



International Civil Aviation Organization

Eight Meeting of the Communications/Navigation/Surveillance and Meteorology Sub-Group (CNS/MET/SG/8) of APANPIRG

Bangkok, Thailand, 12 – 16 July 2004

**Agenda Item 10: Review of the implementation of ICAO Warning Systems
1) International Airways Volcano Watch (IAVW)**

**ASIA/PAC SPECIAL IMPLEMENTATION PROJECT
ON VOLCANIC ASH SIGMET – 2003**

(Presented by Secretariat)

SUMMARY

The paper presents brief information on the ASIA/PAC Special Implementation Project on volcanic ash SIGMET conducted during 2003, and outlines the main problems identified in the issuance of SIGMET for volcanic ash by the MWOs. The paper describes the recommendations given by ICAO to solve these problems. It also describes the feed-back received from the States visited regarding some difficulties in implementing IAVW provisions.

1. INTRODUCTION

1.1. The deficiencies related to the issuance of SIGMET in the ASIA/PAC Region were recognized by the eleventh Meeting of APANPIRG, held in October 2000. It was felt that the absence of SIGMET information was due to a number of factors like insufficient knowledge of the procedures for the issuance of SIGMET, lack of training and skills of the staff at some meteorological watch offices (MWOs), incorrect use of the communications. APANPIRG/11 agreed that urgent consideration should be given to the establishment of a Special Implementation Project (SIP) to address the deficiencies related to SIGMET with emphasis on the SIGMET for volcanic ash, and formulated Conclusion 11/33 on this subject.

1.2. The MET Divisional Meeting (2002) noted that APANPIRG and some other PIRGs have identified problems related to the lack of issuance of SIGMET by the MWOs in certain Contracting States. These problems were more noticeable for SIGMETs for volcanic ash. The meeting emphasized that this problem was a serious safety issue and recognized the need for ICAO SIPs to be conducted in the regions concerned in order to assist States in fully implementing the SIGMET requirements. The meeting formulated recommendation 1/11, Special implementation projects on the issuance of SIGMET messages by meteorological watch offices.

1.3. As a follow-up of the above APANPIRG conclusion and MET Divisional Meeting recommendation, ICAO ASIA/PAC Office submitted in 2002 a proposal for a SIP on volcanic ash SIGMET, which was approved by ICAO Council to be conducted during 2003. Due to the limited budget for the SIP it was not possible to hire external experts, therefore, the SIP was to be conducted by RO/MET of the ICAO Office, Bangkok.

1.4. The main objective of the SIP was to provide assistance to States' meteorological authorities in eliminating the deficiencies related to the provision of volcanic ash SIGMET. It was also intended to assist in improving the coordination between the ATS units (ACC or FIC) and their associated meteorological watch offices (MWO), and the volcanological agencies, in order to ensure immediate response to the volcanic ash events in the States concerned. Improving the coordination between the MWOs and the respective responsible Volcanic Ash Advisory Centres (VAAC) was another goal of the SIP.

1.5. In order to achieve these objectives, it was decided to conduct missions to selected States in the ASIA/PAC region with large number of active volcanoes, since these were the States whose MWOs were supposed to issue frequent SIGMETs for volcanic ash. The selection of the States was made based on the information on volcanic eruptions included in Appendix G of the Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds, ICAO Doc 9691.

1.5. The SIP was conducted in two stages. During the first stage held between April and September 2003, three states in the area of responsibility of VAAC Tokyo were visited: Japan, the Philippines and the Russian Federation. The second stage, which covered parts of the area of responsibility of VAAC Darwin, was held in November and December 2003 and included visits to Indonesia and Papua New Guinea, as well as a short coordination meeting with the Bureau of Meteorology, Australia.

1.6. The outcome of the SIP is in the form of five State mission reports containing a number of recommended and agreed actions in the MET, ATS and AIS fields. A final report summarizing these recommendations is under preparation and will be disseminated to all States in the ASIA/PAC Region concerned with volcanic ash.

1.7. The results of the SIP were presented at the IAVWOPSG/1 meeting, held in Bangkok, 15 to 19 March 2004.

2. DISCUSSION

2.1. The SIP provided a very good opportunity for discussing with the States' authorities concerned on the implementation of the ICAO IAVW provisions and the existing deficiencies. Specific recommendations have been formulated to assist the States in developing their action plans for elimination of the deficiencies. A brief summary of the typical problems that have been identified during the missions and needed to be addressed urgently in order to improve the issuance of SIGMET for volcanic ash by the States, is provided in the following paragraphs.

2.2 Improvement of the institutional arrangements

2.2.1 It was found in most of the States visited that the coordination between the MWOs, the associated ACCs, and the institutions providing volcanological observations was not satisfactory. As a result, the information for volcanic eruptions was absent, delayed or not addressed properly, which resulted in non-issuance of SIGMET and delays in relaying this information to the VAACs. It was recommended that the three parties involved in the IAVW in the States should draw up letters formal Letter of Agreement, as recommended by p. 4.1.3 of the Handbook on IAVW, Doc 9766. In order to assist the States in this matter it was proposed to IAVWOPSG that a sample Letter of Agreement is included in the Handbook on IAVW, Doc 9766. IAVWOPSG/1 meeting formulated Conclusion 1/3 in this regard.

2.2.2 As part of the institutional arrangements, the following issues should be addressed as a matter of urgency:

- Provision of 24-hour availability of volcanological advice (currently not available in 4 of the States visited);

- Inclusion of information on volcanoes in the States' AIPs (currently not available in most of the States visited);
- Development of ATM contingency arrangements in case of volcanic ash in the FIRs (formal arrangements were not available in most of the States visited).
- Improvement of NOTAM/ASHTAM issuance.

2.3 Compliance with the ICAO format for SIGMET and the related procedures

2.3.1 A common problem in all States visited was the non-compliance of the format of the SIGMET messages with the standard format spelled out in Annex 3. The following are some examples:

- wrong WMO data type identifier (WS used instead of WV);
- lack of outlook part;
- copying the advisory message in full as SIGMET;
- use of volcanic activity report format in SIGMET;
- non-standard coding of geographical information; etc.

2.3.2 Detailed guidance on the correct format of SIGMET messages was provided in the new edition of the ASIA/PAC Regional SIGMET Guide, which was distributed to some of the States visited in a draft form and was later published in September 2003.

2.3.3 States were advised on the proper use of the communications in order to ensure the dissemination of SIGMET to all users concerned, including their dissemination via SADIS and ISCS.

2.4 Feed-back from the States

2.4.1 In order to assist the States in improving the SIGMET-related formats and procedures, the ICAO representative conducted one-day seminar with representatives from MET, ATS and volcanological agencies. These seminars provided very useful feed-back regarding the difficulties experienced by the States in implementing IAVW provision, in particular, those for VA SIGMETs. Some of the most important items that the IAVWOPSG may wish to address are listed below:

2.4.1.1 Clearer instructions regarding the information flow between volcanological agencies, ACCs, MWOs, and VAACs were requested.

2.4.1.2 Some MWOs faced difficulties in interpreting the VA advisories. For instance:

- The description of the VA cloud in some advisories from VAAC Tokyo were too lengthy (too many points used), which made their decoding time-consuming and prone to errors;
- A large number of VA advisory issued by the VAACs did not contain forecast information needed for the outlook of SIGMET; MWOs were not clear how to proceed with the SIGMET issuance in such cases;
- Further guidance was also requested regarding the appropriate description of VA clouds that may cross the FIR boundaries.

2.4.1.3 Some States reported serious difficulties in obtaining the initial information about volcanic activity or eruption from their volcano observatories due to infrastructural problems. Frequent blackouts in the Rabaul observatory in Papua New Guinea was the main reason for irregular provision of information to the MWO and ACC at Port Moresby.

3. CONCLUSIONS

3.1. The ASIA/PAC SIP on volcanic ash SIGMET conducted in 2003 helped in identifying most of the problems related to the issuance of SIGMET by the MWOs in the States with active volcanoes. ICAO provided on-site assistance, including some short training, and formulated specific recommendations to be followed by the States visited in order to solve the observed deficiencies. The feed-back received from the States was very helpful in order to improve some of the provisions related to volcanic ash SIGMET.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

- a) Note the information provided in this paper; and
- b) Consider the need for further improvement of the IAVW provisions based on the feed-back received through the ASIA/PAC SIP on volcanic ash.

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