



# AIRSPACE OPERATIONS LAB

## Flight Simulation

The Airspace Operations Laboratory (AOL) at NASA Ames Research Center is an advanced research facility designed to study the roles, responsibilities, and requirements for human operators and automation in future air traffic management (ATM) systems.

A key requirement to accomplish this goal is the ability to run quality human-in-the-loop simulations. In order for these simulations to provide useful results, it is important that they create an environment that appears as realistic as possible to domain experts using equipment such as flight simulators and air traffic control radar scopes. This exhibit will introduce you to the flight simulation aspect of human-in-the-loop simulations.

### ASTOR Flight Simulator

As part of this exhibit, you can watch what is called the Aircraft Simulation for Traffic Operations Research (ASTOR) aircraft

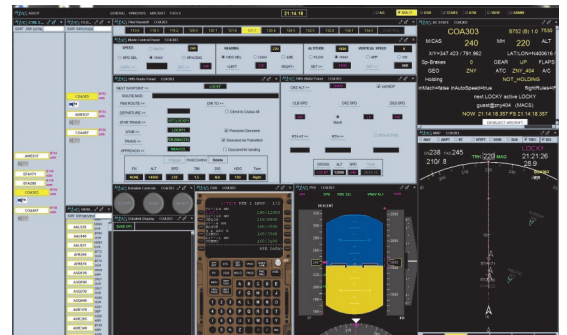


simulator. ASTOR, developed by NASA Langley, is a single- or dual-pilot, computer-based aircraft simulation, which sup-

ports research of air traffic operations in future airspace environments. ASTOR displays, indications and warnings are modeled after the Boeing 777 cockpit displays while its aerodynamic model emulates the performance of a Boeing 757.

### MACS Flight Simulator

The Multi Aircraft Control System (MACS), developed by the AOL, is a highly configurable simulator that can be set up to utilize and test a wide range of functionality, from basic to very advanced (e.g., Next Generation). MACS can be configured as a single aircraft station that



generates flight deck displays similar to those found in a modern aircraft. Also, MACS can be configured as a multi-aircraft pseudo-pilot workstation that allows a simulator pilot to control several hundred aircraft. Generally, we have simulator pilots controlling 10-25 aircraft at a time, aided by generic input devices such as drop down menus and text fields, designed for rapid entry of air traffic control commands. Guests are invited to fly this interactive flight simulator.

FLIGHT SIMULATION:  
FLIGHT-DECKS TODAY AND TOMORROW