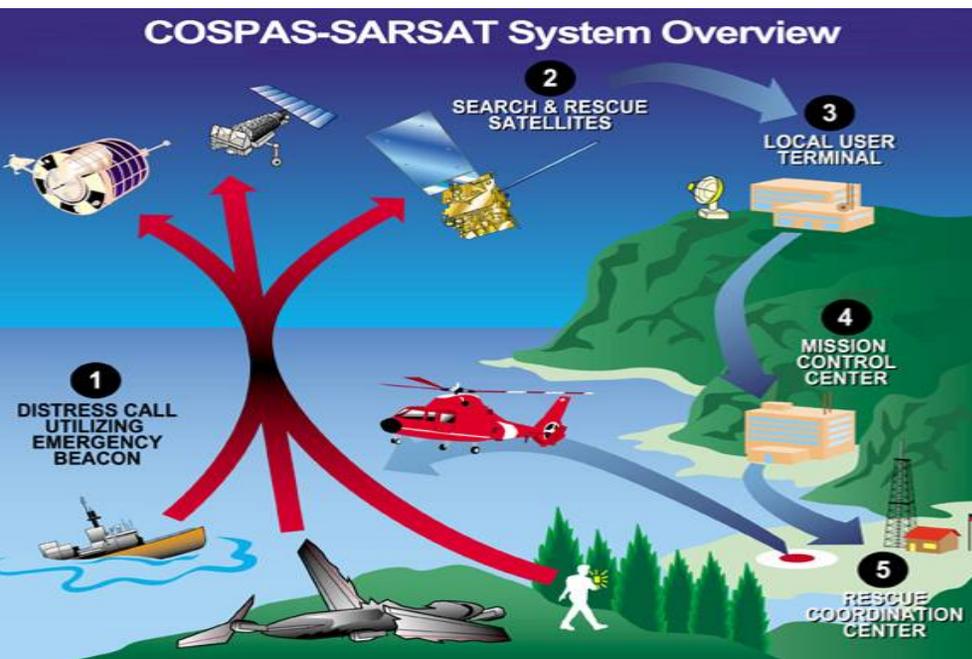
SARSAT Rescues by the USCG

2008

Total: 226

Rescues at sea: 193 people

PLB rescues: 33 people





What is AMVER...

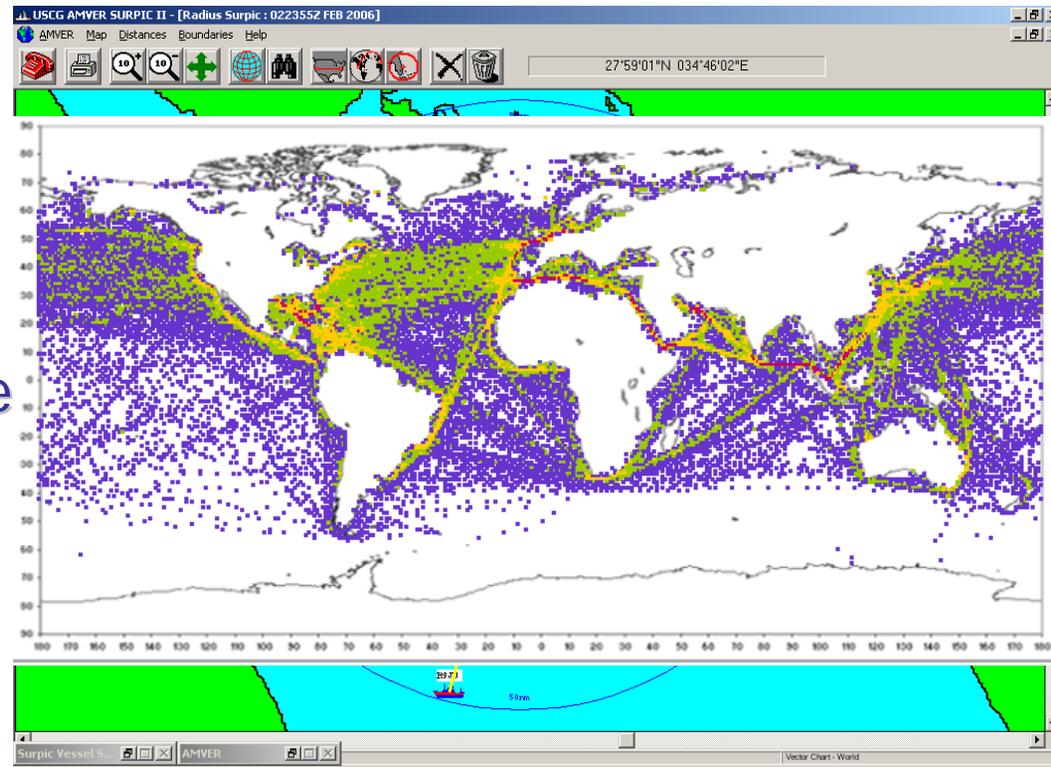


...Merchant Ships Coming to the Rescue



Automated Mutual assistance VEsSEL Reporting (AMVER) System

- AMVER is a computer-based vessel reporting system that exists to promote safety of life and property at sea.
- Over 3422 vessels voluntarily report their position to the USCG daily ready to lend assistance in an emergency.
- AMVER information is used to assist SAR Coordinators to locate assistance for maritime emergencies anywhere in the world.





AMVER

Amver participation is:

- Voluntary to all merchant ships
- Open to vessels of ALL nations
- Free to all RCCs worldwide

**Any Rescue Coordination Center
can request a Surface Picture (SURPIC)
from a USCG RCC for vessels in any
geographic region**



www.amver.com

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Miami Beach, FL Jan 2009

For more info contact:
AMVER Maritime Relations
U.S. Coast Guard
Battery Park Building
1 South Street
New York, NY 10004

Telephone:
(011-1) 212.668.7764
Telex: 127594 AMVERNKY
Fax:(011-1) 212.668.7684

➤ SAR Incidents and Statistics





An “Average Day” in the U.S. Coast Guard:

On an average day, the Coast Guard:

- Conducts 109 Search and Rescue Cases
- Saves 10 lives
- Assists 192 people in distress
- Protects \$2,791,841 in property





USCG SAR Statistics:

	2008	2007	2006
Cases	24,228	26,940	28,154
Sorties	25,540	26,667	28,658
Lives Saved	4,875	5,202	5,276
Lives Assisted	31,594	35,813	38,126
Property Saved	\$147.8M	\$113.1M	\$110.7M



USCG SARSAT Projects

- Termination of 121.5 MHz Satellite Monitoring
- EPIRB False Activation Mitigation Project
- Next generation SARSAT = Distress Alerting Satellite System (DASS)
- AIS as a replacement for the 121.5 homer in EPIRBs
- 406 MHz Direction Finding Equipment
- ...and much, much more!



USCG 406 MHz DF Capabilities

The Problem

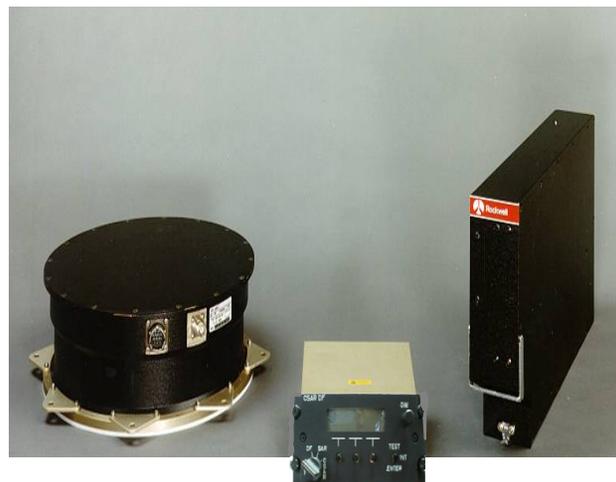
- When initially developed, the electronic signal from a factory EPIRB or ELT emanated at 75 milliwatts on the 121.5 frequency. The electronic detection equipment installed on CG aircraft at that time was sufficient to detect this signal.
- However, the FCC subsequently mandated that the power be reduced to 25 milliwatts on the 121.5 MHz homing signal due to interference at the higher power on aircraft emergency frequencies.
- Unless in very close proximity (less than 5 NM), this lower 25 milliwatt power falls below the threshold of effective detection with the legacy CG aircraft DF equipment.
- This DF equipment never had the capability of detecting a 406 MHz signal.



USCG 406 MHz DF Capabilities

The Coast Guard Solution

- The USCG is in the process of equipping their search aircraft with 406 MHz homing capability.





USCG 406 DF Successes to Date

40 LIVES SAVED OR ASSISTED

Jun 2005: Locked on at 90 NM from 17,000' (2 lives saved)

Dec 2005: Locked on at 102 NM from 21,000' (2 lives saved)

Mar 2007: Locked on at 62 NM from 8,000' (3 lives assisted); F/V Bandit II.

Apr 2007: Locked on at 15 NM from 10,000' (2 lives saved); S/V Paradox.

Jun 2007: Locked on at 85 NM from 10,000' (5 lives assisted)

20 Dec 07: HU-25 Locked on at 150 NM from 25,000' (2 lives saved); F/V Silver Wings.

04 Mar 08: HU-25 Locked on at 70 NM from 7500'; (2 lives saved); S/V Air Pirate

26 May 08: HU-25 Locked on at 68 NM from 5500'; (3 lives saved). F/V Dona Maria;

15 Jun 08: HU-25 Locked on at 110 NM from 12,000'; (2 lives asst) P/C On Trial;

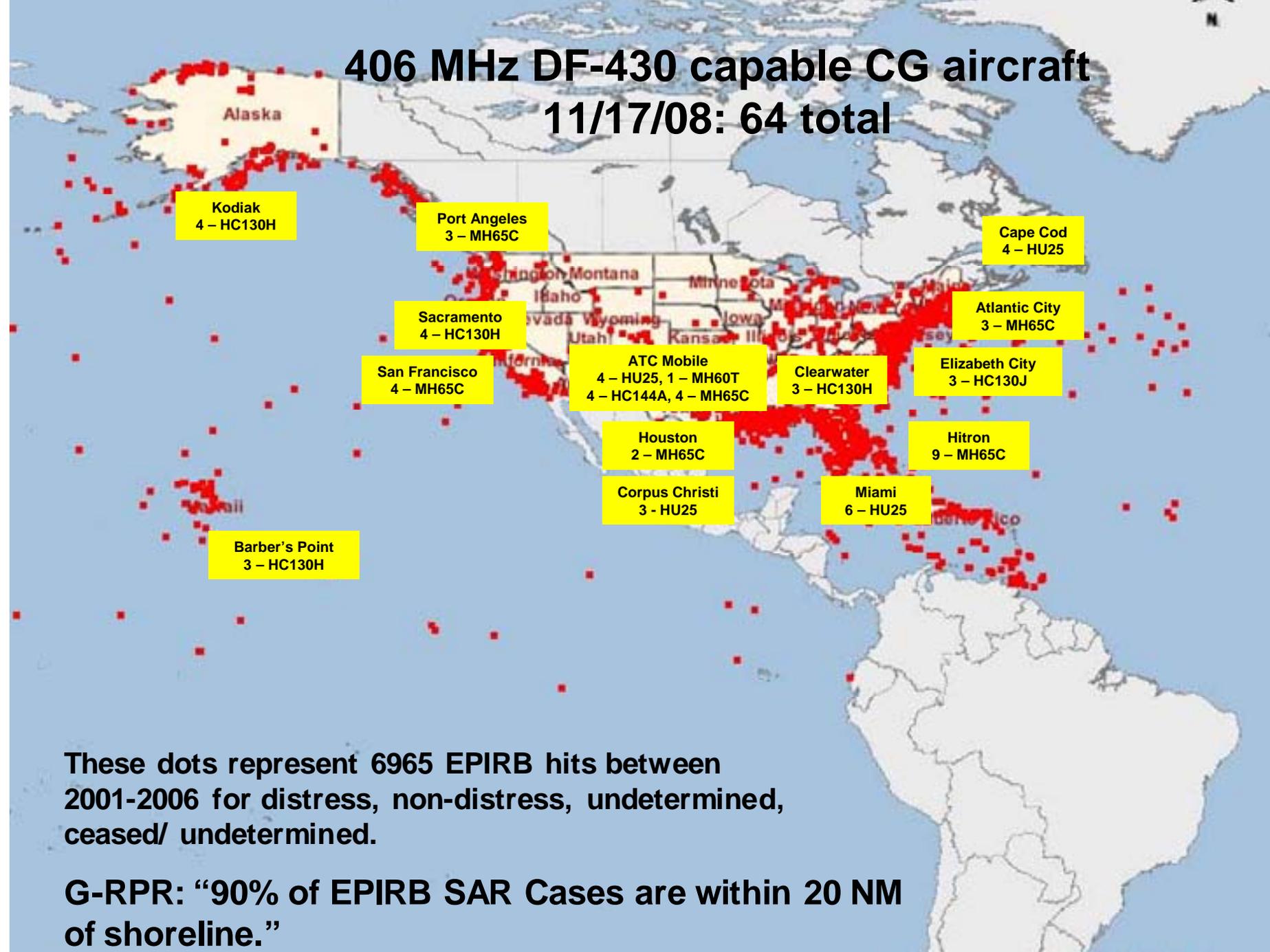
30 Jun 08: HU-25 Locked on at 98 NM from 14,500'; (1 life asst) S/V Patriot;



USCG 406 DF Successes to Date

- 12 Aug 08: C-130 Locked on at 98 NM from 15,500'; F/V Lady Chul; (5 lives saved).
- 08 Sep 08: HU-25 Locked on at 30 NM from 5000'; no distress;
abandoned shoreline EPIRB.
- 19 Sep 08: HU-25 Locked on at 23 NM from 1500'; F/V Cajun Gator; (3 lives asst).
- 24 Oct 08: HU-25 Locked on at 62 NM from 9500'; F/V Rio Panuco; (3 lives assisted).
- 22 Oct 08: C-130 Locked on at 94 NM from 22,000'; F/V Katmai; (4 lives saved).
- 09 Nov 08: HU-25 Locked on at 137 NM from 17,000'; S/V Symphonie I; (2 Lives Saved).
- 19 Nov 08: HU-25 Locked on at 100 NM from FL 210; no distress; Sailing Yacht Signe.
- 12 Dec 08: HU-25 Locked on at 100 NM from 10,000'; rec'd GPS position fm EPIRB @
50 NM; no distress; F/V Pandora II.
- 27 Dec 08: C-130 Locked on at 160 NM from 17,500'; no distress; M/V Kite.

406 MHz DF-430 capable CG aircraft 11/17/08: 64 total



These dots represent 6965 EPIRB hits between 2001-2006 for distress, non-distress, undetermined, ceased/ undetermined.

G-RPR: “90% of EPIRB SAR Cases are within 20 NM of shoreline.”



USCG 406 DF Capabilities

Becker Portable 406 MHz Direction Finder





U.S. Coast Guard SAR



Any Questions???



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Visit Our Website! <http://www.uscg.mil/hq/cg5/cg534>

