

Fiscal Year:	FY 2009	Task Last Updated:	FY 09/04/2009
PI Name:	Kanas, Nick M.D.		
Project Title:	Crew Interactions and Autonomy During Long-Duration Isolation and Confinement (105-Day Russian Chamber Study)		
Division Name:	Human Research		
Program/Discipline:	NSBRI		
Program/Discipline--Element/Subdiscipline:	NSBRI--Neurobehavioral and Psychosocial Factors Team		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) BHP: Behavioral Health & Performance (archival in 2017)		
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:	94121	Congressional District:	8
Comments:			
Project Type:	Ground	Solicitation / Funding Source:	Directed Research
Start Date:	03/01/2009	End Date:	02/28/2010
No. of Post Docs:	0	No. of PhD Degrees:	0
No. of PhD Candidates:	0	No. of Master' Degrees:	0
No. of Master's Candidates:	0	No. of Bachelor's Degrees:	0
No. of Bachelor's Candidates:	0	Monitoring Center:	NSBRI
Contact Monitor:	Contact Phone:		
Contact Email:			
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Marmar, Charles (University of California, San Francisco) Boyd, Jennifer (University of California, San Francisco) Weiss, Daniel (University of California, San Francisco) Neylan, Thomas (University of California, San Francisco)		
Grant/Contract No.:	NCC 9-58-NBPF00005		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	<p>During long missions, crews will face stressors that are significantly different from those experienced during short missions. Communications delays will impact the ability to communicate with Earth in real time, making it difficult to speak with family members and friends for support or to get information from mission control in time to help with a crisis. The crew will be more autonomous and self-sufficient. Higher crew member autonomy may influence psychosocial factors such as crew well-being, perceived tension and work pressure, group cohesion, as well as task performance.</p> <p>This project will evaluate the mood, interpersonal interactions and performance of the crew members and mission control personnel in the 105-Day mission. These groups will be studied under two conditions: low crew autonomy (where the work schedule is planned by mission control, much like current space missions) and high crew autonomy (where the crew members plan and troubleshoot their own work schedule, much like what would occur during exploration missions). The project will also evaluate the experiment's impact on mission control and on the crew-ground relationship.</p> <p>It is hypothesized that crew member mood, group interaction, and performance will be as good or better during high autonomy periods compared to low autonomy periods. Particularly, crew members are anticipated to show more positive affect, greater cohesion and less work pressure in the high autonomy condition.</p> <p>Additional hypotheses will be tested relating to:</p> <p>Presence or absence of group stages during the mission scenario, particularly increased tension and decreased cohesion in the third quarter;</p> <p>Presence of displacement during the isolation period;</p> <p>Cultural differences among crew and ground personnel; and</p> <p>Relationship of the task and support roles of the leader to group cohesion.</p> <p>Before, during and after the isolation, the crew member and the mission control personnel will complete a weekly Study Questionnaire, which takes approximately 20 minutes. The questionnaire is composed of three well-validated, reliable measures that have been used extensively in previous research: the Profile of Mood States, the Group Environment Scale, and the Work Environment Scale. A Critical Incident Log and new questions about autonomy and individual and group performance are also included as part of the weekly questionnaire.</p> <p>The information gained through this study will inform long-duration mission planners of the psychosocial and work issues that will be relevant to planning such missions. Knowing how a crew is likely to react behaviorally and psychologically to a condition of high autonomy will also be advantageous for mission control personnel.</p>
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	<p>The result of this study will help us in planning future studies of low versus high autonomy in space on-board the ISS. The results also will translate to work groups on Earth and the effectiveness of increased group autonomy on work place mood, interpersonal interactions, and performance. Many of our variables, such as displacement of dysphoria to outside groups, task versus emotional leadership characteristics, and the effect of national and organizational culture on worker well-being and performance, have obvious implications for national and international working groups on Earth.</p>
Task Progress:	<p>New project for FY2009.</p> <p>The mission took place from March 31 to July 14, 2009. Data were collected and sent to us in August. We currently are analyzing the data. We expect to be finished with our analyses and to have written up the findings by the end of the grant period.</p>
Bibliography Type:	Description: (Last Updated: 03/17/2017)