2018 Workshop on Autonomy for Future NASA Science Missions
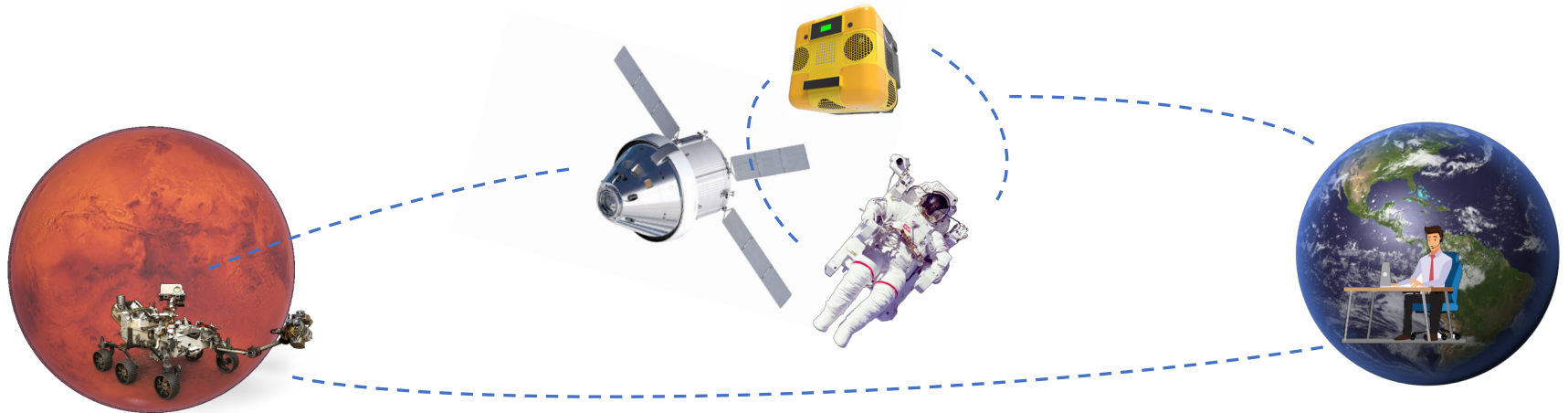**October 10-11, 2018**

Shared Mental Models for Human-Robot Teaming in Space

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Shared Mental Model (SMM) Framework

- **Research goal: Improve coordination in human-robot teams**
- Emphasis on distributed, heterogeneous teams for space exploration
- Development of formal and computational SMM framework:
  - Represents task and team knowledge, and is synchronized between all agents
  - Includes knowledge representations, update processes, and control processes

Task Model		Team Model	
Equipment	**Task**	**Team Interaction**	**Team (Teammates')**
Equipment Functioning	Task Procedures	Roles/Responsibilities	Knowledge
Operating Procedures	Likely Contingencies	Information Sources	Skills
Equipment/System Limitations	Likely Scenarios	Role Interdependencies	Attitudes
Likely Failures	Task Component Relationships	Communication Channels	Preferences
	Environmental Constraints	Interaction Patterns	Performance History
	Task Strategies	Information Flow	Tendencies