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Seventh Meeting of the Search and Rescue (SAR) Implementation Task Force of the North American, Central America and Caribbean Working Group (NACC/WG/SAR/TF/7)
Mexico City, Mexico, 3 to 7 August 2026

Agenda Item 3: SAR Coordination Affairs
3.2 SAR Exercises in the CAR Region

**BUILDING COMPLEX SAR EXERCISE SCENARIOS
TO STRENGTHEN AERONAUTICAL–MARITIME SAR COORDINATION**

(Presented by France)

EXECUTIVE SUMMARY	
This paper presents France's approach to designing complex, multi-agency Search and Rescue (SAR) exercises that specifically stress the interface between aeronautical and maritime SAR. It draws on a concrete deliverable — a one-hour Table-Top SAREX built by ARCC Cayenne with MRCC Belem and the Brazilian ARCCs (Atlantico / Amazonico) — and on a purpose-built training simulator used to generate realistic alert data (ELT / SIT185 / LADR messages, ADS-B tracks, LKP computation). The paper offers the scenario-building methodology as a reusable template for other NACC States and invites the Task Force to consider a coordinated regional SAREX programme.	
Action:	Suggested Actions are included in Section 7
<i>Strategic Objectives:</i>	• Every Flight is Safe and Secure • Aviation is Environmentally Sustainable • Aviation Delivers Seamless, Accessible, and Reliable Mobility for All • No Country Left Behind • The International Civil Aviation Convention and Other Treaties, Laws and Regulations Address All Challenges
<i>References:</i>	• Annex 12 – Search and Rescue • International Aeronautical and Maritime Search and Rescue Manual (IAMSAR - Doc 9731)

1. Introduction

1.1 The NACC Region combines vast oceanic Flight Information Regions (FIRs), overlapping aeronautical and maritime Search and Rescue Regions (SRRs), and a large number of neighbouring States. In this environment, the most demanding SAR cases are rarely those handled by a single Rescue Coordination Centre (RCC): they are the cases that cross the boundary between aeronautical and maritime SAR, and the boundary between two States, at the same time.

1.2 France, through the Antilles–Guiana organization (ARCC Cayenne and CROSS Antilles-Guyane), operates precisely at such a junction. The south-eastern part of the Cayenne FIR is a maritime area adjacent to Brazil that is not covered by MRCC Fort-de-France, which makes coordination with the Brazilian aeronautical and maritime authorities essential.

1.3 This paper describes how France builds complex SAR exercise scenarios to train and validate that coordination and offers the methodology to the Task Force as a template that other NACC States can adapt to their own cross-border interfaces.

2. Why complex, cross-domain scenarios?

2.1 Simple exercises validate simple procedures. They do not reveal the coordination gaps that appear only when several authorities, two domains (air and sea) and two States must act together under time pressure. France's exercise design therefore deliberately engineers those junctions into the scenario.

2.2 A well-designed cross-domain scenario forces the participants to exercise, in a single run, the following capabilities:

- Aeronautical alerting and the INCERFA → ALERFA → DETRESFA progression driven by ATC, ELT and satellite data.
- Computation of an aeronautical Most Probable Accident Area (MPAA) from radar replay, satellite-based ADS-B and ELT position, and its formal transfer to a maritime coordinator.
- The hand-over from aeronautical to maritime SAR, including the change of coordinating RCC.
- Cross-border request and tasking of air and surface assets, with the associated diplomatic clearance.
- Robust communications management when on-scene units are out of range of standard VHF (Marine 16 / aeronautical SAR 123.10 MHz).

3. Case study: the France–Brazil Table-Top SAREX

3.1 The exercise was prepared in accordance with the IAMSAR Manual, Volume III, Appendix O. It is a one-hour Table-Top exercise whose scenario is proposed by ARCC Cayenne and played jointly with MRCC Belem and ARCC Atlantico / Amazonico. All scenario times are expressed in UTC.

3.2 Scenario summary

3.2.1 A helicopter (PR-OOY, AW189, 12 persons on board) departs SBOI bound for an oil platform on the south-eastern edge of the Cayenne FIR (approximately 05°17'N 050°06'W). At the scenario start time, radio and radar contact is lost on approach to the platform. The simulated alert then unfolds through ATC alerting, ELT reception at the French SPOC (CROSS-AG), and a satellite ADS-B search, leading to the determination of the accident area and its hand-over to the Brazilian maritime coordinator.

3.3 Cross-border coordination architecture

3.3.1 The scenario mobilizes two national chains of responsibility. Their articulation — and in particular the single cross-border hand-over of the accident area — is the heart of the exercise.

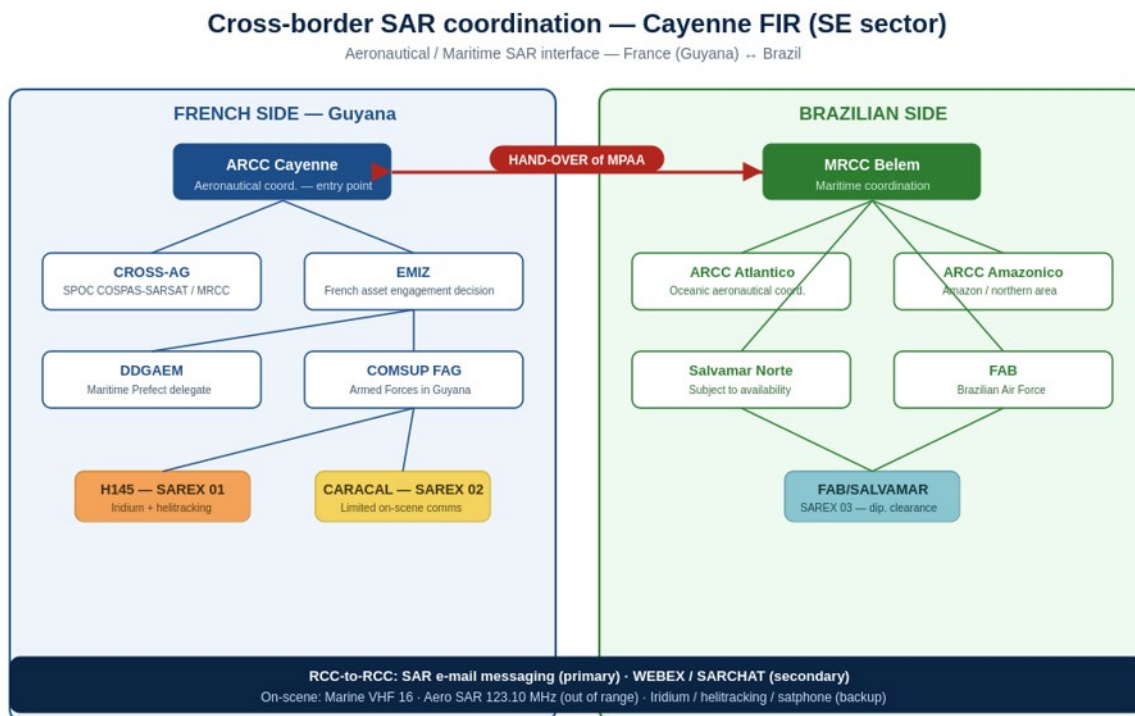


Figure 1 — Aeronautical/maritime SAR coordination architecture exercised by the SAREX (French and Brazilian chains, with the RCC-to-RCC hand-over of the Most Probable Accident Area).

3.4 Participating organizations

French side	Role	Brazilian side	Role
ARCC Cayenne	Aeronautical coordination, French entry point	ARCC Atlantico	Aeronautical coord. — oceanic area
CROSS-AG	SPOC COSPAS-SARSAT / maritime coord.	ARCC Amazonico	Aeronautical coord. — Amazon / north
EMIZ	Decision on French asset engagement	MRCC Belem	Maritime coordination for the area
DDGAEM	Maritime Prefect delegate (aero SRR)	Salvamar Norte	Surface assets (availability)
COMSUP FAG / Civil Security / Air-Space Force	H145 and CARACAL SAR assets	FAB	Brazilian Air Force (national decision)

3.5 Indicative timeline

3.5.1 The run is deliberately compressed into sixty minutes so that every coordination junction is exercised within a single sitting. The critical event is the hand-over at the aeronautical/maritime interface, highlighted below.

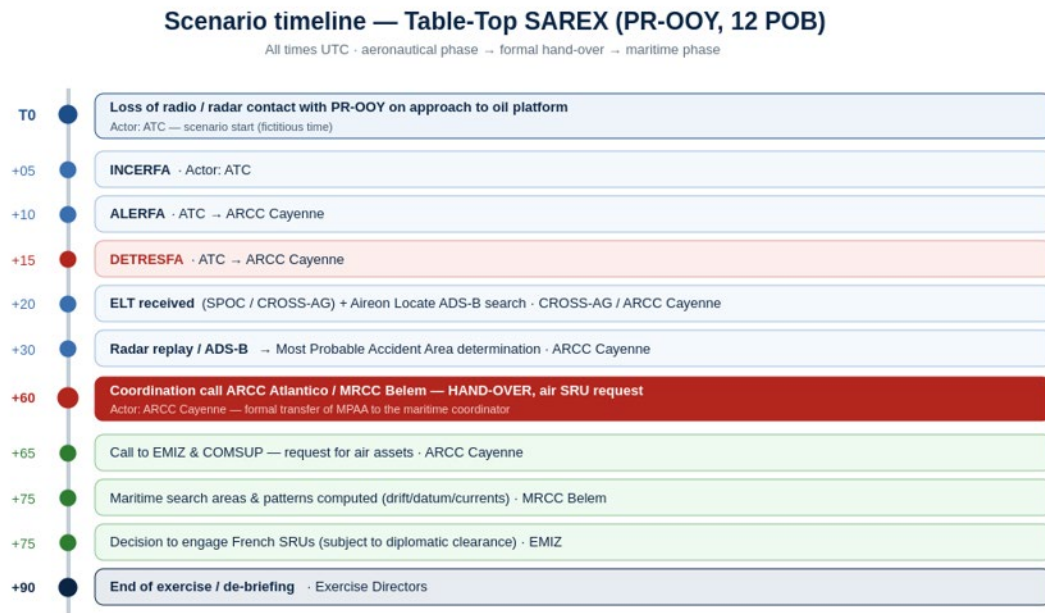


Figure 2 — Compressed scenario timeline, from loss of contact to the RCC-to-RCC hand-over and the maritime phase.

3.6 SAR facilities and the communications challenge

3.6.1 The scenario is engineered around a realistic communications constraint: on scene, the assets are out of range of Marine VHF 16 (CROSS-AG) and of the aeronautical SAR frequency 123.10 MHz. This forces participants to plan alternative means and to consider designating an On-Scene Coordinator (OSC) or Aircraft Coordinator (ACO) as an airborne relay.

SRU / call sign	Role	On-scene communications
H145 Civil Security — SAREX 01	Primary asset	Iridium satellite phone + helitracking (continuous backup)
CARACAL Air-Space Force — SAREX 02	Secondary asset	Conventional means only — limited, indirect via relays
Brazilian SRUs (FAB / SALVAMAR) — SAREX 03	Subject to MRCC Belem decision	Frequency agreed before engagement + diplomatic clearance

3.6.2 Exercise safety phraseology. All exercise messages are bracketed by "EXERCISE EXERCISE EXERCISE". The live distress terms are prohibited and replaced ("Mike Delta", "Papa Papa", "Sierra Sierra"), and the code-word "NO DUFF NO DUFF" immediately suspends the exercise and allows transition to a real SAR case — a discipline that lets a training run coexist safely with live operational readiness.

4. Tooling: the training simulator

4.1 To make the scenario realistic, France developed a lightweight training simulator for the SMC (SAR Mission Coordinator). Rather than scripting the alert by hand, the tool generates the same data

an SMC would receive in a real event, which raises the fidelity of the exercise and shortens preparation time.

4.2 For the Antilles–Guiana zones (Martinique, Guadeloupe, Suriname, French Guiana), the simulator can:

- generate simulated air traffic and randomly select an aircraft to place in distress;
- produce the corresponding alert messages — SIT185 (ELT) and LADR (ELT-DT) — ready to be exported as text;
- build a realistic track history (KML) over the last 15 minutes and an Aireon Locate-style satellite ADS-B report to support LKP / MPAA computation;
- resolve the ICAO 24-bit address to registration and back, so investigation steps mirror real workflows;
- support an "investigation mode" with deliberately missing fields, to train SMCs in incomplete-data situations.

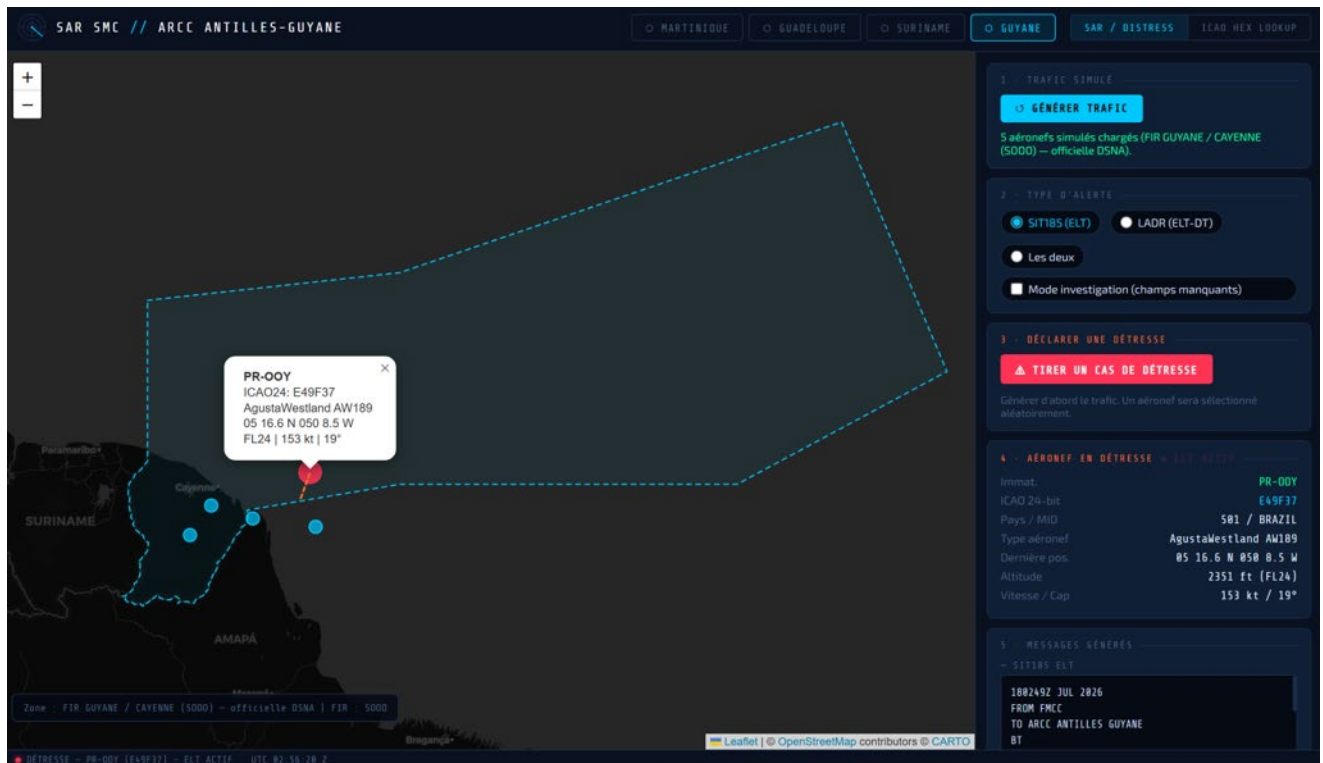


Figure 3 — JRCC SMC training simulator: zone selection, traffic generation, alert-type selection (SIT185 / LADR / both), distress-case draw and message generation. (Map tiles omitted in the offline capture.)

5. A reusable scenario-building template

5.1 The value of this work for the Task Force is not a single exercise but a repeatable method. France offers the following template, distilled from the SAREX, for building cross-border aeronautical–maritime scenarios:

Step	Design choice	Coordination gap it exposes
1. Pick a boundary	Locate the incident where an aero FIR meets an uncovered maritime area of a neighbouring State	Which RCC owns the case; where the maritime SRR responsibility lies
2. Force a hand-over	Require a formal transfer of the MPAA from an ARCC to an MRCC	Message format, timing and acknowledgement of the transfer
3. Cross a border	Task assets of one State inside the other's area of interest	Diplomatic clearance and LOA application under time pressure
4. Break communications	Place assets out of VHF range on scene	Alternative means; OSC/ACO designation; relay planning
5. Degrade the data	Use investigation mode / missing fields	LKP and datum computation from incomplete evidence
6. Keep it safe	Table-Top, exercise phraseology, NO DUFF	Coexistence of training with live readiness

5.2 Each step maps directly to an IAMSAR-compliant exercise element (Volume III, Appendix O), so the template does not introduce new doctrine — it sequences existing doctrine in the order most likely to surface real coordination gaps.

6. Debriefing and lessons learned

6.1 A joint debriefing is conducted immediately after the run (by videoconference), with a round-table by each participant, identification of strengths and procedural gaps, and joint drafting of a lessons-learned report (RETEX). The compressed, single-sitting format keeps every participant available for that debrief while the run is still fresh.

6.2 France's experience is that the recurring findings from such exercises — hand-over message discrepancies, diplomatic-clearance delays, and on-scene communications shortfalls — are exactly the failures that would degrade a real cross-border SAR response and are best corrected through repeated joint exercising rather than documentation alone.

7. Suggested Action

7.1 The Meeting is invited to:

- a) note the methodology, the France–Brazil Table-Top SAREX and the C SMC training simulator described in this paper;
- b) consider adopting the scenario-building template of Section 5 for cross-border aeronautical–maritime SAR exercises in the NACC Region;
- c) discuss establishing a recurring NACC SAREX calendar, with States sharing scenarios and lessons-learned reports through the Task Force; and
- d) invite France to support interested States in building their first cross-border aeronautical–maritime scenario.