



*International Civil Aviation Organization*

**THE TENTH MEETING OF ASIA/PACIFIC OPMET MANAGEMENT  
TASK FORCE (OPMET/M TF/10)**

Bangkok, Thailand, 17 – 19 April 2012

**Agenda Item Conjoint: SIGMET**

**d) Advisory information**

**VOLCANIC ASH ADVICE**

(Presented by Hong Kong, China)

**SUMMARY**

In the current ICAO provisions, the Volcanic Ash Advisory (VAA) issued by the Volcanic Ash Advisory Centres (VAACs) only has the status of advisory information. The Volcanic Ash (VA) SIGMET, on the other hand, has the status of warning, and provides safety-critical information to aircraft operating in the Flight Information Region (FIR) concerned. The proposed use of solely the VAA for flight planning and the cessation of the VA SIGMET is considered to be premature and is not supported.

**1. INTRODUCTION**

1.1 Discussions within the ICAO International Volcanic Ash Task Force (IVATF) (refer to task number TF-VAA13) requests consideration of the reduction or elimination of information overload during volcanic eruptions. Subsequently, on the ground of redundancy, inconsistency and currency of the messages as well as potential legal uncertainties resulting from the above, there is a proposal to cease the requirement for the issuance of Volcanic Ash (VA) SIGMET, and that the users could simply use the Volcanic Ash Advisories (VAAs) issued by the Volcanic Ash Advisory Centres (VAACs) for planning purpose.

1.2 This paper discusses the status and necessity of the VA SIGMET for flight planning and the potential consequences of terminating the issuance of the VA SIGMET and replacing it by the VAA.

## 2. DISCUSSION

2.1 First of all, it has to be pointed out that, under the current ICAO provisions, the VA SIGMET is a warning (based on observation and/or report of volcanic ash), whereas the VAA is not. If the VA SIGMET is to be replaced by the VAA, it is necessary to upgrade the VAA into a warning. This issue has been discussed, for instance, in the ICAO/WMO MET Divisional Meeting in 2002 (Report on Agenda Item 1, Section 1.4:1.3.1). It is therefore not correct and is in fact confusing to suggest that both the VA SIGMET and VAA are advisories.

2.2 Secondly, it should be further pointed out that as stated in ICAO Doc 9691 “Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds”, the VA SIGMET, not the VAA, should be used by the ACC for managing airspace including the closing of airspace and the rerouting of aircraft. There may be legal and liability issues in replacing the VA SIGMET by the VAA, i.e. the VAA providing the sole warning. Consider the case in which the VAAC in State A issued a VAA for the FIR of another State B to the effect that flights would not be safe and thus prohibited in that FIR and effectively all flight routes would be closed. In this case, if State B possesses other observation information not available to the VAAC, e.g. measurement by VA dropsondes confirming a smaller coverage or even non-existence of VA in the FIR, State B should have the prerogative to issue a better warning for the aviation users, superseding the VAA, for its own sovereignty FIR. However, if the VA SIGMET was abolished, State B would be unable to fulfill its responsibility to provide the necessary warning service to allow flight operations in its FIR since the responsibility of the warning service would only lie with the VAAC (which may choose to maintain the original VAA based on other considerations). A similar argument could also be conceived for the case in which the VAAC failed to issue a VAA in a timely manner for the FIR of State B, leading to an aircraft accident caused by VA. The question is: is State A operating the VAAC prepared to take up all the legal consequences and financial liabilities in removing the prerogative of State B in providing VA SIGMET warning service for its own sovereignty FIR?

2.3 The VA SIGMET is based on the latest observational information of VA from the Meteorological Watch Office (MWO) concerned. Such observations may be made visually or by instruments, such as aircraft reports, VA dropsondes, radar/lidar observations etc. Given the current technology, it is not realistic to transmit all local observations, e.g. high-volume radar and lidar observations, to the respective VAACs. Even if they are passed, they might not be ready in time to the VAAC concerned for inclusion in the VAA. Such information however is crucial for tactical decisions of the users and provides the most relevant and latest observations about the distribution of VA in the FIR of the MWO concerned. On the other hand, the advisories are in general mainly based on correlation with satellite observation and dispersion model forecasts and thus could not be considered as direct observation or report of VA. On the other hand, the MWOs of capable States could possess direct observation or report of VA for issuing the VA SIGMET in a timely manner for their own FIRs.

2.4 The proposed replacement of the VA SIGMET by the VAA could have very significant issues of sovereignty and liabilities as illustrated in para. 2.2 above. In addition, this proposal could also bring knock-on effects and repercussions to the other SIGMET types, i.e. TC SIGMET and SIGMET for the other phenomena. In fact, to improve SIGMET issuance for the other phenomena, a proposal has been made by the Ad Hoc Group of the ICAO METWSG to establish Regional SIGMET Advisory Centres (RSACs) to provide advisories for MWOs to issue SIGMETs. The proposed replacement of the VA SIGMET by the VAA would potentially jeopardize the RSAC proposal to address the existing deficiencies of SIGMET for the other phenomena. In the RSAC proposal, it is considered that the State should at least be given the option to issue SIGMETs for its own sovereignty FIR, which is its internationally agreed right and obligation. On the other hand, if preferred by the State, it could delegate the authority and obligation for providing warnings for its FIRs to the associated VAAC(s) unless a SIGMET is issued by the State. Alternatively, it could also

simply delegate the authority and obligation for providing SIGMET for its FIRs to another State. These arrangements would not jeopardize the sovereign rights of Contracting States, and would allow those States in a position to do so to continue to issue SIGMET.

2.5 An overarching principle of the Chicago Convention on International Civil Aviation is cooperation between nations and peoples. The same is true in establishing and operating the International Airways Volcano Watch (IAVW). The effectiveness of the VAACs would critically rely on the availability of all types of basic and specific observations and reports from all Contracting States, without which the dispersion model forecasts could not be made and VAA could not be issued in a timely and accurate manner. Taking away the prerogative of Contracting States to provide effective warning service for their own sovereignty FIRs without widespread agreement will be detrimental to international cooperation. The proposal to replace the VA SIGMET by the VAA, as well as the proposed establishment of the RSACs, should be fully deliberated by the Conjoint ICAO MET Divisional Meeting / WMO CAeM Session to be held in 2014.

2.6 It is also noted that the hierarchy of the VAA (an advisory), the VA SIGMET (a warning) and the basis of the NOTAM/ASHTAM is not as clearly stated in ICAO Doc 9974 “Flight Safety and Volcanic Ash” as in ICAO Doc 9691 “Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds”. This might have contributed to some of the confusion to the users of these products and thus needs to be addressed.

### **3. RECOMMENDATIONS**

3.1 Considering that the proposed replacement of the VA SIGMET by the VAA has complicated legal and liability issues and that the VA SIGMET is based on observations and reports which may not be readily available to VAACs, it is recommended to retain the current requirement for the issuance of the VA SIGMET by MWOs as stipulated in ICAO Annex 3 SARPs. The proposed replacement of the VA SIGMET by the VAA is not supported by Hong Kong, China. Any change to the current Annex 3 provisions should be subject to deliberation by the Conjoint ICAO/WMO Meeting in 2014.

3.2 It is further recommended to refine Doc 9974 to clearly define the hierarchy of the VAA, the VA SIGMET and the basis of the NOTAM/ASHTAM as given in Doc 9691.

### **4. ACTION BY THE MEETING**

4.1 The meeting is invited to note the information and recommendations contained in this paper.

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