NEWSIM

State-of-the-art ATM training
A modern simulation infrastructure is a prerequisite for successful initial and continuation training in ATM. NEWSIM, the new generation of ATM simulator systems of DFS, therefore offers both trainees and experienced air traffic controllers the environment they are familiar with from their daily work with advanced ATM systems in the control centres. Realistic training of all procedures applied in approach and area control can be performed. With NEWSIM, DFS provides an optimum training environment. NEWSIM is used in the Air Navigation Services Academy of DFS and in four control centres. Together with Lufthansa, DFS also operates the system for emergency training purposes at Frankfurt Airport.

Modern working positions

The layout of the consoles, the displays and the operating components emulate the modern controller working positions of the control centres. All radar and flight plan data are displayed in the same manner as in advanced ATM systems. Separate radar data displays are available for the radar/executive positions and the working positions performing planning and coordination functions. Digitized maps/charts, weather data and NOTAM messages are displayed on a dedicated monitor in the upper part of the console.

The largest NEWSIM training facility is located in the Air Navigation Services Academy of DFS in Langen. Three Simulators, each with 16 working positions, and one simulator with 12 working positions are ideal for single-user as well as multi-sector training. This state-of-the-art system is the first one to enable training solely on the basis of electronically displayed flight data.

Flexible system capabilities

Like in actual operations, trainees can update flight plan data and transmit messages to adjacent control centres via a touch input device (TID). By means of another TID, they can control radiotelephony channels and telephone lines. The display of radar and flight plan data on a high resolution screen can be divided variably into different windows. Screen functions and the selection of individual information elements and aircraft targets are mouse-controlled. During the exercises, flight plan data can be output on flight progress strip printers installed at each working position. Flight progress strips may also be produced offline prior to performing the exercises. Working at the NEWSIM is very similar to working with real traffic in a real environment: The user interface and the handling of the operational system P1/ATCAS have been copied to the greatest possible extent. It is, however, also possible to adapt the simulation to any other air traffic control system.
Normally, each controller working position in NEWSIM is assigned one position for a simulation pilot. Additionally, there are two stations for external coordination partners which are connected via a digital voice communication system.

**Advanced tools and new functions**

Thanks to a user-friendly tool, it is easy to prepare and perform exercises. All necessary steps - from establishing airspace and setting up flight routes to defining flight plans - can be carried out using only one tool. Moreover, the data preparation of NEWSIM has a preview function that lets the user view the entire exercise in advance. All exercises are saved in a central database and can be retrieved at any time. As a result, it is possible to start the same exercise at several simulators at the same time.

Functional adaptations of the NEWSIM to new operational developments can be made in-house. At present, the ATM Simulator Centre of DFS is working at integrating the processing of flight plans in order to adapt the simulator to the operational system to an even greater degree. Very Advanced Functionality like 4D-Trajectory Prediction and Medium Term Conflict Detection is currently under development to support upper airspace training similar to the new DFS ATM System VAFORIT. And in the future, NEWSIM - like the air traffic control system P1/ATCAS - will be converted to the paperless strip system.
For more information, please contact:

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