

Fiscal Year:	FY 2011	Task Last Updated:	FY 04/15/2011
PI Name:	Thaxton, Sherry Ph.D.		
Project Title:	Human Factors and Habitability Assessment Tool		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Space Human Factors Engineering		
Joint Agency Name:	TechPort:	Yes	
Human Research Program Elements:	(1) SHFH :Space Human Factors & Habitability (archival in 2017)		
Human Research Program Risks:	(1) HSIA :Risk of Adverse Outcomes Due to Inadequate Human Systems Integration Architecture		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Zip Code:	77058	Congressional District:	36
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	Directed Research
Start Date:	04/04/2011	End Date:	04/30/2012
No. of Post Docs:	No. of PhD Degrees:		
No. of PhD Candidates:	No. of Master' Degrees:		
No. of Master's Candidates:	No. of Bachelor's Degrees:		
No. of Bachelor's Candidates:	Monitoring Center: NASA JSC		
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Flight Program:			
Flight Assignment:	NOTE: End date is 4/30/2012 per HRP Master Task List dated 1/11/2012 (Ed., 1/20/2012)		
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Schuh, Susan (MEI Technologies; NASA Johnson Space Center) Twyford, Evan (MEI Technologies; NASA Johnson Space Center) Litaker, Harry (Lockheed Martin ; NASA Johnson Space Center) Thompson, Shelby (Lockheed Martin ; NASA Johnson Space Center)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	The Human Factors and Habitability Assessment Tool Directed Research Project seeks to develop a methodology to efficiently collect real-time crew inputs and video-based data of human factors and habitability information in operational flight and analog environments. The refinement of methods and metrics for collection and evaluation of real-time crew inputs and human factors and habitability data allows for the identification of possible issues and necessary improvements to vehicle, environment, tools and equipment design currently onboard ISS. Human factors and habitability data collection metrics and methodologies can also lead to the identification of research development opportunities and human factors/habitability gaps, and contribute to the definition of habitability requirements for future vehicles and habitats. In FY11, the focus will be on the development of metrics and methodologies related to these data collection strategies, with planned use of data collection during an upcoming NEEMO mission to support this development. NEEMO study experiences will feed into refinement of the real-time data collection tool known as Space Operations Incident Reporting Tool (SOIRT), with particular attention to refinement of details surrounding implementation of the tool. Preparation for NEEMO includes interviews with subject matter experts including long-duration astronauts, previous analog participants, and flight control personnel to collect data regarding preferred and successful methods for obtaining self-initiated data. Insight gained from these interviews will be continuously applied to refine plans for data collection implementation. As an additional source of information regarding real-time data collection, the Flight Crew Integration (FCI) International Space Station (ISS) Life Sciences Crew Comments Database will be referenced for ISS lessons learned regarding self-initiated data collection. The primary focus of the NEEMO work is the refinement and validation of data collection tools and techniques, which will continue through additional analog or flight testing in the near future. The NEEMO effort will consist of two major activities: 1) use of a software tool to be used by the crew to identify and record human system/human factors issues during missions (near real-time and scheduled), and 2) use of head-worn, hand-held, and pre-positioned video cameras to supplement crew reports of human factors and habitability issues. The tools under examination by this DRP will provide data that feeds into comprehensive human factors and habitability assessments. These comprehensive assessments will require data from a variety of sources ranging from environmental and telemetry data to hardware interface measurements and crew fatigue levels. The software tool is intended to excel at collecting near real-time subjective data from crewmembers (along with limited objective data), and the use of video tools as supplementary data sources are intended to increase the amount of objective data and clarify subjective reports. These tools have potential to provide significant value as part of a larger suite of data collection tools and techniques that combine to present a comprehensive assessment of vehicle or habitat human factors and habitability.
Rationale for HRP Directed Research:	This research is directed because it contains highly constrained research, which requires focused and constrained data gathering and analysis that is more appropriately obtained through a non-competitive proposal.
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2011.
Bibliography Type:	Description: (Last Updated: 06/01/2017)