



**Twenty-first Meeting of the CAR/SAM Regional Planning and Implementation Group  
 (GREPECAS/21)**

Santo Domingo, Dominican Republic, 14 to 17 November 2023

**Agenda Item 4: GREPECAS Work Programme (ATM Programme)**

**URBAN AIR MOBILITY**  
 (Presented by Brazil)

<b>EXECUTIVE SUMMARY</b>	
<p>This Working Paper presents a vision of Urban Air Mobility (UAM) and proposes the establishment of a group of regional representatives for the exchange of projects, work and experiences on the subject.</p>	
<b>Action:</b>	<p>The Meeting is invited to:</p> <ul style="list-style-type: none"> <li>a) Encourage States and International Organizations to present suggestions and comments on the topics presented.</li> <li>b) Evaluate the possibility of each interested State indicating representatives to participate in a group with the objective of sharing information on experiences, projects and conceptualization and regulation proposals for eVTOL aircraft operations.</li> </ul>
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> <li>• Air navigation capacity and efficiency;</li> <li>• Economic development of air transport.</li> </ul>
<i>References:</i>	<ul style="list-style-type: none"> <li>• 41<sup>st</sup> ICAO Assembly;</li> <li>• GATMOC;</li> <li>• GANP.</li> </ul>

**1. Introduction**

1.1 Aviation plays a fundamental role in society, connecting individuals and facilitating commercial transactions on a global scale. Thanks to increasingly safe and reliable operations, aviation has become an important driver of sustainable economic development and improvement of people's quality of life. This advance is associated with technological changes in the automation, telecommunications, information technology, and navigation sectors, including onboard equipment and satellite capabilities. The use of these new technologies drives notable progress in the safety and efficiency of Air Traffic Management (ATM), in addition to promoting the use of airspace by new and diverse participants.

1.2 In today's world, the main challenge is to integrate new types of aircraft into the airspace structure. In this sense, electric aircraft with vertical takeoff and landing capacity, known as eVTOL (Electric Vertical Take Off and Landing), due to their sustainable characteristics and lower environmental impact, are a novelty that has captured the attention of the aeronautical industry, and investors from all over the world. However, the integration of these new aircraft into a highly regulated environment (with almost eight decades of history) must be carried out through a rigorous evaluation of the possible impacts on other airspace users. To enable this integration and make air operations of eVTOL aircraft viable, the concept of Advanced Air Mobility (AAM) is being developed.

1.3 The term AAM includes the use of these new types of aircraft in Urban Air Mobility (UAM), Regional Air Mobility (RAM), public services, cargo delivery, as well as their use as private, recreational or military vehicles. In addition, AAM encompasses integration with the UTM environment. In the context of this Working Paper, we will focus specifically on UAM.

## **2. Importance of Urban Air Mobility**

2.1 Although there is an expectation of these air operations starting in large cities, the trend is to expand to adjacent areas in a regional context. In this way, a more rational and integrated use of transport modes is expected in large cities, facilitating movement in urban and suburban areas. As a result, advancement in battery technology tends to increase the range of these aircraft and enable access to even more distant locations.

2.2 With a view to preparing this new air operations environment, work is being carried out in different countries to enable the transition towards the ATM (Air Traffic Management) of the future in a carefully planned manner and, thus, supporting the growing volume of air operations in urban environments.

2.3 When evaluating the necessary demands for the implementation of the UAM environment, the possibility of advancing in the application of the concepts established in the Global Air Traffic Management Operational Concept (GATMOC) (ICAO, 2005) and the Global Air Navigation Plan (GANP) is observed (ICAO, 2019). Since the UAM environment is composed of a relatively small area compared to the traditional ATM system, these new operations can strategically serve as a proof of concept for initiatives such as TBO (Trajectory-Based Operations) and 4DT (4D Trajectory Management). Therefore, innovations related to Unmanned Traffic Management (UTM) and UAM concepts represent a catalyst to accelerate and enable the implementation of the ATM system of the future.

2.4 Furthermore, the effectiveness of eVTOL operations represents great potential to generate economic, social and environmental benefits for society. This effect could be amplified if the expectation of scalability in the number of operations is considered, especially in urban environments.

2.5 For the implementation of the UAM concept, a restructuring of the airspace in which this concept is applied is required, as well as progressive technological and regulatory improvements in the provision of services to users to allow an increase in the number of flights, maintaining safety levels compatible with what is required for air operations.

2.6 To meet the potential demand of this segment, a significant number of eVTOL aircraft is expected to share airspace with other manned and unmanned aircraft in urban and suburban environments. It will be necessary to integrate the various types of operations through regulations and the provision of a robust and reliable infrastructure.

### **3. ICAO Action and Creation of a Regional Group**

3.1 In the absence of specific rules established by the International Civil Aviation Organization (ICAO), public and private institutions began to develop concepts for the regulatory structure of Advanced Air Mobility (AAM). For example, the Federal Aviation Administration (FAA) and the European Union Aviation Safety Agency (EASA) are developing regulations for eVTOL aircraft. Similarly, DECEA continues to carry out studies to prepare the Brazilian Airspace Control System (SISCEAB) for this new stage of world aviation.

3.2 Responding to the demand of various countries, ICAO, during the 41st Assembly held in 2022, decided to establish a group of experts to form a study group related to the topic of Advanced Air Mobility (AAM-SG). This work is carried out collaboratively, with the participation of representatives from the States and the industry. The objectives of this group include developing a global vision for the AAM concept. Brazil has representatives in this group and is an active participant.

3.3 Given the progress of the work carried out in different countries, it would be advisable to create a group of interregional experts from the CAR/SAM regions who meet periodically to share information on the progress of the AAM-SG group, experiences, projects and proposals for the conceptualization and regulation of eVTOL aircraft operations.

### **4. Suggested Actions**

4.1 The Meeting is invited to:

- a) Encourage States and International Organizations to present suggestions and comments on the topics presented; and
- b) Evaluate the possibility of each interested State indicating representatives to participate in a group with the objective of sharing information on experiences, projects and conceptualization and regulation proposals for eVTOL aircraft operations.

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