



Agenda Item 3: Assessment of development of regional air navigation and security infrastructure

3.3 Report of the AERMETSG/8 Meeting

(Presented by the Secretariat)

SUMMARY

This working paper summarizes the results of the discussions carried out during the Eighth Meeting of the GREPECAS Aeronautical Meteorology Subgroup (AERMETSG/8).

References

- Report of the AERMETSG/8 Meeting, (Santiago, Chile, 9 to 13 October 2006);
- Air Navigation Plan for the Caribbean and South American Regions, Doc 8733;
- GREPECAS/13 Report (Santiago de Chile, 14 to 18 November 2005);
- Report of the RAN CAR/SAM/3 Meeting (Buenos Aires, Argentina, October 1999); and
- GREPECAS Procedural Handbook.

1. Background

1.1 The Eighth Meeting of the GREPECAS Aeronautical Meteorology Subgroup (AERMETSG/8) was held in Santiago, Chile, from 9 to 13 October 2006. The Meeting was attended by one participant from the CAR Region, 10 from the SAM Region, one representing IATA, one representing IFALPA and two representing the World Meteorological Organization (WMO), for a total of 24 participants.

1.2 The Subgroup formulated sixteen (16) Draft Conclusions and two (2) Draft Decisions included as **Appendix A** to this working paper. Three (3) Decisions were formulated, which require internal actions by the Subgroup.

2. Discussion

2.1 Review of actions taken on the MET Meetings Reports

2.1.1 Under this Agenda Item, the Meeting examined the actions taken by the Air Navigation Commission (ANC), by CAR/SAM States/International Organizations and/or by the ICAO Secretariat, regarding Draft Conclusions/Decisions formulated by the Seventh Meeting of the Aeronautical Meteorology Subgroup (AERMETS/7) held in Mexico City, 23 to 27 May 2005, and the respective Conclusions/Decisions adopted by GREPECAS/13 (14-18 November 2005). Also reviewed were actions taken with regard to Conclusions/Decisions, pending implementation adopted by GREPECAS in the MET field in past Meetings and the implementation status of recommendations and conclusions of the CAR/SAM/3 RAN Meeting in the MET field.

2.1.2 The Meeting also analyzed the State surveys of the CAR/SAM Regions IATA and IFALPA in order to determine the need for VOLMET services in these two Regions; however, no agreement was reached in this regard, and it was decided that study should continue in order to reach an agreement.

2.2 WAFS Implementation in the CAR/SAM Regions

2.2.1 The Subgroup reviewed the implementation status of Conclusions 1/2 and 2/2 – Amendment to WAFS-related regional procedures in the ANP/FASID, formulated by the WAFSOPSG/1 (Lima, Peru, November 2003) and by the WAFSOPSG/2 (Bangkok, Thailand, March 2005), respectively. The ISCS User Guide draft, in connection with Conclusion 2/5 of the referred Group, in accordance with GREPECAS Conclusion 12/55 was also reviewed.

2.2.2 The Meeting recalled that following WAFSOPSG/2 Conclusion 2/12, paragraph a), WAFS provider States extended the provision of SIGWX forecasts in T4 chart form until 30 November 2006. Likewise, following paragraph b) of the same Conclusion, THE ICAO Lima and Mexico Offices circulated a survey to verify the implementation of effective reception and use of BUFR code in SIGWX forecasts. Based on the results of the survey, the Meeting took note that the number of CAR States replies were minimal, which led to formulation of **Draft Conclusion 8/1**.

2.2.3 With respect to Conclusion 13/16 - Cost Recovery of Aeronautical MET services in the CAR/SAM Regions, the Meeting noted with concern that the lack of implementation in most States. Regarding Conclusion 13/17 – Survey on ISCS Efficacy, the Meeting agreed to carry out the survey during the first quarter of 2007.

2.2.4 The Meeting received with pleasure and provided thanks for the information provided by the WAFS Provider State concerning the U.S. National Weather Service (NWS) Telecommunications Operations Center (TOC), which operates the ISCS Help Desk 24 hours a day, 7 days a week. Thirty-one (31) requests for help from twenty-one (21) member States were processed and resolved during the 12-month period between September 2005 and August 2006.

2.2.5 The Subgroup noted that ISCS users can find information on how to report problems related to the reception of WAFS data at: <http://www.weather.gov/iscs/trouble.htm>. This site also contains an installation and troubleshooting guide for the VSAT receiver and satellite modem and antenna. ISCS users without access to the internet may report problems by calling the ISCS Help Desk at 1-303-713-0902 or by sending a FAX to 1-301-587-1773. Likewise, the Meeting noted that requests to SADIS Provider State could also be made to the following e-mail: greg.brock@metoffice.gov.uk.

2.2.6 The Meeting noted ISCS availability; specifically, that during the 12-month period from August 2005 through July 2006, ISCS was available over 99.94% of the time and that the 99.9% availability requirement was exceeded every month except November 2005. Recognition of this fact was expressed to the WAFS Provider State.

2.3 **Implementation of the International Airways Volcano Watch (IAVW) in the CAR/SAM Regions**

2.3.1 The Meeting noted the conclusions of the First (IAVWOPSG/1) and Second (IAVWOPSG/2) Meetings of the International Airways Volcano Watch Operations Group, held from 15 to 19 March 2004, in Bangkok, Thailand and from 26 to 30 September 2005, in Lima, Peru, respectively, regarding the actions to be taken by GREPECAS or other interested parties.

2.3.2 The Meeting received with pleasure the draft Guide for the preparation of Emergency Plans for Aerodromes – Natural Disasters – Volcanic Ash in the CAR/SAM Regions, related to Conclusion 13/23. It was agreed that as long as the referred Guide is finalized for GREPECAS approval, that CAR/SAM States analyze the effectiveness of the call plan diagram contained in the referred draft, included as **Appendix B** to this working paper. Furthermore, it was agreed that the referred diagram should be presented by the Rapporteur of the Task Force on Volcanic Ash and member of the IAVWOPSG on behalf of CAR/SAM Regions, to the Third Meeting (IAVWOPSG/3). (**Draft Conclusion 8/2**).

2.3.3 The Subgroup reviewed the work carried out by the Task Force on Volcanic Ash and agreed that for the preparation of the Guide for Emergency Plans for Aerodromes – Natural Disasters – Volcanic Ash, additional factors should be considered.

2.3.4 Furthermore, the Meeting took note that Meteorological Watch Offices (MWO) are not receiving special volcanic activity air-report forms, in spite of the fact that copies of same are being included with flight documentation provided to flights operating on routes, which could be affected by volcanic ash clouds. (**Draft Conclusion 8/3**).

2.4 **Implementation of the issuance of SIGMET in the CAR/SAM Regions**

2.4.1 When reviewing this agenda item, the Meeting was aware that following Recommendation 1/12 of the MET Divisional Meeting (Montreal, 2002), the ICAO South American Regional Office prepared the seventh edition of the *Guide on the Preparation, Dissemination and Use of SIGMET Messages*, which was distributed among CAR/SAM States by the Lima and Mexico Offices in June 2006, and that in spite of this, deficiencies in the preparation, as well as in the issuance of SIGMET messages, particularly those related to volcanic ash, continue to appear. In this regard, the Subgroup formulated **Draft Conclusion 8/4**.

2.5 **OPMET information exchange in the CAR/SAM Regions**

2.5.1 The Subgroup took note of the results obtained in OPMET exchange controls received from eleven (11) States from the SAM Region and three (3) States from the CAR Region from 10 to 16 June of 2006, as well as the analysis of operational controls carried out by the Brasilia International OPMET Data Bank from 2000 to 2006. Furthermore, considering Brazil carries out the same controls enabling correction of deficiencies in the preparation and exchange at a national level for its aerodromes, the Meeting formulated **Draft Conclusion 8/5**.

2.5.2 The Subgroup took note of the Eleventh Meeting of the ICAO SADIS Operations Group Appendix F – List of missing OPMET data during the monitoring period, carried out by IATA, as well as the percentage of OPMET data received by IATA from CAR/SAM States, and agreed that in order to analyze the information including the detailed percentage of global OPMET data controls, that SADISOPSG consider the possibility of identifying the aerodromes that do not issue 24 hours a day OPMET data Annex 1 to the SADIS User Guide. (SUG). **(Draft Conclusion 8/6).**

2.5.3 The Subgroup also thanked the Brazil expert for updating the Catalogue of OPMET data of the Brasilia International OPMET Data Bank prepared and published by the SAM Office, in compliance with Recommendation 5/10 – “Catalogue of OPMET data at CAR/SAM International OPMET data banks” formulated by the COM/MET Air Navigation Divisional Regional Meeting, (Montreal 1-14 November 1983).

2.5.4 The Meeting took note of the analysis carried out by the COM/MET Task Force regarding the migration from aeronautical meteorological messages traditional alphanumeric codes (TAC) to binary universal form of representation of (BUFR) codes of meteorological data aimed at preparing a transition plan, and considered convenient to adopt **Draft conclusion 8/7.**

2.5.5 With regard to the migration from Traditional Alphanumeric Codes (TAC) to Binary Universal Form (BUFR) of MET data, the Meeting took note that WMO is aware of the concern expressed by several THE ICAO States and that recently some aviation stakeholders from private and other sectors have explored the use of web-based standard forms of data representation such as XML of Net CDF. Members and States are encouraged to consider these issues and submit relevant documents at the forthcoming Meeting of the Commission for Basic Systems and Commission for Aeronautical Meteorology that meets in November 2006, for discussion and decision.

2.6 **Review of the CAR/SAM ANP/FASID, Part VI - MET**

2.6.1 The Subgroup was aware that columns 6 (area of coverage of charts) and 7 (AFTN routing areas of destination) of CAR/SAM FASID Table MET 1A are redundant as they do not reflect a RAN agreement, and are no longer relevant since global sets of WAFS forecasts and OPMET data are being provided through SADIS and ISCS broadcasts. Therefore, it was agreed to delete the referred columns and to maintain this table in the CAR/SAM ANP, pending on the decision regarding the future of air navigation regional plans and their relation to the new Global Plan. **(Draft Conclusion 8/8).**

2.6.2 Considering that numerous inconsistencies between the formal requirements and the real situation have been detected, the Meeting agreed that the list of TAF and TREND issued at CAR/SAM international aerodromes be reviewed annually. The consultation process should involve IATA and IFALPA; the full cycle should not last more than nine (9) months and the updated database should be available by the end of each calendar year. **(Draft Conclusion 8/9)**

2.6.3 The Meeting was aware that Annex 1 to the SUG provides a global list of requirements for METAR/SPECI and TAF to be broadcast on the Aeronautical Fixed Service (AFS) satellite broadcasts, which is the data applicable for both SADIS and ISCS broadcasts. Therefore, it was agreed that for inter-regional exchange there is no need to repeat the data base in the CAR/SAM ANP Basic/FASID, and that a simple link (for example a URL address) to the global data base under the heading of CAR/SAM FASID Table MET 2A would be adequate, while a new table could be included for regional exchange. **(Draft Conclusion 8/10).**

2.6.4 The Meeting considered that to guarantee the currency of information included in Annex 1 to the SUG, specific actions are required only in relation to OPMET data from non-AOP aerodromes. **(Draft Conclusion 8/11).**

2.6.5 The Meeting was aware of the fact that no detailed requirements are listed in Annex 1 to the SUG concerning SIGMETs. However, all SIGMET are required to be disseminated by the MWOs to the SADIS and ISCS uplink stations, in accordance with Annex 3, Appendix 6, 1.2.2. If the standard is fully implemented, it could be postulated that all States receive the global set of SIGMET. Under these circumstances, the Meeting agreed that while the provisions related to SIGMET be retained in the CAR/SAM ANP (BORPC and MET provisions), the CAR/SAM FASID Table MET 2B could be deleted. **(Draft Conclusion 8/12).**

2.7 MET requirements for ATM in the CAR/SAM Regions

2.7.1 Under this agenda item the Meeting took note that the Second Amendment to the *Global Air Navigation Plan for CNS/ATM Systems (Doc 9750)*, includes the Global Plan Initiatives (GPIs) developed by the Air Navigation Commission on the basis of a roadmap, which was aimed at bringing near and medium term benefits to the ATM community, taking advantage of currently available aircraft capabilities and ATC infrastructure and technology.

2.7.2 Likewise, recalling Conclusion 5/2 formulated by the THE ICAO Fifth All Planning and Implementation Regional Group (ALLPIRG/5 Meeting, Montreal, Canada, 23 - 24 March 2006), and in light of budget realities and the new THE ICAO business planning process, it was agreed that all future work of the Planning and Implementation Regional Groups (PIRGs) must be justified and based on clearly established performance objectives in support of the THE ICAO Strategic Objectives. In this regard, and in order to continue harmonization work of ATM/MET the CAR and SAM Regions, the Subgroup formulated **Draft Decision 8/13.**

2.8 MET Training

2.8.1 During this Agenda Item, the Meeting was aware of the budgetary constraints of the WMO Meteorology Programme, and considered that the problem of aeronautical meteorologists training in CAR/SAM States still represents a deficiency requiring major attention, not only by WMO and THE ICAO, but also by the States, and that distance learning be considered as a possible solution to a growing problem. Likewise, the Meeting took note of the website address to access WMO aeronautical meteorology training modules: <http://www.caem.wmo.int>.

2.8.2 The Meeting took note of the final approval by WMO Executive Council of the Supplement to WMO No. 258 Manual and its draft version whose aeronautical meteorology syllabi could be used as a checklist to verify State compliance with Annex 3, 2.1.5. **(Draft Conclusion 8/14).** The Meeting also agreed in the need to organize a CAR/SAM Seminar on ATS/AIS/MET/Pilot Coordination. **(Draft Conclusion 8/15).**

2.9 Identification, evaluation and notification of deficiencies in the MET field

2.9.1 The Subgroup reviewed and updated MET deficiencies aware that several States do not regularly report deficiencies. Thus, GREPECAS AERMETSG Meetings can seldom be a reliable source of information and it was considered that a proactive approach will be required in order to enhance and improve the collection of data related to MET deficiencies, especially with respect to CAR States. For this reason, the Meeting considered necessary the development of a SIP in coordination with WMO in that region, in order to identify deficiencies and combine efforts to propose solutions. The terms under which the referred SIP is proposed to be developed are presented in **Appendix C** to this working paper. **(Draft Conclusion 8/16)**.

2.10 Future Work Programme of the AERMET Subgroup

2.11 IATA recalled that AERMETSG is responsible for all aeronautical meteorological issues in the ICAO CAR/SAM Region and that its Meetings are one of the most important opportunities for users to bring their requirements to the attention of THE ICAO and States. IATA also expressed its appreciation for the AERMETSG work in the past and expressed their support for any efforts in the future.

2.11.1 The Meeting took note of IATA's concern regarding CAR/SAM Regions MET deficiencies, particularly the lack of participation of CAR Region States in THE ICAO matters. Taking into consideration the large number of flights operating in that area due to tourist in the Caribbean and the adverse meteorological conditions faced with some frequency, especially during the hurricane period, the Meeting supported IATA's proposal to formulate **Draft Conclusion 8/17**.

2.11.2 The Meeting reviewed and updated the terms of reference and the work programme of the Subgroup **(Draft Decision 8/18)**, which will be presented in Agenda Item 5 – Management of the GREPECAS Mechanism, item 5.2 – Review of GREPECAS and its Contributory Bodies Work Programme and Terms of Reference.

2.12 Other Matters

2.12.1 The Subgroup unanimously elected Mr. Gustavo Alberto Flores, of Argentina, as Chairman of the AERMET Subgroup, taking into consideration regional balance and representation, and thanked Mr. Fernando Ramirez for the excellent work performed during his tenure.

3. Action by the Group

3.1 The Group is invited to review the contents of this working paper and approve the Draft Conclusions included in its Appendix A.

APPENDIX A

**DRAFT CONCLUSIONS AND DECISIONS FORMULATED BY THE
AERMETSG/8 MEETING**

**DRAFT
CONCLUSION 8/1 REVIEW OF AGREEMENTS AMONG CIVIL AVIATION
ADMINISTRATIONS AND MET AUTHORITIES IN CAR/SAM
STATES/TERRITORIES**

That, as necessary, States/Territories of the CAR Region be invited to review the agreements with meteorological authorities, in order to improve the percentage of replies to the communications of NAAC Regional Office in respect of aeronautical meteorology.

**DRAFT
CONCLUSION 8/2 - CALL PLAN DIAGRAM OF THE AERODROME
EMERGENCIES COMMITTEE FOR VOLCANIC ASH**

That CAR/SAM States/Territories be invited to use the call plan diagram which includes contact information (name, position, telephone and cel phone) of all members of the emergencies committee for volcanic ash in an aerodrome, included as Appendix B to this part of the report.

**DRAFT
CONCLUSION 8/3 - POST-FLIGHT RECORD AND REPORT IN CAR/SAM REGIONS**

That IATA be invited to request the airlines operating on CAR/SAM air routes to record and report special aircraft observations of pre-eruption volcanic activity, volcanic eruption or volcanic ash clouds on the special air-report on volcanic activity form (VAR), as specified in Annex 3 and PANS ATM, Doc 4444.

**DRAFT
CONCLUSION 8/4 - APPLICATION OF THE TEMPLATE FOR SIGMET AND
AIRMET MESSAGES AND SPECIAL AIR-REPORTS (UP-LINK)**

That CAR/SAM States/Territories be invited to update their procedures to strictly apply the template for SIGMET and AIRMET messages and special air-reports (up-link), mainly those related to the location indicator and name of the CTA/FIR for which SIGMET is issued, at the beginning of the second line of the message.

**DRAFT
CONCLUSION 8/5 - CAR/SAM OPMET EXCHANGE CONTROLS**

That, in order to improve the quality and availability of OPMET information in the CAR/SAM Regions:

- a) the Brasilia International OPMET data Bank submit the results of OPMET studies and controls directly to those responsible of the OPMET Control of CAR/SAM States/Territories; and
- b) the States/Territories establish procedures to carry out quality and availability controls of OPMET data in their aerodromes.

DRAFT

CONCLUSION 8/6

OPMET DATA GLOBAL CONTROLS

That, in order to improve the reliability of the periodic assessments of the availability of OPMET data, the SADISOPSG considers the possibility of identifying the aerodromes which do not issue OPMET data throughout 24 hours, in Annex 1 to the SADIS User Guide.

DRAFT

CONCLUSION 8/7

REVISION OF THE TRANSITION TO BUFR

That, in order to reduce adverse potential impact for aeronautical community arising from the transition from traditional alphanumeric codes to BUFR-coded OPMET messages, WMO be invited to reconsider, as a matter of urgency, their plans for the use of the BUFR code form for OPMET information.

DRAFT

CONCLUSION 8/8 -

CAR/SAM FASID TABLE MET 1A

That, CAR/SAM FASID Table MET 1A be amended so as to delete Column 6 (“area of coverage of charts”) and Column 7 (“AFTN routing areas of destination”).

DRAFT

CONCLUSION 8/9 -

AMENDMENT PROCEDURES OF TAF AND TREND REQUIREMENTS

That, in order to ensure the currency of information related to the provision of TAF and TREND forecasts to be included in the global database as from March 2007:

- a) yearly consultations with CAR/SAM States/Territories concerning TAF and TREND issues be made during the month of March;
- b) changes to the AERMETSG and GREPECAS are presented;
- c) formal consultations and amendments to CAR/SAM FASID be carried out to be finalized in November; and
- d) Lima and Mexico regional offices refer the amendment to ICAO MET Section to update the global database in December, as required.

**DRAFT
CONCLUSION 8/10 - CAR/SAM FASID TABLE MET 2A**

That:

- a) the CAR/SAM FASID Table MET 2A be amended so as to only be conformed by an URL link to the global database “OPMET information (METAR/SPECI and TAF) required to be available in the ISCS and SADIS” included under the heading of same; and
- b) a new table with the requirements of OPMET exchange (METAR/SPECI and TAF) in CAR/SAM States/Territories is included in the CAR/SAM ANP.

**DRAFT
CONCLUSION 8/11 - CURRENCY OF THE INFORMATION OF THE OPMET DATA
(METAR/SPECI Y TAF)**

That, in order to guarantee the currency of the OPMET database (METAR/SPECI and TAF) required to be available on the ISCS and SADIS, as of March 2007, the Lima and Mexico regional offices annually reconfirm the agreements with the States/Territories concerned, regarding the provision of OPMET data included in Annex 1 to the SADIS User Guide (SUG), of CAR/SAM FASID non-AOP aerodromes.

**DRAFT
CONCLUSION 8/12 - CAR/SAM FASID TABLE MET 2B**

That,

- a) CAR/SAM FASID Table MET 2A be deleted; and
- b) an operational table listing SIGMET requirements in CAR/SAM Status/Territories be included as an Appendix to the CAR/SAM SIGMET Guide.

**DRAFT
CONCLUSION 8/13 WORK PROGRAMME OF THE MET/ATM/OP TASK FORCE
ON MET IN THE CNS/ATM CONCEPT IN ACCORDANCE
WITH THE ICAO STRATEGIC PERFORMANCE OBJECTIVES**

That, in support of the evolution from a systems-based to a performance-based approach, the tasks of the MET/ATM/OP Task Force on MET in the CNS/ATM concept, develop and implement work programmes in support of the new ICAO Global Planning Objectives Initiatives (GPIs) related to MET implementation issues.

**DRAFT
CONCLUSION 8/14 - IMPLEMENTATION OF REQUIREMENTS RELATED TO THE
QUALIFICATIONS AND TRAINING OF MET PERSONNEL**

That CAR/SAM States/Territories be invited to:

- a) take actions to implement Annex 3, 2.1.5, in close collaboration with MET Authorities, in order to comply with the requirements related to the qualifications and training of MET personnel; and
- b) study the possibility of implementing distance learning.

**DRAFT
CONCLUSION 8/15 - CAR/SAM SEMINAR ON ATS/AIS/MET/PILOTS
COORDINATION**

That ICAO, in coordination with WMO, organizes a CAR/SAM seminar on ATS/AIS/MET/Pilots Coordination.

**DRAFT
CONCLUSION 8/16 - MET SPECIAL IMPLEMENTATION PROJECT (SIP) FOR THE
CAR REGION**

That, ICAO considers the need of activating a MET Special Implementation Project for the CAR Region, aimed at studying and recommending measures for several CAR States/Territories, with the purpose of solving specifically the problems affecting MET service. The terms under which the mentioned project is proposed to be developed are presented as **Appendix D** to this part of the report.

Note: In order to join efforts to propose solutions to the deficiencies identified in aeronautical meteorology, the possibility to carry out a SIP in coordination with the WMO could be considered.

**DRAFT
CONCLUSION 8/17 - CONTINUATION OF THE WORK OF AERMETSG**

That ICAO be invited:

- a) to accept the urgent requirement from IATA to continue the work of the AERMETSG of GREPECAS;
- b) to note the appreciation of IATA of the work of the AERMETSG; and
- c) to urgently invite CAR Region States/Territories civil aviation administrations to take urgent actions in order that meteorological authorities of this Region comply with the procedures of ICAO Annex 3 as well as to integrate the efforts of AERMETSG to up-date the list of MET deficiencies and take adequate measures for its elimination.

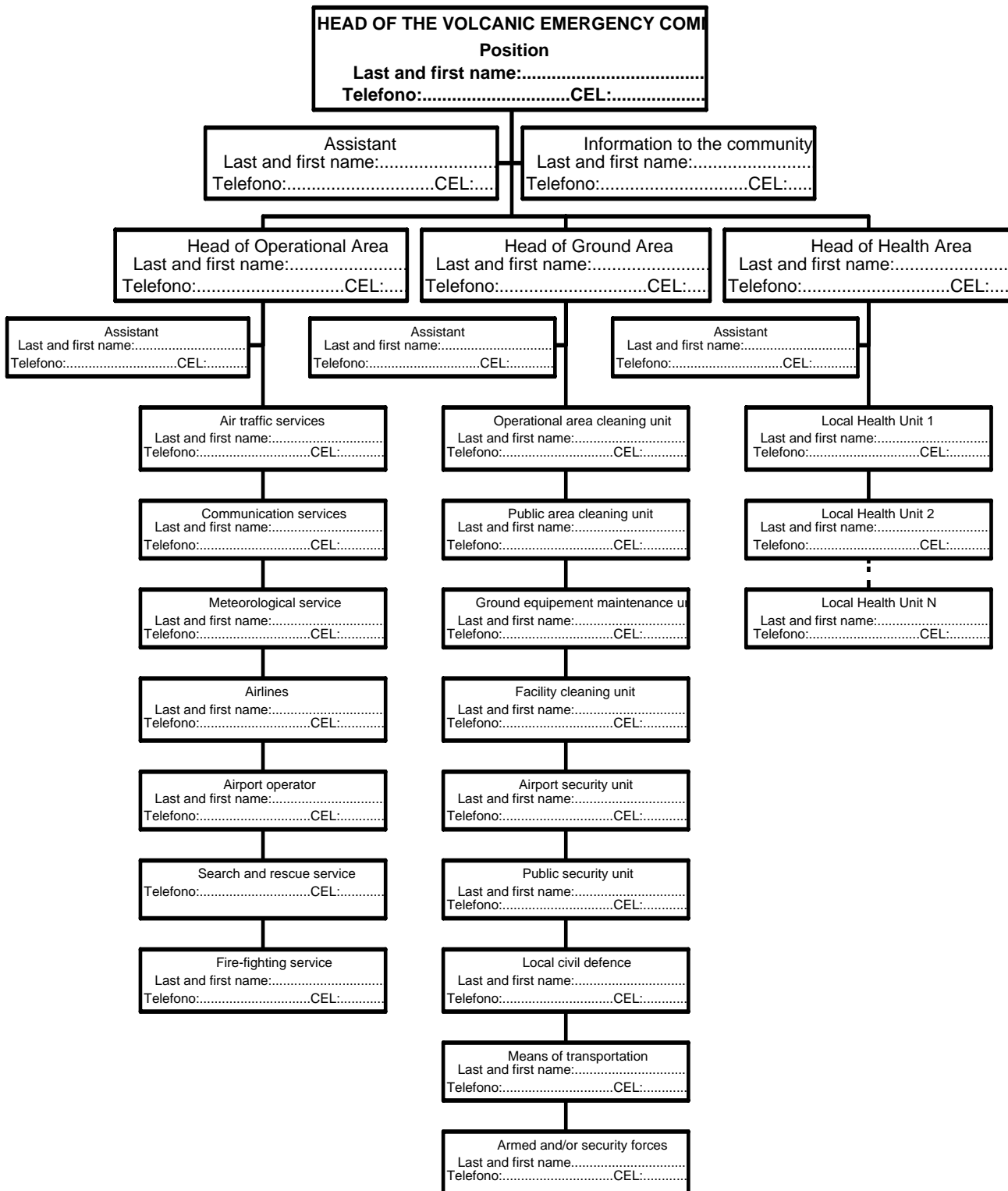
**DRAFT
DECISION 8/18 -**

**AERMET SUBGROUP NEW TERMS OF REFERENCE AND
WORK PROGRAMME**

That the AERMET subgroup work programme is updated as indicated under **Appendix A** to this part of the report.

APPENDIX B

CALL PLAN FOR THE AIRPORT VOLCANIC EMERGENCY COMMITTEE.....



Date of update	
Updated by:	
Signature:	

APPENDIX C**SPECIAL IMPLEMENTATION PROJECT FOR THE CAR REGION****ENHANCEMENT OF AERONAUTICAL METEOROLOGICAL SERVICE IN THE
CAR REGION**

Project: Missions to some States/Territories in the CAR Region and providing on-site assistance to the meteorological authorities in the implementation of the ICAO provisions on the meteorological service for international air navigation.

Objective: Contribute in solving deficiencies in the provision of meteorological service for international air navigation by the CAR States/Territories and to verify and optimize the level of implementation of the Annex 3 SARPs and of the regional facilities and services specified in the CAR/SAM ANP.

Estimated cost: US\$ 12 000

1. Need for the project

1.1 The Meteorological (MET) service for aviation in the CAR Region is of crucial importance for the safety of air transport operations, particularly with the advent of frequent tropical cyclones in that part of the region. However, it is noted with concern that MET deficiencies have persisted over a long period of time in several States/Territories. Although these deficiencies have been drawn to the attention of the States/Territories in several opportunities, the same have not been eliminated, possibly due to the lack of application of Standards and Recommended Practices in different ICAO documents. In recent years, frequent reports have been received from the users (IATA) regarding shortfalls of operational meteorological (OPMET) data from CAR States/Territories. At the same time, the available OPMET data (aviation routine weather reports (METAR), terminal area forecasts (TAF)) contain errors and discrepancies and, consequently, create problems for the users. Urgent measures are also needed so that such States use the forms established in order to standardize the formats of the mentioned meteorological bulletins.

1.2 Providing assistance to CAR States/Territories through the regular programme missions is practically impossible due to budgetary constraints. Because of distances involved, representatives from MET authorities/providers of CAR States/Territories are usually unable to attend the regional MET meetings, such as the annual meetings of the GREPECAS Aeronautical Meteorology Subgroup, AERMETSG, due to the high travel costs associated with such attendance. As a result, the liaison with the MET authorities of the CAR States/Territories is particularly difficult.

1.3 The provision of MET services in the CAR Region is subject to bilateral and multilateral agreements among CAR States/Territories. However, information on such agreements is not always forwarded to the ICAO Regional Office and, therefore, we are not aware of the arrangements. These arrangements need to be reviewed and the regional air navigation plan (ANP) needs to be updated as appropriate.

2. **Scope of the Project**

2.1 The main objective of the SIP is to provide assistance to the MET authorities of CAR States/Territories for the solution of any deficiencies in the provision of meteorological service to international air navigation and to enhance the level of implementation of the Annex 3 SARPs and the regional facilities and services specified in the CAR/SAM ANP. Special attention would be given to the standardization of the format of meteorological messages and bulletins by strictly following the formats set up by ICAO and the World Meteorological Organization (WMO).

2.2 The current arrangements for the provision of meteorological services by CAR States/Territories would be reviewed and a proposal for their enhancement and harmonization would be developed, as necessary. Specific advice would be provided on the improvement of the coordination between the MET authority/provider and the corresponding civil aviation administration, ATS providers and COM operators.

2.3 Deficiencies related to the use of the world area forecast system (WAFS) products, the provision and preparation of SIGMET information, and the content and quality of flight documentation would also be addressed. Specific problems related to means of communication would be studied with a view to providing advice on suitable technical solutions and alternatives.

2.4 Advantage should also be taken to explore the warning system in place for tsunamis to find out whether such a system could be of use for aerodrome warnings in this and other regions concerned.

3. **Duration of the Project**

3.1 The final format of the SIP would be decided after consultation with the States/Territories concerned. However, it is envisaged that an expert would visit some of these States/Territories and hold discussions on site, followed by a seminar for all States/Territories, hosted by one of the States/Territories concerned.

3.2 The duration of the SIP would be approximately six weeks.

4. **Cost of the Project**

4.1 The cost of the project, including travel, subsistence and miscellaneous expenses for one consultant, is estimated at US\$ 12 000, based on an assumed salary at the P-5 level, Step 1.