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International Civil Aviation Organization

# THE FIFTH MEETING OF ASIA/PACIFIC METEOROLOGICAL HAZARDS TASK FORCE (MET/H TF/5)

Seoul, the Republic of Korea, 18 – 20 March 2015

Agenda Item 5: Aerodrome warnings

#### USE AND DEVELOPMENT OF MONITORING SYSTEM FOR AVIATION WEATHER HAZARDS

(Presented by the Republic of Korea)

## SUMMARY

This paper presents the information of hazardous weather Monitoring System developed in January 2015 and Korea Meteorological Administration (KMA) used it for more efficient watching, issuing warnings and information, and securing the safety of air navigation.

## 1. INTRODUCTION

1.1 There are various meteorological elements affecting flight operations. As the air transportation industry continues to grow around the globe, Asia Pacific Region, in particular, has become one of the places that will need aircrafts the most. Thus, there is an increase in the possibility that aircraft accidents are caused by hazardous weather.

1.2 Real-time monitoring on each meteorological element is of importance for forecasters to notice weather changes within responsible FIR. The data on the appearing aviation weather hazards has to be accurate to quickly respond to the situation, such as issuing warnings and amending the forecasts.

1.3 Since forecasters always monitor a great deal of weather data, they need to see and use lots of computer monitors and programs. Thus, it is difficult for them to monitor various data at a single glance, and there is possibility that they are late to handle the hazardous situation for the flight safety. In this regard, KMA developed Monitoring System for easier and efficient monitoring to avoid unexpected damage.

#### 2. MONITORING SYSTEM

2.1 Forecasters in KMA are monitoring large amount of real-time meteorological data at all times including satellite imagery, radar and AMOS data, etc. To help them, from 2014, KMA has started to develop Monitoring System for aviation weather hazards through research and development project.

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2.2 This system now focuses on monitoring each aerodrome in Korea. It is possible to monitor lightning on the map by distance and numerically use lightning distribution chart - 32km, 16km and 8km from each aerodrome. Forecasters also can watch meteorological elements including low visibility, heavy rain, strong wind, etc, which are used for aerodrome warnings; they are possible to monitor the elements by intensity in real time by using AMOS data. When the value of some elements that forecasters are monitoring reach a previous set reference value - 3 steps of the value of warning divided into colors (yellow, orange and red), the alarm is going off with flicker on related parts on the monitor.

2.3 In addition, as valid aerodrome warnings, wind shear warnings, SIGMETs and AIRMETs can be monitored according to remaining valid time, it is easier for forecasters to understand a current warnings situation and make a decision whether to extend or cancel the warnings.

2.4 If forecasters select the elements alarming, the program automatically displays a popup window so that they can input the warnings or information. So most forecasters in KMA watch hazardous weather through the monitoring system in real time, and especially this system is useful for forecasters responsible for aerodrome. KMA now expects to provide better meteorological service to users.



fig. 1 The monitoring screen for aviation weather hazards

## **3. FURTHER PROCESS**

3.1 KMA is planning to constantly upgrade the monitoring system. Advanced monitoring system will be linked to an automated warning information program and a notification system. As a result, KMA will be able to quickly provide more accurate hazardous weather information.

3.2 Moreover, KMA expects that this monitoring system can be expanded to both other meteorological elements and the areas; it will be possible to watch hazardous weather in the Incheon FIR, and the Asia Pacific Region in the future.

## 4. ACTION BY THE MEETING

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

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