



**WORKING PAPER**

**ASSEMBLY — 42ND SESSION**

**TECHNICAL COMMISSION**

**Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives**

**IMPLEMENTATION OF A TROPICAL CYCLONE ADVISORY CENTRE (TCAC) IN BRAZIL:  
PROCESS AND OPERATIONAL SUPPORT**

(Presented by Brazil)

**EXECUTIVE SUMMARY**

This document presents the importance of implementing the requirement for the provision of tropical cyclone monitoring and information services in the South Atlantic, to support international air navigation as part of the *Global Air Navigation Plan* (Doc 9750). In this context, Brazil, supported by operational exchanges with other States, is working to establish a Tropical Cyclone Advisory Centre (TCAC) in the Western South Atlantic coverage area to be defined in the requirement

**Action:** The Assembly is invited to:

- a) take note of the information mentioned in this working paper;
- b) support Brazil's initiative to assume responsibility for a TCAC; and
- c) urge ICAO to engage with the World Meteorological Organization (WMO) on Brazil's behalf to formally consider Brazil's candidacy for establishing a TCAC at the Centro Integrado de Meteorologia Aeronáutica (CIMAER).

<i>Strategic Goals:</i>	This working paper relates to <i>Every Flight is Safe and Secure</i> .
<i>Financial implications:</i>	Expected only for Brazil.
<i>References:</i>	Annex 3 — <i>Meteorological Service for International Air Navigation</i> Doc 8896, <i>Manual of Aeronautical Meteorological Practice</i> Doc 10003, <i>Manual on the ICAO Meteorological Information Exchange Model</i>

## 1. INTRODUCTION

1.1 The establishment of a Tropical Cyclone Advisory Centre (TCAC) in Brazil represents a significant step forward in monitoring the southern portion of the Atlantic Ocean, an area within Brazilian -controlled airspace. Although no hurricanes have been reported in the region since Hurricane Catarina in 2004, tropical depressions and storms (stages that precede the formation of a hurricane) have occurred quite frequently over the last twenty years.

1.2 In 2021, at the Meteorology Panel Working Group on Meteorological Operations Group fourteenth meeting (WG-MOG/14), it was noted that the designation of TCACs to cover the eastern portion of the North Atlantic and the western portion of the South Atlantic was further consulted, respectively, with the ICAO European and North Atlantic Office and the South American Office, to verify the status of establishing TCACs for the aforementioned areas.

1.3 In 2023, the northern coast of São Paulo experienced extreme rainfall that far exceeded initial forecasts. Although the National Institute of Meteorology (INMET) had predicted heavy precipitation for the period, the actual volume was significantly greater than anticipated. Favourable weather conditions contributed to this anomaly, including the transport of Amazonian moisture to the Southeast and the influence of an extratropical cyclonic system, which intensified rainfall. Within just 24 hours, the region recorded a dramatic accumulation of precipitation, resulting in a devastating catastrophe that claimed more than 60 lives.

1.4 In January 2024, a seminar organized by the SAM Workshop was held on tropical and extratropical cyclones and their reporting in aviation. During the event, Brazil expressed both its capability and intent to establish a TCAC under its responsibility.

1.5 None of the other countries participating in the seminar demonstrated any intention of being responsible for a TCAC in the South Atlantic, but many encouraged Brazil in this initiative, with a view to the evolution of aeronautical meteorological services in the SAM Region.

## 2. DISCUSSION

2.1 Following the impact of Hurricane Catarina, Brazilian meteorological institutions enhanced coordination and collaborative efforts and implemented collaborative actions regarding cyclones on the Brazilian coast.

2.2 By legal attribution, the Brazilian Navy provides the Marine Meteorological Service, through the Directorate of Hydrography and Navigation (DHN), with its operational centre located at the Navy Hydrography Centre (CHM), in Rio de Janeiro. CHM is responsible for monitoring, forecasting and disseminating the meteoceanographic conditions occurring in METAREA V, as defined by the World Meteorological Organization (WMO). As part of this attribution, it is necessary to monitor the formation of cyclones.

2.3 As mentioned, the CHM already monitors tropical and subtropical cyclones in part of the South Atlantic. The Integrated Centre for Aeronautical Meteorology (CIMAER) coordinates with the CHM the information needed to prepare the SIGWX Charts. INMET and the National Institute for Space Research (INPE), the latter through the Centre for Weather Forecasting and Climate Studies (CPTEC), interact with the CHM and CIMAER for a consensual and collaborative weather forecast.

2.4 Within this proposal, CIMAER would be responsible for TCAC, providing specialized aeronautical meteorological service for tropical cyclones, in accordance with the attributions set out in Annex 3, with the support of the other National Meteorological Institutions mentioned (Navy, INMET and INPE).

2.5 The Navy would continue to carry out meteorological surveillance in its area of responsibility and would support CIMAER in relation to the monitoring and forecasting of cyclones, with a view to forecasting by consensus. INMET would address issues relating to press releases and information to the general public, coordinating actions, when necessary, with other national and state meteorological institutions. INPE would work on developing specific atmospheric modelling for cyclone forecasts, as well as products and tools that support CIMAER and CHM in their activities.

2.6 Driven by DECEA's interest in designating CIMAER as a TCAC, it was deemed timely to study how the forecasting, monitoring, and dissemination of Tropical Cyclone Advisories are conducted by entities with extensive experience in this meteorological domain.

2.7 Thus, from 7 to 9 April 2025, a delegation from Brazil carried out an operational exchange at the Tropical Cyclone Advisory Centre (TCAC) in Miami, with the objective of understanding the infrastructure, staffing practices, and forecasting techniques employed in providing the meteorological service for forecasting and monitoring hurricanes in the North Atlantic.

2.8 This exchange confirmed that Brazil already possesses a suitable infrastructure to provide this service, and that it needs to focus on adequate training of existing human resources, increasing staff, strengthening institutional ties with other meteorology agencies in Brazil, and, finally, taking steps to make technical support available 24 hours a day, seven days a week, thus ensuring adequate availability of material resources to a centre that seeks to expand its level of responsibility.

2.9 Brazil is well-positioned to establish a TCAC for the Western South Atlantic, due to the following factors:

- a) Brazil provides suitable Meteorology structure;
- b) most of the area to be monitored is under Brazilian jurisdiction; and
- c) Brazil is the most affected country when a cyclone occurs in the region.

2.10 The Brazilian Navy, through the Navy Hydrography Centre (CHM), will be responsible for monitoring tropical and subtropical cyclones in METAREA V of the South Atlantic; and CIMAER will be responsible for preparing the tropical cyclone advisory (TCA) covering the South Atlantic.

### 3. CONCLUSION

3.1 Brazil has demonstrated both the operational capacity and institutional commitment necessary to establish and operate a TCAC for the Western South Atlantic. With its advanced meteorological infrastructure, strong interagency coordination, and active participation in international knowledge exchange, Brazil is well-positioned to take on this responsibility. This initiative aligns with ICAO's Global Air Navigation Plan. Establishing a TCAC under Brazilian coordination would significantly enhance aviation safety and meteorological services in a region currently lacking dedicated tropical cyclone support, thereby addressing a critical gap in global air navigation.

3.2 Accordingly, Brazil reaffirms its commitment to strengthening meteorological support for international aviation and stands ready to collaborate with ICAO and its Member States to formalize the designation of a TCAC in the South Atlantic region.

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