International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

INFORMATION PAPER

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Fourth GREPECAS–RASG-PA Joint Meeting and
Twenty-second Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/22)
Virtual Phase (Asynchronous, 16 September to 11 October 2024)
In-Person Phase (Lima, Peru, 20 to 22 November 2024)

Agenda Item 8: Fourth GREPECAS-RASG-PA Joint Meeting

WORKING SESSION ON THE USE OF TCAS ADVISORIES DATA FOR ATS SAFETY MANAGEMENT

(Submitted by the Secretariat)

1. Introduction

1.1 Traffic Alert and Collision Avoidance System (TCAS)[1] alerts, classified as Traffic Advisory (TA) and Resolution Advisory (RA), involve both aircraft and flight crews as well as Air Traffic Services (ATS). As part of their Safety Management Systems (SMS), manufacturers, airlines, and ATS must carry out proper risk management to identify hazards, mitigate risks, and monitor progress for continuous improvement. However, ATS do not have the same access to TCAS-TA/RA data and information as manufacturers and airlines, limiting their ability to manage risks promptly and efficiently.

1.2 The Scrutiny Working Group (GTE) is a GREPECAS subsidiary body in charge of monitoring the safety performance of the reduced vertical separation minimum in the CAR/SAM Regions. Supported by the Regional Monitoring Agencies, the GTE conducts a review of data related to Large Height Deviations, which can be linked to the occurrence of TCAS-RA.

1.3 The MAC (Mid-Air Collision) subgroup is an ad hoc team within the PA-RAST (Pan America – Regional Aviation Safety Team) composed of experts from States and the industry. This group analyzes available data to identify trends related to mid-air collision precursors. Based on these analyses, they develop mitigation strategies aimed at reducing the likelihood of such events.

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[1] *The ICAO concept is Airborne Collision Avoidance System (ACAS). The Traffic Alert and Collision Avoidance System (TCAS) is a specific version of ACAS.*

2. Background

2.1 Document 9859, 4th Edition, highlights the advantages of collecting operational safety data and information, including mandatory and voluntary safety reporting systems and automatic data capture systems. These safety data and information allow service providers to identify hazards and support safety performance management activities at the service provider level. Sharing safety information has several advantages, one of the most important being hazard identification, which goes beyond the perspective of an individual service provider.

2.2 Data collection remains a major challenge for many service providers in air traffic services. This is partly because data collection relies primarily on the voluntary and mandatory reporting system of air traffic services. In cases where an adequate reporting culture has not been established, a significant number of events are not collected.

2.3 Although TCAS RA events should be reported as part of the ATSP's voluntary/mandatory data collection system, a significant number of events go unreported. This is particularly noticeable when comparing the number of events in the data collection systems of air operators with those of the ATSP.

2.4 Some events are not reported because they are not considered valid reportable events (e.g., level-off), do not trigger any alarm in the ATS surveillance system, and are not analyzed as part of the SMS for this service.

3. Problem Statement

a) Data collection for safety management within ATS SMS remains a significant challenge for several ATS providers. The lack of automated data collection systems and an adequate reporting culture are some factors influencing this task.

b) The majority of reported TCAS events in ATS are related to RAs; however, a significant gap in reporting numbers is common when comparing automated data capture systems from air operators with ATS provider data. Therefore, it is necessary to analyze the root cause of this discrepancy.

c) Other events not included in mandatory reports, such as TCAS TAs, could provide valuable information for ATS SMS analysis. However, capturing these in ATS is very complicated without automated systems.

4 Consequently, discuss the proposed topics in the workshop and formulate three (03) initiatives or actions to address each issue.

a) How can ATS access more effective and comprehensive information on TCAS alerts and related events to manage risks adequately and effectively contribute to reducing these types of events?

b) What might be the root cause(s) of the discrepancy between the number of TCAS events in the data systems of air operators and ATS providers?

c) Could analyzing all TCAS events, including TAs and RAs, improve ATS's hazard identification and risk management?

d) What other measures would you propose to improve risk management in air traffic services related to TCAS events and data collection for these?

Instructions for the Working Session on the use of TCAS advisories data for ATS safety management

1. Activities:

Participants in the GREPECAS/RASG-PA meeting will be divided into groups, and each group will nominate a rapporteur to present the working session results. The specific challenges related to collecting TCAS alert data and analyzing these events must be discussed.

2. Deliverable:

A PowerPoint presentation (4 to 6 slides) to present the results of the analysis of the questions posed in section IV of this IP.

3. Expected Results:

a) Identify opportunities to improve data collection of events affecting the operational safety of the air traffic services, specifically those related to TCAS events.

b) Support implementing a risk management improvement strategy in ATS directly related to the ATS SMS.

c) Enhance understanding among all stakeholders to strengthen safety by fostering data sharing.

d) Recommend enhancements/improvements for RASG-PA/MAC and GREPECAS/GTE.

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