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**Agenda Item 6: Research, development, and other initiatives**

**AVIATION METEOROLOGICAL SERVICES  
DURING THUNDERSTORM SEASON IN CHINA**

(Presented by China)

This paper presents the efforts made by the aviation MET departments in China to enhance MET services during the thunderstorm season, such as providing some special services to users and to strengthen support for the MET departments in airlines.

**1. INTRODUCTION**

1.1 With the increase of flights and the saturation of airspace capacity, adverse weather has become the main cause of flight delays in China over the past few years. Weather during May to September (thunderstorm season) is the main factor affecting flight efficiency.

1.2 To assist civil aviation users in taking early measures to respond to severe convective weather affecting large area, the MET departments in Air Traffic Management Bureau (ATMB) of CAAC provide special services during the 2024 thunderstorm season, including issuing weather forecasts with longer lead times, increasing the frequency of product updates to ensure forecast accuracy, and more deeply involving themselves in civil aviation operational decision-making. Additionally, to enhance MET services for airlines and to maintain a common weather situation, the MET departments in ATMB have focused on strengthening coordination with the MET departments in airlines.

**2. DISCUSSION**

**Provide enhanced meteorological services during the thunderstorm season.**

2.1 To help civil aviation users anticipate the impact of long-term significant weather on operations in advance, the MET departments in ATMB provide monthly and seasonal aviation significant weather forecasts. The seasonal weather forecast for the thunderstorm season over China is issued before the start of the thunderstorm season. Additionally, monthly forecasts of significant weather for the upcoming month are issued twice a month. To better serve the international flight operations, the scope of these monthly forecasts is extended from China to a global scale, predicting significant weather events that may affect major airports worldwide in the coming month.

2.2 To give civil aviation users a clearer and more accurate understanding of significant weather events for the coming week, rolling weekly significant aviation weather forecasts are provided during the thunderstorm season everyday, which is provided once a week at other times.

2.3 During the thunderstorm season, the forecast period of the daily rolling significant weather probability forecasts is extended to cover the next two days, which covers only the next day at other times. The probability forecast product mainly includes the impact time, impact range, intensity, development trend, and occurrence probability of significant weather at airports, terminal areas, and along flight routes. Based on this product, air traffic flow management(ATFM) departments will take the flow management measures for the following day, and airlines will adjust their flight plans for the next day or even the day after (when there is a wide range of severe weather, such as a typhoon landfall). At present, the significant weather probability forecast service, which is key to reducing flight delays and improving on-time performance, has played an important role in tailored MET services supporting civil aviation operations.

2.4 The MET departments in ATMB provide civil aviation users with Collaborative Convective Forecast Products (CCFP) during the thunderstorm season. CCFP are based on rapidly updated high-resolution numerical forecast models. Convection forecast products for the next 2, 4, 6 and 8 hours are prepared three times a day by forecasters in MET departments of ATMB, who will coordinate with forecasters of airlines to generate the final CCFP. To facilitate the operations of ATFM departments under a common weather situation, the MET departments in ATMB will integrate CCFP into the national traffic flow management system, which all ATFM departments to use for flow management and flight route change.

2.5 To improve the efficiency of civil aviation operations during the thunderstorm season, ATFM departments conduct more frequent flight diversion. After consultation between the ATFM departments and the MET departments, forecasters will tentatively participate in the formulation of flight diversion plans during the 2024 thunderstorm season to maximize the effectiveness of flight operation.

#### **Strengthen coordination with the MET departments in airlines**

2.6 To strengthen meteorological services for airlines, the MET departments in ATMB have established a joint weather consultation mechanism with MET departments in airlines. At the national level, the Aviation Meteorological Center (AMC) of ATMB invites MET department in the major airlines of China to participate in weather consultations twice a day, which previously only involved the AMC and seven regional MET centers in ATMB. At the regional level, the Central and Southern regional MET center is trying to conduct regional weather consultations with their resident airlines. Conducting joint weather consultations can not only help forecasters from airlines to better understand weather forecast conclusions and thought processes, but also helps forecasters from the MET department in ATMB to more comprehensively consider the weather development and improve the accuracy of significant weather forecasts.

2.7 When preparing the global aviation significant weather forecast for the coming month, the MET departments in ATMB will also consult with the MET departments in major airlines of China, fully considering their forecast opinions.

2.8 In addition, to improve the significant weather forecast and civil aviation meteorological services, the MET departments in ATMB and airlines have established a joint weather review mechanism. After weather events with significant impact, if both parties consider there are areas for improvement in the forecasting or service provided during the weather event, forecasters from both parties will jointly summarize and analyze the forecasting and service. These reviews typically occur within 1-3 days after the significant weather event.

**3. ACTION BY THE MEETING**

- 3.1 Note the information contained in this paper.

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