

International Civil Aviation Organization

INFORMATION PAPER(WP/23)



ICAO

ICAO ASIA AND PACIFIC (APAC)
THIRTIETH MEETING OF THE METEOROLOGY
SUB-GROUP (MET SG/30)

Bangkok, Thailand, 20 - 24 July 2026

Agenda Item 4: Regional guidance material**SUGGESTIONS ON THE ISSUANCE TIME OF AERODROME FORECASTS**

(Presented by China)

SUMMARY

This paper presents the current development status of civil aviation in China, as well as the requirements, influencing factors and operational outcomes of aerodrome forecast issuance formulated by China's civil aviation authority to support the high-quality development of the industry. It is recommended that ICAO optimize the timing provisions for aerodrome forecast issuance, take into account the aeronautical meteorological support capacity of each Contracting State, and promote more flexible and operationally applicable issuance requirements to satisfy diverse user operational needs.

1. INTRODUCTION

1.1 During the 14th Five-Year Plan period (2021-2025), China's civil aviation has achieved remarkable progress in safe operation, transport scale, infrastructure construction, service quality, domestically developed equipment, green and intelligent development, external opening-up and economic benefits, ranking the world's largest civil aviation market by passenger throughput.

1.2 In 2025, despite a 4.7% year-on-year increase in flight movements of China's scheduled air carriers, the air transport incident rate per 10,000 flight hours decreased by 5.9% year-on-year. The on-time performance remained above 90% and has stayed over 80% for eight consecutive years, reflecting the steady improvement in China's civil aviation safety assurance and operational efficiency.

1.3 In 2025, China's civil aviation strictly implemented the requirements of early warning, early consultation, early decision-making, early response, and early notification, and focused on enhancing forecasting and warning capabilities for severe weather as well as collaborative decision-making. With the joint efforts of front-line meteorological staff and air navigation service providers, the average flight delay time decreased by 3.5 minutes year-on-year.

2. DISCUSSION

2.1 The issuance of aerodrome meteorological forecast information at Chinese aerodromes is legally based on national laws, civil aviation regulations, international standards and industry specifications, and follows a unified, standardized and authoritative release system. Meanwhile, the legal documents at all levels are supplemented and revised in accordance with industry developments and amendments to higher-level laws. To comply with the latest requirements of the Rules for Civil

Aviation Meteorological Work of China, the Annexes to the Convention on International Civil Aviation, and other relevant documents, the Civil Aviation Administration of China has recently formulated the Provisions on the Issuance and Exchange of Civil Aviation Flight Meteorological Information.

2.2 The Provisions on the Issuance and Exchange of Civil Aviation Flight Meteorological Information govern the issuance and exchange of civil aviation flight meteorological information, and unify the requirements for issuance time, data format and dissemination procedures of such information. At present, China's civil aviation meteorological departments adopt a forecast strategy combining short-term forecasts and nowcasting, and provide demand-oriented intelligent, refined and customized meteorological services. The aerodrome meteorological offices of China's civil aviation mainly provide the following forecast products: Aerodrome forecasts, Landing forecasts, Significant Meteorological Information, and other customized meteorological service products. They are also responsible for the continuous surveillance of flight meteorological information, as well as the timely correction, amendment and cancellation of such information.

2.2.1 Aerodrome forecasts with a validity period of 24 (or 30) hours are issued by aerodrome meteorological offices serving international and regional operations. The start times of the validity period of an aerodrome forecast are 00, 06, 12 and 18 UTC. The issuance of aerodrome forecasts every six hours provides essential support for the service process.

2.2.2 Landing forecasts shall be prepared and issued by the aerodrome meteorological office to meet the requirements of local civil aviation meteorological users and of aircraft within approximately one hour's flying time from the aerodrome. It shall be prepared in the form of a trend forecast and issued and exchanged together with the METAR or SPECI to which it is appended. The period of validity of the trend forecast shall be 2 hours from the time of the associated weather report. As an effective supplement to the aerodrome forecast, the landing forecast features a higher update frequency and improved timeliness.

2.2.3 Significant Meteorological Information shall be issued by meteorological watch offices, with the forecast information issued no earlier than 4 hours before the start of its validity period. If significant weather phenomena exist but the relevant SIGMET has not yet been issued, it shall be issued as soon as possible. SIGMETs shall be updated at least every 4 hours and may be issued or updated on an as-needed basis, without any time restrictions.

2.2.4 Customized services shall be provided in accordance with user needs. Without violating relevant laws and regulations, such services shall not be restricted by issuance formats, issuance times or forecast validity periods.

2.3 User and Internal Requirements

2.3.1 Air Traffic Management "Strategic Coordination" Requirements

Aerodrome meteorological forecast information supports not only individual aircraft but also serves as core evidence for the management of entire airspace operations. When a forecast indicates thunderstorm weather at the destination airport in three hours, air traffic management authorities shall promptly initiate traffic management procedures, including adjusting arrival and departure routes, increasing aircraft separation, and notifying departure airports to implement flow restrictions. Such large-scale airspace operational adjustments require an adequate time buffer. If the lead time of early warning is insufficient, a large number of aircraft will have already entered the terminal airspace. Implementing traffic control due to weather at that point will significantly increase airborne holding and circling, as well as greatly elevate the risks of flight conflicts and fuel consumption. A lead warning period of 2–3 hours can provide the air traffic management system with sufficient tactical response time, effectively alleviate airspace traffic pressure, and ensure operational safety and

efficiency.

2.3.2 Airline Dispatch Decision Buffer Time Requirements

Airlines normally initiate flight planning and dispatch preparation 2–3 hours prior to flight departure. Prior to flight release, dispatch personnel shall complete critical dispatch decision-making procedures, including accurate fuel calculation, alternate aerodrome planning and flight plan formulation, on the basis of meteorological forecast information. Where sufficient advance notice of weather warnings is not provided (only 30–60 minutes), the ground operation support system shall not have adequate time to optimize operational arrangements, including alternate aerodrome changes, aircraft load reduction and delay determinations. The issuance of weather forecasts 2–3 hours in advance ensures that flight plans are established on the basis of the latest valid meteorological data, enhances the reliability of dispatch release decisions, and provides sufficient lead time for dispatch and ground support processes. This is of significant importance for the dispatch and operational support of long-haul flights. In the course of operational coordination with airlines, meteorological authorities have received explicit requests from air operators to further advance the issuance of Aerodrome forecasts.

2.3.3 Time Requirements for Forecast Revision by Aviation Meteorological Forecast Authorities

From the perspective of meteorological forecast authorities, a reasonable time window for forecast revision shall be established. Issuing forecasts too early tends to result in frequent amendments to forecast conclusions, leaving air traffic management and dispatch personnel at a loss for decision-making; whereas issuing forecasts too late fails to meet operational demands and renders forecast revisions meaningless. By adopting the 2-3 hours in advance issuance mode, if significant abrupt changes occur in actual weather conditions within 1 hour after the forecast is issued, forecasters may still issue amended forecasts (TAF AMD) prior to flight departure. Based on the analysis of operational data and practical experience, the probability of revising TAF issued 2-3 hours in advance within 1 hour before its validity period is relatively low. Under the 6-hour rolling update mechanism, the advance forecast duration is not the main factor contributing to the increase in revision frequency. In summary, a forecast lead time of 2-3 hours can comprehensively balance the needs of air traffic management coordination, airline decision-making and meteorological revision, making it an optimal time interval that takes into account both forecast accuracy and operational practicability.

2.4 Brief Analysis of Forecast Accuracy Between China and Other Countries

Table 1. Forecast Quality Statistics of Airports, January 2026

Airport Name	FT24 Forecast	FT30 Forecast
Vancouver International Airport (CYVR)	73.13	71.90
Paris Charles de Gaulle Airport (LFPG)	78.42	76.79
Tokyo Narita International Airport (RJAA)	93.28	66.61
Seoul Incheon International Airport (RKSI)	84.68	93.52
Sydney Kingsford Smith Airport (YSSY)	83.80	32.60

Beijing Capital International Airport (ZBAA)	97.03	96.65
Qingdao Jiaodong International Airport (ZSQD)	96.76	N/A
Shanghai Hongqiao International Airport (ZSSS)	94.81	94.56
Guangzhou Baiyun International Airport (ZGGG)	98.39	98.32
Wuhan Tianhe International Airport (ZHHH)	91.35	N/A
Kunming Changshui International Airport (ZPPP)	95.75	95.62
Chengdu Shuangliu International Airport (ZUUU)	95.74	N/A

The aerodrome forecast quality assessment results shown in the table above are determined in accordance with the current assessment criteria adopted in China. It should be noted that the thresholds for weather phenomena are unified nationwide, whereas the thresholds for wind, cloud cover, and visibility vary from aerodrome to aerodrome. For overseas aerodromes, relevant thresholds are set by referring to those of domestic aerodromes with similar climatic characteristics and latitudes, which may lead to minor discrepancies in the assessment results. Analysis of the data in the table above shows that the forecast quality scores of domestic aerodromes in China are generally higher than the average level.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) recommend that ICAO APAC fully consider the differences in aviation meteorological service capacity among States and diverse user requirements, optimize the issuance time requirements for aerodrome forecasts, and develop more flexible and applicable provisions. It is recommended that TAF should be issued 1 to 3 hours prior to validity. Additional data analysis is required when severe weather conditions are anticipated.
