International Civil Aviation Organization

ICAO/WMO ASIA/PACIFIC METEOROLOGY/AIR TRAFFIC MANAGEMENT (MET/ATM) SEMINAR

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Discussion Topic 4: Thorough review of future requirements-MET component of the CNS/ATM Systems

3) Presentations of new MET services under development (Meteorological Services in the Terminal Area)

DEVELOPMENT PLAN OF METEOROLOGICAL SERVICES IN THE TERMINAL AREA IN CHINA

(Presented by China)

SUMMARY

The paper presents the development plan of the MSTA in China, and the cooperation with Hong Kong Observatory on the MSTA development. Issues related to the MSTA are also discussed.

1. INTRODUCTION

1.1 After the MET/ATM TF/1 meeting held December 2009 in Bangkok, Thailand, the Air Traffic Management Bureau of CAAC (hereafter as ATMB of CAAC), which provides aeronautical meteorological service in China, realized the importance and urgency of starting its own research and development on Meteorological Services in the Terminal Area (MSTA). Hence, ATMB of CAAC launched its MSTA program in 2010.

1.2 A workgroup on MSTA has been set up including forecasters from 3 regional aviation meteorological centers, which provide weather service for 3 busiest airports in China: Beijing, Shanghai and Guangzhou airports. To benefit from the experience and achievements obtained by Hong Kong Observatory, ATMB of CAAC also invited experts from Hong Kong Observatory to the workgroup.

1.3 The first meeting of the workgroup on MSTA was held in Shenzhen, 24 to 25 August 2010. After reviewing and studying the current MSTA developed by WMO (with the cooperation of ICAO), the meeting reached a consensus on how to develop MSTA in China, which is presented in the following paragraphs.

2. DISCUSSION

2.1 INCREASING REQUIREMENT FOR THE PROVISION OF MSTA

2.1.1 With the increasing air traffic density, the operation in terminal area is impacted tremendously by adverse weather. The current TAF products are unable to meet the operational requirement in terminal area. In response to users' requirement on the new weather capability support for the operation in terminal area, WMO, cooperating with ICAO, brought up the MSTA vision through the ET/MSTA to bridge the gap between the TAF and en route forecast.

2.1.2 It is important to start the work on MSTA in China immediately to meet the increasing requirement for better weather service by ATM community and airlines and to contribute to the global development of MSTA.

2.2 THE PROVIDER OF THE MSTA

2.2.1 The joint workgroup agreed that MSTA is terminal-area-specific, which is primarily based on the data from local Doppler weather radar and outputs of mesoscale numerical prediction models. The MSTA should be provided by the meteorological office designated by the State Meteorological Authority.

2.3 CONTENT RELATED TO THE MSTA

2.3.1 Geographic area covered by the MSTA

Since the coverage of terminal area varies from aerodrome to aerodrome, the geographic area covered by the MSTA should be the actual coverage of local terminal area.

2.3.2 Inclusion of meteorological elements in the MSTA

Ideally, all weather phenomena such as thunderstorm, cross wind, low ceiling and visibility, snow and icing, which greatly impact the safety and efficiency of the flight operation in the terminal area, should be included in the MSTA. Following the proposal of WMO ET/MSTA and considering the different impact of different weather phenomena on the flights in the terminal area, the group agreed that MSTA be developed by stages in China, and the first priority be given to convection, wind and icing.

2.3.3 The format of the MSTA

The MSTA is mainly used for Air Traffic Flow Management, separation control, flight in terminal area and thus should be tailored for ATC, pilots and dispatchers for easily use and transmission. The group therefore considered that the format of the MSTA will be in graphical, tabular, text or coded format in the light of users' requirement.

2.3.4 The valid time

The ET/MSTA proposed that the valid time of the MSTA range from 0 to 6 hours and beyond. Based on current and foreseeable future technological capability, the group agreed that it be focused on the nowcast (within 6 hours) of convection, and short term forecast(within 24 hours) of other elements.

2.3.5 **Accuracy requirement**

The group considered that the accuracy level of the MSTA should be determined by the agreement between Meteorological Authority and the users community based on the attainable accuracy of the provider and the acceptable accuracy of the users.

2.3.6 **Verification**

The group noted that the verification of the MSTA is crucial and challenging due to the limitation of weather observation. To build customer confidence before the MSTA products are operational, study of the verification scheme should be carried out in parallel with the development of the MSTA. Moreover, the group suggested that WMO provide guidance materials to States on the verification of the MSTA.

2.4 WORK PLAN OF THE MSTA DEVELOPMENT IN CHINA

2.4.1 **Teamwork**

The workgroup is divided into 3 sub-groups, with each sub-group focuses on one particular weather element: Beijing Regional Aviation Meteorological Center works toward developing icing forecast, Convection and wind are the responsibility of Guangzhou and Shanghai Regional Aviation Meteorological Centers respectively.

2.4.2 **Road map**

a) Segment 1 (2010-2012): To initiate, research and develop the MSTA of convection, wind and icing; to deliver the demo; and to solicit users for input; and

b) Segment 2 (2013-2014.6): To improve the MSTA on account of user responses and experiences of other States; to provide MSTA products to users; and to proceed with the research of other weather elements of the MSTA.

2.5 COOPERATION WITH HONG KONG OBSERVATORY ON THE MSTA

2.5.1 Focal points are designated to provide each other updates on the evolvement of the work, and to share the resources like data and technology;

2.5.2 A joint workgroup meeting will be held annually to provide an opportunity for both sides to discuss challenging issues.

3. ACTION BY THE MEETING

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

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