



Agenda Item 2: SAT SOG ToRs implementation

e) Delimitation of the SAT geographical area and assignments for reviewing SAT-SOG Terms of Reference (TOR)

(Prepared by SAT SOG)

SUMMARY

This paper aims to clarify the area of operation of the SAT SOG (Safety Oversight Group), which is responsible for coordinating air traffic monitoring in the SAT region, as well as to define the geographical area of the SAT region and its boundaries. The study also aims to clarify the specificities of the SAT region and provide a careful analysis of the issues involved in defining the region's geographical area for safety monitoring purposes.

REFERENCES

- SAT-24 meeting
- SAT Handbook

1. Background

1.1 The SAT region is a vast area encompassing several nations and presenting specific challenges regarding air traffic monitoring. The SAT SOG, responsible for coordinating monitoring actions in the region, recognizes the difficulties arising from the territorial extension and the existence of two areas with such different profiles (EUR/SAM vs AORRA).

1.2 To address these challenges, two issues are identified: the need to define the geographic delimitation of the SAT and the gradual expansion plan for the SAT-SOG's area of operation, which would prioritize monitoring actions in areas with a higher traffic volume and where risk collision analysis is already being performed.

1.3 The plan would be divided into three phases and involve a statistical survey of air circulation and movement flow in the SAT region. The ultimate goal of the proposal is to enhance monitoring capabilities in the SAT region gradually and ensure air traffic safety in the area.

2. Geographic Delimitation of the SAT Area

2.1 A geographic area can be defined as a region delimited by natural and human characteristics that can be used to establish the boundaries of a given geographic area. This area can be categorized in different ways, depending on studies in various areas of knowledge.

2.2 The SAT manual formalizes an update in the organizational composition, work program, and work methodology of SAT to provide more flexibility and efficiency. The manual indicates an area of

operation for the SAT IMG Group, which is the EUR-SAM corridor and the AORRA area. The document also lists the member countries of the region.

2.3 Through the member countries, it can be understood that the SAT area corresponds to the entire area south of the NAT Region, comprising the FIRs: Lisbon (Portugal), Canarias (Spain), Casablanca (Morocco), SAL (Cape Verde), Piarco (Trinidad and Tobago), Cayenne (France), Dakar (Senegal), Abidjan (Ivory Coast), Accra (Ghana), Luanda (Angola), Namibia (Windhoek), Johannesburg (South Africa), Atlantic (Brazil), Montevideo (Uruguay), and Ezeiza and Comodoro Rivadavia (Argentina).



Image 1 - Analysis of FIRs in the South Atlantic area

2.4 As shown in Image 1, when comparing the areas of operation with the analyzed geographic area, it becomes evident that these areas are not overlapping. It is assumed that the SAT geographic area is the southern area of the NAT Region. Still, there needs to be a geographic description of the territorial boundary or specification of the SAT group's area of operation in its manual or any related publication.

2.5 The geographic delimitation of the SAT area is crucial to ensure the region's effectiveness in air traffic monitoring and airspace safety. The group recognizes that the delimitation of the South Atlantic geographic area for monitoring and implementation involves political and economic issues that require careful case analysis.

2.6 The group requests through this study note that the SAT Steering Group (SAT-SG) analyze and define the region's geographic area. Defining the geographic area will establish a clear strategy for monitoring the relevant regions and enable effective coordination among member countries. It will allow SAT groups to determine their priorities and allocate resources efficiently to ensure actions are taken to improve air traffic safety in the region.

3. SAT SOG's Area of Operation for Safety Supervision

3.1 Once the SAT region's area was established, it was observed that it is a vast area encompassing many States, presenting specific challenges regarding air traffic monitoring. SAT SOG acknowledges the difficulties arising from the territorial extension and the existence of areas with such distinct profiles (EUR/SAM vs AORRA vs NO DATA).

3.2 By analysing the information in the Implementation Group Terms of Reference (SAT-IMG), it is stated that the group shall study, monitor, assess and improve air navigation system capacity in light of the evolution of traffic characteristics in the EUR-SAM Corridor and AORRA areas. Thus, SAT SOG understands that the group's area of operation corresponds to the EUR/SAM corridor and the AORRA area. However, it emphasises that the information regarding the SAT SOG group's area of operation is not explicitly stated in its Terms of Reference (TOR) for monitoring purposes.

3.3 This lack of explicit information regarding the group's area of operation could have implications for monitoring and safety oversight, as it may make it more difficult to track and analyse the group's activities in specific regions. Knowing the group's area of operation would allow for more targeted monitoring and oversight, which could help to ensure that safety standards are being met in those regions

4. Gradual Expansion Plan of SAT SOG's Area of Operation

4.1 Due to being a vast area that accommodates two distinct air traffic profiles, low-density, and high-density traffic, it is essential to adopt a strategic approach that contemplates the gradual expansion of monitoring capabilities to ensure air traffic safety in this region. A strategic approach to expanding monitoring capabilities in the SAT region would involve identifying areas that require enhanced monitoring, determining the type of monitoring needed, developing an implementation plan, and monitoring and evaluating the effectiveness of the measures that have been implemented.

4.2 To initiate monitoring actions in the region, it is necessary to analyze the group's area of operation, considering the number of aircraft movements in the region and air circulation. The idea is to propose a progressive and gradual expansion of the monitoring area of operation as the number of movements increases and new technologies are implemented.

4.3 In its area of operation plan proposal, the SAT SOG prioritizes monitoring actions in areas with higher traffic volume and where RMAs already perform risk collision analysis. They can be divided into groups to understand better and organize these areas. The area with the highest traffic volume can be referred to as the ALPHA area, the area with the lowest traffic volume as the BETA area, and related areas as the GAMMA area. The plan will be divided into 3 phases:

- a) Phase 1: SAT SOG and RMAs will map the air circulation and movement flow in the region. For this, the SAT region states should send their air movements from December 2018, 2019, 2020, 2021, and 2022 to their respective RMAs. An Ad-Hoc group will be created to conduct statistical surveys of the number of movements and air circulation in the SAT region.
 - Milestone: Statistical survey of ALPHA, BETA, and GAMMA areas and the circulation profile of each area.
- b) Phase 2: Based on the statistical survey and circulation profile obtained in Phase 1, an Ad-Hoc group will be created to establish the monitoring actions to be taken in the ALFA area. Initiatives will be promoted to supervise safety in this region, such as analyzing collision risk assessment methodologies used in the SAT region and proposing a solution to address any discrepancies. In the BETA area, statistical monitoring will be carried out in conjunction with the SAT IMG and aviation industry

members, and a profile of this region will be established. In the GAMMA area, statistical monitoring will be carried out to establish a monitoring profile of the region based on existing technologies.

- Milestone: Annual safety reports of the ALFA area and statistical mapping of the BETA and GAMMA areas.
- c) Phase 3: After mapping the BETA and GAMMA areas, a feasibility study should be conducted to progressively develop safety supervision actions in the region so that the annual safety reports include the ALFA, BETA, and, if possible, GAMMA areas.
- Milestone: Annual safety reports of ALFA, BETA, GAMMA areas.

4.4 To initiate Phase 1, member countries of the SAT, including Portugal, Spain, Morocco, Cape Verde, Trinidad and Tobago, France, Senegal, Ivory Coast, Ghana, Angola, Namibia, South Africa, Brazil, Uruguay and Argentina, are requested to send their air traffic movements for December of 2018, 2019, 2020, 2021, and 2022 to their respective RMAs. Only with this data will it be possible to study air traffic movements to implement the planning and implementation phases of the SAT SOG action plan for the SAT coverage area.

4.5 In summary, to ensure air traffic safety in the SAT region, adopting a strategic approach that includes the gradual expansion of monitoring capabilities is essential. The measures proposed in this study aim to improve monitoring in the SAT region to ensure safe and efficient air traffic for all SAT member countries.

5. Action by the meeting:

5.1 The meeting is invited to:

- a) consider the information presented in this paper;
- b) approve the plan for the SAT SOG's Area of Operation;
- c) request the SAT Region Member States to submit air traffic movement data for December 2018, 2019, 2020, 2021, and 2022 for mapping purposes;
- d) approve and establish an Ad-Hoc group to conduct statistical surveys of the ALFA, BETA, and GAMMA areas and the circulation profile of each area; and
- e) forward the SAT SOG's request for a study to geographically delineate the SAT area.