INF11.1 — Enhanced Ground Weather Management System (GWMS) as local 4DWxCube

The Enhanced Ground Weather Management System (GWMS) is an evolution of the GWMS developed for the first time in SESAR 1. The Enhanced GWMS is compliant to specifications of the 4DWxCube instance in Aerodrome ATM MET CC. MET for Total Airport Management, which comprises the bulk of local MET information, is developed and integrated into GWMS as a SWIM service (METForTAM). This validates its general capability for the provision of both existing standard and future MET SWIM services dedicated to particular operational environments like Wake Turbulence Separations.

The provision of METForTAM by GWMS has been designed and validated to be SWIM Technical Infrastructure Yellow Profile compliant using AMQP1.0 messaging. This information service may be used to provide enhanced local MET information (e.g. METEO forecasts and observations) to a specific airport (airport operational centre, APOC).

The new capability Glide Wind Profile has also been developed to provide glide wind data into the GWMS using sources like Radar and Lidar sensors. The purpose of these observations is to enhance separation procedures based on the collected glide slope wind data.

These developed capabilities and information services aim to provide enhanced MET data capabilities, in order to improve the accuracy and timely delivery of certain Meteorological conditions at an airport. Specifically, supporting the airport operator and other local stakeholders and, in turn, airspace users to improve their situation awareness and decision making.

NOTE 1: SESAR recommends development of additional SWIM services centred around local MET capabilities and requirements, in addition to a long-term validation exercise to test handling several services at more than one airport to demonstrate the full capabilities of 4DWxCube. This would serve to demonstrate the benefits compared with currently available meteorological information and data provision.

NOTE 2: It should be noted that the implementation of new MET information services, including high resolution wind profiling, are not mandatory for deployment at all airports, but should be considered if there is an operational need for such enhancements.

Edition	2022
Stakeholders	Airport Operator
Type	SESAR
Scope	Local
Status	Initial

Context

Related Elements

OBJ
INF11.1

Applicability Area(s) and Timescales

Applicability Area: *(Not yet defined)*

Timescales	From	By	Applicable to
IOC used for Analytics functioning only - not for implementation planning	01-07-2022	-	
FOC used for Analytics functioning only - not for implementation planning	-	31-12-2030	

Links to ATM Master Plan Level 2

—

SOL Links to SESAR Solutions

Code	Title	Program	Related Elements
No record found			

PCP Links to PCP ATM Sub-Functionalities

Code	Title	Related Elements
No record found		

ICAO ICAO Block Modules: No associated data

References

Applicable legislation
None
Applicable ICAO Annexes and other references
None
Deployment Programme 2022
-
Operating Environments
-

Expected Performance Benefits

Safety	Enhanced safety.
Capacity	-
Operational efficiency	-
Cost efficiency	Increased cost efficiency.
Environment	-
Security	Enhanced security.

Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
APO01	Consume METForTAM Service			
MET01	Upgrade systems to provide METForTAM Service			
MET02	Upgrade systems to provide METForTAM Service			
MET03	Provide METForTAM Service			

Supporting Material

Title	Related SLoAs
SJU - SESAR Solution PJ.18-04b-01: Data pack for GWMS https://sesarju.eu/sesar-solutions/ground-weather-management-system-gwms	APO01, MET01, MET02, MET03

Consultation & Approval

Working Arrangement in charge	-
Outline description approved in	-
Latest objective review at expert level	-
Commitment Decision Body	Provisional Council (PC)
Objective approved/endorsed in	-
Latest change to objective approved/endorsed in	-