



International Civil Aviation Organization

**FOURTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE
AND METEOROLOGY SUB-GROUP OF
APANPIRG (CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 17: Review of deficiencies in the CNS and MET fields

2) Status of MET deficiencies (APANPIRG Deficiency List)

**REVIEW OF THE CO-OPERATIVE AGREEMENT FOR THE
ENHANCEMENT OF METEOROLOGICAL SERVICES FOR AVIATION
IN THE SOUTH PACIFIC (CAEMSA-SP)**

(Presented by the Secretariat)

SUMMARY

This paper is a summary of the CAEMSA-SP final report that includes action items created by the TCB Technical Expert and States to remedy current gaps in the meteorological provisions for international aviation. The continuation of CAEMSA-SP is also discussed.

This paper relates to:

Strategic Objectives:

A: Safety – Enhance global civil aviation safety

D: Efficiency – Enhance the efficiency of aviation operations

Global Plan Initiatives:

GPI/19 – Meteorological Systems

1. Introduction

1.1 The Cooperative Agreement for the Enhancement of Meteorological Services to Aviation in the South Pacific (CAEMSA-SP) executed by the International Civil Aviation Organization (ICAO) Technical Co-operation Bureau (TCB) was conducted from August to December 2008. In order to assist airlines in receiving sufficient meteorological data for flight planning (alternate airports) and in-flight decision making over the South Pacific, the Regional Office investigated the deficiencies and developed objectives (2005) for a proposed project to remedy the deficiencies. The objectives are listed below with the results in blue font and parenthesis.

-Eliminate where possible the deficiencies as recorded in the APANPIRG List of Air Navigation Deficiencies

(The ICAO TCB Expert *identified* gaps in the provision of Meteorological Service for international air navigation for each State)

-Improve the State's ability to meet the next round of USOAP audits in relation to Meteorology Services to Aviation

(The ICAO TCB Expert produced a list of action items and associated target dates in order to achieve compliance with Annex 3)

-To help develop a long range plan (10 years) in conjunction with all the States in regards to improving the Meteorological Services to Aviation

(The ICAO TCB Expert recommends PASO include the provision of meteorological services within the framework of the organization in order to enhance the development of capacity in aviation safety. This MET element within PASO would have to be well coordinated with the ASIA/PAC ICAO Regional Office, Bangkok.)

-To facilitate improved communication, coordination and collaboration between the major stake holders in regards to Meteorological Services to Aviation

(The ICAO TCB Expert provided guidance on coordinating between MET and ATS Services through the respective authorities via formalized agreements)

-To facilitate a forum with the long range goal of harmonizing facilities and procedures throughout the South Pacific

(The ICAO TCB Expert reiterated to States that consistent rules of civil aviation reduce the cost of implementation of ICAO standards and audits in the South Pacific sub region. One model civil aviation rule system referred to and recommended by the TCB Expert is the Meteorological section of the NZCAA CAR Part 174.)

(The WMO Coordination and Capacity Building Workshop for Least Developed Countries (LDCs) in Asia-Pacific was held in Port Vila, Vanuatu from 6 to 10 October 2008. The twenty five States and two international organizations that attended the workshop achieved the following four objectives: improved understanding of the contribution of weather-, climate- and water-related services to the socio-economic development of LDCs; promoted the building of strategic partnerships among government entities including National Focal Points of LDCs and Heads of National Meteorological and Hydrological Services (NMHSs) at national and regional levels; shared experiences and success stories on the beneficial use of meteorological and hydrological information, products and services in socio-economic development; and enhanced the management skills of senior staff of NMHSs of the LDCs especially in planning, project development, resource mobilization, marketing and communication.)

1.2 Eight Pacific Island States, Cook Islands, Fiji, Kingdom of Tonga, Kiribati, Nauru, Samoa, Solomon Islands, and Vanuatu, participated in the CAEMSA-SP. The Technical Expert visited seven of the eight States and developed the following outputs:

- Action items to be carried out by the State within the agreed timeframe
- Better understanding of the requirements for meteorological services for aviation
- Improved ability to meet the next phase of the USOAP
- Improved knowledge of ICAO obligations under the relevant conventions

1.3 A summary of the action items to be carried out by the State within the agreed timeframe is discussed.

2. Discussion

Gaps Identified

2.1 The ICAO TCB Technical Expert identified gaps in the meteorological service for international aviation and developed associated action items in the Pacific Island States visited. These identified gaps were abbreviated and reproduced in **Attachment 1**. Note that some gaps were adopted as APANPIRG deficiencies per APANPIRG Conclusion 20/75 and are indicated in bold. By placing these recommended deficiencies on the APANPIRG list of deficiencies results in monitoring of the deficiencies by the Regional Office and can help provide guidance to follow-up projects. Note that there is significantly greater detail in the State reports provided by the TCB Technical Expert.

General Recommendations

2.2 Section 5, Recommendations, of the Project Terminal Report on Cooperative Agreement for the Enhancement of Meteorological Services for Aviation in the South Pacific (CAEMSA-SP) include: data entry system, communication methodology, ICAO Participation in Regional MET Meetings, Quality Management System, management, legislation changes enabling oversight, equipment and facilities, in-house forecasting, applying ICAO requirements in LDCs, PASO and cost recovery. Details of each recommendation are provided in the report.

Directives

2.3 In order to continue progress in remedying the gaps and deficiencies identified in the provision of MET services for international air navigation, APANPIRG Conclusion 20/76 was adopted.

Conclusion 20/76 – Continuation of CAEMSA-SP

That, the DGCA/46 Conference considers funding and resources be allotted by donor States, WMO and ICAO for the continuation of the CAEMSA-SP in order to meet international requirements in the provision of meteorological services which would achieve the necessary safety and efficiency levels for airlines operating in the South Pacific.

2.4 The DGCA/46 Conference produced Action Item 46/11, Technical Cooperation, which is reproduced for reference.

Action Item 46/11 Technical Cooperation

Recognizing the multifarious difficulties faced by Contracting States in fulfilling their obligations for the effective safety and security oversight of aviation activities taking place under their jurisdictions and, making note of the enormous potentials in the Regional Cooperative Arrangements to help solve such situations, the Conference:

- a) Requested the States to actively participate at the various ongoing Regional Technical Cooperating Programmes such as CASP, CAPSCA, COSCAP and PASO etc.;
- b) Requested the States to make the optimum use of opportunities, facilities or services provided by such Programmes or Projects to meet their national requirements including the staff training;

- c) Requested the international agencies and donor community to continue extending their support in cash and/or in kind for the wellbeing of the Regional Cooperative Programmes;
- d) Appealed to States having necessary resources and expertise to join the ICAO Developing Countries Training Programmes in order to provide assistance to States for training of national staff; and
- e) Requested the Developing States to make use of the opportunities provided under the ICAO Developing Countries Training Programmes for training of their national staff as and when they are made available.

2.5 In fulfilling APANPIRG **C20/76** and the DGCA/46 Conference Action Item **46/11**, a Donor Workshop is being planned for a CAEMSA-SP Phase II in Port Vila, Vanuatu from 4 to 5 October 2010. The Workshop objectives are to secure donations and assign tasks necessary in mitigating the MET gaps identified in CAEMSA-SP.

Progress since Phase I

2.6 Coordination with States on formalizing inter State MET Services in the South Pacific was conducted at the Fifteenth Session of the World Meteorological Organization (WMO) Regional Association (RA) V (South-West Pacific) held in Bali, Indonesia from 30 April to 6 May 2010, which relates to recommendation six, safety oversight, of the CAEMSA-SP Project Terminal Report. Agreements on the provision of **TAF** by Fiji for several Island States (Kiribati, Niue, Samoa, Cook Islands, and Tonga) were drafted for States' consideration.

2.7 A draft agreement was developed for the provision of **SIGMET** by Papua New Guinea on behalf of the Solomon Islands. Lastly, to assist in remedying one of the deficiencies identified in the CAEMSA-SP regarding volcanic ash, an agreement was developed for Tonga to distribute **volcanic ash** from its geological branch to the aviation meteorologists (under the ministry of transport) for further dissemination to Area Control Centres, Meteorological Watch Offices, and Volcanic Ash Advisory Centre Wellington.

2.8 To partly address recommendation eleven, cost recovery, of the CAEMSA-SP Project Terminal Report, a working paper (in Agenda Item 17) was drafted that calls for further guidance in cost recovery for States that do not have adequate aircraft movements to support an infrastructure in aviation services that meet international standards.

3. Action required by the Meeting

3.1 The meeting is invited to:

- a) note the information in this paper; and
- b) States are invited to provide progress made with mitigating deficiencies.

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Attachment

Summary of MET Gaps in South Pacific

(Source: TCB - CAEMSA-SP draft reports)

Yellow – QMS, green – legal, blue – no MET authority assigned, rose – met observation, grey – documents, brown – communications, red – disaster plan, purple – WAFS, pink – training, orange – volcano, white – wind info, METAR and/or TAF and/or AIREP dissemination

State	Gap	State action proposed	Target date
Cook Islands	MET Obs. Instr. – NCRG (night)	Install AWOS – supply tower	2010
	no LOA - MET & CAA	Negotiate agreement	2009
	no MOU -TAF – Fiji & Cook Is.	Formulate agreement	2009
	no MET authority assigned	Request government designation	2009
	Unreliable MET data outer Is.	Improve comms, maint, monitor	2010
	Unawareness of Ann 3 changes	Improve info w/ ICAO	2009
	no QMS	Utilize knowledge in Fiji	2009
	Lack of wind shear warnings	Improve forecasts through study	2010
	Lack of QMS auditor	CIMS to train auditor	2009
	Transmission of MET inconsist.	Team w/ NZ CAA to use VSAT	2009
Fiji	Cost recovery out of date	Develop accurate cost model	2009
	no LOA – MET & CAA	Develop LOA after cost model	2009
	QMS not complete	Continue QMS development/ISO	2010/2012
	no bilat agr for TAF service	Develop MOUs after regional cost model	2010
	no delegation of MET oversight	Continue to develop	2011
	Add wind sensors TDZ NFNS	Continue current efforts	2009
	Auto AIREP data – needs dissem	Improve dissem of auto AIREP	2009
	Segments of MET service disaster plan lacking	Develop Suva and/or develop MOU with other State(s)	2010
	Lack of NCRG TAF monitoring	Coord w/ CI in montrg (night – cloud and wind shear)	2010
	Ann 3 / WMO changes insufficiently disseminated	Improve procedure to diss. MET standard changes	2009
Kiribati	MET Obs. Instr. NGTA, PLCH (deficiency AP-MET-02)	Purchase/install AWOS	2009/2010
	no MET authority assigned	Continue declaration process	2010
	no MOU – MET support Fiji	Negotiate agreement	2009
	no QMS	Execute KMS strategic plan/ISO	2011/2013
	Need for trained staff for TAF	Develop trng sched and needs to provide to WMO for funds/trng	2009/2013
	no LOA – MET & CAA	Develop LOA	2009
	Tx of MET inconsistent	Explore NZ CAA for VSAT	2010
	Collection/tx of MET info insuf.	Train flight service staff in obs. & monitor procedures	2009
	Current ICAO/WMO docs not avail	Ensure procedures provide info of changes to necessary parties	2009
	Tsunami not in disaster plan	Develop procedures for Tsunami warnings to aviation users	2009
	WAFS forecasts not avail (deficiency AP-MET-18)		

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State	Gap	State action proposed	Target date
Nauru	no MET authority assigned	Rewrite Nauru Civil Aviation Act Develop designation	2009
	no MOU – TAF/SIGMET PNG	Negotiate agreement	2009
	Current ICAO/WMO docs not avail	Ensure current docs are obtained	2009
	Lack of temperature/dewpoint at aerodrome	NOTAM no temp or dewpnt or NOTAM temp/dewpnt measured 2 km away	Immediate
	no MET observations (short term)	Repair equipment via tech support by Airways NZ	2009
	no MET observations (long term) <i>(deficiency AP-MET-21)</i>	Install automated weather observing system at AUUU	2011-2012
	Staff not to WMO standards	Train FIC staff to WMO stds via trainers in Solomon Islands	2009
	METAR not provided	Re-establish METAR prgm	2009/10
	Comms unreliable	Implement VSAT via Airways NZ	2009/10
	no QMS for METAR	Establish QMS for METAR	2009/10
	no QMS for CAA	Establish QMS/ISO for CAA	2011/13
	WAFS forecasts not avail <i>(deficiency AP-MET-19)</i>		
Samoa	no QMS implementation	Develop QMS/ISO	Dec 2010
	No oversight of SMD	Liase with PASO for oversight Certify SMD	2010 2011
	No anemometer output and limited communications avail for MET data access by users	NZ Airways Corporation install displays for wind info Upgrade MET facilities at Faleolo Intl	2009 2010
	No cloud base or visibility sensors at Faleolo	Installation of AWS with cloud ceiling and visibility sensors	2010
	Forecasters (NSMA) not compliant with WMO qualifications	Investigate options with WMO	2009
	No formal agreement for the provision of TAF from Fiji	Develop bi-lateral agreement on the provision of TAF	2010
	No agreement of MET services for CAA	Develop LOA between MET and CAA	2009
Solomon Is.	AGGH METAR does not comply to ROBEX	Update ROBEX HB (RO)	2009
	TAF not accurate and timely	Establish aviation frctng unit at AGGH	2009
	no calibrated MET obs (wind, vis, cloud) AGGH <i>(deficiency AP-MET-01)</i>	Replace and/or calibrate MET obs. equipment AGGH	2008/2009
	MET enclosure poor at AGGH	Develop MET enclosure at AGGH	2008

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State	Gap	State action proposed	Target date
	METAR avail inconsist	Improve avail of METAR and monitoring	2008
	no QMS for METAR	Develop QMS for METAR	2009
	Tx of METAR not in accord to ROBEX HB	Tx METAR w/i 5 min of report time to Brisbane	Immediate
	ICAO/WMO docs not current	Obtain updated ICAO/WMO docs	2009
	no formal oversight	Confirm oversight	2009
	no LOA between MET & CAA	Develop LOA MET & CAA	2009
	Need planning for METAR/TAF avail at altern AGGM	Include AGGM in SANG31 and FTNG31 bulletins	As required
	no QMS implementation	Develop QMS/ISO	2010/2013
	WAFS forecasts not avail (deficiency AP-MET-20)	Procure ISCS	2010
	Comms unreliable	Implement VSAT via Airways NZ	2009
	Gaps in disaster plan for provision of MET service	Improve disaster plan via MOU w/ other MET service	2009
	Changes to Annex 3 not communicated	Disseminate Annex 3 changes to appropriate parties	2009
Tonga	no MET auth and oversight designation	TCA define MET auth and oversight	2009
	AIP needs to reflect MET auth	Include MET auth in AIP	2009
	no cost recovery model	Develop cost recovery model	2010
	no LOA between MET & CAA	Develop LOA MET & CAA	2010
	no QMS established	Develop QMS	2011
	no bilat for TAF w/ Fiji	Develop bilat for TAF from Fiji	2009
	no post disaster recovery for provision of MET in disast plan	Include post disaster recovery for MET in disast plan	2009
	Pilot briefings sometimes outdated	Links to NWS should be deleted if not information not timely	2009
	Met obs not optimal (vis, cloud especially at night)	Upgrade obs equipment and optimize locations	2009-10
	Action items from APAC MET SIP not current	Revise action items from SIP	2009
	Lack of monitoring of active volcanoes (deficiency AP-MET-17)		
Vanuatu	no QMS established	Develop QMS	2011-2013
	No oversight designation	CAAV, VMS, and PASO determine oversight designation	2013
	Updated WMO training requirements reduces available forecasters	VMS to express desire of pre-2003 Class II MET at WMO RA-V meeting	2009
	Lack of automated measurements of cloud heights and visibility	Upgrade or maintain the current equipment with consideration for common sensor types in the region for ease of service contracts	2010

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State	Gap	State action proposed	Target date
	No LOA between MET Auth and CAA	Develop LOA between MET Auth and CAA with regards MET services provided to ATS	2010
	No cost recovery for MET services in support of international aviation	Investigate cost recovery system	2010
	no MOU on provision of SIGMET – Fiji on behalf of Vanuatu	Formulate agreement (or verify agreement for the FIR management) (note-this is not necessary since Fiji issues SIGMET for Nadi FIR in accordance to Annex 3 and Vanuatu is under Nadi FIR)	2010
	Monitoring and reporting of volcanic activity needs improvement	CAAV investigates monitoring and reporting procedures of volcanic activity (note: could consider agreement drafted for Tonga)	2009
