International Civil Aviation Organization

MIDANPIRG Air Traffic Management Sub-Group

Eleventh Meeting (ATM SG/11)
(Abu Dhabi, UAE, 19 – 23 October 2025)

Agenda Item 3: Planning and Implementation issues related to ATM/SAR

IMPLEMENTATION PROGRESS OF THE ADS-B HEIGHT MONITORING SYSTEM (AHMS) IN THE MIDDLE EAST REGION

(Presented by MIDRMA)

SUMMARY

This paper presents the progress achieved by the Middle East Regional Monitoring Agency (MIDRMA) in implementing the ADS-B Height Monitoring System (AHMS) project in the Middle East Region. It highlights the successful collection and analysis of ADS-B data received from Oman and Bahrain Civil Aviation Authorities (CAAs) and outlines upcoming coordination activities with Kuwait and other MIDRMA Member States.

REFERENCES

- MIDRMA Board/20 meeting report
- ATM SG/10 meeting report

1. INTRODUCTION

1.1 The ADS-B Height Monitoring System (AHMS) represents the most important and advanced RVSM height monitoring method that is expected to be adopted by all Regional Monitoring Agencies (RMAs) worldwide. Although its implementation requires extensive work and sustained efforts, it offers a more feasible and cost-effective approach for continuous height monitoring across wide areas. The AHMS marks a new era for all RMAs, providing a modern and data-driven mechanism that enhances the safety and efficiency of RVSM operations globally.

1.2 The initiative to implement AHMS aligns with global efforts to enhance height monitoring capabilities and ensure continued Reduced Vertical Separation Minimum (RVSM) compliance. MIDRMA has taken significant preparatory steps, including collaboration with the Monitoring Agency for Asia Region (MAAR), training in ADS-B height monitoring, and formally requesting the necessary Altimetry System Error (ASE) software from the North American Regional Monitoring Organization (NARMO).

1.3 In line with the ICAO MIDRMA plan to implement an ADS-B-based Height Monitoring System (AHMS) within the Middle East Region, continuous efforts have been made to collect and analyze ADS-B Out data from regional sources. This initiative aims to enhance the regional RVSM height monitoring capabilities and support ICAO’s safety objectives.

1.4 The meeting May wish to recall the MIDANPIRG/21 Decision related to MID AHMS implementation, as follows:

MIDANPIRG DECISION 21/16: MID ADS-B HEIGHT MONITORING SYSTEM (MID AHMS)

That,

a) States implementing ADS-B to share the archived data with the MIDRMA for evaluation and analysis;

b) MIDRMA to coordinate with MAAR for:

i. sharing their experience in evaluating and analyzing samples of the received ADS-B data; and

ii. providing required training related to AHMS implementation for MIDRMA Staff.

c) MIDRMA to develop a mechanism and tools for submitting the ADS-B data by States;

d) MIDRMA provides the required training for CNS engineers from member states responsible for extracting ADS-B data from their systems and submitting it to MIDRMA at regular, mutually agreed intervals;

e) MIDRMA to develop and document all required processes and procedures to be reflected in the training Manuals for the AHMS implementation, to be incorporated in the MIDRMA Tasks and responsibilities;

f) MIDRMA shall continue to provide GMU monitoring service until the AHMS is fully operational, and for the Aircraft not included in the MID-AHMS; and

g) the funding mechanism (including services charges) might be revised accordingly (based on cost -recovery basis). In accordance with ICAO Policies on charges for Airports and Air Navigation Services (Doc 9082), in coordination with IATA.

2. DISCUSSION

2.1 Following a series of virtual meetings and extensive correspondences with specialists from the Civil Aviation Authority of the Sultanate of Oman, the MIDRMA successfully received one month of their archived ADS-B data, which was essential for testing and validating the AHMS data analysis process.

2.2 In addition, the ADS-B data received from the Bahrain Civil Aviation Affairs (CAA) enabled the MIDRMA to commence the initial testing and analysis phase of the AHMS project.
“The MIDRMA wishes to express its sincere appreciation and gratitude to Oman and Bahrain CAAs for their kind cooperation and valuable technical support”.

2.3 The MIDRMA will now begin coordinating with the State of Kuwait to arrange the submission of their archived ADS-B data to further expand the monitoring coverage.

2.4 Furthermore, the MIDRMA intends to coordinate with all MIDRMA Board Member States to propose a conclusion during the next Board meeting. This conclusion will:

a. Oblige Member States to continue submitting the required ADS-B data as needed; and

b. Establish the necessary terms and legal framework governing the use of this data to ensure consistency and data protection across the region.

2.5 To conclude, the MIDRMA has taken concrete steps toward AHMS implementation, including:

a. **Engagement with MAAR**:

MIDRMA successfully coordinated with MAAR, which provided comprehensive training on AHMS and helped analyze sample ADS-B data from the Middle East region. The training covered various aspects, including ADS-B data processing, validation techniques, and integration with existing height monitoring methodologies.

b. **Assessment of ADS-B Coverage**:

MIDRMA conducted an internal assessment of ADS-B coverage across the Middle East region. The findings confirmed that a majority of the region is well covered, making it feasible to use ADS-B as the primary source for height monitoring. However, some areas require further data-sharing agreements to ensure complete coverage.

c. **Development of an Implementation Framework:**

Based on MAAR's guidance, MIDRMA has outlined an initial framework for AHMS deployment. This includes defining data collection processes, standardizing data formats, and establishing quality control measures to ensure accurate monitoring results.

d. **Request for ASE Software:**

MIDRMA submitted an official request to NARMO for access to the ASE software, which is essential for processing ADS-B data and ensuring accurate height monitoring. This request was officially supported by the ICAO RMACG Secretariat and all the required software received.

e. **Coordination with Member States:**

MIDRMA has engaged with its member states to ensure their participation in the AHMS initiative. All states with ADSB capabilities will be requested to provide archived ADS-B data upon request, facilitating seamless data acquisition for height monitoring purposes.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the progress achieved by the MIDRMA in implementing the ADS-B Height Monitoring System (AHMS) in the Middle East Region: and

b) appreciation the efforts of Oman and Bahrain CAAs for their early participation in submitting the AHMS ADS-B data, and encourage States to cooperate with the MIDRMA by providing ADS-B data to support regional RVSM height monitoring activities.

- END -