A11i Air Traffic Control/Technical Operations Human Factors

The Air Traffic Control/Technical Operations (ATC/TO) Human Factors program focuses on the integration of human considerations into operations and the system acquisition process to enhance user-system design, reduce life cycle ownership costs, improve safety, and optimize total system performance.

Human Performance (HP) and Safety

- Incident Investigation and Mitigations
  - Investigation of SoCal TRACON near miss incident to identify HP contributing and causal factors and development of human factors recommendations
  - Investigation of Honolulu Control Facility head-on near miss incident and development of human factors recommendations
- Operational Human Performance – Safety Support For ATO Top 5 Hazards
  - Analysis of combined sectors / positions to identify contributing factors and impacts on controller performance
  - Development of Corrective Action Program materials for controllers on the use of memory aids
- Service Integrity Risk Analysis Process (SI-RAP)
  - Development of human factors – safety taxonomy for technical operations incidents
  - Development of process for identification of SI-RAP Top 5 Risk Priorities similar to Airborne RAP

Training and Facility Assignment

- Completed and terminated research in the area of ATC personnel selection. Reports and presentations documenting 7 of those projects were completed this year.
- Provided data-driven recommendations to human resource executives and contractors about interpretation of historical selection and outcome data that were the basis of their decisions about modifying the ATCS selection process.
- Conducted an analysis of attrition rates for New York TRACON trainees to determine how to increase the pass rate
- Developed a job analysis information database documenting analyses of both current and NextGen occupations for controllers and maintenance technicians for use by training developers, training researchers, and training requirement specialists.

Human Centered Design

- **Integrated Arrival-Departure Control Services (IADCS) Simulation**. Human-in-the-loop study compared options for en route and terminal controllers responding to airspace closures due to weather.
- **Time-Based Flow Management (TBFM) Simulation**. This study examined the effects of increasing numbers of metered traffic streams on operational and controller performance.
- **Traffic Flow Management User Interface Development**. Researchers developed and evaluated user interfaces for multiple traffic management automation systems and tools. These included the Route Availability and Planning Tool (RAPT) and Airborne Rerouting.
- **Data Communications User Interface Validation**. Simulated user interfaces for Data Communications on an En Route Automation Modernization (ERAM) emulation system in an operational evaluation.

Human Factors in Acquisition

- Chartered the Human Factors Acquisition Working Group to initiates changes or develops new human factors function policy or guidance for the Acquisition Management System (AMS).
- Completed 5 new Human Factors Standards for use during system acquisition and development in air traffic and technical operations systems