WeAC WEATHER SERVICE SOLUTION

COMBINED EFFORTS

Accurate, high resolution and timely weather information (ATM MET) has been ranking high on the aviation community's research list. Providing instant and accurate MET data related to the approach control areas between en-route and terminal sectors presents a considerable challenge to Air Traffic Controllers especially when making critical decisions under bad weather conditions.

Against this backdrop a high-profile consortium consisting of Selex ES GmbH, DFS Deutsche Flugsicherung GmbH, AC-B Air Traffic Control & Business Systems GmbH, Avitech GmbH and Deutscher Wetterdienst (DWD) together developed a holistic approach to provide an information service through SWIM technologies, able to offer manifold MET information using open standards. The consortium's WeAC Service project was able to gain the support of the German Federal Ministry for Economic Affairs and Energy (BMWi) which made "The Weather in ATM and Collaborative Decision Making – WeAC" a funded Federal Aeronautical Research Program (Luftfahrtforschungsprogramm – LuFo IV 2007-2015).

The WeAC Service's web-based information systems and standardized data models will play a key role in enabling a better situational awareness for weather information. It represents a comprehensive SWIM MET solution for Controller Working Positions (CWP), which provides Air Traffic Controllers with much needed MET data, at the right moment, at the right place and in the right quality. The SWIM compliant WeAC Service uses validated components of SESAR, offers a scalable middleware application and is being validated in an operational environment.

WeAC SERVICE PROFILE

The WeAC Service implies a conceptual shift from sensor-centric environment to application and information-centric environment.

The WeAC Service demonstrates the implementation of the end-to-end processing chain.

The WeAC Service offers a standardized provision of consolidated aeronautical meteorological information.

The WeAC Service is a transversal thread for ATM, in particular for all stakeholders where MET information in the collaborative decision making process matters.

The WeAC Service provides the overall processing chain from the provision of MET data via SWIM-compliant services, following OGC/ISO standards and SESAR SWIM binding definitions, through to the support for legacy consumer interfaces and a SWIM-conform display client.

WeAC
Wetter in ATM & CDM

Selex ES
A Finmeccanica Company

DFS Deutsche Flugsicherung

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

AC-B
Air Traffic Control & Business Systems GmbH

Avitech
an indra company

Supported by:

Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag

WeAC ARCHITECTURE: TECHNICAL CONCEPTS

The WeAC architecture is designed to accommodate data providers, service providers and service consumers alike. Its conceptual shift from a sensor-centric environment to an application and information-centric environment represents one of the future keys in WeAC, enabling a better integration of common and standardized meteorological services into the ATM decision-making process.
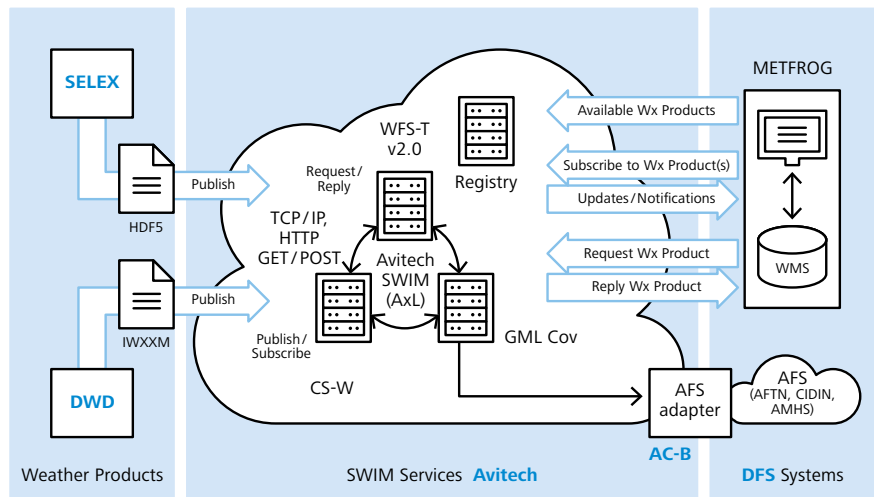
WeAC provides geo-referenced products using highly sophisticated sensor technology and data fusion algorithms. The Ground Weather Monitoring System supplied by Selex ES and ITWS – Integrated Terminal Weather System supplied by DWD are ensuring the provision of cutting-edge meteorological products for the ATM user.

WeAC is based on standard data formats and protocols provided via Avitech SWIM, an OGC compliant AxL 3.6.0 WFS-T v2.0 service, and a SWIM-compliant publish / subscribe binding, all supplied by Avitech.

WeAC supports legacy consumer interfaces including server hardware infrastructure, using adapter plug-ins that are subscribers to WeAC services and converting appropriate data to legacy formats, e.g. AFTN messages. This gives more flexibility to ATC service providers during the transition phase to SWIM (AC-B).

WeAC comes with the SWIM-conform display client METFROG, provided by the German Air Navigation Service Provider DFS. METFROG has the ability to fluently animate multiple layers with different geospatial and meteorological data, using WMS layers and providing only the relevant and needed data at different ATCO working positions in a most efficient and ergonomic manner.

WeAC Service is currently undergoing validation in the Deutsche Flugsicherung (DFS) Control Center and Control Tower premises at Munich airport (Flughafen München). Following the validation process WeAC will be available to the market in the fall of 2015.