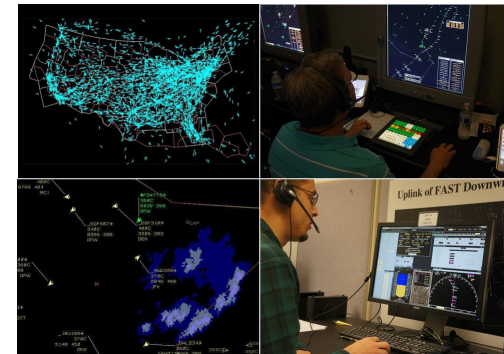
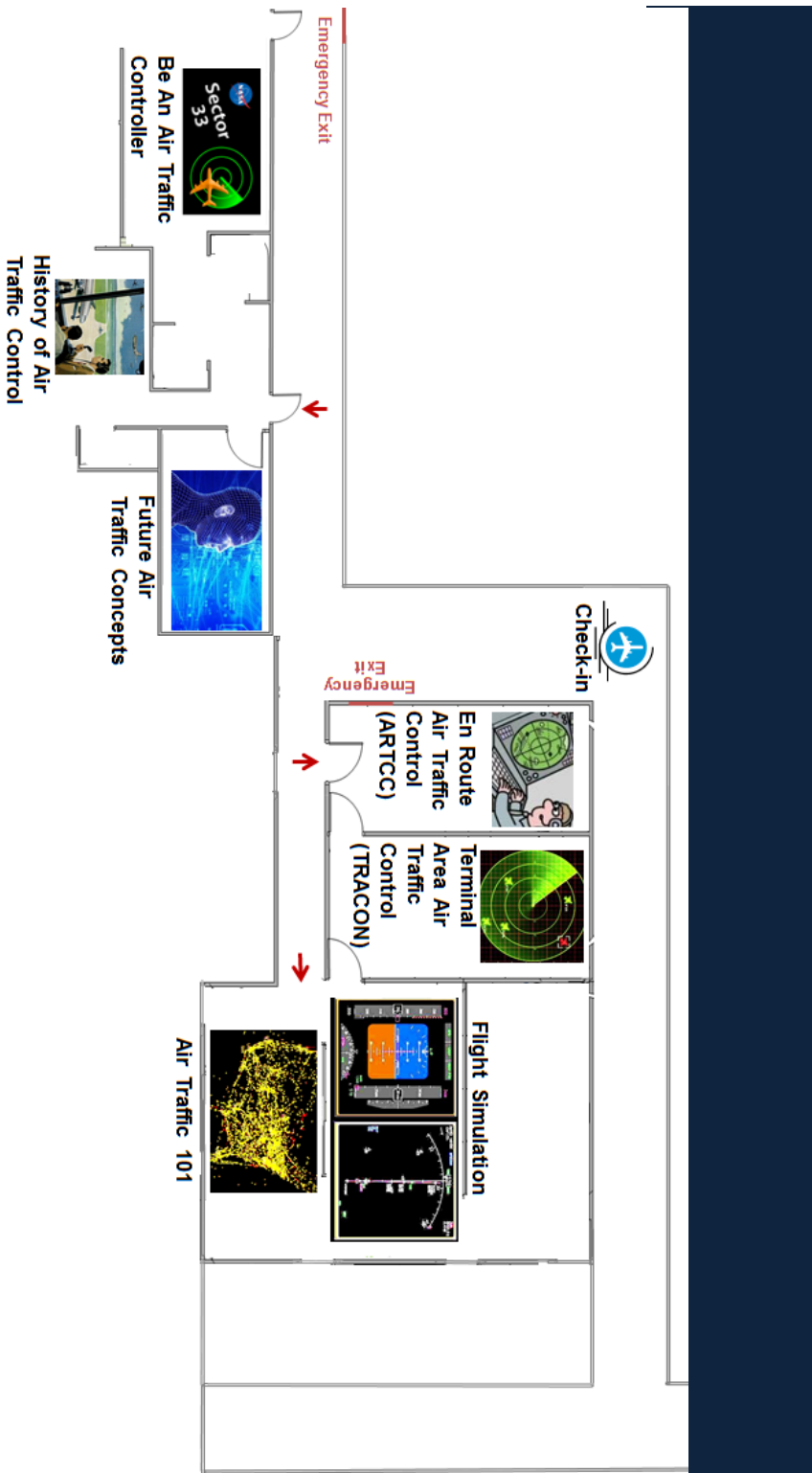




The Airspace Operations Laboratory (AOL) at NASA Ames Research Center hosts a powerful simulation environment for human-in-the-loop studies of air traffic operations. The AOL and its capabilities enable NASA to realistically simulate a wide range of operational environments from current-day operations to future operational concepts like those envisioned for the Next Generation Air Transportation System (NextGen) and beyond. The research focus in the AOL is on examining air traffic control and management operations across multiple air traffic control sectors in rich air/ground environments that can include oceanic, en-route and terminal airspace.



Our main research goal is to evaluate future Air Traffic Management (ATM) systems and associated human-system interactions. The findings help the ATM community to understand how potential issues relate to NextGen concepts, and lead to a better understanding of roles and responsibilities for human operators and automation in future ATM systems.



Check here for more information about the Airspace Operations Laboratory:
<http://humansystems.arc.nasa.gov/groups/AOL/>

EN ROUTE AIR TRAFFIC CONTROL (ARTCC)

The en route air traffic control room simulates sector controller positions in an Air Route Traffic Control Center (ARTCC), called "Center" for short. You will see simulated air traffic in Albuquerque Center, which is one of 21 ARTCCs covering the United States. The AOL conducts simulations with air traffic controllers to test new NASA concepts and technologies aimed at helping controllers reduce flight delays, fuel burn and emissions.

TERMINAL AREA AIR TRAFFIC CONTROL (TRACON)

The terminal area air traffic control room simulates the radar screens and radio communications found in a Terminal Radar Approach Control (TRACON) facility. These facilities handle arriving, departing, and crossing air traffic approximately 40 nautical miles around an airport. In this room you will see our experimental setup used to evaluate NASA's ATM Technology Demonstration 1 (ATD-1) in a simulation of air traffic in and out of Phoenix Sky Harbor airport

SECTOR 33

Learn to be an air traffic controller. Play the fun and educational air traffic control game app from NASA Smart Skies: Sector 33. Line up planes through Sector 33 on their way to San Francisco.

FUTURE AIR TRAFFIC CONCEPTS

The number and types of aircraft taking to the skies is predicted to increase to levels far beyond what we see today. Come to understand the challenges and potential solutions for how this increase can be safely managed and how NASA has engaged in an ongoing research effort to test and develop future air traffic concepts. In this exhibit you will see examples of research which has been conducted in the Airspace Operations Laboratory that investigated increasingly autonomous air traffic control systems and the changing role of the air traffic controller.

HISTORY OF AIR TRAFFIC CONTROL

See, hear, and experience the humble beginnings of air traffic control! A presentation of the air traffic control's history will take you through the ages of pre- and post-radar, and describe the early versions of systems used by controllers today. Between presentations, stop by and try working different traffic problems from non-radar scenarios, using only your wits and... 'shrimp boats'.

AIR TRAFFIC 101

Come to the video station and see a series of short movies that will introduce you to Air Traffic Control. Learn about the kinds of problems that controllers have to deal with and how researchers at NASA are trying to develop tools and procedures to lessen these problems. And hear what controllers think of their work directing aircraft in some of the most challenging airspaces in the world.

FLIGHT SIMULATION

Experience being a pilot using our pilot stations. Our airspace simulations often require hundreds or thousands of flights to create a realistic environment for the air traffic controllers. These flights are operated by actual pilots that are sitting in different areas of the lab and provide live communication and realistic reactions. Try to work such a position and see if you can keep the aircraft on schedule.

HIGHLIGHTS



Control a flight from SFO to LAX

History of Air Traffic Control



Meet an Air Traffic Controller

En Route Air Traffic Control (ARTCC)
Terminal Area Air Traffic Control (TRACON)



Be an Air Traffic Controller

Sector 33



Be a Pilot

Flight Simulation