



INTERNATIONAL CIVIL AVIATION ORGANIZATION
AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP
FIFTEENTH MEETING (APIRG/15)

(Nairobi, Kenya, 26 – 30 September 2005)

Agenda Item 4 Air Navigation issues
4.4: Aeronautical Meteorology

**AUTOMATIC WEATHER OBSERVING SYSTEMS AT JOMO KENYATTA AND
MOI INTERNATIONAL AIRPORTS**

(Presented by Kenya)

Summary

This paper summarizes Kenya's plans to implement automatic weather observing systems at aerodrome meteorological stations.

1. Introduction

1.1 The Aerodrome Meteorological Observing Systems Study Group (AMOSSG) in its report to the Meteorological Divisional Meeting of ICAO, conjointly held with WMO in 2002, had indicated that surface wind, Runway Visual Range, air and dew-point temperature could be satisfactorily automated. The other parameters namely visibility, present weather, cloud amount, cloud type and recent weather had to be inserted by human observers. It was recommended in the same meeting that a manual on the use of automatic meteorological observing systems at aerodromes be developed. In the mean time, ICAO and its member states are still investigating if the system can become operational in the near future.

1.2 Kenya has plans to automate weather observations at all aerodrome meteorological stations starting with the major airports. The automation is expected to significantly reduce problems occasionally experienced in operations especially in the observations of wind and assessment of RVR.

1.3 A project to install Automatic Weather Observing Systems (AWOS) at all aerodrome meteorological stations in the country has been initiated. These shall be integrated systems for acquisition, processing, dissemination and display in real time of parameters affecting aircraft when landing and taking off. To begin with, the system will be introduced at JKIA and Moi International airports and later at other aerodromes in the country.

2. Discussion

2.1 The essential purpose of the automation, upon adaptation as operational, will be to improve the efficient use of personnel and available resources, and also to improve quality of observations. It will also ensure an enhanced quality of service to ATC and aviation weather forecast units through the continuous display of weather elements. There will also be more consistency in measurements and better quality control in coding.

2.2 The automatic weather observing instruments will include anemometers for measurements of wind direction and strength, ceilometers for measuring cloud base heights and transmissometers for assessing RVR during low visibility conditions. Measurements of pressure, air and dew point temperatures will also be automated.

2.3 The AWOS configuration will be as follows;

2.3.1 Jomo Kenyatta

- 2 Wind sites (ultrasonic wind sensor)
- 1 Transmissometer with Background luminance meter
- 1 Present Weather Detector
- 1 Met. Station
- 1 Ceilometer

2.3.2 Mombasa Airport

- 2 Wind sites (ultrasonic wind sensor)
- 1 Present Weather Detector
- 1 Met. Station
- 1 Ceilometer

All sensors will have display units in both the forecast office and various ATC units.

2.3.3 At the onset, the AWOS will operate alongside human observers to evaluate its performance and also to determine the extent to which human intervention will be necessary once commissioned.

3. Conclusion

3.1 Considering the present day operations at airports within country and also taking into account the rapidly changing technology and operating environment, a different approach regarding aeronautical meteorological observations is needed.

3.2 Kenya's AWOS systems will run in parallel with human observations until such time that automated observations are fully approved for operations.

4. Action by the meeting

4.1 The meeting is invited to note action being undertaken by Kenya to automate aerodrome weather observing systems.