

Fiscal Year:	FY 2024	Task Last Updated:	FY 01/25/2024
PI Name:	Mosier, Kathleen Ph.D.		
Project Title:	Negotiating Crew Autonomy During Space Operations		
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) Team :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Zip Code:	94618-1542	Congressional District:	12
Comments:			
Project Type:	Ground	Solicitation / Funding	2023 HERO NNJ23ZSA001N-OMNIBUS : NASA Source: Human Research Program Omnibus Opportunity
Start Date:	12/01/2023	End Date:	02/28/2025
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		
Contact Monitor:	Contact Phone:		
Contact Email:			
Flight Program:			
Flight Assignment:	NOTE: End date changed to 02/28/2025 per L. Dang/NASA JSC (Ed., 8/5/24). NOTE: Period of performance changed from initial award. Original start date: 11/17/2023. Original end date: 11/16/2024. New start and end dates changed per NSSC information (Ed., 2/4/2024).		
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Fischer, Ute Ph.D. (Georgia Institute of Technology) Marquez, Jessica Ph.D. (NASA Ames Research Center)		
Grant/Contract No.:	80NSSC24K0442		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	<p>Space-ground collaboration during Artemis and other long missions will continue to be a requirement, given the complexity of space missions and unforeseen events threatening mission safety and success. It is important that crewmembers and mission support on Earth have a common understanding of crew autonomy and operational constraints, and employ a fluid approach to crew autonomy in areas such as the scheduling of tasks and activities. Crew self-scheduling is an integral component of crew autonomy and can serve as a proxy for other autonomy concerns and provide insights that can be applied to other components of autonomy, as it embodies characteristics that may cause friction between space crews and ground, undermine the accuracy of space-ground shared mental models, and negatively impact space-ground collaboration.</p> <p>AIMS of the proposed work are to identify areas of contention in scheduling or where communication concerning scheduling may not be effective, and provide recommendations for how scheduling, as well as other aspects of autonomy could be negotiated and managed in a communication or decision support tool.</p> <p>A review of autonomy issues in space operations, supplemented by selective data on crew autonomy and scheduling from the NASA Human Exploration Research Analog (HERA) and the NASA Scientific International Research In a Unique terrestrial Station (SIRIUS), will deliver: identification of problematic aspects of operational autonomy in space, with particular focus on Artemis; recommendations for how scheduling of tasks and activities can be negotiated, and best practices for managing shifting responsibilities; and definition of required features and parameters for a schedule negotiator technology function with feedback from selected subject matter experts.</p> <p>SIGNIFICANCE of the proposed effort relates to its potential to facilitate collaboration and shared mental models among multi-team system members during Artemis and other long-term space operations. Successful scheduling negotiation is critical to mission success, and solutions will provide insight for other potentially disruptive autonomy elements.</p>
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	<p>SIGNIFICANCE of the proposed effort relates to its potential to facilitate collaboration and shared mental models among space/ground multiteam system (MTS) members during Artemis and other long-term autonomous space crew operations. Successful negotiation of task and activity scheduling is critical to mission success and solutions will provide insight for other potentially disruptive autonomy elements.</p>
Task Progress:	New Project for FY2024
Bibliography Type:	Description: (Last Updated: 12/06/2024)