



# AVENTUS NOWCAST

## Summary

AVTECH's solutions are based on **patented** modular platforms which enable the company to deliver a range of services to the air transport industry depending on how the modules are combined. The modules also form the basis for a unique set of capabilities that AVTECH can offer in the form of consultancy assignments to a wide array of potential customers within the industry.

## Innovations

Since the start over 25 years ago, AVTECH has been a leader in the global development of Performance-based Operations (PBO)

AVTECH is the only company in the world that can distribute processed weather information based on the most up-to-date and advanced forecasts available. These are derived from the UK Met Office's high resolution global meteorological model.

## Weather Challenge

Many flight planning suppliers and most aviation Met organizations currently use the World Area Forecast Model that is produced to an ICAO specification by state Met providers.

Weather data derived from Met Office's High-resolution model, which is used by AVTECH, has an unmatched accuracy and reduces the error between actual and forecasted winds to a minimum.

Over the last five years, AVTECH has done extensive research on the global meteorological industry in a quest to provide the very best in weather information to our customers. As a result of this work AVTECH is delighted to partner with the Met Office as our first choice weather forecast provider. In combining the latest science with ground breaking advances in technology and local understanding, the Met Office is committed to delivering operational advantages to all sectors of the aviation industry.

Scientific research in this area indicates clear benefits from the use of High-resolution weather data. AVTECH's extensive testing and review of it's products, has confirmed and quantified the improvements in airline efficiency for airlines who put Aventus AIR™ in use.

## High Quality Weather Data

**Aventus NOWCAST** - Aircraft Meteorological Data Relay, (AMDAR), observations are utilized within the Met Office's data assimilation process. The observations of wind and temperature are combined with a previous weather forecast to obtain the best estimate of current atmospheric conditions. This is evolved forward in time by the forecast model to produce the next forecast which should be a close reflection of the future weather conditions.

The Aventus NOWCAST system requires a 4 dimensional trajectory (4DT) from the aircraft in order for the system to operate.

By use of a standard ACARS report containing elements of position, flight plan, performance, and destination, a 4DT can be accurately generated by the Aventus system. These downlinked parameters are all fed into our Trajectory Engine ("In house FMS") which then computes the 4DT. Additionally, the inbound procedures at the airport of approach are compared to the 4DT, and using a standard industry Navigation database, any procedural constraints for an airport is added to the 4DT. This creates an electronic image of the planned flight that can be utilized in Aventus calculations.

## This is how it works

- Route and entered performance data in FMS is downloaded to AVTECH
- The planned flight is converted to a 4DT
- Best Met Data for the flight is computed
- Met Data is sent to the cockpit via ACARS
- Flight Crew accepts the uplink and FMS calculation is optimized

## Benefits

- Saves fuel (CO<sub>2</sub>)
- Improved Navigational performance
- Improved Time Accuracy (SESAR and NextGen compliant)

## How to get started ?

- Get a demo
- Sign up for a Trial
- Contact us!

## Algorithm Selection

Depending on the phase of flight the wind levels are selected in the following ways:

### En-route:

Flight crews can, in addition to getting automatic updates, request an en-route wind uplink at any point in the flight. This request will initialize a sequence which will download a list of way points currently active within the aircraft's FMS. Once the request is received by Aventus NowCast™, the system will request additional information from the FMS including additional performance and flight plan information which will be used by system to determine the ETA at each downlinked waypoint. This process is all performed by AVTECH's proprietary built trajectory engine which will create a 4 dimensional trajectory based on flight plan and performance data. Aventus will then return an uplinked message with an appropriate wind forecast for each waypoint along the planned flight path and altitudes. Additionally, if only one flight level is requested, Aventus will automatically uplink additional and appropriate wind information for various flight levels to support optimal flight level selection internal to the FMS.

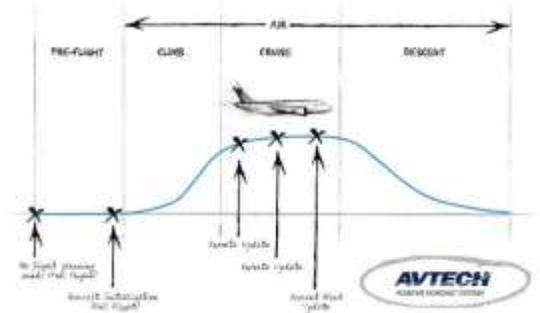
## Specifications

- Aventus NowCast™ requires Autoload (connection between FMS and CMU) to automatically retrieve FMS route- and performance data.
- Works with both SITA and ARINC.
- FMS receives a direct reply with best wind levels to optimize performance.
- Pilot accepts data before activation.

### Climb and Descent:

Before take-off, or prior to Top-Of-Descent, the Aventus system downloads a standard ACARS report to build the 4DT. The data for a particular flight (as loaded in the FMS) is used with the associated high quality weather grid and, through a complex algorithm set, the system executes a multitude of calculations to identify the possible options of optimum climb or descent winds based on FMS functionality. Simply, the algorithm selects the best combination of wind levels that will lead the FMS to most closely interpret the forecasted atmospheric profile based on the performance of an individual aircraft.

Benefits include fuel savings through better optimization, improved time accuracy and more stable VNAV operations.



## In use today by

easyJet

Lufthansa Cargo

norwegian

## CONTACT

sales@avtech.aero  
info@avtech.aero

Visiting address: Färögatan 33, 164 51 Kista, Sweden,  
Phone: +46 (0)8 54 41 04 80, www.avtech.aero

Follow us on  

**AVTECH**

Powered by

 **Met Office**

AVTECH Sweden AB (publ) is listed on NASDAQ OMX First North