



ICAO

International Civil Aviation Organization

Eighth Meeting of the Aerodromes Operations and Planning Sub-Group (AOP/SG/8)

Bangkok, Thailand, 15 to 19 July 2024

Agenda Item 9: Any other business**SUPPLY AND USE OF INFORMATION ON EARTHQUAKES**

(Presented by the Secretariat)

SUMMARY

This paper presents an issue raised by Indonesia at the Twenty-eighth Meeting of the Meteorology Sub-Group (MET SG/28) concerning the supply and use of information on earthquakes that adversely affect airports and their facilities.

1. INTRODUCTION

1.1 The ICAO Asia and Pacific (APAC) Office hosted the Twenty-eighth Meeting of the Meteorology Sub-group (MET SG/28) in Bangkok, Thailand, from 8 to 12 July 2024.

1.2 Under the Agenda Item 6: *Research, development and other initiatives*, Indonesia presented WP/19 – *Earthquake and tsunami information handling for Aviation*, which raised an issue experienced by Indonesia concerning the supply and use of information on earthquakes that adversely affect airports and their facilities.

2. DISCUSSION

2.1 In MET SG/28 WP/19, Indonesia informed MET SG/28 about its experience and practice in integrating earthquake and tsunami information into aerodrome warnings to ensure the safety of aerodrome and flight operations.

2.2 Indonesia informed MET SG/28 of its integrated system for relaying information to aircraft in flight and other aviation stakeholders on tsunami and destructive earthquakes that adversely affect airports and their facilities.

2.3 While the aerodrome warning is used by the meteorological service provider to give concise information on tsunami, when destructive earthquakes occur but tsunami are not expected, Indonesia's system also enables the meteorological service provider to use sirens and audio announcements to convey information on earthquakes.

2.4 In both scenarios, Indonesia's system enables information concerning the tsunami or earthquake hazard to be distributed using NOTAM.

2.5 Referring to the significant earthquake in Palu, Indonesia in 2018, which not only destroyed the air traffic control tower and airport facilities but also caused fatalities among airport personnel, Indonesia highlighted the absence of ICAO provisions that specifically refer to the supply and use of information on earthquakes that adversely affect airports and their facilities.

2.6 MET SG/28 noted that, while the ICAO provisions for aerodrome warnings enable States to give concise information (to operators, flight crew members and air traffic services units) on tsunami which may adversely affect aircraft on the ground, including parked aircraft, and the aerodrome facilities and services, the criteria for issuance of aerodrome warnings do not include earthquakes.

2.7 MET SG/28 considered the existing ICAO Annex 3 provisions, together with the *APAC Regional Guidance on Aerodrome Warnings for Tsunami*, provided guidance on the appropriate responses by meteorological service providers to tsunami hazards at aerodromes. Extracts from the relevant ICAO Annex 3 — *Meteorological Service for International Air Navigation* provisions are reproduced in the **Appendix** to this paper.

2.8 MET SG/28 noted the ICAO provisions above do not pertain to the responses (to tsunami aerodrome warning information) by the users (i.e., operators, flight crew members, air traffic services units, search and rescue services units, airport managements and others concerned with the conduct or development of international air navigation). Furthermore, apart from the ICAO provisions mentioned above, MET SG/28 was not aware of guidance for the air traffic management and airport communities that specifically refers to the supply and use of information on tsunami or earthquakes that adversely affect airports and their facilities.

2.9 Consequently, MET SG/28 requested the Secretariat to inform the other APANPIRG Sub-Groups, such as AOP/SG and ATM/SG, about the issue raised by Indonesia concerning the supply and use of information on earthquakes that adversely affect airports and their facilities [ACTION MET SG/28-27, refers].

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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Appendix

Extracts from ICAO Annex 3 — *Meteorological Service for International Air Navigation*

CHAPTER 2. GENERAL PROVISIONS

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2.1 Objective, determination and provision of meteorological service

2.1.1 The objective of meteorological service for international air navigation shall be to contribute towards the safety, regularity and efficiency of international air navigation.

2.1.2 This objective shall be achieved by supplying the following users: operators, flight crew members, air traffic services units, search and rescue services units, airport managements and others concerned with the conduct or development of international air navigation, with the meteorological information necessary for the performance of their respective functions.

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CHAPTER 7. SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts

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7.3 Aerodrome warnings

7.3.1 Aerodrome warnings shall be issued by the aerodrome meteorological office designated by the meteorological authority concerned and shall give concise information of meteorological conditions which could adversely affect aircraft on the ground, including parked aircraft, and the aerodrome facilities and services.

7.3.2 **Recommendation.**— Aerodrome warnings should be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

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APPENDIX 6. Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts

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5. SPECIFICATIONS RELATED TO AERODROME WARNINGS

5.1 Format and dissemination of aerodrome warnings

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5.1.3 **Recommendation.**— *In accordance with the template in Table A6-2, aerodrome warnings should relate to the occurrence or expected occurrence of one or more of the following phenomena:*

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— *tsunami*

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Note.— *Aerodrome warnings related to the occurrence or expected occurrence of tsunami are not required where a national public safety plan for tsunami is integrated with the “at risk” aerodrome concerned.*

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CHAPTER 9. SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

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9.1 General provisions

9.1.1 Meteorological information shall be supplied to operators and flight crew members for:

- a) pre-flight planning by operators;
- b) in-flight replanning by operators using centralized operational control of flight operations;
- c) use by flight crew members before departure; and
- d) aircraft in flight.

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9.1.3 Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as agreed between the meteorological authority and the operators concerned:

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h) aerodrome warnings for the local aerodrome;

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CHAPTER 10. INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

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10.1 Information for air traffic services units

10.1.1 The meteorological authority shall designate an aerodrome meteorological office or meteorological watch office to be associated with each air traffic services unit. The associated aerodrome meteorological office or meteorological watch office shall, after coordination with the air traffic services unit, supply, or arrange for the supply of, up-to-date meteorological information to the unit as necessary for the conduct of its functions.

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10.2 Information for search and rescue services units

Aerodrome meteorological offices or meteorological watch offices designated by the meteorological authority in accordance with regional air navigation agreement shall supply search and rescue services units with the meteorological information they require in a form established by mutual agreement. For that purpose, the designated aerodrome meteorological office or meteorological watch office shall maintain liaison with the search and rescue services unit throughout a search and rescue operation.

10.3 Information for aeronautical information services units

The meteorological authority, in coordination with the appropriate civil aviation authority, shall arrange for the supply of up-to-date meteorological information to relevant aeronautical information services units, as necessary, for the conduct of their functions.

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APPENDIX 9. TECHNICAL SPECIFICATIONS RELATED TO INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

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1. INFORMATION TO BE PROVIDED FOR AIR TRAFFIC SERVICES UNITS

1.1 List of information for the aerodrome control tower

The following meteorological information shall be supplied, as necessary, to an aerodrome control tower by its associated aerodrome meteorological office:

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b) SIGMET and AIRMET information, wind shear warnings and alerts and aerodrome warnings;

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1.2 List of information for the approach control unit

The following meteorological information shall be supplied, as necessary, to an approach control unit by its associated aerodrome meteorological office:

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b) SIGMET and AIRMET information, wind shear warnings and alerts and appropriate special air-reports for the airspace with which the approach control unit is concerned and aerodrome warnings;

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