

<b>Fiscal Year:</b>	FY 2016	<b>Task Last Updated:</b>	FY 12/08/2016
<b>PI Name:</b>	Fischer, Ute Ph.D.		
<b>Project Title:</b>	Understanding Key Components of Successful Autonomous Space Missions		
<b>Division Name:</b>	Human Research		
<b>Program/Discipline:</b>			
<b>Program/Discipline--Element/Subdiscipline:</b>	HUMAN RESEARCH--Behavior and performance		
<b>Joint Agency Name:</b>	<b>TechPort:</b>	No	
<b>Human Research Program Elements:</b>	(1) <b>HFBP</b> :Human Factors & Behavioral Performance (IRP Rev H)		
<b>Human Research Program Risks:</b>	(1) <b>BMed</b> :Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders (2) <b>Team</b> :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
<b>Space Biology Element:</b>	None		
<b>Space Biology Cross-Element Discipline:</b>	None		
<b>Space Biology Special Category:</b>	None		
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<b>Zip Code:</b>	30332-0165	<b>Congressional District:</b>	5
<b>Comments:</b>			
<b>Project Type:</b>	GROUND	<b>Solicitation / Funding Source:</b>	2015-16 HERO NNJ15ZSA001N-Crew Health (FLAGSHIP, NSBRI, OMNIBUS). Appendix A-Crew Health, Appendix B-NSBRI, Appendix C-Omnibus
<b>Start Date:</b>	06/29/2016	<b>End Date:</b>	06/28/2019
<b>No. of Post Docs:</b>		<b>No. of PhD Degrees:</b>	
<b>No. of PhD Candidates:</b>		<b>No. of Master' Degrees:</b>	
<b>No. of Master's Candidates:</b>		<b>No. of Bachelor's Degrees:</b>	
<b>No. of Bachelor's Candidates:</b>		<b>Monitoring Center:</b>	NASA JSC
<b>Contact Monitor:</b>		<b>Contact Phone:</b>	
<b>Contact Email:</b>			
<b>Flight Program:</b>			
<b>Flight Assignment:</b>	NOTE: Element change to Human Factors & Behavioral Performance; previously Behavioral Health & Performance (Ed., 1/18/17)		
<b>Key Personnel Changes/Previous PI:</b>			
<b>COI Name (Institution):</b>	Mosier, Kathleen Ph.D. ( Teamscape LLC ) Tofighi, Davood Ph.D. ( Georgia Tech Research Corporation )		
<b>Grant/Contract No.:</b>	NNX16AM16G		
<b>Performance Goal No.:</b>			
<b>Performance Goal Text:</b>			

Task Description:	Exploration space missions will require that space crews manage tasks more autonomously than in current operations, although they will continue to be part of the multi-team system (MTS) comprised of members in space and on the ground. The overall goal of the proposed research is to develop countermeasures that will enhance the ability of MTS members to maintain effective team performance and manage autonomous operations during Long Duration Exploration Missions (LDEMs). We will use NASA Life Sciences Data Archive (LSDA) data collected in space analogs and the International Space Station (ISS) to develop models of the individual- and team-level relationships between crew autonomy, emergent states, and team performance. Additionally, several simulations will be conducted in space analogs to assess the impact of different autonomy implementations on MTS performance in long-duration missions. Data from this study will be used to test and refine the individual- and team-level models, and to create a MTS-level model of the autonomy-performance relationship. Our approach is comprehensive in that we will examine different implementations and levels of autonomy, experience with interdependent and autonomous operations, individual and team process variables as well as varying task constraints. A set of products to support space and mission control teams during long-duration exploration missions will be delivered. These include: a validated model of factors related to team autonomy and team performance in LDEMs; recommendations for how team autonomy should be managed within a MTS during LDEMs, including countermeasures to mitigate potential negative effects; and recommendations for future research on autonomous team functioning.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2016.
Bibliography Type:	Description: (Last Updated: 03/22/2024)