

Fiscal Year:	FY 2023	Task Last Updated:	FY 12/06/2022
PI Name:	Landon, Lauren Blackwell Ph.D.		
Project Title:	Habitability and Human Factors Assessment in CHAPEA (iSHORT, SHAQ and SHU)		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:			
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) HFBP :Human Factors & Behavioral Performance (IRP Rev H)		
Human Research Program Risks:	(1) Bmed :Risk of Adverse Behavioral Conditions and Psychiatric Disorders (2) HSIA :Risk of Adverse Outcome Due to Inadequate Human Systems Integration Architecture (IRP Rev L) (3) Sleep :Risk of Performance Decrements and Adverse Health Outcomes Resulting from Sleep Loss, Circadian Desynchronization, and Work Overload (IRP Rev F) (4) Team :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team (IRP Rev F)		
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:	10/04/2022	End Date:	10/04/2027
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:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Bell, Suzanne Ph.D. (NASA Johnson Space Center) Robertson, Ian Ph.D. (KBR/NASA Johnson Space Center)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	<p>The Crew Health and Performance Exploration Analog (CHAPEA) study will examine the impact of the food system, food acceptability, and menu fatigue on multiple individual and team behavioral health and performance outcomes – including cognition, operational task performance, mood and behavioral health, and team and social functioning. iSHORT (Space Habitability Observation Reporting Tool) was previously used to collect detailed data about habitability and human factors on the International Space Station (ISS) to inform NASA Standards (Greene, Thaxton, & Adolf, 2018, report to NASA Human Factors & Behavioral Performance (HFBP) Element) and to demonstrate the iSHORT tool. New data collected in CHAPEA will also inform human factors design and NASA Standards. CHAPEA data will be from three, 1-year missions in the same analog habitat. In the previous iSHORT study, only 1 of the 6 ISS subjects had a duration of 1-year; all other ISS and ground analog subjects had mission durations from 1 week up to 6 months. iSHORT will also include semi-structured prompts to elicit crewmembers’ reflections on key concerns of Human Factors (HF) design and behavioral health. The data collected with the iSHORT tool will be compared to and complement data collected with the SHAQ (Subjective Habitability and Acceptability Questionnaire; Roma, Landon, et al., 2022) tool, which was developed by the Behavioral Health and Performance (BHP) Lab and will be deployed in CHAPEA. Additionally, this mission will allow Human Factor experts to field test a new tool, the Scale for Habitat Usability (SHU), which is the first step for transitioning to operations (ops). The SHU is a brief subjective scale which captures important elements of how habitat design impacts task performance.</p> <p>The aim of the Habitability and Human Factors Assessment (HHFA) in CHAPEA is to capture HF design concerns and related BHP impacts in a high-fidelity spaceflight analog. iSHORT captures crewmembers’ thoughts, positive and negative, about different habitat points of interest (POI) (i.e., habitat areas, activities, key equipment). Crew will reflect on each habitat POIs multiple times during the mission, which enables better understanding of the change in acceptability over time. We will compare results between the 3 mission crews to understand how individual well-being and team dynamics may be related to human factors concerns over time.</p>
Rationale for HRP Directed Research:	<p>This proposal qualifies for a directed study due to the urgent, time-sensitive need to provide “standard measures” as the foundation to achieve consistent research measures and to meet the highly constrained, operationally focused data gathering and analysis that allows for greater consistency in the research methods that are very specific to NASA Human Research Program (HRP) standard measures development. The comparison and complementary understanding of the 3 habitability and human factors measures in this study will allow efficient implementation of the measures in analogs and/or spaceflight in near-term research. Additionally, the directed nature of this study also allows the BHP Laboratory and the Human Factors Engineering Laboratory to provide the unique research and support expertise required to integrate and manage the data from the various participating studies to achieve HRP’s intent. Access to the BHP Laboratory’s HFBP-Exploration Measures (EM) database and vetting of the evidence-based standards makes the solicitation process prohibitive.</p>
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2023.
Bibliography Type:	Description: (Last Updated:)