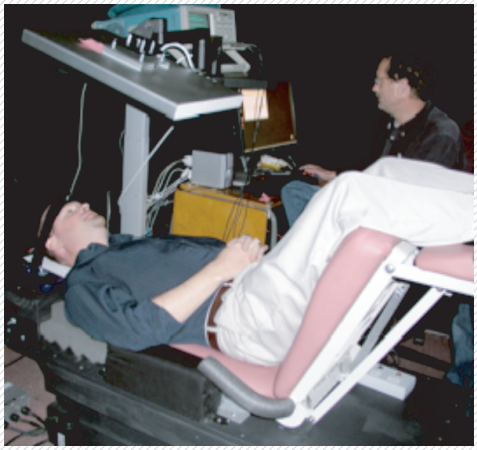
Human Systems integration division

Intelligent Spacecraft Interface Systems (ISIS) Lab

Objective

1. Test and evaluate Next-Generation vehicle operational concepts and associated user interfaces during dynamic flight phases
2. Determine effects of Performance Shaping Functions (vibration, input devices) on crew performance
3. Develop advanced tools and methodologies to



Approach

The ISIS lab combines state of the art equipment (ISCAN head-tracker, reconfigurable flat-panel monitors, and an integrated seat and vibration platform) to conduct and analyze part-task simulations of nominal and off-nominal operational scenarios during dynamic phases of flight (ascent, descent, entry). Analyses of eye movements are combined with analyses of traditional human factors performance measures (e.g., switch throws, key presses, hand control inputs, latencies, error rates, and subjective workload ratings) to determine operators' information acquisition, attentional allocation, and display usage strategies.

Impact

Our findings assist the spacecraft development community in the design, test, evaluation, and validation of operational concepts and supporting user interfaces for next-generation crewed vehicles. In addition, our results assist the human performance modeling community to develop modeling tools with increased ability to emulate complex stochastic behaviors such as scan patterns and fixation durations. The net result will be safer and more efficient spacecraft operations.

Point of Contact: Robert S. McCann, Ph.D., Robert.S.McCann@nasa.gov
Brent Beutter, Ph.D., Brent.R.Beutter@nasa.gov
Bernard Adelstein, Ph.D., Bernard.D.Adelstein@ nasa.gov

http://humansystems.arc.nasa.gov/groups/isis

Last updated on September 16, 2008