International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

E/CAR/CATG/4 — WP/14
05/09/18

Fourth Eastern Caribbean Civil Aviation Technical Group (E/CAR/CATG/4) Meeting
Saint George's, Grenada, 6 - 7 September 2018

Agenda Item 3: **Air Navigation Matters**

3.2 Follow-up on the implementation of the NAM/CAR Regional Performance Based air Navigation Implementation Plan (RPBANIP) Air Navigation Targets and Block-0 status in the Eastern Caribbean

UPDATE ON ICAO MET ACTIVITIES

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This working Paper presents an update of ICAO MET activities to be considered by the Eastern Caribbean Technical Group to address aeronautical meteorology matters in the E/CAR Region.	
Action:	The suggested action is presented in Section 3
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Economic Development of Air Transport
References:	• Report of the Eighteen Meetings of the CAR/SAM Regional Planning and Implementation Group (GREPECAS-18) • Report of the Fourth Meetings of the Programmes and Projects Review Committee (PPRC-4) • Regional Performance-Based Air Navigation Implementation Plan (RPBANIP)

1. Introduction

1.1 Following the reorganization of the Secretariat and the panel structure of ICAO in 2014, the Meteorology Panel (METP) was established at the fifth meeting of the 197th session of Air Navigation Commission (ANC 197-5) held on 30 September 2014. The panels of the ANC are technical groups of the qualified experts formed by the ANC. The purpose of a panel is to address specific problems or develop standards for the planned evolution of air navigation within specified timeframes which cannot be advanced within the ANC or established resources of the Secretariat.

1.2 The primary responsibility of the METP is to define and elaborate concepts and to develop ICAO provisions for Aeronautical meteorological (MET) services consistent with operational improvements envisioned by the Global Air Navigation Plan (GANP) (Doc 9750) and in keeping with the Working Arrangements between the International Civil Aviation Organization and the World Meteorological Organization (Doc 7475).

1.3 The CAR/SAM Planning and Implementation Regional Group (GREPECAS) was established by the ICAO Council (Recommendation 14/6 – SP CAR/SAM 1989, Doc 9543). In accordance with C-WP/13135, Council Decisions C-DEC 183/9 dated 18 March 2008, and C-DEC 190/4 dated 28 May 2010, the Terms of Reference of GREPECAS are as follows: a) continuous and coherent development of the CAR/SAM Air Navigation Plan and other relevant regional documentation in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs and reflecting global requirements; b) facilitation of the implementation of air navigation systems and services as identified in the CAR/SAM Air Navigation Plan, giving due priority to air safety; c) identification and aiding in addressing specific deficiencies in the air navigation field; and d) coordination of safety issues with Regional Air Safety Groups (RASGs).

1.4 The GREPECAS work programme is developed through project management methodology. The GREPECAS Programmes and Projects Review Committee (PPRC) is the authority to provide account of and to review the progress of each of the projects of the mechanism.

2. Discussion

2.1 The METP have developed three meeting comprising its five working groups: Meteorological Requirements and Integration (MRI), Meteorological Information and Service Development (MISD), Meteorological Information Exchange (MIE), Meteorological Operations Group (MOG), Meteorological Cost Recovery Guidance and Governance (Ad Hoc - MCRGG); the final reports of the meetings are available at: https://www.icao.int/airnavigation/METP/Pages/Panel-Meetings.aspx for reference.

2.2 The Fourth Meeting of the Meteorology Panel (METP/4) was scheduled in September 2018 at ICAO headquarters in Montreal, Canada. The meeting assessed the progress made by the five METP working groups and made recommendations on future work, and formulated proposals for amendment to ICAO Annex 3 to be included in future amendments to Annex 3. The outcomes of METP/4 will be reported to the ANC for consideration.

2.3 On 16 July 2018, Amendment 78 to ICAO Annex 3 became effective, with an applicability date of 8 November 2018 (except for certain provisions with applicability dates in 2019 and 2020). Amendment 78 has been published by ICAO as the 20th Edition of Annex 3 and is available for download via the ICAO Secure Portal (ICAO-NET).

2.4 Amendment 78 introduces the space weather advisory information service for aviation improves the provision of SIGMET and AIRMET information by meteorological watch offices (MWOs), modifies IWXXM representations of meteorological information, as well as other changes. The guidance materials will also be updated to support implementation.

2.5 The GREPECAS MET Projects approved by the PPRC are listed as follows:

H2 - Meteorological watch for the monitoring of en-route severe phenomena, volcanic ash, tropical cyclones and the release of radioactive material.
H3 - Implementation of the quality management system for the provision of the meteorological service for international air navigation (QMS/MET).
H-4 - Optimisation of OPMET exchange, including SIGMETS (Ws, Wv, Wc, and Wr), warnings and meteorological alerts.

2.6 Description of the Projects are presented in **Appendices A**, **B** and **C**, including: Objectives, Description, Activities, Responsibilities, Resources – experts and budget, Results – outputs, deliverables Schedule – Programme, milestones, terms, among others.

3. Suggested Actions

3.1 The Meeting is invited to:

a) Note of the information contained in this working paper, particularly, the Amendment 78 to Annex 3 and review the H2, H3, and H4 projects activity plan presented in the Appendices;

b) designate experts and contributors to develop the projects activity plan; and

c) recommend additional actions as deemed appropriate,

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APPENDIX A

PROJECT H2 IMPLEMENTATION OF METEOROLOGICAL WATCH FOR THE MONITORING OF EN-ROUTE SEVERE PHENOMENA, VOLCANIC ASH, TROPICAL CYCLONES AND THE RELEASE OF RADIOACTIVE MATERIAL

CAR Region	PROJECT DESCRIPTION (PD)	PD N° H2	
Programme	**Project Name**	**Start**	**Finish**
Aeronautical Meteorology *Programme Coordinator:* *Luis Raúl Sánchez Vargas*	IMPLEMENTATION OF METEOROLOGICAL WATCH FOR THE MONITORING OF EN-ROUTE SEVERE PHENOMENA, VOLCANIC ASH, TROPICAL CYCLONES AND THE RELEASE OF RADIOACTIVE MATERIAL Project Coordinator: Ivan González (Cuba) Experts contributing to the project: Enrique Camarillo (México) Humberto Hernandez Peralta (México) Marco Antonio Coria Rodriguez (México) Glendell De Souza (Trinidad y Tabago)	March 2018	September 2020
Objective	Ensure that States implement the IAVW, Annex 3 Standards and Recommended Practices (SARPs) and CAR/SAM eANP (replacing basic Doc 8733), concerning the issuance and distribution of SIGMET information that could affect safety of aircraft operations.		
Scope	The Project comprises Meteorology Watch Offices (MWO) of the CAR Region included in the CAR/SAM e-ANP in coordination with ACC/FIC/NOF, and the Buenos Aires and Washington Volcanic Ash Advisory Centres (VAAC). The procedures for issuing of advisories and messages, the coordination between affected air spaces, as well as the transfer of responsibilities between MWOs will be reviewed and verified. Procedures for the transfer of responsibilities and assistance between the RSMC and the MWO will be defined.		
Metrics	SIGMET Tests continuous improvement. Amount of States with operational procedures implemented		
Strategy	The Project Deliverables will be executed by experts nominated by the CAR Region States, under the direction of the Project coordinator and MET Programme Coordinator oversight through GoToMeeting. Once deliverables are completed, the results will be submitted to the MET Programme Coordinator as a final document to be presented and if the case, for GREPECAS CRPP approval through the GREPECAS fast-track Procedure.		
Goals	100% SIGMET Tests acceptance, in terms of transmission and reception; 100% Of the States with operational procedures.		
Rationale	Severity, persistence, and increased frequency of volcanic activity, tropical cyclones, other severe weather phenomena and the release of radioactive materials into the atmosphere, impacting the Air Navigation Services provision, lead to the need to review, verify and implement operational procedures to increase safety of aircraft operations.		
Related Projects	➢ Air Space in-route structure optimization ➢ ATFM Implementation		

Deliverables of the Project	Relationship with RPBANIP	Responsible	Implementation Status	Date of Delivery	Comments
SIGMET Guide reviewed, updated and aligned to the ICAO template.	RPO 8	Luis Sánchez Ivan Gonzalez Enrique Camarillo Glendell De Souza		June 2018	Guidelines for the Standardization and harmonization of procedures and formats related to the preparation and issuance of Aeronautical Meteorology Information related to en-route severe weather and other phenomena in the atmosphere. Responsibility transition between MWO´s procedures.
Learning Material to train MWOs technical staff	RPO 8	Ivan Gonzalez Enrique Camarillo Glendell De Souza		July 2018	Syllabus including: Necessary Trainer profile. Course General Information. Course Objectives. Course rules and policies. Grading and evaluation method. Learning Resources. Course Calendar
United States NWS Chat Implementation as a redundant mechanism for the interregional coordination.	RPO 8	Luis Sánchez Ivan Gonzalez Marco Antonio Coria		August 2018	
ICAO Doc 9766 Part V update	RPO 8	Ivan Gonzalez Enrique Camarillo Glendell De Souza		May 2018	
Guide to perform Regional SIGMET exercises	RPO 8	Iván Gonzalez States		December 2018, 2019	Guidance on the purpose, scope and procedures to perform Regional SIGMET practices.
Information Paper on AMDAR implementation in Mexico and it´s usage in SIGMET preparation	RPO 8	Luis Sánchez Humberto Hernandez Peralta		June 2018	
Protocols for radioactive material released or radioactive clouds cases in the FIR	RPO 8	Luis Sánchez Ivan Gonzalez Marco Antonio Coria		August 2018	Protocol Model including procedures for radioactive material released. Include contingency protocols in coordination with National ATS authority. Teleconference to introduce the Protocol.

SIGMET and Radioactive Material Regional Seminar/Workshop Proposal	RPO 8	Luis Sánchez		December 2018	Workshop for States technical capabilities development to enable proper response to radioactive material released in the FIR To be managed in coordination with WMO, ICCAE/COCESNA.
Agreement Models involving Meteorological authorities, State volcano observatories, aeronautical information service authorities and ATS authorities.	RPO 8	Ivan Gonzalez Marco Antonio Coria		January 2019	
Project Final Report	RPO 8	Luis Sánchez Ivan Gonzalez		September 2020	
Necessary Resources	Funds to conduct meetings, translation of relevant documentation and publication in the NACC Regional Office Web Site. Availability for GoToMeeting.				

Grey *Task not started yet*
Green *Activity being implemented as scheduled*
Yellow *Activity started with some delay, but will be implemented on time*
Red *Activity not implemented on time; mitigation measures are required*

APPENDIX B

PROJECT FOR THE IMPLEMENTATION OF THE QUALITY MANAGEMENT SYSTEM FOR THE PROVISION OF THE METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION (QMS/MET)

CAR Region	PROJECT DESCRIPTION (DP)	PD N° H3	
Programme	**Title of the Project**	**Start**	**End**
Aeronautical Meteorology ***Programme Coordinator**:* *Luis Raúl Sánchez Vargas*	IMPLEMENTATION OF THE QUALITY MANAGEMENT SYSTEM FOR THE PROVISION OF THE METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION (QMS/MET) **Project coordinator:** Haley Anderson (Trinidad and Tabago) **Experts contributing to the project:** Carlos Fornés Valdés (Cuba) Marco Antonio Coria Rodriguez (México) Humberto Hernandez Peralta (México) Alejandro Bartolomé (Dominican Republic)	*March 2018*	*September 2020*
Objective	Assist States in the implementation of the QMS/MET and certification, where applicable, establish guidelines for the transition to the standard ISO 9001:2015 and projected to the interoperability of meteorological information in compliance with the provisions of Annex 3.		
Scope	Establishment and application of a Quality Management System at the Meteorological Offices in compliance with the standards and recommended practices of Annex 3 and the CAR/SAM e-ANP, Vol. I and Vol. II.		
Metrics	Number of States certified under ISO 9001:2015		
Goals	50% of CAR States apply and certify QMS/MET in accordance with standard ISO 9001:2015 on 31 December 2019; and 100% of CAR States have QMS/MET certified by an organization in accordance with standard ISO 9001:2015 by December 2020.		
Strategy	The Project Deliverables will be executed by experts nominated by the CAR Region States, under the direction of the Project coordinator and MET Programme Coordinator oversight through GoToMeeting. Once deliverables are completed, the results will be submitted to the MET Programme Coordinator as a final document to be presented and if the case, for GREPECAS CRPP approval through the GREPECAS fast-track Procedure.		
Rationale	Ensure the establishment and implementation of a properly organized quality system will contribute towards the safety, regularity and efficiency of international air navigation, improving ATM, optimizing the use of available aerodrome capacity and minimizing the environmental impact of air traffic. Performance management will be an important part of the quality assurance.		
Related projects	Air Space in-route structure optimization ATFM Implementation		

Project deliverables	Relationship with RPBANIP	Responsible	Status of Implementation1	Delivery Date	Comments
Corroborate the objectives of the QMS with the Manual on the quality management system for the provision of meteorological service for international air navigation Doc. 9873 ICAO / WMO	RPO 8	- Luis Sánchez - Haley Anderson - Alejandro Bartolomé		April 2018	
ICAO / WMO Regional level coordination to determine the CAR region QMS/MET implementation status ensuring reliable and verifiable information.	RPO 8	- Luis Sánchez - Haley Anderson - Alejandro Bartolomé		June 2018	Tool: Gap Analysis
Integration of CAR States into the WMO quality management forum.	RPO 8	- Luis Sánchez - Haley Anderson		June 2018	Tool: Email of instructions for joining WMO QMF
Dissemination of the guide for the implementation of Quality Management Systems for national meteorological and hydrological services and other relevant service providers - WMO-No 1100 Edition 2017	RPO 8	- Luis Sánchez - Haley Anderson		June 2018	Tool: Correspondence from NACC Office with instructions for accessing the Guide
Analysis of HRM processes to incorporate competency and qualification requirements of Aeronautical Meteorology Personnel, retraining and policies for continuous professional development.	RPO 8	- Haley Anderson - Humberto Hernandez		July 2018	
Plan for the evaluation of competences and qualification of aeronautical meteorological personnel.	RPO 8	- Haley Anderson - Humberto Hernandez		August 2018	

Project deliverables	Relationship with RPBANIP	Responsible	Status of Implementation1	Delivery Date	Comments
Virtual workshop for the interpretation of the ISO 9001: 2015 Standard and an implementation strategy.	RPO 8	- Luis Sánchez - Haley Anderson		September 2018	
Assessment of ISO 9001:2015 QMS implementation status, identification of areas for improvement, and the recommendation of corrective actions to be taken.	RPO 8	- Luis Sánchez - Haley Anderson		August 2019 August 2020	Tool: Gap Analysis New project deliverables may be developed based on findings
Installation and on-site training of SAETAF for the CAR / SAM States that require it.	RPO 8	- Carlos Fornés Valdés (Cuba)		September 2020	Cuba in coordination with WMO and ICAO will provide on-site installation and training to the CAR States at no cost. The states must guarantee passage and per diem of the experts according to the norm for the UN agencies.
Final Project Report	RPO 8	- Luis Sánchez - Haley Anderson		September 2020	
Necessary resources	Availability for GoTo Meeting teleconferences is required				

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APPENDIX C

PROJECT FOR THE OPTIMISATION OF OPMET EXCHANGE, INCLUDING SIGMETs (WS, WV, WC, AND WR), WARNINGS AND METEOROLOGICAL ALERTS

CAR Region	PROJECT DESCRIPTION (DP)	DP N° H4	
Programme	**Project Name**	**Start**	**End**
Aeronautical Meteorology ***Programme Coordinator:*** *Luis Raúl Sánchez Vargas*	OPTIMISATION OF OPMET EXCHANGE, INCLUDING SIGMETs (WS, WV, WC, AND WR), WARNINGS AND METEOROLOGICAL ALERTS **Project Coordinator:** Enrique Camarillo (México) **Project Expert contributors:** Uvaldo René Milián Díaz (Cuba) Marshandy Luciano (Curacao) Alejandro Bartolome Reynoso (Dominican Republic) Raul Adalberto Murillo Silva (El Salvador) Marco Antonio Coria Rodriguez (México) Haley Anderson (Trinidad and Tobago)	*March 2018*	*September 2020*
Objective	Assist in the preparation and dissemination of METAR / SPECI reports and TAF aerodrome forecasts, timely and of high quality in the main airports of 100% of the States and Territories of the CAR Region; Assist the Meteorological Watch Offices (MWO) of the CAR Region, in the preparation and dissemination of timely and quality SIGMET messages for 100% of the Flight Information Regions (FIR) of the CAR Region.		
Scope	Correct preparation and timely dissemination of operational meteorological information involves the units that provide Meteorological Service for International Air Navigation and the international OPMET databanks.		
Metrics	The reception percentage measurement of OPMET information according to Annex 3, Appendix 10. The correct preparation (quality) of the OPMET information according to technical specifications of Annex 3, Appendices 3, 4, 5 and 6.		
Goals	Achieve at least 85% efficiency in the reception of high quality OPMET information for December 31, 2019, during the operating hours of the CAR Region aerodromes included in the FASID MET II-2 Table of the e-ANP , certified by ICAO.		
Strategy	The Project Deliverables will be executed by experts nominated by the CAR Region States, under the direction of the Project coordinator and MET Programme Coordinator oversight through GoToMeeting. Once deliverables are completed, the results will be submitted to the MET Programme Coordinator as a final document to be presented and if the case, for GREPECAS CRPP approval through the GREPECAS fast-track Procedure		
Justification	More timely meteorological information will optimize flight path planning and prediction, thus improving ATM system safety and efficiency. Meteorological information will also minimize the environmental impact of air traffic.		
Related Projects	En-route air space structure optimization ATFM Implementation		

Project Deliverables	Relation with the RPBANIP	Responsible	Implementation Satatus[1]	Delivery Dates	Comments
FASID MET Charts electronic Air Navigation Plan verification	RPO 8	- Trinidad and Tobago for the Eastern Caribbean - Marshandy Luciano For the Netherlands Territories. - Raul Murillo for Central America - Uvaldo René y Alejandro Reynoso For Major Antilles and Central Caribbean - Marco Antonio Coria for Mexico		April 2018	
OPMET Information efficiency and quality controls available in the Brasilia and Washington OPMET International Data Bank; equally through USA NWS Kansas City Aviation Weather Center, and airlines operational Centres as coordinated with IATA.	RPO 8	- Enrique Camarillo		April 2018	
Update the e-ANP FASID MET tables.	RPO 8	- Luis Sánchez - Enrique Camarillo - States		July 2018	
Working Paper to propose the elaboration of METAR reports every 30 minutes in the most critical airports and schedules (IATA concept)/define a metric to allow the proposal implementation.	RPO 8	- Luis Sánchez - Enrique Camarillo		August 2018	Background for the implementation of METAR Reports every 30 minutes in EUR/NAT region will be requested to the Regional Officer.
Exchange OPMET tests in XML/GML Format.	RPO 8	- Enrique Camarillo		To be determined	The feasibility of executing this activity will be reviewed
IWXXM Implementation Regional Workshop.	RPO 8	- Luis Sánchez - Enrique Camarillo		2018	It is planned to develop a workshop including Space Meteorology
Project Final Report.	RPO 8	- Luis Sánchez - Enrique Camarillo		September 2020	
Necessary Resources	Funds for meetings with the project members to assess results and propose correcting actions. Availability for GoToMeetings.				

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