



*International Civil Aviation Organization*

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

Bangkok, Thailand, 23 – 25 March 2011

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**Agenda Item 3: Review Progress on Contingency Plans**

**BILATERAL COORDINATION BETWEEN INDONESIA AND SINGAPORE  
DURING VOLCANIC ASH CONTINGENCIES**

(Presented by Indonesia and Singapore)

**SUMMARY**

The purpose of this working paper is to inform the meeting of the bilateral coordination arrangements between Indonesia and Singapore during the volcanic eruptions in Indonesia. Arrangements are in place to minimise impact to flight operations while ensuring flight safety. Action by METWARN/I TF/1 is at Paragraph 3.

**1. INTRODUCTION**

1.1 Meteorological conditions have an impact Air Traffic Management (ATM). The common weather phenomena that disrupt air traffic movements and increased Air Traffic Controllers and pilots' workload are typhoon, monsoonal rain belt, etc. ICAO Regional Office and the States have come up with agreed procedures that allowed flight operations to continue during the weather phenomena while ensuring flight safety, reduce controller/pilot workload and facilitate a regulated flow of air traffic through the affected areas. An example would be the Large Scale Weather Deviation (LSWD) procedures for the South China Sea area. However, volcanic eruptions which also affect air traffic movement and pose a greater risk to flight operations compared to the other weather conditions, since the volcanic ash cloud may not be detected by on-board weather radar nor visible to pilots, has somehow not being accorded priority in contingency planning. It should be noted that the Asia Pacific Region sits in a Ring of Fire.

1.2 In April 2010, the Mt Eyjafjallajokull in Iceland erupted and caused the closure of the European airspace. The closure was a concerted move among the European States in accordance with the volcanic ash contingency plan for Europe and North Atlantic. Flight safety was ensured but the impacts were significant. Passengers, aircraft, goods and supplies were stranded at airports without any indication as to when the flights could resume. Airports were facing capacity, security and health issues that they have never thought of. Parking stands and tarmac were filled with grounded aircraft. Terminal buildings were overcrowded with stranded passengers queuing up for restrooms, food and a place to rest. Cargo complexes and warehouses were filled to the brims with essential supplies and rotting fresh products. The aviation economic losses alone for the one week of airspace closure was estimated to be US\$2.017 billion.

1.3 Recognising that the prolonged closure was not sustainable and current Volcanic Ash Advisory Centre (VAAC) products might not provide sufficient information to stakeholders to make an informed decision for operations to continue, UK CAA, UK NATS and UK Met Office that runs London VAAC, came together with other experts and stakeholders to work out the tolerable levels of contamination that airframes and engines of modern airline fleets could safely operate in with enhanced flight operations and maintenance procedures. This was communicated to other stakeholders across Europe with the help of Central Flow Management Unit (CFMU) of EUROCONTROL, by CFMU hosting periodic updates on airport status and conducted teleconferences where hundreds of participants from airlines, meteorological offices, military, Air Navigation Service Providers (ANSP), etc, obtained updates and shared information. This eventually led to the progressive opening of the airspace in Europe.

## **2. DISCUSSION**

2.1 Arising from the eruption of Mt Eyjafjallajokull, ICAO reacted immediately by setting up the International Volcanic Ash Task Force (IVATF) in April 2010, gathering subject matter experts to look at areas pertaining to Aircraft Operations and Airworthiness, Air Traffic Management and Contingency Planning, Meteorological and Natural Sciences, and International Volcanic Ash Watch (IAVW). In the Asia Pacific Region, the Volcanic Ash / Tropical Cyclone Implementation Task Force (VA/TC I TF) was renamed as Meteorological Advisories and Warnings Implementation Task Force (METWARN/I TF), recommended by the Fourteenth Meeting of the Communications/Navigation/Surveillance and Meteorology Sub-Group of the APANPIRG (CNS/MET SG/14) in 2010. One of the tasks of METWARN/I TF is to develop a regional contingency plan for weather phenomena that included volcanic ash.

2.2 Noting the development of a regional contingency plan will take time, interim measures has to be established in this region as volcanoes would continue to erupt along the 'Ring Of Fire'. To address this, Singapore conducted study visit to Darwin VAAC in July 2010, attended the aviation conference in Iceland, visited UK CAA, London VACC and CFMU in September 2010. These study visits and interactions helped us understand the capabilities of VAACs and the problems faced during the volcanic eruption events. Singapore started to work out draft coordination processes to prepare for such contingencies with the aim to enhance flight safety and minimise disruptions to flight operations during the volcanic eruptions.

2.3 The first step is to set up a network of Point Of Contact (POC). These POCs should be operational level personnel who have access to a network of supporting agencies, both internal and external. These agencies will provide information to the POC of the State for use in discussion with his counterparts from the adjacent States. Harmonized actions could be worked out among the States to minimise disruption to flight operations.

2.4 When Mt Merapi erupted in November 2010, this draft plan was immediately put to the test. When Indonesia contacted Singapore to forewarn on the possible impact to flight operations, Singapore shared with Indonesia the information it had gathered using the draft plan format and suggested that both States could collaborate to share information and harmonise the contingency arrangements to help airlines/operators circumnavigate the contaminated airspace. With the good working relationship between Indonesia and Singapore through interaction at regional ICAO meetings and frequent bi-lateral consultations, the concept and the arrangement of the plan was agreed and put in place by both States.

2.5 According to the plan, the Indonesia POC will provide the latest meteorological information through ground observations and forecast from their Meteorological agency to Singapore at an agreed time interval. Such information, together with information from sources like Darwin VAAC's Volcanic Ash Advisories (VAA), pilots' reports, satellite observations, etc were compiled by Singapore into a reporting format that could be easily understood. Information in the reporting format was shared with IATA, airlines and airport operator through established channels. Singapore also acted as a feedback centre for stakeholders to put in alternate routing requests and suggestions. These were relayed by the Singapore POC back to the Indonesia POC. The Indonesian authorities would consider these requests and through collaborative efforts among the various agencies, had led to the opening up of some military controlled airspace for use by the civil flights to circumnavigate the affected volcanic ash airspace. This paved the way for Indonesia to put in place contingency routes to avoid the contaminated airspace. The contingency routes were published in NOTAMs.

2.6 Concurrently, information regarding status of airports in Indonesia affected by the volcanic eruptions was updated and communicated by Indonesia to Singapore regularly. Singapore in turn updated airlines that had scheduled flights to these destinations. These updates were in addition to NOTAMs/ASHTAMs published by Indonesia and VAAs published by Darwin VAAC. As NOTAMs, The POCs were also able to provide more regular updates as compared to the 6 hourly forecasts by the VAAC as they would be in updated by the internal agencies. Airlines were thus able to make better informed decisions on their operations through the affected areas.

2.7 This interim coordination arrangement between Indonesia and Singapore proved to be successful during the eruption of Mt Merapi. Both States applied the same arrangement for the other volcanic eruptions at varying scale, depending on the severity of impact to flight operations. The arrangements were so well oiled that during the Mt Tengger Caldera (Bromo) eruption in December 2010, contingency arrangements for flight operations were coordinated and agreed within 3 hours on Christmas Eve. The contingency arrangement allowed operations to continue into Bali and Surabaya airports.

2.8 Indonesia and Singapore felt that the success of their bi-lateral contingency arrangements showed it could be expanded and apply to a sub-regional or regional arrangement. This idea was mooted at the Special Coordination Meeting (SCM) held in Singapore, from 31 January-1 February 2011. The SCM was attended by Indonesia, Singapore, Thailand, Philippines and IATA. The meeting agreed that interim contingency arrangement would be able to provide a temporary solution before the regional contingency plan is developed. The meeting recognized that besides having procedures in place, it should be tested periodically to identify weak areas and to familiarise participants with the procedures. The meeting agreed to conduct regular teleconferencing among the participating States to allow the nominated POCs to interact and be familiar with the proceedings and reporting format.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Note on the need for an interim regional contingency arrangement before the regional contingency plan is ready;
- b) Note the cooperation and arrangements between Indonesia and Singapore to minimise impact to flight operations during volcanic eruptions;
- c) Note the intention among several States to enter an interim contingency arrangement managed through a network of Point Of Contact using teleconferencing for information sharing and decision making which could possibly be a model for our region.

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