



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE**

**REPORT OF
THE FIRST MEETING OF THE ASIA/PAC METEOROLOGICAL ADVISORIES
AND WARNINGS IMPLEMENTATION TASK FORCE
(METWARN/I TF/1)**

**23 - 24 March 2011
Bangkok, Thailand**

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1. Introduction

1.1 The First Meeting of the ASIA/PAC Meteorological Advisories and Warnings Implementation Task Force (METWARN/I TF/1) of the CNS/MET Sub-group of APANPIRG was held in Bangkok, Thailand from 23 to 24 March 2011.

2. Attendance

2.1 The meeting was attended by 45 experts from Australia, Cambodia, China, Hong Kong China, Indonesia, Japan, Lao PDR, Malaysia, New Zealand, Philippines, Singapore, Thailand, United States, Viet Nam and ICAO. The List of Participants is provided in **Attachment 1** to the Report.

3. Opening of the meeting

3.1 Mr. Christopher F. Keohan, Regional Officer Aeronautical Meteorology, ICAO Asia and Pacific Office opened the meeting and extended welcome to all the participants to the ICAO Regional Office and emphasized the importance of the issuance of SIGMET, aerodrome warnings and advisories, especially in light of the recent events that include Tsunami and radioactive cloud in Japan as a consequence of a historic earthquake as well as floods in Australia, a major earthquake in New Zealand and volcano eruptions in Indonesia and other States in the Region. Given the above, the importance of State and Regional contingency plans remains a priority. This meeting can make significant progress on Regional contingency plans. He assured his full support to the meeting and wished the meeting success in its productive deliberations.

4. Chair and Secretariat

4.1 Ms. Shona Rosengren, Australian Bureau of Meteorology, co-chairperson of the METWARN/I Task Force presided over the meeting. Mr. Jun Ryuzaki, co-chairperson, was unable to attend due to the recent disasters that occurred in Japan and meeting wished him, his family and colleagues well.

4.2 Mr. Christopher Keohan, Regional Officer, MET acted as Secretary of the meeting.

5. Organization and language of the meeting

5.1 The meeting met as a single body. Working language was English including all papers and this report. The meeting considered 18 Working Papers and 6 Information Papers. List of papers is provided at **Attachment 2** to this Report.

Adoption of agenda

1.1 The agenda adopted by the meeting was as follows:

Agenda Item 1: a) Adoption of provisional agenda and working arrangements for the meeting
b) Initial review of the TORs and Work Programme

Conjoint: SIGMET
a) SIGMET tests (errors and follow-up)
b) Regional participation in SIGMET advisory trial (monitoring and coordination)
c) Review SIGMET Guide

Agenda Item 2: Review educational material
a) Monitor the developments of IAVWOPSG and METWSG with reference to guidance on radioactive cloud and Tsunami
b) Other necessary guidance

Agenda Item 3: Review progress on contingency plans

Agenda Item 4: Advisories and Aerodrome warnings

Agenda Item 5: Future Work Programme & final review of TORs and Work Programme

Agenda Item 6: Any other business

Agenda Item 1: Initial review of the TORs and work programme

1.1 The meeting reviewed the Terms of Reference (TORs) of the group located in **Appendix A** to this report. The meeting recalled the CNS/MET SG/14 Decision 14/30 which created the Meteorological Advisories and Warnings Implementation Task Force (METWARN/I TF) to manage SIGMET, advisories, aerodrome warnings and consider developing a framework of contingency for phenomenon such as volcanic ash, radioactive cloud, Tsunami and tropical cyclone. Note that the VA/TC I TF membership was absorbed into this group. Furthermore, in consideration of SIGMET tests, those who no longer belong to the OPMET/M TF were also given consideration. Singapore expressed interest in becoming a member of this task force. Therefore, the meeting agreed that the Secretariat provide a working paper to the CNS/MET SG/15 meeting that proposes Singapore become a member of the METWARN/I TF (**Action Agreed 1/1**). Actions Agreed by the meeting are provided in **Appendix B** to the Report. The TORs presented in **Appendix A** were reviewed and the meeting agreed to no changes to the TORs (except for membership). With reference to the Performance Framework Form, the meeting proposed to update task five to remove global references in terms of developing contingency plans (**Action Agreed 1/2**).

Agenda Item Conjoint: SIGMET

- a) **SIGMET tests (errors and follow-up)**
- b) **Regional participation in SIGMET advisory trial (monitoring and coordination)**
- c) **Review SIGMET Guide**

C.0 SIGMETLao PDR – SIGMET issuance implementation

C.0.1 The group noted with accolades that Lao PDR established a Meteorological Watch Office (MWO) on 1 April 2010 and thus provides SIGMET for the Vientiane FIR. Provided monitoring is successful, the related deficiency (AP-MET-12) will removed (OPMET/M TF/9 1/ 9/2 refers).

C.1 SIGMET tests (errors and follow-up)WS SIGMET test

C.1.1 The group reviewed the 2010 SIGMET test results. The WS SIGMET test conducted on 24 November 2010 had a few less State and MWO participants than the previous year (55% and 73%; a decrease of 15 and 8%). It is important to note that 7 MWOs (Kabul, Dhaka, Ujung Pandang, Port Moresby for 3 FIRs {Port Moresby, Nauru, and Solomon Islands}, Kathmandu, Lahore, and Colombo) have not participated in the SIGMET test in any of the 6 previous tests. Due to the lack of participation in previous SIGMET tests, SIGMET issuance will be monitored by RODBs Singapore (and possibly Brisbane) as described in OPMET/M TF/9 Action Agreed 9/4. In a further effort to improve participation, the meeting agreed that the SIGMET advisory trial may increase awareness of SIGMET in general, including SIGMET tests. The Secretariat requested that the list of attendees at the advisory trial workshop in China be shared with the Regional Office to update SIGMET contacts (**Action Agreed 1/3**). The meeting also noted that participation from RODB Nadi in the collection of data for analysis was useful and RODB Nadi is encouraged to continue participation.

C.1.2 Some of the non-participating States in the equatorial zone will not participate in the SIGMET advisory trial since one sub-region (S and SE Asia) in the APAC Region was selected for this trial. Located in this zone is the Ujung Pandang MWO which has not issued a SIGMET test in 6 years. The meeting agreed that improved coordination between Jakarta and Ujung Pandang is necessary for participating in the SIGMET tests and that if a contact were provided, the Regional Office could update the SIGMET point of contact list.

C.1.3 Despite the drop in participation, the meeting learned that the reception of SIGMET at the 5 RODBs was generally high (87% for Bangkok, 98% for Brisbane and Tokyo, 100% for Singapore and 67% for Nadi).

Results in China

C1.4 China presented results of the SIGMET tests conducted in November 2010 relevant to China and noted more errors in the WC and WV SIGMET tests (versus WS) that was likely due to the low frequency of issuing these types of SIGMET in real time. It was noted that the Chengdu MWO issued SIGMET for Phnom Penh FIR in accordance to the agreement between China and Cambodia. Errors identified such as not receiving a WC SIGMET Advisory by TCAC Tokyo resulted in the non participation by the Beijing MWO in the WC SIGMET. Note that the Chengdu MWO received the SIGMET test advisory from TCAC Miami instead of TCAC Tokyo. China was commended for its initiative to analyze the SIGMET tests results to improve the issuance of SIGMET.

WC and WV SIGMET tests

C.1.5 The group reviewed the 2010 SIGMET test results for tropical cyclone and volcanic ash that were conducted on 10 and 17 November 2010, respectively. Like the WS SIGMET test, MWO participation decreased this year for both tests (64% and 63% - decrease of 21% and 23%). The decrease occurred even with the counting of MWO multiple times for serving different FIRs (unlike previous years). It was also noted that 10 MWOs from the Russian Federation participated in the WV SIGMET test.

All SIGMET tests

C.1.6 States will be notified of the SIGMET test results that include RODB addressing and remedies for format errors as indicated in **Appendix C (Action Agreed 1/4)**.

C1.7 The meeting recalled that the CNS/MET SG/14 meeting discussed the use of a unique sequence number (Z99) in the SIGMET test message in order to avoid cancelling the original valid SIGMET during the test period. The meeting agreed that verification proved no adverse effects to ingest systems with the use of Z99 due to being out of sequence. A sample test was sent by RODB Singapore to RODBs Bangkok, Brisbane and Tokyo on 2 Aug 2010 which was successful noting one caveat that the test message was not accepted in the National Aeronautical Information Processing System (NAIPS) used by Airservices Australia in providing pre-flight briefings.

C1.8 Concerns were raised with 3-character sequence number in SIGMET proposed for the test. Four-character sequence number in SIGMET is currently used by Australia and the United States. Australia noted that a 3-character sequence number will be implemented in August 2011; however, the United States will need to confirm whether this is an issue or not. Furthermore, China uses a 2-character sequence number in SIGMET and was not sure without a test whether or not Z99 would work. Given the above, the meeting agreed that States be consulted as to whether or not a 3-character sequence number (Z99) would be problematic in issuing a SIGMET test and the feedback be used at the CNS/MET SG/15 meeting as to whether this change to the SIGMET test procedure be made (**Action Agreed 1/5**).

C.2 Regional participation in SIGMET advisory trial (monitoring and coordination)

C.2.1 The meeting reviewed plans for the SIGMET advisory trial in the APAC Region scheduled for 4 May – 30 July 2011. In an effort to remedy SIGMET deficiencies globally, the Third Meeting of the Meteorological Warnings Study Group (METWSG/3) established an ad-hoc group to supervise the planning and feasibility study of the issuance of SIGMET advisories from a regional SIGMET advisory centre. SIGMET advisories for four phenomena (thunderstorms, severe icing, severe turbulence and severe mountain waves) will be issued from 4 May – 30 July 2011 by China for 9 States in the APAC Region which include Bangladesh, Cambodia, Democratic People's Republic of Korea, Lao People's Democratic Republic, Mongolia, Myanmar, Nepal, Thailand and Viet Nam. Examples of text SIGMET advisories (abbreviated SMA) disseminated every 4 hours for each phenomenon by AFTN and graphical SIGMET advisories for all concerned phenomenon disseminated by Internet (<http://www.aamets.org>) are provided in IP/8 of the OPMET/M TF/9 meeting as well as WP/15 to this meeting. In preparation for this trial, a seminar will be hosted by China from 11-15 April 2011 under the guise of the WMO Voluntary Coordination Program. Training material will be posted at <http://www.aamets.org/aamets>. To assist in preparation for this trial, China established a working group with members of all MWOs to 1) monitor SIGMET issuance of MWOs in and around China, 2) design the format and dissemination of SIGMET advisory (note examples in WP/15), 3) develop criteria and forecast tools of the weather phenomenon included in SIGMET advisory issuance, and 4) describe geographical region in SIGMET advisory. The African Region is also conducting a trial from 04 April to 30 June 2011 with the assistance of South Africa and France.

C.2.2 In addition to monitoring the quantity and quality of SIGMET, surveys will be distributed to airline participants such as Qantas, Singapore Airlines, Lufthansa, Emirates and Air France. Results of the SIGMET advisory trial are expected to be available for the METWSG/4 meeting in May 2012 for further consideration.

C.2.3 Hong Kong, China will assist this trial in monitoring the quantity and quality of SIGMET. A demonstration was provided to the group utilizing the global SIGMET monitoring website (<http://g-sigmatmon.weather.gov.hk>). An information note and application for accessing the web-based display of global SIGMET monitoring for monitoring the issuance of SIGMET was provided to the meeting. In order to monitor SIGMET, the meeting agreed that SIGMET received at RODBs Bangkok, Singapore and Tokyo be routed to **VHHHYMYX** for the period from the end of March to the end of July 2011 (**Action Agreed 1/6**). It was noted that Singapore has been routing SIGMET to Hong Kong, China and that RODBs Bangkok and Tokyo will begin relaying SIGMET to Hong Kong, China by the end of March 2011.

C.2.4 One concern raised in the meeting is the designator used in the WMO header for the SIGMET advisory message. The planned use of FR (aviation route forecast) has implications in that RODBs will receive SIGMET advisory messages expecting the contents to be associated with coded format (WMO FM54). The meeting realized that the most appropriate designator would be FX (forecast miscellaneous) and agreed that the Secretariat inform METWSG Secretariat of this issue with urgency since the start of the trial in the AFI Region is April 2011 (**Action Agreed 1/7**).

C.3 Review SIGMET Guide

C.3.1 The meeting recalled the Asia/Pacific Regional SIGMET Guide was last amended in September 2010 which mainly included changes associated with Amendment 75 to Annex 3, such as what the time represents in a forecasted element (FCST AT), and how a State should treat moderate-severe reports of icing or turbulence. The meeting noted that the latest version of the SIGMET Guide can be accessed at http://www.bangkok.icao.int/edocs/sigmat_guide4.pdf.

C.3.2 The meeting reviewed the SIGMET Guide and provided inputs such as adding information on use of priority (FF for SIGMET) are reflected in **Appendix D** to this report. The meeting agreed that the next amendment to the SIGMET Guide should be in April 2011; noting changes to the use of Z99 or Z9 as the designator in a SIGMET test may have to be included in a later amendment depending on the input provided by States on whether or not this new test designator is problematic.

Agenda Item 2: Review educational material

- a) **Monitor the developments of IAVWOPSG and METWSG with reference to guidance on radioactive cloud and Tsunami**
- b) **Other necessary guidance**

Radioactive material

2.1 The meeting recalled APANPIRG Conclusion 20/69 which called for consideration of Annex 3 provisions and further guidance on the issuance of SIGMET on radioactive cloud. The International Airways Volcano Watch Operations Group (IAVWOPSG) determined that additional standards were not necessary (IAVWOPSG/5 D5/23 refers) and that guidance be included in Part II of the Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691) (IAVWOPSG/5 C5/24 refers). The ad-hoc group fulfilling IAVWOPSG/5 C5/24 is drafting guidance material for consideration at the IAVWOPSG/6 meeting in September 2011. Progress was provided by one ad-hoc member and various concerns were raised related to the information provided to aviation on the release of radioactive material (vertical extent of contamination, meaning of significant, hazard threshold to trigger using the radioactive symbol in WAFCS SIGWX, NOTAM reference on WAFCS SIGWX but not SIGMET, harmonization and validation of RSMC products, collaboration). Some of these concerns were also raised in IP/5 and WP/14. These concerns are associated with the below Action Agreed 1/9.

2.2 The meeting recalled the accidental recent release of radioactive material by the Fukushima nuclear power plant as a result of the 8.9-9.0 earthquake and Tsunami that occurred off northeastern Japan on 11 March 2011. The meeting also recalled the new provisions where Volcanic Ash Advisory Centre (VAAC) London provides direct notification to Areas Control Centres (ACCs) regarding the release of radioactive material. Since 18 November 2010, notification on the release of radioactive material by VAAC London is provided to Area Control Centres (ACCs) worldwide as per Amendment 75 to Annex 3. A global database on the 8-character AFTN address of the ACCs has been developed in 2009 and 2010 to meet these new requirements and may be considered in a future FASID Table. Results of tests on disseminating information on radioactive material will be reported to the Sixth Meeting of the International Airways Volcano Watch Study Group (IAVWOPSG/6) in September 2011.

2.3 The International Atomic Energy Agency (IAEA) through agreed working relationship with WMO notifies RSMC when there is an accidental release of radioactive material. The RSMC who support the MWO, similar to the VAAC support to MWO for VA, provides information for the purpose of issuing a SIGMET. Issuance of a SIGMET should follow (Annex 3, 3.4 g and Appendix 6, 1.1.4). Similar to the challenges for MWO to issue a WV SIGMET, there is a need for guidance for SIGMET on radioactive cloud. The IAVWOPSG is tasked to develop that guidance.

2.4 The meeting noted ICAO produced a draft table of relevant provisions and guidance related to information on radioactive cloud (WAFS SIGWX, SIGMET, NOTAM) and is provided in the Attachment 1 to WP/14.

2.5 The meeting also noted the issues related to the release of radioactive material at the Fukushima nuclear power plant. IATA submitted a paper that recommended compliance with Annex 3 on the provision of SIGMET. In particular, that each phenomenon be issued in a separate SIGMET as per Annex 3. The SIGMET on radioactive cloud was at times embedded in another SIGMET (noting Japan has filed a difference with Annex 3 in this regard) and automated systems used to create briefings could not read this important information which requires different actions compared to other SIGMET type. The meeting agreed this is important to remedy as soon as practicable.

2.6 Other issues identified in WP/14, the meeting noted the following steps can be taken in the short term to improve the dissemination of SIGMET and NOTAM on radioactive cloud.

- Compliance with Annex 3 on the issuance and format of SIGMET (e.g. separate SIGMET)
- Compliance with Annex 15 on the nomenclature used in NOTAM
- Utilize RSMC products which accounts for trajectory/dispersion of radioactive cloud
- Providing the height of contamination in SIGMET and NOTAM based on present day knowledge of contamination
- Providing VAAC London with 8-character AFTN addresses and assuring they are current

(e.g. Hong Kong, China noted that their ACC AFTN address is listed incorrectly in the global database of ACC AFTN addresses used by VAAC London for notification on the release of radioactive material. The address should be VHHHZQZA and this change has been requested by Hong Kong, China to the Regional Office (28 Jan 2010) and to the IAVWOPSG)

The meeting recommended that the Regional Office consider notifying States of the issues raised in bullets 1, 2 and 5 (**Action Agreed 1/8**).

2.7 The meeting also noted that future requirements and guidance should address MWO and stakeholder needs and provide simplistic guidance and products that may translate to health risk based on duration and exposure type. Airlines prefer accurate information that allows them to make the most informed decisions (as with volcanic ash).

2.8 Given the above discussions from various perspectives, the following issues related to the release of radioactive material were addressed by the meeting for review by the IVAWOPSG (bullet 2 – WAFSOPSG) in formulating guidance:

- address the term significant with reference to radioactive material release
 - the level of radioactive material that poses a hazard to aviation
 - there is a threshold in one State based on exposure (in units of Sieverts)
 - determine release levels that should be used to initiate a radioactive material release symbol on WAFCs SIGWX
- determine whether or not the WAFCs radioactive release symbol should reference SIGMET (currently only NOTAM referenced) (notify WAFSOPSG Secretariat for possible consideration in Amendment 76 to Annex 3)

- harmonize and validate RSMC radioactive material transport/dispersion products
 - (e.g. Australia's RSMC model is focused on deposition versus airborne dispersion)
- determine the vertical extent of radioactive material hazardous to aviation
 - Could utilize harmonization principles developed by IVATF in harmonization of transport of volcanic ash
- utilize Collaborative Decision Making (CDM) principle in sharing of information and developing a consensus amongst stakeholders in the international community when responding to an event

The meeting agreed that these issues be forwarded to the IAVWOPSG Secretariat for consideration (**Action Agreed 1/9**).

2.9 The meeting also agreed that the APAC Region supply the IAVWOPSG with current capabilities of States in providing information on radioactive cloud material for aviation through a survey developed by IAVWOPSG ad-hoc members present (New Zealand and the United States) (**Action Agreed 1/10**).

Tsunami

2.10 The meeting realized the importance of clarity on Tsunami warnings given the recent Tsunami in Japan on 11 March 2011 that involved the AOP aerodrome Sendai. Inundation of Sendai caused substantial infrastructure damage and impacted domestic travel to northern Japan resulting in Air Traffic Flow Control measures. In addition, approximately 1,400 people were rescued from the aerodrome in the following 48 hours.

2.11 The meeting recalled that APANPIRG Conclusion 20/69 also called for consideration of Annex 3 provisions and further guidance on the issuance of Tsunami warnings. The Meteorological Warnings Study Group determined that additional standards were not necessary (METWSG/3, action agreed 3/16 refers) and that guidance on the issuance of Tsunami warnings be developed by an ad-hoc group by 15 January 2012 for consideration by the METWSG/4 Meeting (May 2012). The duties of this ad-hoc group are to:

- a) examine existing capabilities of relevant countries to issue public tsunami warnings and the process for States to forward them to meteorological service providers;
- b) determine the capabilities of meteorological service providers to extract tsunami information specifically relating to aerodromes (including land inundation) from public tsunami warnings;
- c) recommend how information on tsunami warnings can be included in aerodrome warnings;
- d) establish guidance material to support meteorological service providers on the issuance of aerodrome warning for tsunami; and
- e) produce a report by 15 January 2012 for consideration by the METWSG/4 meeting.

2.12 Australia shared with the group the existing Australian Tsunami Warning system and the issuance of aerodrome warnings on Tsunami. The Joint Australian Tsunami Warning Centre (JATWC) operated by the Bureau of Meteorology and Geosciences Australia detects, monitors, verifies and warns of a Tsunami or the threat of one for the coastline of Australia and offshore territories. These warnings are provided to aerodromes below 10 m above sea level and less than 1 km inland derived from other national coastal warning criteria. Caution is noted that some aerodromes' reference points may be above 10 m, but other parts of the aerodrome may be much lower and therefore be considered for an aerodrome warning. Upon receipt of a Tsunami warning, an aerodrome warning will be issued and include an estimate commencement time and reference to the public Tsunami. User feedback in Australia includes adding aerodromes to the current list to receive aerodrome warnings on Tsunami and improved awareness as to who is vulnerable to land inundation.

2.13 Issues identified with the issuance of Tsunami warning were identified by the group as follows:

- Determine criteria that warrants a Tsunami warning
- Determine how to provide time critical products
 - Noting that some States do not lie on a fault line that would produce a Tsunami with immediate impact and emergency response procedures likely factor in a significant lead time, while other States emergency response procedures likely factor very little lead time before impact as they are on or near fault lines
- Determine who receives products
 - Noting that one State arrangement is such that a letter of agreement between the service provider and the aerodrome is needed to provide an aerodrome warning on Tsunami
- Determine what products are most valuable to operations
 - Based on operational needs
 - Noting Annex 11 requires ATS to provide any potential hazard to pilots and noting that providing a Tsunami warning is a recommendation (Annex 3, 5.1.3) and not a standard

The meeting agreed that these issues be forwarded to the METWSG Secretariat for consideration (**Action Agreed 1/11**).

2.14 The meeting also agreed that the APAC Region supply the METWSG with current capabilities of States in providing aerodrome warnings on Tsunami for aviation through a survey developed by ad-hoc members present (Australia, New Zealand and the United States) (**Action Agreed 1/12**).

Tsunami Warning Centres

2.15 The meeting was apprised of current provision of Tsunami products in relation to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Intergovernmental Oceanographic Commission (IOC), its Intergovernmental Coordination Groups (ICGs) for the Pacific Ocean, Indian Ocean and Caribbean Sea. The National Oceanic Atmospheric Administration (NOAA) operates two Tsunami Warning Centres (TWC) located in Alaska and Hawaii. The TWC in Hawaii

coordinates with JMA in the Indian Ocean and South China Sea. Various products are issued in various basins as described in the attachment to IP/4. Information such as estimated height and arrival time of Tsunami at agreed-upon forecast points and observations of Tsunamis are examples of information provided. Tsunami Warning Focal Points (TWFP) are critical in the warning system in that they receive TWC bulletins for notifying their emergency authority and avoids confusion of possible conflicting information. It was suggested that ICAO should work with IOC in providing information on Tsunami for use by international civil aviation. Training would be required by the focal point and aviation authorities to properly use Tsunami bulletins in minimizing the impact of the disaster.

Agenda Item 3: Review progress on contingency plans

3.1 The meeting was reminded the TORs of the METWARN/I TF contains the development of the framework of regional contingency plans for volcanic ash, tropical cyclone, radioactive cloud and Tsunami (CNS/MET SG/14 D14/30 refers). The meeting noted that the outcomes of the IVATF ATM Subgroup in that a volcanic ash contingency template for regional use was not yet developed, but considered the use of the volcanic ash contingency plan for the EUR and NAT Regions (EUR Doc 019, NAT Doc 006, Part II). The marked up version in the attachment to WP/6 shows text highlighted grey which represents text associated with thresholds of volcanic ash concentration and text highlighted blue which represents text replacement from EUR/NAT specific to APAC specific.

3.2 The meeting raised concerns with utilizing this plan as a template in that a framework of regional needs based on topics such as volcanic ash, tropical cyclone, Tsunami and radioactive cloud would be the basis of development. An ad-hoc group was formed to discuss the critical issues to be covered by a regional contingency plan and is provided in **Appendix E**. The meeting agreed that States should review the framework prior to being submitted to the APANPIRG Task Force on Regional Contingency Plans as noted in **Action Agreed 1/13**.

3.3 The meeting noted regional progress related to volcanic ash contingency in that a list of 16 States and two Special Administrative Region have provided operational contacts in case of a volcanic ash event (http://www.bangkok.icao.int/edocs/contact_volcanic_%20ash.pdf) (APANPIRG/21 D21/9 refers).

3.4 The meeting was informed on the progress associated with ATM coordination between Singapore and Indonesia in case of a volcanic ash event (MET/ATM TF/2 action agreed 2/4 refers). Singapore has conducted its own information gathering on volcanic ash related issues that include visiting VAACs Darwin and London, UK CAA, and Central Flow Management Unit (CFMU) of EUROCONTROL to best approach how Singapore can assist to mitigate the impact of volcanic ash events while regional contingency plans are being developed. Coordination between Singapore and Indonesia is essential in that many volcanic events that impact Singapore originate in Indonesia. Furthermore, adjacent flight information regions of Singapore and Jakarta manage a busy air traffic corridor from S and SE Asia to Indonesia and Australia. These points were factored into the following coordination performed between Singapore and Indonesia:

- **Establish POC** for each State
 - At the operational level who has access to network of supporting agencies (internal and external)
- Agree amongst each other **operational measures** to enhance safety while minimizing disruption to flight operations

- **Share MET and ATM information**
 - Indonesia POC provides latest MET information (ground observation and forecast) at agreed time interval

Note that these updates were more frequent than the 6 hour forecast intervals provided by VAAC Darwin (which is Annex 3 compliant)
- **Compile** all data (including above with volcanic ash advisories from VAAC Darwin, pilot reports, satellite observations) into easy to read report format
- **Share report format** with IATA, airlines and airport operator through established channels
 - POCs Singapore and Indonesia consider **adapting flow** based on requests from stakeholders of alternate routing
 - Resulted in temporarily opening up some military controlled airspace during the Merapi eruption in November 2010

Note these contingency routes were published by NOTAM
- Indonesia **provides** Singapore with **status of airport operations**
 - Singapore **informed airlines** of status of airport operations in Indonesia to those with scheduled flight operations to Indonesia

recalling that if operators choose to cancel flights, less ATM measures are required, noting that there are choices for the airlines such as cancellation or rerouting which may require more fuel

3.5 The success of the coordination between Singapore and Indonesia during the Mt Merapi eruption allowed for an even smoother coordination process during the Mt Tengger Caldera (Bromo) eruption in December 2010 when contingency arrangements for this particular event were conducted within 3 hours after the eruption. As a result, operations continued into Bali and Surabaya airports.

3.6 The meeting noted that further arrangements on coordination between Singapore and Indonesia have expanded to other States including the Philippines and Thailand. This arrangement was agreed at the Special Coordination Meeting (SCM) in Singapore which agreed on entering contingency arrangement before the regional contingency plan is established. The SCM in Singapore also agreed that regular teleconferences between the POCs should be conducted and could include table-top exercises. The SCM also welcome any State to participate in this teleconference (note that Malaysia has recently agreed to participate). The meeting encouraged bilateral and multilateral arrangements and noted other sub regions have developed arrangements (Australia, New Zealand and SPAC). The meeting agreed that these arrangements that include collaborative decision making should be forwarded to the Regional Office to find a common thread that would be the basis of regional contingency plans and report back to the next available MET or ATM meeting (**Action Agreed 1/14**).

3.7 With reference to collaborative decision making through sharing of information and coordination in the example above, the meeting noted that one member of the IVATF is developing a concept paper on CDM to discuss operations, ANSP, common exchange and the process of determining the final decision. Any State that would like to provide input would have to coordinate with an IVATF member State in the APAC Region (e.g. Australia).

Agenda Item 4: Advisories and Aerodrome warnings

Wind Shear

4.1 The meeting noted that the ICAO APAC Region Wind Shear Systems Acquisition Workshop was held in Bangkok, Thailand from 1-3 December 2010. This workshop was performed as an ICAO Special Implementation Project (SIP) in order to assist States knowledge for selecting a system or systems that would satisfy Annex 3, Chapter 7 and Appendix 6. The workshop consisted of 41 participants from 13 States and 2 international organizations with varied backgrounds (ATS, pilots, MET...). An executive summary and summary of discussions are provided at http://www.bangkok.icao.int/meetings/2010/icao_wssa/Index.html. Australia informed the meeting that the government was considering a possible wind shear system for Sydney.

4.2 The meeting noted that the METWSG/3 deliberated on the wind shear alert phraseology. That is the use of “expected” and reported in the wind shear alerts for semi-automated systems as opposed to fully automated systems described in Annex 3. Further work such as user feedback and training/cost impact is expected for further review at the METWSG/4 meeting in May 2012.

Turbulence and icing

4.3 Noncompliant reporting of turbulence and icing as “moderate to severe” has implications on the issuance of special air reports in that only the term moderate or severe can be issued (either moderate or severe reports on turbulence and icing are issued since Amendment 75 to Annex 3). Approximately 1 in 20 reports were provided as “moderate to severe” in the Hong Kong FIR for a period of 2 years, indicating that this is not an isolated event. The METWSG/3 meeting determined that for the time being, the most severe category be taken when more than one category is provided in formulating special air reports, which is reflected in the APAC SIGMET Guide. The longer term solution is being addressed by the International Federation of Air Line Pilots’ Association (IFALPA) in coordination with ICAO in providing guidance to pilots reporting of turbulence and icing for consideration at the METWSG/4 meeting.

Volcanic ash advisories

4.4 The meeting reviewed questions posed by IATA related to volcanic ash advisories issued after an eruption. In the example provided, VAAC Tokyo provided an advisory on an eruption that was nearly 3 hours after the eruption. No forecast information was available and there was conflicting information on whether or not the volcanic ash was observed by satellite. Therefore, the airlines questioned what time the observation reached the VAAC and what was the source. Japan was not present for reasons mentioned and therefore could not respond to this inquiry; however, other States with VAACs noted the long standing quality service of VAAC Tokyo and thought this one event did not represent the overall service and that it would be best for the Regional Office to coordinate with VAAC Tokyo. Another point made by the other States with VAACs is that validation is used to reduce or limit false alarms on advisories.

4.5 Further discussion on volcanic advisories noted the difficulty in interpreting NIL for eruption color code in the advisory. An explanation was provided in that the volcano observatory issues a volcano observatory notices for aviation (VONA) and includes the color code related to volcano eruptions. If the volcanic observatory does not provide a color code, the VAAC may place NIL in the field. Despite the explanation, users including ATM may find the term NIL confusing since volcanic ash still may be present and it appears as conflicting information. Given the above, the meeting agreed that the color code listed in the volcanic ash advisory be further examined by the IAWOPSG through direct membership (**Action Agreed 1/15**).

Agenda Item 5: Future work programme & final review of TORs and work programme

5.1 The meeting noted that the actions in the work programme will be updated to reflect the actions agreed in this meeting.

Agenda Item 6: Any other business

6.1 The group decided that the WC, WV and WS SIGMET tests will be conducted on 8, 15, and 22 November 2011 at 0200 UTC.

6.2 The group decided that the METWARN/I TF meeting be held from 22-23 March 2012 in Bangkok, Thailand. The meeting also decided that more time is needed for States to review papers and that all METWARN/I TF/2 papers be submitted by 1 March 2012.



ICAO APANPIRG CNS/MET METEOROLOGICAL ADVISORIES and WARNINGS IMPLEMENTATION TASK FORCE (METWARN I/TF)

1. TASK TEAM		
Secretariat	Address	Contact
Christopher F. Keohan	Regional Officer MET International Civil Aviation Organization 252/1, Vibhavadee Road Ladyao, Chatuchak Bangkok 10900 Thailand	Ph: +66 (2) 537-8189 Ext. 153 Fax: +66 (2) 537-8199 Em: ckeohan@bangkok.icao.int
Co-Chairs	Address	Contact
Mr Jun Ryuzaki JAPAN	Scientific Officer Aeronautical Meteorology Division Administrative Department Japan Meteorological Agency (JMA) Ministry of Land, Infrastructure, Transport and Tourism 1-3-4 Otemachi, Chiyoda-ku Tokyo Japan	Tel: +81 3 3212 8341 (ext.2285) Fax: +81 3 3212 8968 E-mail: jryuzaki@met.kishou.go.jp
Mrs Shona Rosengren AUSTRALIA	Weather and Ocean Services Branch Australian Bureau of Meteorology GPO Box 1289 Melbourne VIC 3001 Australia	Ph: +61 3 9669 4586 Fax: +61 3 9669 4695 Em: srav@bom.gov.au or Shona.Rosengren@bom.gov.au
Members	Address	Contact
Mr. Wang Fengyun	Engineer MET Office, Air Traffic Management Bureau of East China Shanghai 200335 China	Ph: +86 (21) 2232 7521 Fax: +86 (21) 6268 3667 Em: wangfy@atmb.cn
Ms. Zou Juan CHINA	Engineer MET Division Air Traffic Management Bureau, CAAC No. 12, East San-huan Road Middle Chaoyang District Beijing 100022	Ph: +86 (10) 8778 6828 Fax: +86 (10) 8778 6820 Em: zoujuan@atmb.net.cn juan_zou@yahoo.com
Mr. Pak-wai CHAN HONG KING, CHINA	Senior Science Officer Hong Kong Observatory 134A Nathan Road Tsim Sha Tsui Hong Kong	Ph: +852 2926 8435 Fax: +852 2375 2645 Em: pwchan@hko.gov.hk

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Mr. Manoj Kumar Bhatnagar INDIA	Deputy Director General of Meteorology Mausam Bhavan Office of the Director General of Meteorology India Meteorological Department Lodi Road New Delhi 110 003 India	Ph: 00 91 (11) 246 15371 Fax: 00 91 (11) 246 99216 / 246 00 91 (11) 246 15371 Em: bhatnagarmk1@gmail.com mk.bhatnagar@imd.gov.in
Dr. R. Suresh INDIA	Scientist 'E' Aerodrome Meteorological Office, ATS Complex Meenambakkam India Meteorological Department Chennai 600027 India	Ph: 00 91 44 225 61636 00 91 44 225 60618 Fax: 00 91 44 225 61636 00 91 44 225 60790 Em: suresh.imd@gmail.com dr_r_suresh@yahoo.co.in
Member Name INDONESIA	(transferred from OPMET/M TF membership – no contact information declared – to confirm)	
Ab Llah Che Cob MALAYSIA	Director KLIA Meteorological Office 1 st Floor, Airport Management Centre (AMC) 64000 KLIA Sepang, Selangor	Ph: +603 8787 2388 Fax: +603 8787 1019 Em: ablah@met.gov.my
Ali Shareef MALDIVES	Deputy Director General Maldives Meteorological Service Hulhule, 22000 MALDIVES	Ph: +960 332 6200 Fax: +960 334 1797, 332 0021 Em: shareef@meteorology.gov.mv
Mr. Keith Mackersy NEW ZEALAND	Technical Consultant, Meteorology Civil Aviation Authority of New Zealand P.O. Box 31441 Lower Hutt 5040 NEW ZEALAND	Ph: +64 (4) 560 9400 Fax: +64 (4) 569 2024 Em: keith.mackersy@caa.govt.nz
SINGAPORE		
Mr. Perapol Begkhuntod THAILAND	Acting Director Weather Monitoring Division Bureau of Aeronautical Meteorology Thai Meteorological Department 6 th Floor, ATC Complex Suvarnabhumi International Airport Bang Pli, Samut Prakarn, 10540 THAILAND	Ph: +66 (2) 1340006 +66 (2) 1340007 Fax: +66 (2) 1340009 +66 (2) 1340010 Em: pira@tmd.go.th
Ms. Plaidao KhumchaiYaphum THAILAND	Meteorologist Aeronautical Meteorology Forecast Division Bureau of Aeronautical Meteorology Thai Meteorological Department 6 th Floor, ATC Complex Suvarnabhumi International Airport Bang Pli, Samut Prakarn, 10540 THAILAND	Ph: +66 (2) 1340006 +66 (2) 1340007 Fax: +66 (2) 1340010 Em: pound_ph@hotmail.com
Member Name TONGA	(transferred from VA/TC I TF membership – no contact information declared – to confirm)	

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Mr. Steven Albersheim UNITED STATES	Federal Aviation Administration Senior Meteorologist, Programme Lead International FAA Headquarters 800 Independence Ave, S.W. Washington, D.C. 20591 United States	Ph: +1 (202) 385 7185 Fax: +1 (202) 385 7240 Em: Steven.albersheim@faa.gov
Mr. Dao Son Hai VIET NAM	Deputy Director, Air Navigation Department, CAAV 119 Nguyen Son str, Long Bien Dis. Ha Noi, Viet Nam	Ph: (84 4) 38720199 Fax: (84 4) 38732762 Em: dsh@caa.gov.vn

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2. DESCRIPTION	
Objective	Improve the quality of meteorological advisories and warnings and implement the International Airways Volcano Watch (IAVW) and International Tropical Cyclone Watch (ITCW).
Benefits	Improve in-flight safety by providing information on volcanic ash, tropical cyclone or and other hazardous weather. Improve pre-flight planning by optimizing flight routes with respect to volcanic ash, tropical cyclone and other hazardous weather phenomena.
Terms of Reference	Under guidance from ICAO Secretariat: Maintain awareness of current and future requirements with respect to the issuance of meteorological advisories and warnings; Maintain awareness of the implementation of meteorological advisories and warnings within the ASIA/PAC Region and any deficiencies; Continually seek ways to improve the operational effectiveness of the meteorological advisory and warning system; Provide advice to the CNS/MET Sub-group on the above issues.
Work Program	The work to be addressed by the ASIA/PAC METWARN/I TF includes: Review procedures for the issuance of meteorological advisories and warnings in the region and propose actions for their improvement to related performance objectives; In conjunction with OPMET Management Task Force, investigate the deficiencies in the format and dissemination of meteorological advisories and warnings (e.g. conducting routine SIGMET tests) and propose remediation plans; Respond to the needs of the States for guidance and/or training related to the implementation of meteorological advisories and warnings, including the SIGMET Guide; In conjunction with MET/ATM TF, provide meteorological input for contingency planning for specific phenomenon including Volcanic Ash, Radioactive Cloud, Tropical Cyclone and Tsunami; Follow the developments in the States related to the improvement of meteorological advisories and warnings and provide regional input on these matters to relevant ICAO and WMO groups; Report on its work to the CNS/MET Sub-group of APANPIRG.

3. COMMUNICATION STRATEGIES				
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility
Work Plan	Task Force Members	Document via email and posted on ICAO Bangkok website	As required but reviewed at least quarterly	Co-Chairs
General correspondence	Task Force Members	Email	As required	Task Force Members
Task Force Meeting	Task Team Members	Meeting in conjunction with OPMET M/TF	Yearly in March	Co-Chairs
Status & Milestone Reports	ICAO Secretariat and Task Team Members	Report via email	Quarterly	Co-Chairs
Task Force Report	METWARN I/TF and OPMET M/TF	Working Paper	Yearly	Co-Chairs
Task Force Report	APANPIRG CNS/MET SG	Working Paper	Yearly	Secretariat

4. PERFORMANCE FRAMEWORK FORM (PFF)				
Tasks	Time Frame	Responsibility	Status	Milestone
Task 1: Monitor and provide assistance to the regional implementation of meteorological warnings and advisories that include volcanic ash (VA) and tropical cyclone (TC) advisories and meteorological warnings and advisories based on current and future requirements	2010-2015	METWARN/I TF	In progress	1
Task 2: Track and investigate deficiencies in the format and dissemination of meteorological advisories and warnings and propose remediation plans and provide information to ICAO and WMO groups for possible assistance	2010-2015	METWARN/I TF OPMET/M TF	In progress	3, 4
Task 3: Conduct periodic tests for SIGMET on VA, TC, and phenomena other than VA and TC in view of assessing improvements in their implementation	2010-2015	METWARN/I TF RODB VAACs TCACs OPMET/M TF	In progress	1, 3
Task 4: Provide guidance and/or training related to the implementation of meteorological advisories and warnings, including the Regional SIGMET Guide as they relate to the Annex 3 amendment cycle	2010, 2013	METWARN/I TF OPMET/M TF RO	In progress	1
Task 5: Develop framework for emergency plan for specific phenomenon including VA, radioactive cloud, TC and Tsunami. with reference to developments made by the IVATEF and WMO scientific steering committee	2010-2011	METWARN/I TF MET/ATM TF	To begin	2

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5. MILESTONES			
Milestone	Accountability	Dates	Status
<i>Milestone 1a: SIGMET Guide available on web</i>	<i>Secretariat</i>	<i>15/02/11</i>	<i>Complete (note updates are at least annual)</i>
<i>Milestone 1b: Report to METWARN I/TF on outcomes of METWSG/3 *consider the need for additional guidance on interpreting pilot reports into SIGMETs (mod to severe turbulence/icing)</i>	<i>Co-Chairs</i>	<i>01/03/11</i>	
<i>Milestone 2: Report back to CNS/MET 15 on regional performance on the OPMET SIGMET test and action plan to correct identified shortcomings</i>	<i>Co-Chairs</i>	<i>July 2011</i>	
<i>Milestone 3a: SIGMET posters published to web</i>	<i>Secretariat</i>	<i>November 2011</i>	
<i>Milestone 3b: Requirements for education material and training (work with WMO/CAeM) developed</i>	<i>Co-Chairs</i>	<i>April 2011</i>	
<i>Milestone 4: deliver framework for ASIA/PAC VA Contingency plan</i>	<i>Co-Chairs</i>	<i>July 2011</i>	
<i>Milestone 5: Report on the preliminary findings of the SIGMET advisory trial with regard to Asia to CNS/MET 15</i>	<i>Co-Chairs</i>	<i>July 2011</i>	
<i>Milestone 6: Development of regional guidance on Radioactive Cloud SIGMET</i>	<i>Task Force</i>	<i>2013</i>	
<i>Milestone 7a: prepare report for CNS/MET 15 on current status on the aerodrome warnings for Tsunami in the ASIA/PAC</i>	<i>Co-chairs</i>	<i>July 2011</i>	
<i>Milestone 7b: prepare report for METWSG/4 on current status on the aerodrome warnings for Tsunami in the ASIA/PAC</i>	<i>Co-chairs</i>	<i>Jan 2012</i>	

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6.1 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 1: SIGMET GUIDE				
Task 1.1: Review amendment 75 to Annex 3 to identify relevant changes	Task Force		01/10/10	Complete (Jun-Aug2010)
Task 1.2: Review SIGMET Guide	Task Force		01/10/10	Complete (Jun-Aug2010)
Task 1.3: Submit SIGMET Guide amendments to Co-chairs	Task Force	1.1 and 1.2	01/11/10	Complete CNS/MET SG/14 review
Task 1.4: Propose updates to the Regional SIGMET Guide to the Secretariat	Co-Chairs	1.3	15/11/10	Complete CNS/MET SG/14 review
Task 1.5: State Letter	Secretariat	1.4	01/12/10	Complete SL sent 9 Sep 2010
Task 1.6: SIGMET Guide updated	Secretariat	1.5	01/02/11	Complete 9 Sep 2010
<i>Milestone 1a: SIGMET Guide available on web</i>	<i>Secretariat</i>	<i>1.6</i>	<i>15/02/11</i>	<i>Complete (noting this is at least an annual update)</i>
<i>Milestone 1b: Report to METWARN I/TF on outcomes of METWSG/3 *consider the need for additional guidance on interpreting pilot reports into SIGMETs (mod to severe turbulence/icing)</i>	<i>Co-Chairs</i>		<i>March 2010</i>	

6.2 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 2: SIGMET TESTS				
Task 2.1: Review OPMET report on Nov 2010 test	Co-Chairs		March 2011	
Task 2.2: Develop action plan to fix identified deficiencies	Task Force	OPMET report	During meeting Mar 2011	
<i>Milestone 2: Report back to CNS/MET 15 on regional performance and action plan</i>	<i>Co Chairs</i>		<i>July 2011</i>	

6.3 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 3: EDUCATIONAL MATERIAL				
Task 3.1: Review current SIGMET posters (Amendment 75; result of OPMET test)	Task Force		During meeting Mar 2011	

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Task 3.2: Review educational material requirements in light of OPMET results	Task Force		During meeting Mar 2011	
Task 3.3: Consider options having SIGMET seminars/workshop in consultation with WMO	Keith to assist		April 2011	
<i>Milestone 3a: SIGMET posters published to web</i>	<i>Co- Chairs</i>		<i>July 2011</i>	
<i>Milestone 3b: Requirements for education material and training (work with WMO/CAeM) developed</i>	<i>Co- Chairs</i>		<i>July 2011</i>	

6.4 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 4: REGIONAL VOLCANIC ASH CONTINGENCY PLANS				
Task 4.1: Report on the progress of IVATF to METWARN I/TF	Jun/Shona/ Keith		Mar 2011	
Task 4.2 Report on the progress of WMO Scientific Steering Committee outcomes	Jun/Keith		Mar 2011	
Task 4.3: Considering existing VA procedures and plans in the ASIA/PAC, and in light of the issuance of the EUR/NAT, NAM/SAM contingency plans, consider the appropriateness of an ASIA/PAC contingency plan, and develop possible framework.	Task Force		Meeting Mar 2011	
<i>Milestone 4: deliver framework for ASIA/PAC VA Contingency plan to CNS/MET 15</i>	<i>Co-Chairs</i>		<i>July 2011</i>	

6.5 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 5: SIGMET ADVISORY TRIAL				
Task 5.1: Liaise with METWSG to define any roles/responsibilities of METWARN I/TF in the conduct of the SIGMET Advisory trial (April – July 2011).	Jun/Shona		March 2011	
Task 5.2: Report on the trial of the Regional issue of SIGMET Advisories conducted by METWSG with regard to the Asia Region	Co-Chairs	SIGMET Advisory Trial	Oct 2011*	
Task 5.3: Review action plan for deficiencies of the issuance of SIGMET (Task 2.2) in light of the findings of the SIGMET advisory trial.	Task Force	SIGMET Advisory Trial	Dec 2011*	
<i>Milestone 5: Report on the preliminary findings of the SIGMET advisory trial with regard to Asia to CNS/MET 15</i>	<i>CO-Chairs</i>		<i>July 2011</i>	

* task beyond the current time frame of the METWARN I/TF

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6.6 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 6: RADIOACTIVE CLOUD				
Task 6.1: Coordinate the development of Radioactive Cloud SIGMET process/guidance	Task Force	Annex 3 guidance update	2013*	
<i>Milestone 6: Development of regional guidance on Radioactive Cloud SIGMET</i>	<i>Co Chairs</i>		<i>2013</i>	

* task beyond the current time frame of the METWARN I/TF

6.7 WORK PLAN				
Task / Milestone	Accountability	Predecessors	Date	Status
Activity 6: TSUNAMI				
Task 7.1: Report on the progress of topic from METWSG/3 for regional applications	Co-chairs		March 2011	
Task 7.2: Review existing Tsunami Aerodrome Warning procedures in the region	Task Force		At Meeting Mar 2011	
<i>Milestone 7a: prepare report for CNS/MET 15 on current status of tsunami aerodrome warnings in ASIA/PAC</i>	<i>Co-chairs</i>		<i>July 2011</i>	
<i>Milestone 7b: prepare report for METWSG/4 on current status of aerodrome warnings for tsunamis in ASIA/PAC</i>	<i>Co-chairs</i>		<i>Jan 2012</i>	

**FOLLOW-UP OF METWARN/I TF/1
ACTION AGREED**

Status on 25 March 2011

√ = completed

No.	Title/Action	Follow-up action (target/completion dates in brackets)
1/1	Proposed updates to TORs That, the Secretariat draft a working paper with the proposed changes to the TORs <ul style="list-style-type: none">• membership to include Singapore for further consideration by the CNS/MET SG/15 meeting	Secretariat WP for CNS/MET SG/15 (May 2011)
1/2	Proposed updates to PFFs That, the Secretariat draft a working paper with the proposed changes to the PFFs (task 5) <ul style="list-style-type: none">• to remove reference to global groups in the development of contingency plans for further consideration by the CNS/MET SG/15 meeting	Secretariat WP for CNS/MET SG/15 (May 2011)
1/3	Update SIGMET contact list That, the Secretariat update the list of SIGMET contacts to include those participating in the SIGMET advisory trial workshop in China	China Provide list of participants of SIGMET advisory trial workshop to Secretariat (April 2011) Secretariat Update SIGMET contact list (May 2011) Secretariat Distribute SIGMET test invitation letter to the updated SIGMET contact list (Sep 2011)

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1/4	<p>SIGMET test 2010 format errors</p> <p>That, the Secretariat commends States for their participation in the SIGMET test 2010 and inform them of any errors identified as well as their associated remedies.</p>	<p>Secretariat</p> <p>State letter</p> <p>(May 2011)</p>
1/5	<p>Utilize Z99 as sequence number in test SIGMET</p> <p>That, the Secretariat consult States (SIGMET POCs via email) as to whether or not a 3-character sequence number (Z99) would be problematic in issuing a SIGMET test and the feedback be used at the CNS/MET SG/15 meeting as to whether this change to the SIGMET test procedure be made.</p>	<p>Secretariat</p> <p>Email SIGMET POCs (April 2011)</p> <p>Feedback compiled in WP for CNS/MET SG/15 (June 2011)</p>
1/6	<p>RODB assistance in SIGMET Advisory Trial</p> <p>That, SIGMET received at RODBs Bangkok, Singapore and Tokyo be routed or continue to be routed to VHHHYMYX in preparation for and during the APAC SIGMET Advisory Trial</p>	<p>RODBs Bangkok, Singapore and Tokyo</p> <p>(end of March – July 2011)</p>
1/7	<p>Designator for SIGMET advisory message</p> <p>That, the Secretariat inform the Secretariat of the METWSG of the potential confusion associated with the use of FR (aviation route forecast) as the designator in the WMO Header for SIGMET advisory message in the upcoming SIGMET advisory trail.</p> <p>Note that the meeting suggested the use of FX (forecast miscellaneous) as the designator for SIGMET advisory message in the WMO Header</p>	<p>Secretariat</p> <p>(24 March 2011)</p>
1/8	<p>Issuance of radioactive SIGMET and NOTAM</p> <p>That, the Regional Office consider notifying States on the issuance of radioactive SIGMET and NOTAM</p>	<p>RO</p> <p>SL</p> <p>(April 2011)</p>
1/9	<p>Radioactive material release issues</p> <p>That, the Secretariat forward the issues related to information to the release and transport of radioactive material identified by the meeting to the Secretariat of the IVAWOPSG Secretariat</p>	<p>Secretariat</p> <p>Forward report to the Secretariat of IVAWOPSG</p> <p>(March 2011)</p>

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1/10	<p>Survey on current capabilities of States in providing information to aviation on radioactive material</p> <p>That, IVAWOPSG ad-hoc members (New Zealand and the United States) develop a survey on current capabilities of APAC States in providing information to aviation on radioactive cloud.</p> <p>The feedback from APAC States be provided to the IVAWOPSG/6 meeting and if available, the CNS/MET SG/15 meeting</p>	<p>New Zealand and United States</p> <p>Develop survey (May 2011)</p> <p>State letter (Secretariat)</p> <p>Ad-hoc Feedback in WP to IVAWOPSG/6 and if available to CNS/MET SG/15</p> <p>(July – September 2011)</p>
1/11	<p>Aerodrome warning on Tsunami</p> <p>That, the Secretariat forward the issues identified with aerodrome warning on Tsunami to the Secretariat of the METWSG</p>	<p>Secretariat</p> <p>Forward report to the Secretariat of METWSG</p> <p>(March 2011)</p>
1/12	<p>Survey on current capabilities of States in providing aerodrome warning on Tsunami</p> <p>That, METWSG ad-hoc members (Australia, New Zealand and the United States) develop a survey on current capabilities of APAC States in providing aerodrome warnings on Tsunami.</p> <p>The feedback from APAC States be provided to the METWSG/4 meeting and if available, the CNS/MET SG/15 meeting</p>	<p>Australia, New Zealand and United States</p> <p>Develop survey (May 2011)</p> <p>State letter (Secretariat)</p> <p>Ad-hoc Feedback in WP to METWSG/4 meeting and if available to CNS/MET SG/15</p> <p>(July 2011 – March 2012)</p>
1/13	<p>Review of framework of regional contingency plans</p> <p>That, States review the framework prior to being submitted to the APANPIRG Task Force on Regional Contingency Plans</p>	<p>Secretariat</p> <p>State letter (April 2011)</p> <p>Provide consolidated feedback to APANPIRG Task Force (June 2011)</p>

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1/14	<p>Framework of regional contingency plans</p> <p>That, the framework of regional contingency plans on volcanic ash, tropical cyclone, Tsunami and radioactive cloud consider arrangements practiced (e.g. Singapore-Indonesia) by APAC States and that this information feed into the development of regional contingency plans being developed by the APANPIRG Task Force on Regional Contingency Plans</p>	<p>Singapore (rap.), Australia, Indonesia, Malaysia, New Zealand, Philippines, Thailand, United States</p> <p>Determine multi-lateral State practices (Secretariat) (Aug 2011)</p> <p>Develop framework of contingency plans in coordination with the APANPIRG TF (ad-hoc) (2011)</p>
1/15	<p>Volcano eruption color code entry in volcanic ash advisory</p> <p>That, the color code listed in the volcanic ash advisory be further examined by the IAVWOPSG through direct membership</p>	<p>United States</p> <p>WP to IAVWOPSG/6 (Sep 2011)</p>

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SIGMET test errors from November 2010 for State awareness

State	MWO	Event	Error Type	Remedy
Australia	Adelaide - YPRM	WS SIGMET test	priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (AD01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
	Brisbane - YBRF	WS SIGMET test	priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (BN01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
	Brisbane - YBRF	WC SIGMET test	WMO header	Change CCCC from ADRM to ABRF as per the SIGMET Guide Appendix H
			WMO header	Change CCCC from ADRM to ABRF as per the SIGMET Guide Appendix H
		Cairns - YBCS	WS SIGMET test	priority
Sequence number	Change 4			

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				character sequence (CS01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
	Darwin – YDRM	WS SIGMET test	MWO	<p>Change YPDM to YDRM for MWO as per FASID Table MET 1B</p> <p>Or delete this entry since YPDM is in FASID Table MET 1B – it looks like the SIGMET App H needs to change to YPDM</p> <p>---note---</p> <p>This occurred in the WC and WV SIGMET test as well</p>
			priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (DN01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)

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	Hobart - YMHF	WS SIGMET test	priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (HB01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
	Melbourne – YMRF	WS SIGMET test	Missing RODB address	Add VTBB
			priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (ML01, ML02) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
	Melbourne - YMMC	WS SIGMET test	Sequence number	Change character sequence (??) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
Perth – YPRF	WS SIGMET test	Missing RODB address	Add NFFN	

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			priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (PH01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
	Sydney - YSRF	WS SIGMET test	priority	Change priority from DD to FF
			Sequence number	Change 4 character sequence (SY01) to 3 character as per Annex 3
			End of message	Remove status line (STS) and add equals sign (=)
China	Beijing - ZBAA	WS SIGMET test	Missing RODB address	Add NFFN
			MWO	Change ZBBB to ZBAA for MWO as per FASID Table MET 1B
			priority	Change priority from GG to FF
	Chengdu – ZUUU (for VDPP and	WS SIGMET test	Missing RODB address	Add NFFN

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	ZPKM FIRs)		priority	Change priority from GG to FF
	Guangzhou - ZGGG	WS SIGMET test	priority	Change priority from GG to FF
		WV SIGMET test	WMO header	Change TT (data type designator) from WC to WV for SIGMET on volcanic ash
	Haikou - ZJHK	WS SIGMET test	priority	Change priority from GG to FF
	Shanghai - ZSSS	WS SIGMET test	Missing RODB address	Add NFFN
			priority	Change priority from GG to FF
	Shenyang - ZYTX	WS SIGMET test	priority	Change priority from GG to FF
	Urumqi - ZWWW	WS SIGMET test	Missing RODB address	Add NFFN
			priority	Change priority from GG to FF
	Wuhan - ZHHH	WS SIGMET test	priority	Change priority from GG to FF
		WV SIGMET test	FIR	Change FIR ZHHH to ZHWH as per FASID Table MET 1B
			WMO Header	Change TT (data type designator) from WS to WV for SIGMET on

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				volcanic ash
	Xi'an - ZLXY	WS SIGMET test	Missing RODB address	Add NFFN
			priority	Change priority from GG to FF
DPR Korea	Sunan - ZKPY	WS SIGMET test	Missing RODB address	Add NFFN
			priority	Change priority from GG to FF
Fiji	Nadi - NFFN	WS SIGMET test	Missing RODB address	Add NFFN
		WC SIGMET test	WMO header	Change time group YYGGgg of time of transmission from 100000 to time of transmission (near 100200 since the test occurred very near to 0200 UT) ---note--- This also applies to TCAC Nadi in issuing test advisory
		WV SIGMET test	WMO header	Change time group YYGGgg of time of transmission from 170000 to time of

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				transmission (near 170200 since the test occurred very near 0200 UT)
India	Kolkata - VECC	WS SIGMET test	Missing RODB address	Add VTBB, RJTD, NFFN
			WMO header	Change TTAaii from WSIN32 to WSIN31 as per the SIGMET Guide
			priority	Change priority from GG to FF
	Mumbai - VABB	WS SIGMET test	priority	Change priority from DD to FF
Indonesia	Jakarta - WIII	WS SIGMET test	priority	Change priority from GG to FF
Malaysia	Sepang - WMKK	WS SIGMET test	WMO header	Change CCCC from WBKK to WMKK as per the SIGMET Guide
			priority	Change priority from DD to FF
		WC and WV SIGMET tests	MWO	Change WBKK to WMKK for MWO as per FASID Table MET 1B (WBKK is not listed in FASID Table MET 1B)

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			WMO header	Change CCCC in header from WBKK to WMKK (confirm that distribution is from WMKK)
Maldives	Male - VRMM	WS SIGMET test	FIR	Change FIR VRMM to VRMF as per FASID Table MET 1B
			priority	Change priority from DD to FF
		WC SIGMET test	WMO header	Change TT (data type designator) from WS to WC for SIGMET on tropical cyclone
		WV SIGMET test	WMO header	Change TT (data type designator) from WS to WV for SIGMET on volcanic ash
New Zealand	Wellington(aviation weather centre) - NZKL	WV SIGMET test	WMO header	Change TT (data type designator) from WS to WV for SIGMET on volcanic ash
Japan	Tokyo - RJTD	WS SIGMET test	Missing RODB address	Add NFFN

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United States	Anchorage - PAWU	WS SIGMET test	Missing RODB address	Add VTBB, YBBN, NFFN
			Sequence number	Change sequence ?? to 3 character as per Annex 3
		WV SIGMET test	MWO	Change PANC to PAWU as per the FASID Table MET 1B
	Honolulu - PHFO	WS SIGMET test	Missing RODB address	Add VTBB, NFFN
			FIR	Change FIR KZOA to KZAK as per FASID Table MET 1B ---note--- Identified in all three tests
			priority	Change priority from DD to FF
			Sequence number	Change character sequence (NOVEMBER 1) to 3 character as per Annex 3
	Kansas City - KKCI	WS SIGMET test	Missing RODB address	Add VTBB, NFFN
			priority	Change priority from DD to FF
			Sequence number	Change character

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				sequence (ALFA 1) to 3 character as per Annex 3
Viet Nam	Gia Lam - VVGL	WS SIGMET test	Missing RODB address	Add VTBB

Asia/Pacific Regional SIGMET Guide – list of updates for 2011– 24 March 2011

Regular font – change made in draft

Italics – change not yet made in draft

Text

- unmarked text related to Amendment 75 to Annex 3
- *replace reference to VA/TC I TF with METWARN/I TF when in present tense*
- *include need to use priority FF for SIGMET in accordance with Annex 10 (copied from ROBEX HB)*

Appendices A

- Replaced with latest FASID Table MET 1B, Meteorological Watch Offices (approved AP APAC 10/21)

Appendix B

- Replaced with latest FASID Table MET 3A, Tropical Cyclone Advisory Centres (approved AP APAC 10/21)

Appendix C

- Replaced with latest FASID Table MET 3B, Volcanic Ash Advisory Centres (approved AP APAC 10/21)

Appendix D

-

Appendix E

-

Appendix F

-

Appendix G

-

Appendix H

- Changed

Appendix I

-

Appendix J

- *Add radioactive SIGMET examples provided by RODB Singapore*
- *Provide comment section in advisory examples (last page) and assure there is an example for TC and VA*
- *Include WS SIGMET test results in sending to focal points in para 2.3*
- *Clarify results of test are reported to conjoint meeting of the OPMET/M TF and METWARN/I TF in para 2.4*
- *Clarify test message to be WV/WC SIGMET in para 3.1.2*
- *Include statement that if SIGMET is not issued by a MWO due to safety concerns, to notify the RO and SIGMET POCs in para 3.1.2*
- *Include other editorials provided by Australia*
- *Changed contact of WS SIGMET test analysis (from Sue O'Rourke to Chua Guat Mui)*

Framework for APAC Regional Contingency Plans

Representatives

Singapore (Edmund; Krishnan)- (rapporteur), Australia (Shona), New Zealand (Keith), USA (Steve);; Indonesia (Indra, Masrian); Philippines (Dario, Bartolome); Malaysia (Jamil); Thailand (Perapol Begkhuntod)

Critical topics:

What is the purpose of contingency plan for Volcanic Ash and Radioactive Cloud?

- To ensure the continued safety of air transport in the event of volcanic Ash/radioactive cloud/tsunami/tropical cyclone.

The Asia Pacific Contingency plan:

- Needs to give direction/guidance to someone who isn't an expert/has no knowledge of the situation
- Should show the end to end progress and shows how information can flow between agencies and States
- Should Avoid duplicating information but make reference/points to it (There is already SARPS in Annex 3, IVA operations manual; PANS-ATM; regional SIGMET guide). A consolidated document is needed – but needs Secretariat support to ensure it remains up to date.
- Should be applicable for more than one phenomenon: Initially only for phenomena Volcanic Ash, Radioactive Cloud; Tsunami and Tropical Cyclone. As they have advisory centres, Area Control Centre/RSMC or equivalent
- **Should this really be about contingency plan or rather how collaborative decision making will work within a region?**
- Needs a common definition so that people understand its purpose and role and what information will be covered
- Needs to define what the operational need is for a contingency plan for each State.
- Needs to identify what is the critical information that different organisations/States need

Identify procedures and requirements that are unique to the Asia Pacific region.

e.g Those not defined by Annex 3,

- **Collaborative decision making**

The Contingency plan needs to define how collaborative decision making works for VA for Asia Pacific

The Contingency plan needs to capture work already underway to promote CDM and suggest improvements

- **Dissemination of information**

The Contingency plan needs to define information flows

The Contingency plan needs to identify operational focal points.

The Contingency plan needs to establish a forum for discussion – virtual, teleconference, etc

The Contingency plan needs to outline the management of timeliness of decisions, especially in adjoining airspace.

- **Action plans**

Not for intra-state activities, but action plans for regional and interactions between States.

The Contingency plan needs to address what is not working currently

- **VONA**

No reference in Annex 3, only in the handbook which is guidance not binding.

- **Provide guidance on what to do if SIGMETs don't agree cross FIRs.**
- **Define handover processes for MWO for SIGMETs as phenomena cross FIR**
- **Consider potential role of Regional Watch offices**

Who else needs to be involves?

- ATM
- Airline operations centre
- Advisory centres
- Observatories
- RSMC
- RODB
- MWO
- ANSP

Additional Specialist advice required:

- IVATF
- Medical (radioactive)
- Tsunami warning centres
- IATA



International Civil Aviation Organization

**FIRST MEETING OF THE ASIA/PACIFIC METEOROLOGICAL
ADVISORIES AND WARNINGS IMPLEMENTATION TASK FORCE
(METWARN/1 TF/1)**

Bangkok, Thailand, 23 – 24 March 2011

LIST OF PARTICIPANTS

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
AUSTRALIA (1)		
Mrs. Shona Rosengren	National Manager, Aviation Weather Services Australian Bureau of Meteorology Weather & Ocean Services Branch GPO Box 1289 Melbourne VIC 3001 <u>AUSTRALIA</u>	Tel: +61 (3) 9669 4586 Fax: +61 (3) 9669 4695 E-mail: srav@bom.gov.au s.rosengren@bom.gov.au
CAMBODIA (4)		
Mr. Sivorn Chhun	Deputy Director State Secretariat of Civil Aviation #62, Preah Norodom Blvd. Phnom Penh <u>CAMBODIA</u>	Tel: +855 (23) 224 258 Fax: +855 (23) 224 259 E-mail: ans.scca@gmail.com
Mr. Thol Chvea	MET Official of Flight Operations and Air Safety Department State Secretariat of Civil Aviation #62, Preah Norodom Blvd. Phnom Penh <u>CAMBODIA</u>	Tel: +855 (23) 890 514 Fax: +855 (23) 890 514 E-mail: chveathol@yahoo.com
Mr. Puthearith Suos	MET Official of Flight Operation and Air Safety Department State Secretariat of Civil Aviation No. 62 Preah Norodom Blvd. Phnom Penh <u>CAMBODIA</u>	Tel: +855 (23) 890 514 Fax: +855 (23) 890 514 E-mail: puthearithsuos@yahoo.com
Mr. Jean-Paul Le Corre	Civil Aviation Expert for State Secretariat of Civil Aviation (SCCA) No. 62 Preah Norodom Blvd. Phnom Penh <u>CAMBODIA</u>	Tel: +855 (16) 401 929 Fax: E-mail: lecorre.jean-paul@orange.fr
CHINA (2)		
Ms. Zou Juan	Engineer MET Division Air Traffic Management Bureau, CAAC No. 12, East San-huan Road Middle Chaoyang District Beijing 100022 <u>PEOPLE'S REPUBLIC OF CHINA</u>	Tel: +86 (10) 8778 6828 Fax: +86 (10) 8778 6820 E-mail: zoujuan@atmb.net.cn

Attachment 1 to the Reprt

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
Mr. Wang Fengyun	Engineer MET Center East China Regional Air Traffic Management Bureau No. 35 Kong-gang 3 rd Road Changing District Shanghai 200335 <u>PEOPLE'S REPUBLIC OF CHINA</u>	Tel: +86 (21) 2232 7521 Fax: +86 (21) 6268 3667 E-mail: wangfy@atmb.cn
HONG KONG, CHINA (2)		
Mr. Chan Pak Wai	Senior Scientific Officer Hong Kong Observatory 134A Nathan Road Kowloon <u>HONG KONG, CHINA</u>	Tel: +852 2926 8435 Fax: +852 2375 2645 E-mail: pwchan@hko.gov.hk
Mr. Chow Yuen-ling	Senior Aeronautical Communications Supervisor (Operations) Civil Aviation Department Room 207, 2/Floor, Air Traffic Control Complex Hong Kong International Airport, Lantau <u>HONG KONG, CHINA</u>	Tel: +852 2910 6201 Fax: +852 2910 1160 E-mail: ylchow@cad.gov.hk
INDONESIA (8)		
Mr. Tugino	Deputy Director of Navigation Aids and Surveillance Facilities Directorate General of Civil Aviation Jl. Merdeka Barat No. 8 Jakarta 10110 <u>INDONESIA</u>	Tel: +62 (21) 350 6451 Fax: +62 (21) 350 7569 E-mail:
Mr. Saeful Bahri	Chief of Air Traffic Services Section Directorate General of Civil Aviation Jl. Merdeka Barat No. 8 Jakarta 10110 <u>INDONESIA</u>	Tel: +62 (21) 350 6451 Fax: +62 (21) 350 7569 E-mail:
Mr. Indra Gunawan	ATC Specialist Directorate General of Civil Aviation Directorate of Air Navigation Medan Merdeka Barat 8 23 rd Floor, Karya Building Jakarta 10110 <u>INDONESIA</u>	Tel: +62 (21) 350 6451 Fax: +62 (21) 350 7569 E-mail: eechoex@yahoo.com
Mr. Pepen S. Yusup	MOT Inspectorate General Medan Merdeka Barat 8 5 th Floor, Karsa Building Jakarta 10110 <u>INDONESIA</u>	Tel: Fax: E-mail:
Mr. Brani Bidjaksana	MOT Inspectorate General Medan Merdeka Barat 8 5 th Floor, Karsa Building Jakarta 10110 <u>INDONESIA</u>	Tel: Fax: E-mail:

Attachment 1 to the Report

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
Mr. Weda Yuwana	General Manager of ATS PT Angkasa Pura II (Persero) Building 611 Soekarno-Hatta International Airport Jakarta 19120 <u>INDONESIA</u>	Tel: +62 (21) 550 6131 Fax: +62 (21) 550 1135 E-mail: weda_yuwana@yahoo.com
Mr. Masrian Ichsan	Air Traffic Quality Assurance Manager PT Angkasa Pura II (Persero) Building 600, 3 rd Floor Soekarno-Hatta International Airport Jakarta 19120 <u>INDONESIA</u>	Tel: +62 (21) 550 6185 Fax: +62 (21) 550 6106 E-mail: masrian@angkasapura2.co.id masrian_atc@yahoo.co.id
Mr. Joebandrio Rijadi	ATS Ops Coordinator Building 611 Soekarno-Hatta International Airport Jakarta 19120 <u>INDONESIA</u>	Tel: +62 (21) 550 6582 Fax: +62 (21) 550 6182 E-mail: joebandrio@yahoo.com
LAO PDR (3)		
Mr. Vanhdy Douangmala	Deputy Director of Division of Weather Forecast and Aeronautical Meteorology Department of Meteorology and Hydrology Bane Arkarth, Souphanouvong Road Sikhotabong District Vientiane Capital, P.O. Box 2903 <u>LAO PDR</u>	Tel: +856 21 215 010, 263 657 Fax: +856 21 223 446 E-mail: vanhdy_dmh@etllao.com Vanhdy_d@yahoo.com
Mr. Soumontha Bounthueng	Deputy Director of Telecommunication Div. Department of Civil Aviation Vientiane/Wattay International Airport P. O. Box 119 Vientiane <u>LAO PDR</u>	Tel: +856 21 512163 Fax: +856 21 520 237 E-mail: b_soumontha@yahoo.com
Mr. Bounlieng Siphaxay	Deputy Chief of Area Control Centre Department of Civil Aviation Vientiane/Wattay International Airport P. O. Box 119 Vientiane <u>LAO PDR</u>	Tel: +856 21 512 091, 512 216 Fax: +856 21 512 216, 513 041 E-mail: bounliengsiphaxay@yahoo.com
MALAYSIA (2)		
Mr. Abllah Bin Che Cob	Director KLIA Meteorological Office 1 st Floor, AMC Building Kuala Lumpur International Airport 6400 KLIA, Selangor <u>MALAYSIA</u>	Tel: +603 8787 2110 Fax: +603 8787 1020 E-mail: ablah@met.gov.my
Mr. Jamil Khir Mohamed	Deputy Director Department of Civil Aviation, Malaysia No. 27, Persiaran Perdana Level 1-4, Podium Block, Precinct 4 62618 Putrajaya <u>MALAYSIA</u>	Tel: +603 8871 4228 Fax: +603 8881 0530 E-mail: jamilkhir@dca.gov.my

Attachment 1 to the Reprot

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
NEW ZEALAND (1)		
Mr. Keith Mackersy	Technical Consultant, Meteorology Civil Aviation Authority of New Zealand P.O. Box 3555 Wellington 6140 <u>NEW ZEALAND</u>	Tel: +64 (4) 560 9400 Fax: +64 (4) 569 2024 E-mail: keith.mackersy@caa.govt.nz
PHILIPPINES (2)		
Mr. Herminio A. Dario, Jr.	Acting Division Chief III, Area Control Division Air Traffic Service Civil Aviation Authority of the Philippines Mia Road Corner Ninoy Aquino Avenue Pasay City, Metro Manila 1300 <u>PHILIPPINES</u>	Tel: +63 (2) 879 9160 Fax: +63 (2) 879 9160 E-mail: delta_oscar01@yahoo.com
Mr. Henry T. Bartolome	Acting Chief, Aeronautical Information and Communications Department Civil Aviation Authority of the Philippines Mia Road Corner Ninoy Aquino Avenue Pasay City, Metro Manila 1300 <u>PHILIPPINES</u>	Tel: +63 (2) 879 9159 Fax: +63 (2) 879 9288 E-mail: htbartolome@yahoo.com
SINGAPORE (4)		
Ms. Guat Mui Chua	Principal Technical Officer Meteorological Service of Division National Environment Agency P.O. Box 8, Changi Airport Singapore 918141 <u>SINGAPORE</u>	Tel: +65 6542 2861 Fax: +65 6542 2915 E-mail: chua_guat_mui@nea.gov.sg
Mr. Krishnan Kathirvelu	Senior Air Traffic Control Manager Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 <u>SINGAPORE</u> 918141	Tel: +65 6595 6691 Fax: +65 6545 6516 E-mail: kathirvelu_krishnan@caas.gov.sg
Mr. Edmund Heng	Deputy Chief, Singapore Air Traffic Control Centre Civil Aviation Authority of Singapore Singapore Air Traffic Control Centre 60 Biggin Hill, Singapore 509950 <u>SINGAPORE</u>	Tel: +65 6541 2430 Fax: +65 6545 6252 E-mail: edmund_heng@caas.gov.sg
Mr. Michael Shee	Air Traffic Control Manager (Air Traffic Management) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1, Singapore 918141 <u>SINGAPORE</u>	Tel: +65 654 2454 Fax: +65 6545 6516 E-mail: michael_shee@caas.gov.sg

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
THAILAND (11)		
Mr. Bancha Kaewngam	Meteorologist Bureau of Aeronautical Meteorology 6 th Floor, ATC Complex Suvarnabhumi International Airport Rachatheva, Bang Phli Samut Prakarn 10540 <u>THAILAND</u>	Tel: +66 (2) 134 0007 Fax: +66 (2) 134 0010 E-mail: bancha0110@gmail.com
Ms. Kawalee Putthiyawat	Meteorologist Bureau of Aeronautical Meteorology 6 th Floor, ATC Complex Suvarnabhumi International Airport Rachatheva, Bang Phli Samut Prakarn 10540 <u>THAILAND</u>	Tel: +66 (2) 086 920 1023 Fax: +66 (2) 134 0010 E-mail: kawaput@gmail.com
Mr. Thawit Nowvaratkoonchai	Engineering Manager Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285 9579 Fax: +66 (2) 287 8620 E-mail: thavit.no@aerothai.co.th
Mr. Pramuk Rungrojaree	Executive Officer, Systems Engineering Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285 9252 Fax: E-mail: pramuk.ru@aerothai.co.th
Ms. Sujin Promduang	General Administrative Manager Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285 9333 Fax: +66 (2) 287 3131 E-mail: sujin.pr@aerothai.co.th
Mr. Worapoj Yodjabog	General Administrative Manager Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 287 8407 Fax: E-mail: worapoj.yo@aerothai.co.th
Mr. Worapong Jirojkul	System Engineer Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 287 8075 Fax: E-mail: worapong.ji@aerothai.co.th

Attachment 1 to the Reprot

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
Ms. Jutatip Ratanasing	System Engineer Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 287 8075 Fax: E-mail: jutatip.ra@aerothai.co.th
Mr. Vethis Prasannatra	Aeronautical Communication and AIS Manager Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Sathorn Tungmahamek Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285 9333 Fax: E-mail: vethis.pr@aerothai.co.th
Capt. Preecha Sudhikam	Deputy Director of Regional Pilot Administration Department Flight Operations Department Thai Airways International Public Co., Ltd. 89 Vibhavadi Rangsit Road Bangkok 10900 <u>THAILAND</u>	Tel: +66 (2) 245 2838 Fax: +66 (2) 545 3850 E-mail: preecha.su@thairways.com
Mr. Sarunpat Santivechkul	Manager, Operations Planning and Support Department Flight Operations Department Thai Airways International Public Co., Ltd. BKK OP-P, 8 th Floor, OPC Building Suvarnabhumi International Airport Samutprakarn <u>THAILAND</u>	Tel: +66 (2) 137 1231 Fax: +66 (2) 137 1244 E-mail: sarunpat.s@thairways.com
VIET NAM (5)		
Mr. Dao Son Hai	Deputy Director Air Navigation Department Civil Aviation Administration of Viet Nam 119 Nguyen Son Street Long Bien, Hanoi 10000 <u>THE SOCILIST REPUBLIC OF VIET NAM</u>	Tel: + 84 (4) 3872 0199 Fax: +84 (4) 38732762 E-mail: dsh@caa.gov.vn daosonhai1954@gmail.com
Mr. Dang Dinh Tuat	Deputy Manager Viet Nam Air Traffic Management Corporation (VATM) 200/6 Nguyen Son Street Long Bien District, Hanoi <u>THE SOCILIST REPUBLIC OF VIET NAM</u>	Tel: +84 (4) 3827 1513 Ext. 4390 Fax: +84 (4) 3872 5281 E-mail: dangdinhkuat@yahoo.com
Mr. Thanh Van Nguyen	Meteorological Forecaster Southern Airport Corporation Tan Son Nhat Airport <u>THE SOCILIST REPUBLIC OF VIET NAM</u>	Tel: Fax: E-mail: ngthan31@yahoo.com

Attachment 1 to the Report

STATE/ORGANIZATION/NAME	DESIGNATION/ADDRESS	TEL/FAX/E-MAIL
Mr. Nguyen Duc Chinh	Met. Manager Northern Airport Corporation <u>THE SOCILIST REPUBLIC OF VIET NAM</u>	Tel: +84 (4) 3886 5513 Fax: +84 (4) 3584 4306 E-mail: ducchinhkt@gmail.com
Mr. Tru Van Hoang	Meteorological Forecaster SAC Danang Airport <u>THE SOCILIST REPUBLIC OF VIET NAM</u>	Tel: +84 (5) 11 365 5506 Fax: E-mail: hoangtru1112159@yahoo.com
USA (1)		
Mr. Steven Albersheim	Senior Meteorologist, International Programme Lead Federal Aviation Administration Aviation Weather Planning and Requirements Team 800 Independence Avenue, SW Washington, DC <u>USA</u>	Tel: +1 (202) 385 7185 Fax: Email: steven.albersheim@faa.gov
ICAO (1)		
Mr. Christopher F. Keohan	Regional Officer MET International Civil Aviation Organization 252/1, Vibhavadee Rangsit Road Ladyao, Chatuchak Bangkok 10900 <u>THAILAND</u>	Tel: +66 (2) 537 8189 Ext. 153 Fax: +66 (2) 537 8199 E-mail: ckeohan@bangkok.icao.int



International Civil Aviation Organization

**FIRST MEETING OF THE ASIA/PACIFIC METEOROLOGICAL
ADVISORIES AND WARNINGS IMPLEMENTATION TASK FORCE
(METWARN/1 TF/1)**

Bangkok, Thailand, 23 – 24 March 2011

LIST OF WORKING AND INFORMATION PAPERS

WP/IP No.	Agenda Item	Subject	Presented by
WP/1	-	Provisional Agenda	Secretariat
WP/2	1 (b)	Terms of Reference and Work Programme of the METWARN/I TF/1	Secretariat
WP/3	Dual c	Review Updates to the SIGMET Guide	Secretariat
WP/4	2 (a)	Global Progress on Guidance on Radioactive Cloud	Secretariat
WP/5	2 (a)	Global Progress on Guidance on Tsunami	Secretariat
WP/6	3	Progress on Regional Contingency Plans	Secretariat
WP/7	4	Summary of Wind Shear Detection Systems Acquisition Workshop	Secretariat
WP/8	Conjoint (b)	Updater on the ICAO Regional SIGMET Advisory Trial	Co-chairs
WP/9	4	Update on the METWSG/3 Discussions on Wind Shear, Turbulence and Tsunami Warnings	Co-chairs
WP/10	Conjoint (a)	SIGMET for the Vientiane FIR by MWO in Lao PDR	Lao PDR
WP/11	Conjoint (b)	RODB Coordination for Regional SIGMET Advisory Trial	Secretariat
WP/12	4	Timeliness of Volcanic Ash Advisories	IATA
WP/13	3	Bilateral Coordination between Indonesia and Singapore during Volcanic Ash Contingencies	Indonesia and Singapore
WP/14	2 (a)	Dissemination of Information on Radioactive Cloud	Secretariat
WP/15	Conjoint (b)	SIGMET Advisory Trial in the Asian Region Hosted by China	China
WP/16	4	“Bundling” of SIGMET Phenomena	IATA

WP/IP No.	Agenda Item	Subject	Presented by
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LIST OF INFORMATION PAPERS

IP/1		Meeting Bulletin	Secretariat
IP/2	4	Progress on Aerodrome Warnings for Tsunami	Shona - Rosengren Australia
IP/3	Conjoint (a)	The results of the SIGMET tests from China	China
IP/4	2 (a)	Provisions of Tsunami Warnings	USA
IP/5	2 (a)	Current Issue on Radioactive Cloud and Tsunami	Japan
