Rescue Coordination Centres (RCCs) and SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Training Course
Cape Town, South Africa
23 November 2006

Daniel K. Karlson
U.S. Coast Guard

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

What we'll cover...

- Overview of RCCs and SPOCs
- RCC Functional Requirements
- Integrating Cospas-Sarsat in SAR operations
- SAR Intel and Resource Utilization
- SAR Response to a C-S Alert
- Feedback to a MCC
- Some Final Thoughts...

First, some truths…
SAR happens when everything else fails!

What does Search and Rescue mean?

Search: **An operation, normally co-ordinated by a RCC or RSC, using available personnel and facilities to locate persons in distress.** (IAMSAR, Volume 1)

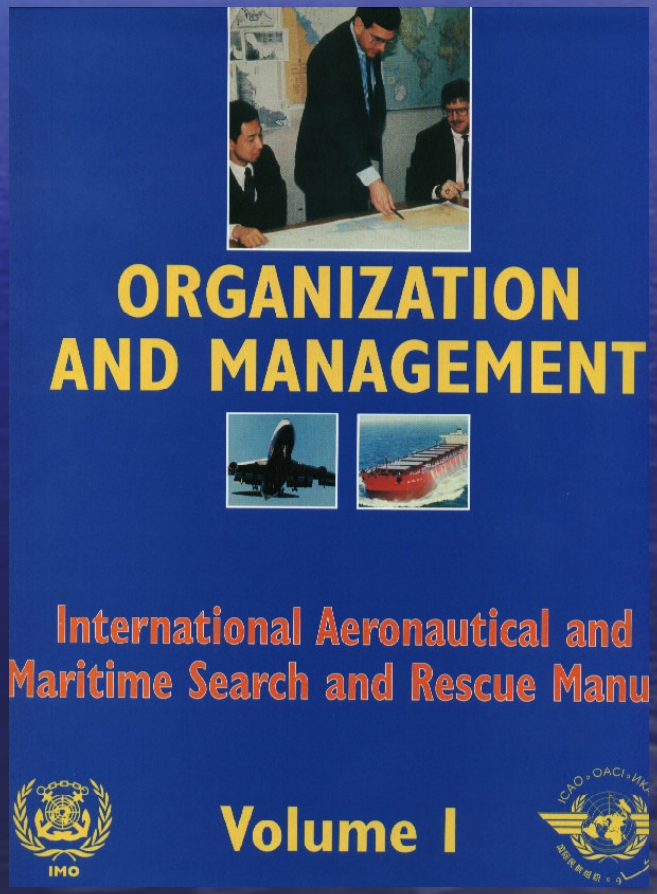
Rescue: **An operation to retrieve persons in distress, provide for their initial medical or other needs and deliver them to a place of safety.** (IAMSAR, Volume 1)

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

Rescue Coordination Center (RCC)

A unit responsible for promoting efficient organization of search and rescue operations within a search and rescue region
(IAMSAR, Volume 1)



RCC Functional Requirements

- 24 hour availability
- Staffed by trained watch standers
  - Working knowledge of English language
  - Formal and On the Job Training
- Charts and Plotting Equipment which apply to the SRR (nautical, aeronautical, & topographic
- Plans, procedures, organizational & administrative
- Systems for receiving distress alerts (GMDSS)
- Communications commensurate with responsibilities
  - Rapid and reliable
  - Telephone and facsimile – essential
  - SRUs, Adjacent RCCs, RSCs, ATS, etc
  - Aeronautical Fixed Telecom Network (AFTN), MF/HF/VHF/UHF, GMDSS, Inmarsat, etc.
- Use of Information Systems and computer resources (internet!)

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

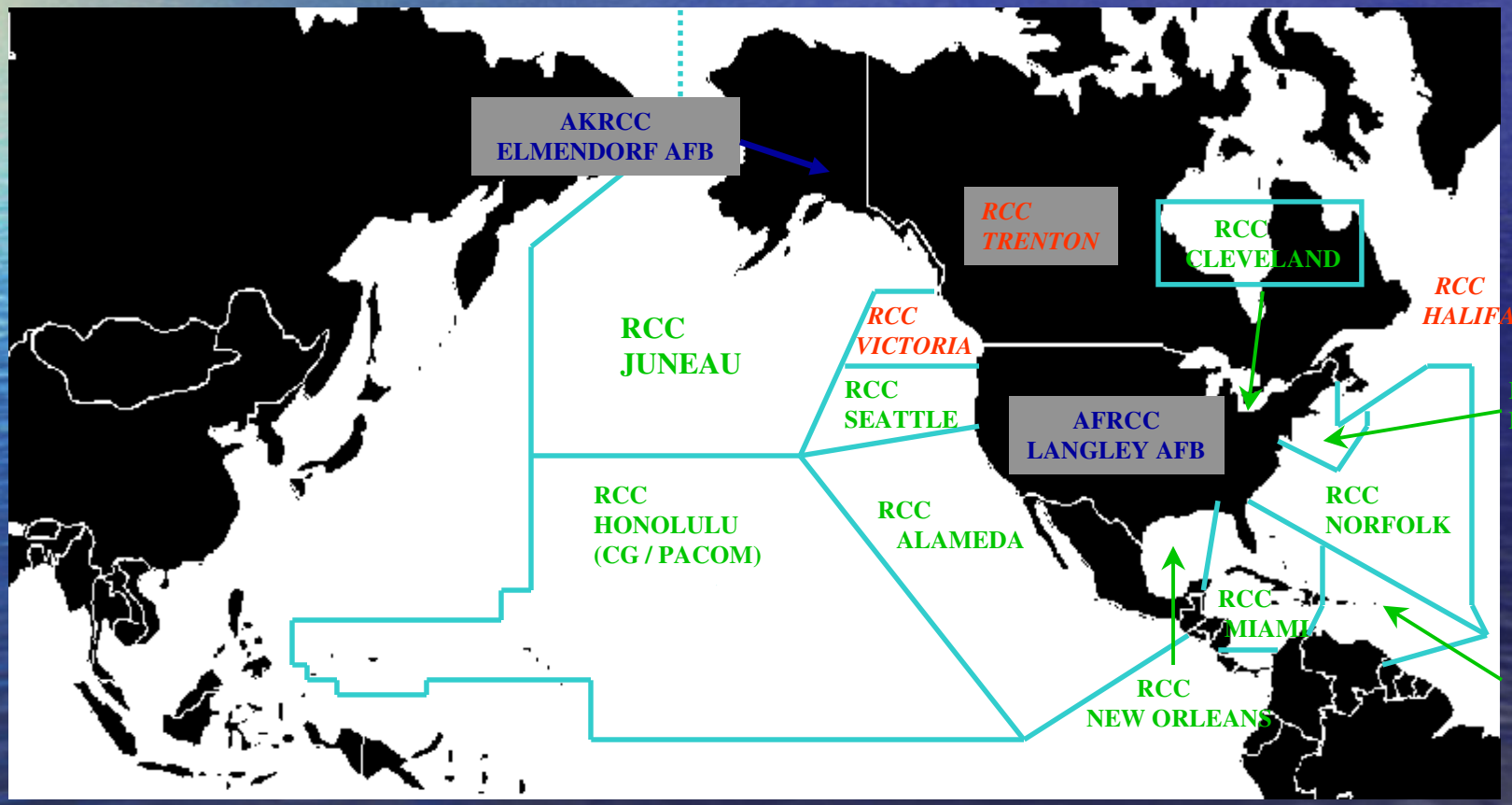
UN/South Africa Cospas-Sarsat Workshop

RCC Functional Requirements

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

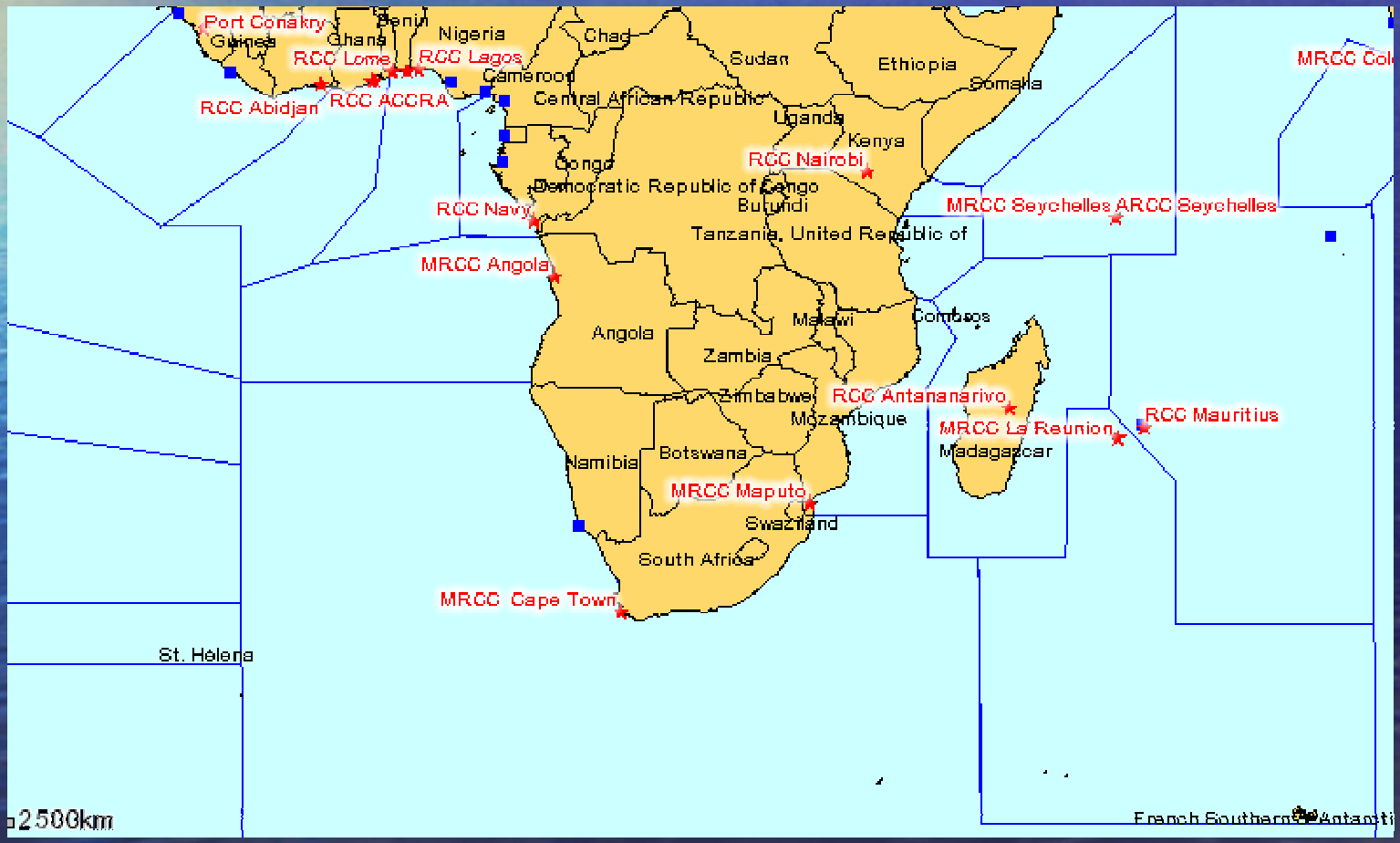
RCCs in North America



Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

RCCs in Southern Africa



Rescue Sub-Centres (RSCs)

A unit subordinate to an RCC, established to complement the latter according to particular provisions of the responsible authorities:

- Where communications facilities in a portion of an SRR are not adequate to enable close-coordination between RCC and SAR facilities
- Where the SRR encompasses a number of states or territorial divisions where local facilities can only be directed through local authorities
- Requirements for personnel, equipment and accommodations are similar to an RCC

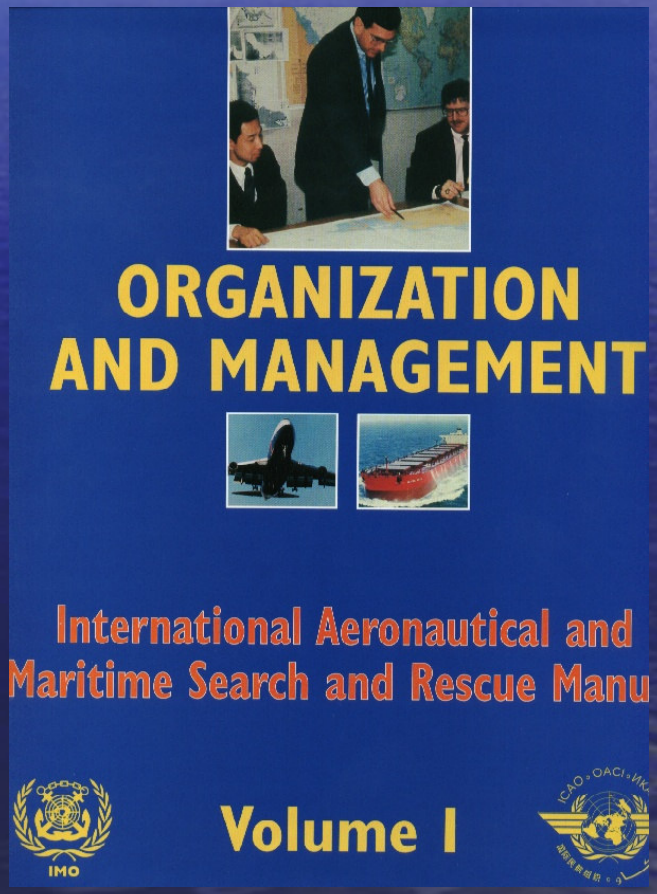
Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

Search and Rescue Point of Contact (SPOC):

"Rescue coordination centres and other established and recognised points of contact which can accept responsibility to receive Cospas-Sarsat alert data to enable the rescue of persons in distress."

(IAMSAR Volume 1)



Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

USMCC Search and Rescue Points of Contact (SPOC)

JRCC Curacao

Mexico

Guyana

Colombia

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

Integrating Cospas-Sarsat in SAR Operations

All that's really needed is one of these!

Rescue Coordination Centres (RCCs) and SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

Integrating Cospas-Sarsat in SAR Operations

Minimum requirements to receive alerts: phone line and facsimile machine to receive Cospas-Sarsat SIT alerts

/62146 00000/3660/98 046 0105
/162/366O

******* 406 BEACON LOCATED FIRST ALERT UPDATE (AMBIGUITY UNRESOLVED) *******
BEACON ID: ADCD0 16672 C0401 SITE ID: 73326

********** DETECTION TIME AND POSITIONS FOR THE BEACON **********
PROB SOL LATITUDE LONGITUDE DETECT TIME SAT SOURCE SRR /BUFFER
90 A 28 25.6N 100 12.3W 15 0045 FEB S3 SSE CGD08 /AFRCC
10 B 28 35.6N 072 18.3W 15 0045 FEB S3 SSE CGD07

********** BEACON ID CONTAINS THE FOLLOWING ENCODED INFORMATION **********
COUNTRY : USA CRAFT ID : WAQ7615
MID CODE : 366 HOMING : 121.5 MHZ
MANUFACTURER: LITTON MODEL : 948-000001
SERIAL NUM : 23456 BEACON TYPE: MARITIME

********** USMCC REGISTRATION DATABASE INFORMATION **********
REGISTRATION DATA IS NOT AVAILABLE

********** SUPPORTING INFORMATION **********
USMCC PROCESSING TIME: 15 0104 FEB

THIS ALERT MESSAGE IS BEING SENT TO: AFRCC, CGD08, CGD07

ALERT MESSAGES FOR THIS SIGNAL PREVIOUSLY SENT TO: AFRCC, CGD08, CGD07

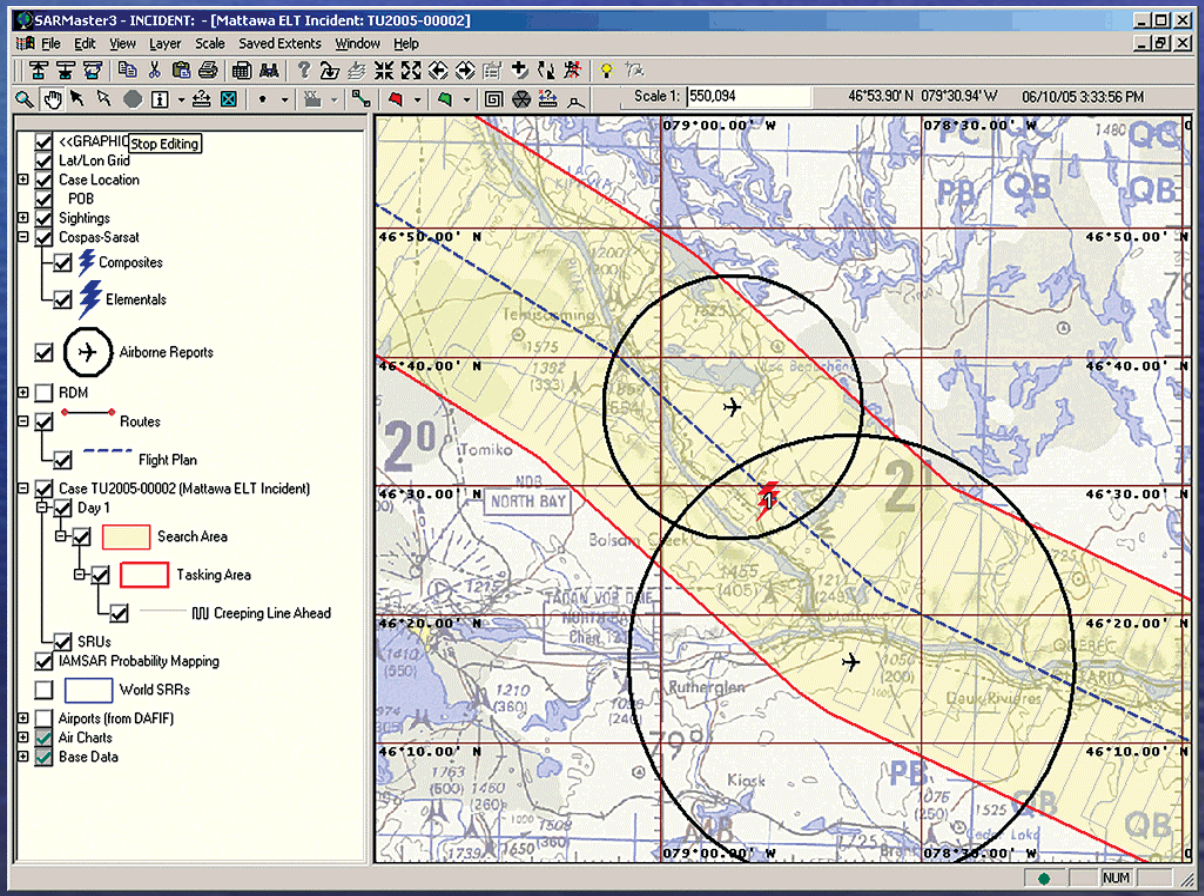
PREVIOUS PASS INFORMATION:
PROB SOL LATITUDE LONGITUDE DETECT TIME SAT SOURCE SRR /BUFFER
50 A 28 25.6N 100 12.3W 15 0045 FEB S3 SSE CGD08 /AFRCC
50 B 28 35.6N 072 18.3W 15 0045 FEB S3 SSE CGD07

NEXT TIME SIGNAL SHOULD BE DETECTED:
SOL DETECT TIME SAT SOURCE VISIBILITY
A 15 0200 FEB S3 SSE HIGH
A 15 0239 FEB C4 OSE HIGH
B 15 0200 FEB S3 SSE HIGH
B 15 0240 FEB C6 TX1 HIGH

QQQQ
/LASSIT
/ENDMSG

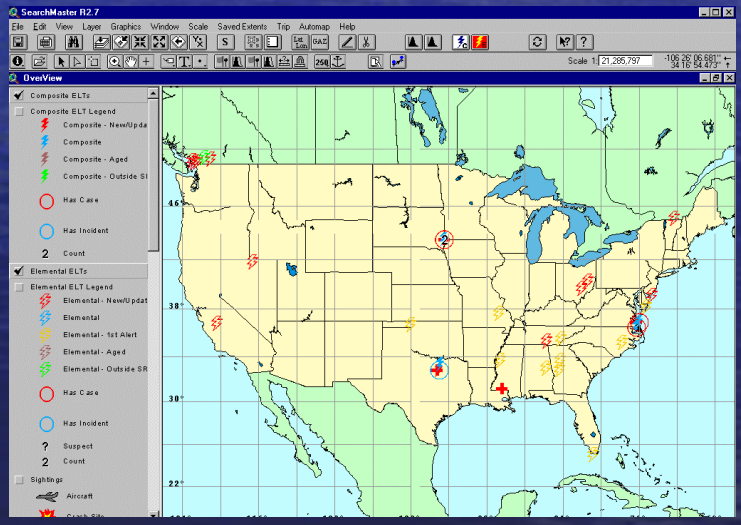
Integrating Cospas-Sarsat in SAR Operations

Or, RCCs can use advanced, computerized systems available which allow automated receipt and tracking of alerts



Integrating Cospas-Sarsat in SAR Operations

- **SAR COMPUTER AUTOMATION TOOL**
  - Real-time automated receipt of SARSAT emergency beacon detections
  - Automated SAR incident & mission prosecution tool
    - Mission Log
    - Search Planning
    - Contacts
    - SAR Resource Tracking
    - Survival Models

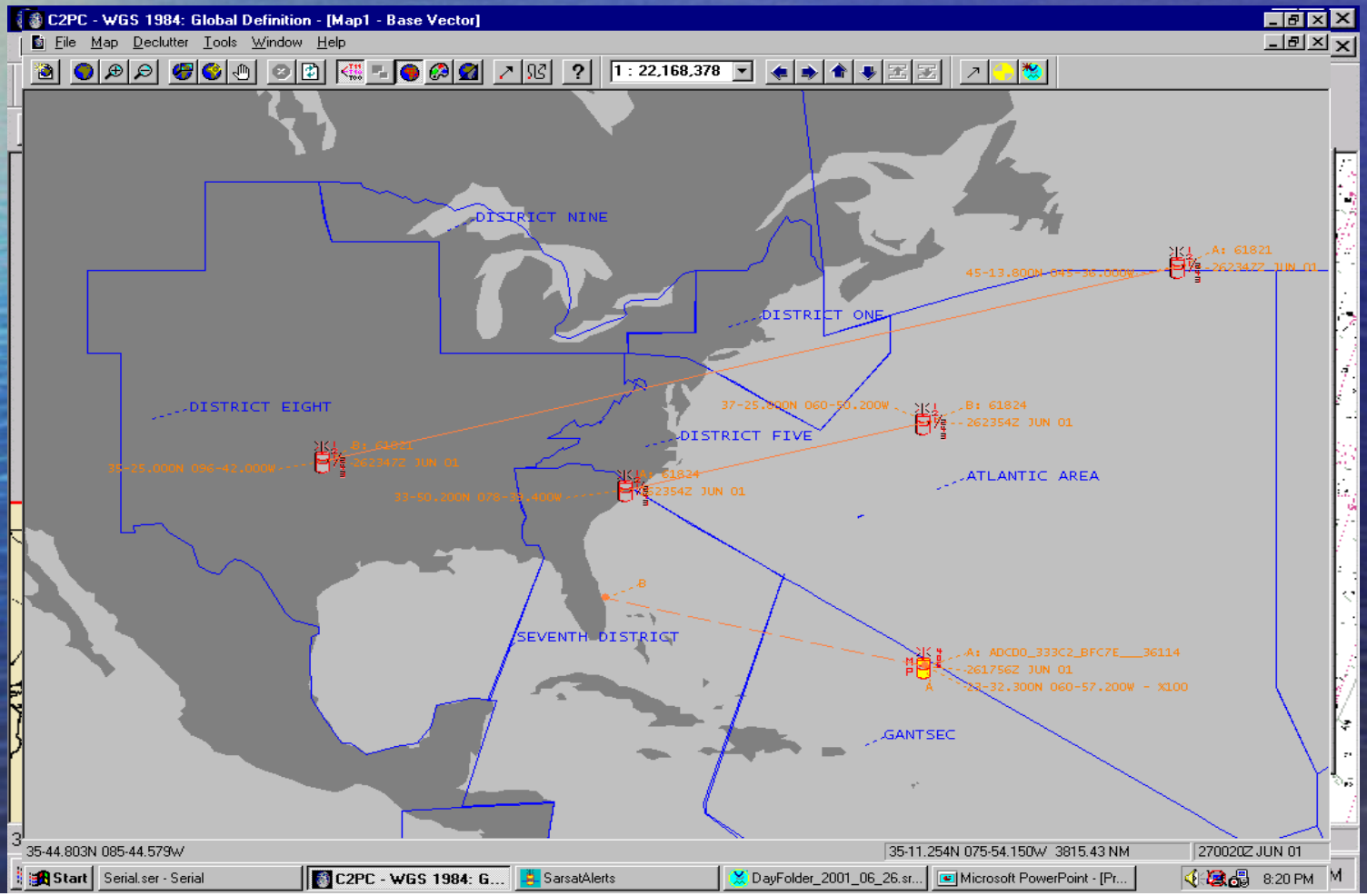


AFRCC uses SARMaster (EMS Technologies)
USCG uses C2PC/CASP and is transitioning to SAROPs (CG developed systems)

Rescue Coordination Centres (RCCs) and SAR Points of Contact (SPOCs)

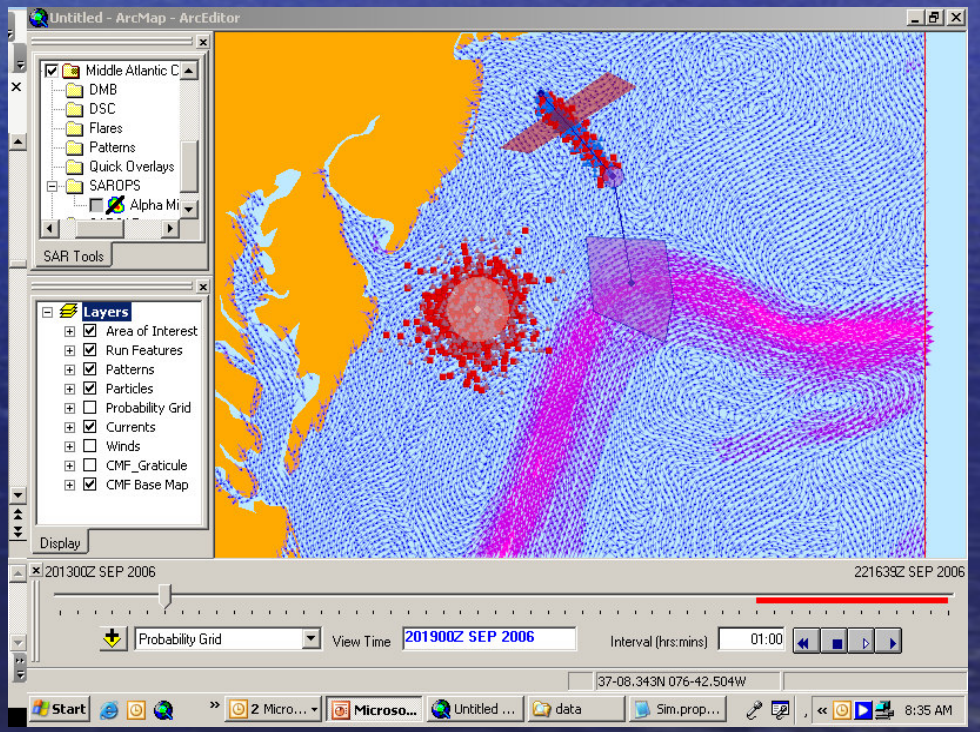
UN/South Africa Cospas-Sarsat Workshop

C2PC / CASP



SAROPS

- ArcGIS based
- Extensive Incident set up
  - Pre-distress motion with hazards
  - LKP, LKP&DR, Voyage Info
- Multiple weighted scenarios
- Multiple leeway and POD targets lists
- Multiple enviro data sources
- Account for relative motion of SRU vs. drift object
- Optimal Search & POD area(s) generated



SAR Intelligence

In SAR, the information on the target and the people affected is "intelligence". Intelligence gathering also includes information on assets and resources that may assist.

Prior to operations – building up & identifying sources of information & data

During operations – tapping into the information and data

Once the alert has been raised the SMC requires:

Nature and Position of the emergency. Weather conditions.
Name of vessel or aircraft, type, callsign, registration.
Full description (size, type, colour, markings, unusual features).
Persons on board.
Communications equipment.
Emergency, safety and survival equipment.
Owner and agent for the aircraft/vessel and contact information.
Other possible sources of information – family.

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

SAR Intelligence & Resource Utilization

U.S. Rescue Coordination Centers

RCC Norfolk (Portsmouth, Virginia)

RCC Norfolk / LANTAREA:
+1 – 757 – 398 – 6231

RCC Alameda / PACAREA:
+1 – 510 – 437 – 3700

RCC Langley / Air Force RCC:
+1 – 800 – 851 – 3051 or
+ 1 – 757 – 764 – 8112

Additional Resources:
RCC-NET: www.rcc-net.org
SARContacts.com

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

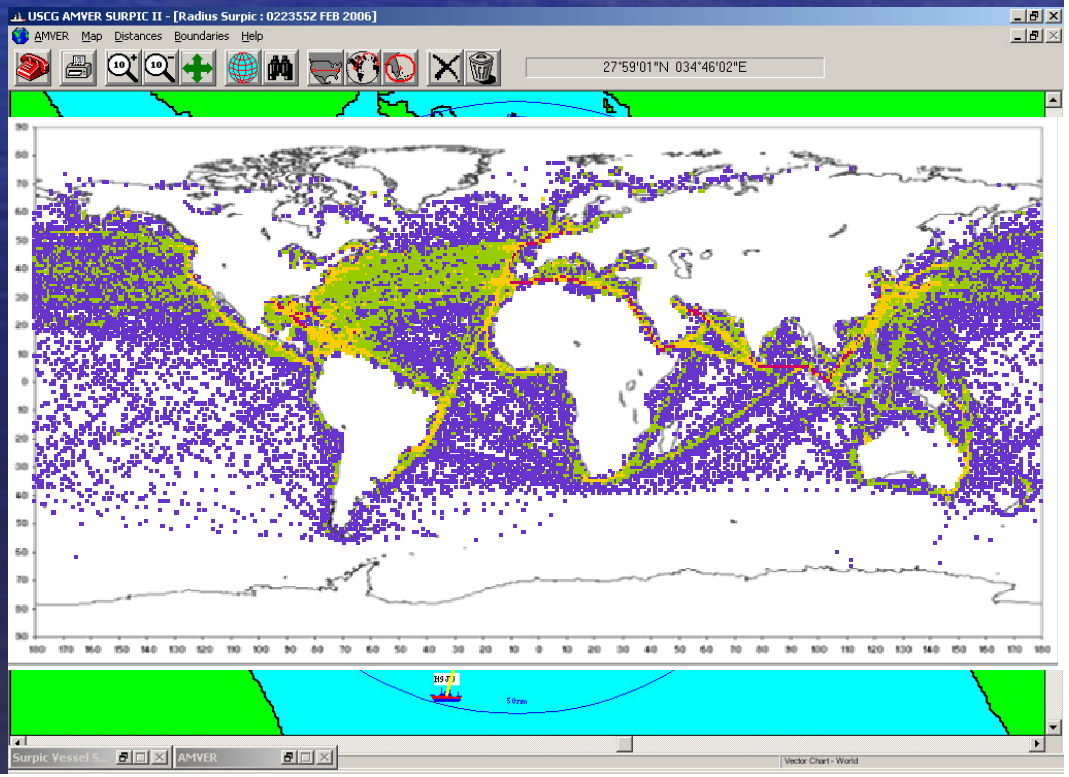
UN/South Africa Cospas-Sarsat Workshop

SAR Intelligence & Resource Utilization

Automated Mutual assistance VEssel Reporting (AMVER) System

- Over 3,000 vessels voluntarily report their position to the USCG daily ready to lend assistance in an emergency

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



SAR Response to a C-S Alert

121.5/243 MHz Beacon Alert

- 1st Composite Merge
- Begin utilization of SAR Intel
  - Check with ATS/VTS
  - Request Airborne reports
  - Field/marina check
- Dispatch SRU when unable to determine that alert is non-distress or if indications of distress exist
- Continue to provide position updates to SRU until resolved
- Upon completion of case – provide incident feedback to MCC

406 MHz beacon Alert

- Unlocated on first alert
- Begin utilization of SAR Intel
  - Check databases
  - Call POCs
  - Check for ATS/VTS/GMDSS info
- A&B Solution on first LEO pass
- Dispatch SRU when unable to determine that alert is non-distress or if indications of distress exist
- Continue to provide position updates to SRU until resolved
- Upon completion of case – provide incident feedback to MCC

Feedback to MCC

- The primary purpose of the feedback is to help evaluate the effectiveness of the overall SARSAT system.
- Additional benefits are found in the simple existence of historical records both for general use as well as specific assistance in resolving incidents involving newly activated distress beacons.
- Information and statistics are presented to multiple International forums
  - IMO/ICAO
  - C-S Councils
  - National SAR Committees
- US is going to Online database gathering tool
  - Allows for ease of data submission and information queries

Some Final Thoughts

Global RCC concept is ideal…h*owever, limitations do exist:*

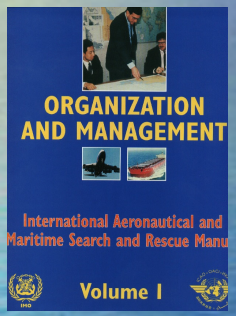
- **SRR boundaries are not meant to be barriers to providing assistance or cooperation.**
- **The concept of "first RCC" has been developed to show how an MRCC that receives a distress alert has responsibility to do what it can to acknowledge the alert, and arrange assistance, until it can identify another RCC willing and better able to respond.**

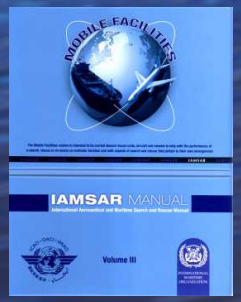
  (IAMSAR Volume 2, Sections 2.25.1 & 3.6 provides additional discussion)
- **RCCs have not uniformly met conditions of IAMSAR = inconsistency with SAR facilities and capabilities throughout their whole SRR.**

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

What is IAMSAR?





Volume I: Organization and Management
Discusses the global SAR system concept, establishment and improvement of national and regional SAR systems and co-operation with neighbouring States to provide effective and economical SAR services.

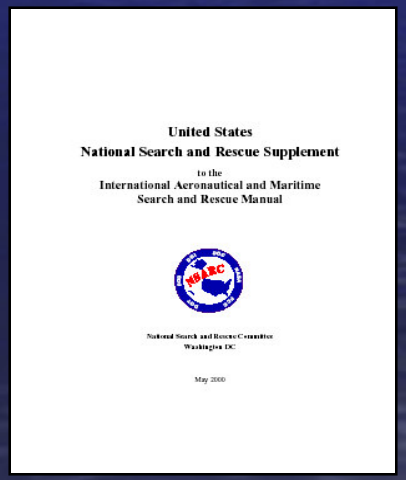
Volume II: Mission Co-ordination
Assists personnel who plan and co- ordinate SAR operations and exercises.

Volume III: Mobile Facilities
Is intended to be carried aboard rescue units, aircraft and vessels to help with performance of a search, rescue or on-scene co-ordinator function, and with aspects of SAR that pertain to their own emergencies.

What about national SAR policies & manuals?

Effective response depends on strong SAR policies & procedures…

- National SAR Plan & National SAR Committee
- National SAR Supplement (to IAMSAR)
- U.S. Coast Guard SAR Addendum (CG SAR Manual)



United States
National Search and Rescue Supplement
to the
International Aeronautical and Maritime
Search and Rescue Manual

National Search and Rescue Committee
Washington DC

May 2000

Rescue Coordination Centres (RCCs) and
SAR Points of Contact (SPOCs)

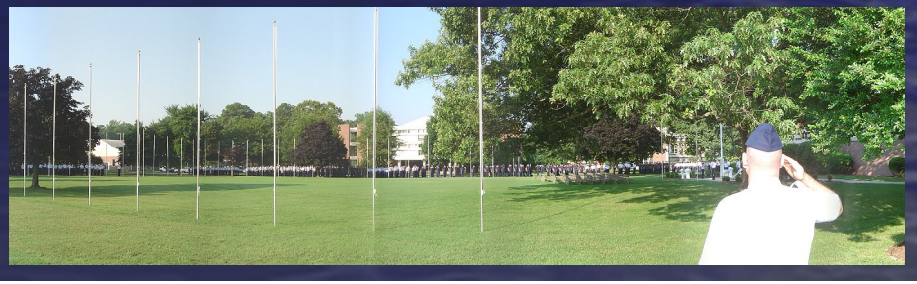
UN/South Africa Cospas-Sarsat Workshop

Partnerships!

Essential to effective SAR coordination and response

- Joint SAR Agreements, Training, & Exercises
- USCG Training Opportunities: Many available. USCG travels around the globe providing technical training and consulting services in maritime law enforcement, marine safety and environmental protection, small boat operation and maintenance, port security, infrastructure development and search and rescue!

Opportunities also available to attend the U.S. SAR School in Yorktown, Virginia.



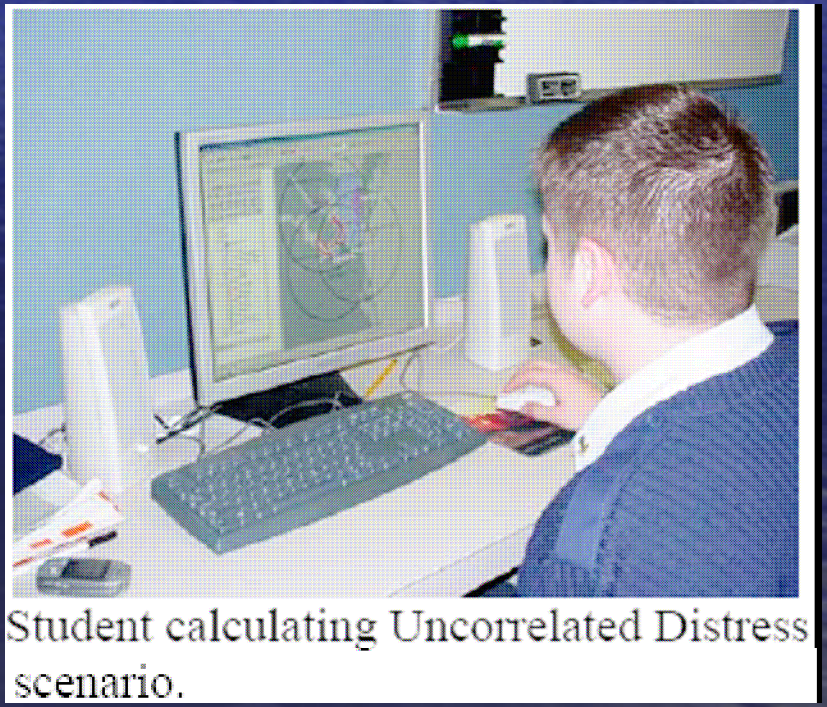
Rescue Coordination Centres (RCCs) and SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

U.S. National SAR School

www.uscg.mil/tcyorktown/Ops/SAR/index.shtm

SAR School classroom environment.



Student calculating Uncorrelated Distress scenario.

Rescue Coordination Centres (RCCs) and SAR Points of Contact (SPOCs)

UN/South Africa Cospas-Sarsat Workshop

Semper Paratus! **Always Ready!**

Daniel K. Karlson

U.S. Coast Guard Office of Search & Rescue
COMDT/CG-3RPR-2/Room 3106
2100 2nd Street SW
Washington, DC 20593
USA

Phone: +1-202-372-2091
Mobile: +1-202-631-2338
Fax: +1-202-372-2912

Web: http://www.uscg.mil/hq/g-o/g-opr/sar.htm