

*International Civil Aviation Organization*



ICAO

**INFORMATION PAPER**

**Asia and Pacific (APAC)  
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Working Group (MET/S WG/13)**

Bangkok, Thailand, 29 to 31 March 2023

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**Agenda Item 4: Quality management of meteorological services**

**IMPLEMENTATION OF QMS IN AERONAUTICAL METEOROLOGY SERVICE IN  
INDONESIA**

(Presented by Indonesia)

**SUMMARY**

This paper presents an overview of QMS implementation in aeronautical meteorology services in Indonesia, including practices, status, benefits, and future plans.

**1. INTRODUCTION**

- 1.1 The ICAO Annex 3 par. 2.2.2 requires each Contracting State to ensure that designated meteorological authority establishes and implements a properly organized quality management system (QMS) comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users.
- 1.2 The ICAO Annex 3 par. 2.2.3 recommends the quality system established should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and should be certified by an approved organisation.

**2. DISCUSSION**

Indonesia's practices on QMS implementation in aeronautical meteorology services

- 2.1 Indonesia, through BMKG, provides aviation meteorological services through an aviation meteorological center located in the headquarter office and a network of manned meteorological stations located in the airports. The former provides medium-level forecasts and is mainly responsible for the operational management of aviation meteorological stations and personnel, while the latter consists of 104 stations including stations serving for international air navigation and which data is exchanged through Regional OPMET Data Bank Exchange (ROBEX) scheme.

2.2 Since 2014, BMKG Indonesia has established a quality manual and organized QMS trainers. Up to today, the aviation meteorological centre and 40 meteorological stations have implemented QMS and have already been ISO 9001:2015 certified (see figure 1). The ISO 9001:2015 certified stations serve for international air navigation and which data is internationally exchanged, while the rest serves for national air navigation only. To ensure that each sub-organization consistently carries out processes and products in conformity with the ISO 9001:2015 standards, the surveillance audit from a relevant external organization is undertaken on a yearly basis, while the renewal audit is on a 3-yearly basis.

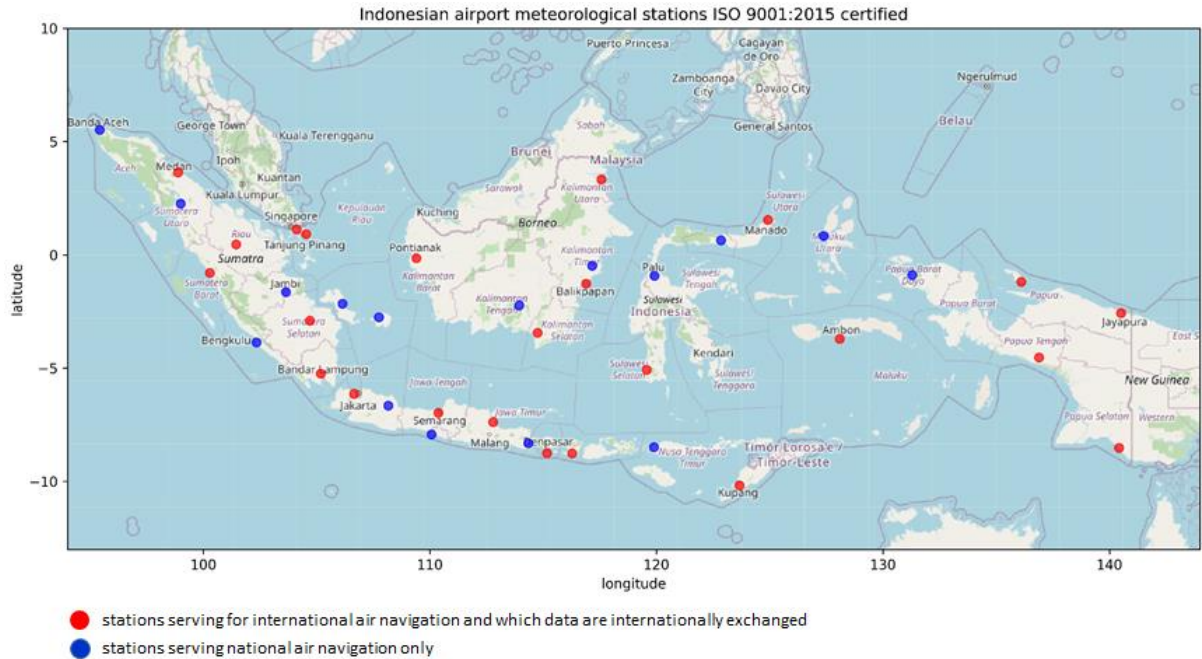


Figure 1. Indonesian airport meteorological stations ISO 9001:2015 certified

2.3 The QMS is implemented in accordance with ISO 9001:2015 principles and key components with the scope “Provision of Meteorological Service to International Air Navigation”. This includes the procedures for ensuring the compliance of the meteorological observations, forecasts, and measurements with the ICAO Standards and Recommended Practices (SARPs) and national regulations, as well as their accuracy, before, during, and after their supply to the end-users. Apart from the external audit, an internal audit is carried out to ensure the compliance between criteria and actual implementation, and to see the continuous improvement of the established quality system.

Benefits

1.1 One improvement of QMS implementation for aviation meteorological service in Indonesia is the ability to immediately identify issues and construct the mitigation plans. Equally important, QMS implementation has led to a more consistency in providing services based on regulatory requirements, as well as in enhancing the products according to the end-users’ needs.

1.2 Surveys on end-users’ satisfaction for the aviation meteorological services provided, such as towards the air navigation service provider, aircraft operator, airlines and air crews, were conducted. This is used as a tool to measure how QMS implementation within an organisation has impacted the service quality from the users’ perspective. Results taken from 3 stations show an overall increase of users’ satisfaction from 2017, when QMS was first initiated, compared to 2021 and 2022, when the QMS has been more effectively implemented. The surveys investigated the service facility, clarity, and the accuracy of the information based on users’ opinions. These components were found to considerably increase in line with the enhancement of the quality system.

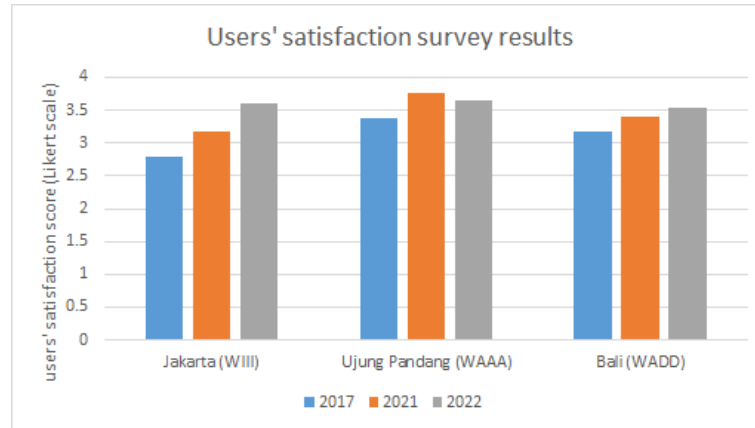


Figure 2. Users' satisfaction survey results of aviation meteorological service provided by Jakarta, Ujung Pandang, and Denpasar – Bali in 2017, 2021, and 2022

Future plan

1.3 Indonesia is planning to extend the QMS implementation in the meteorological stations located in the airports but have not yet been ISO 9001:2015 certified, i.e., the remaining stations other than the 40 stations referred to in paragraph 2.2. Regarding this effort, the QMS training will be provided by the centre for aeronautical meteorology to the personnel in the meteorological stations, with the training of trainers obtained from the relevant group in the WMO or ICAO, and/or the national consulting organisation.

**2. ACTION BY THE MEETING**

- 2.1 This paper endorses activities of QMS implementation in the Asia and Pacific region, e.g., training of trainers, QMS trainings/workshops, etc.;
- 2.2 This paper invites the meeting participants for discussion or knowledge sharing regarding QMS implementation practices; and
- 2.3 This paper invites the meeting participants to note the information contained in this paper.

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