

SIMLAB PARTICIPANTS

Statement of Work

A. BACKGROUND

NASA Ames Research Center's Simulation facilities, jointly called "SimLabs," support a wide range of research with emphasis on aerospace vehicles, aerospace systems and operations, aviation human factors and air transportation system safety and capacity. For more information please see: www.simlabs.arc.nasa.gov.

NASA Ames Research Center conducts research in its Simulation Laboratories (SimLabs) in the areas of flight and air traffic control management. SimLabs consists of the following individual simulators:

Flight simulators:

The Vertical Motion Simulator (VMS)

The Crew Vehicle Systems Research Facility (CVSRF)

1. B747-400
2. Advanced Concepts Flight Simulator (ACFS)

Air traffic Control (ATC) simulators:

1. The Crew Vehicle Systems Research Facility (CVSRF) Radar ATC Lab
2. FutureFlight Central (FFC)
3. Center/TRACON Automation System (CTAS) Lab

Typical CVSRF flight simulation experiments involve scenarios designed to look at specific questions regarding pilot/flight deck interface or pilot/controller interface. There may be several runs per day or one real-time flight profile. The typical study will last one to two weeks. Typical CVSRF pilot and controller needs vary. Flight crews have normally been one crew (2 pilots) per day; however there have been studies that have required up to 5 crews per day for up to a week. ATC controller and pseudo-pilot requirements vary from zero to eight.

Typical FFC control tower simulations involve preparing a graphical model of an airport layout and vicinity, several traffic exercise scenarios, and conducting full traffic operations with certified controllers and pseudo-pilots pilots. Four to 25 pseudo-pilots control the aircraft in real-time and communicate verbally with the controllers. Training is conducted three days per week for three to five weeks to familiarize the pseudo-pilots with the proficient operations of aircraft in the simulation airport. Two to six air traffic controllers are also required to conduct the pseudo-pilot training. The actual experiment normally runs for approximately one week.

FFC is a full-scale air traffic control tower simulator dedicated to solving the present and emerging air traffic capacity and safety problem of the nation's airports. Typical FFC control tower simulations involve preparing a graphical model of an airport layout and vicinity, several traffic exercise scenarios, and conducting full traffic operations with certified controllers and pseudo-pilots pilots. Four to 25 pseudo-pilots control the aircraft in real-time and communicate verbally with the controllers. Training is conducted three days per week for three to five weeks to familiarize the pseudo-pilots with the proficient operations of aircraft in the simulation airport.

Two to six air traffic controllers are also required to conduct the pseudo-pilot training. The actual experiment normally runs for approximately one week.

B. GENERAL REQUIREMENTS

Simulation experiments are conducted intermittently based on customer demand. Customers include researchers from NASA, other government civil or military researchers, or private companies. As simulation experiments are conducted based on customer demand, which is not uniform throughout the year; the SimLab participant contractor is required to maintain a large pool of participants from which to draw the appropriate participants in time to meet the simulation schedule. Therefore NASA requires the Contractor to have access to simulation participants whose schedules are flexible.

In order to provide appropriate subject matter experts and participants, an understanding of the general requirements for typical research conducted within SimLabs is necessary. Communication with the customer and SimLab facility operators will be necessary. Therefore all participants must speak English fluently with minimal accent, be reliable, and appear promptly in time for training for experiments, except due to unavoidable situations. To facilitate entry to NASA Ames, participants must be United States citizens.

NASA retains the right to reject a participant if, in the opinion of the government, his/her participation would be detrimental to the successful completion of the project.

The contractor will be provided a Government Furnished Equipment (GFE) office from which they can manage the BPA. The on-site manager(s) will require non-visitor badges. The contractor's on-site personnel will be responsible for arranging visitor badges for the SimLab participants.

Task orders will be placed based on predetermined fixed labor rates (burdened). The contractor may only charge for participant's time spent on-site with a minimum of 4 hours charged per day. Travel will be included in specific delivery orders as needed on a time and materials basis.

C. SPECIFIC REQUIREMENTS

The services to be performed under this contact shall be performed at the following location(s): Moffett Field, CA and at such other locations as may be directed by the Contracting Officer through the applicable task order.

In accordance with issued Task Orders, the Contractor shall:

1. Provide simulation pilots and air carrier pilots, staff pilots, air traffic controllers, traffic management controllers, pseudo pilots, airline dispatchers, Subject-Matter-Experts (SME) and maintenance/engineer support personnel on a temporary as-needed basis to support experiments on-site in SimLabs facilities.
2. Recruit, hire, schedule, and complete visitor badging authorization for all SimLab Participants and SMEs.
3. Provide participants at predetermined fixed labor rates.

4. Classification of, and experience for, SimLab simulation participants:
- a. Air Carrier Pilots – Current or recently retired commercial pilots with substantial airline experience or pilots with military equivalence. These pilots will have experience in large turbine powered, glass cockpit aircraft commiserate with research requirements. Air carrier pilots are used in actual simulation activity.
 - b. Staff Pilot – A pilot that meets specific, project defined requirements to assist researchers in performing development and evaluation activities. Staff pilots may participate in actual simulation activities as a confederate participant or in non-simulation activities as required.
 - c. Air Traffic Controller – Current or recently retired air traffic controllers. This category includes Tower, TRACON or En Route controllers. The air traffic controllers will have experience in high-density terminal or en route operations. Air Traffic controllers are used in actual simulation activity.
 - d. Traffic Management Controller (TMC) – Current or recently retired air traffic controllers with experience working in a terminal or en route Traffic Management Unit. The TMC's will have experience in high-density terminal or en route operations. TMC's are used in actual simulation activity.
 - e. Pseudo Pilot – Pseudo Pilots are responsible for providing simulation support by controlling computerized air traffic as a pilot. Pseudo pilots will be general aviation pilots (IFR rated), commercial pilots, or air traffic controllers. Pseudo pilots are used in actual simulation activity.
 - f. Airline Dispatchers – Current or recently retired licensed airline dispatchers air traffic controllers with substantial airline experience. Airline Dispatchers are used in actual simulation activity.
 - g. Subject Matter Expert (SME) – Subject Matter experts may be pilots, air traffic controllers, or airline dispatchers used by researchers for the development or evaluation of simulation activities.
 - h. Maintenance/Engineer Support – Consultants that may be required to perform a short term, unique maintenance or engineering task.

D. KNOWN SIMLAB PARTICIPANT REQUIREMENTS

CVSRF & FFC: In-house ATC SME

1 fulltime ATC SME

CVSRF: 3 Dimensional Path Arrival Management (3D PAM)

10 simulation pilots (estimated)

Approximately 2 weeks throughout August 2010

4-6 air traffic controllers (estimated)

Approximately 2 weeks throughout August 2010

CVSRF: Generic Sectors

5 simulation pilots (estimated)

Approximately 2 weeks throughout July 2010

5 Center ATC controllers

Approximately 2 weeks throughout July 2010

CVSRF: Air-Ground Coordination for Automated Separation Assurance (ACASA)

3 TRACON Controllers (estimate)

Approximately 3 weeks throughout July 2010

4 simulation pilots (estimate)

Approximately 3 weeks throughout July 2010

CTAS: Trajectory Based Automation System-Enroute and Transition (TBAS-ET)

12 TRACON ATC Controllers (estimate)

Approximately 3 weeks throughout August 2010

15 simulation Pilots (estimate)

Approximately 3 weeks throughout August 2010