MEP Driving Questions & Research Areas with Traceability

Domains	**Driving Questions**		**Research Areas**‡ (shorthand)	MEP Future Plan	Decadal	Planetary Protection			Preparation for Human Exploration	
						Forward	Backward	Contamnai-tion Control	Science§	Engineer-ing
Life & Habitability	1. Determine the astrobiological potential of Mars and the processes that govern the preservation of organic and physical biosignatures	1.1	Extant Life	S1, S2	Q9, Q11	X	X	X	X	X
		1.2	Modern Habitability	S1, S2, S3	Q10	X		X	X	X
		1.3	Ancient Life	S1, S3	Q9, Q11	X	X	X		
		1.4	Past Habitability	S1, S3	Q10					
		1.5	Organic Chemistry	S1, S2	Q9	X	X			
Ice, Weather and Climate	2. Characterize the past and present state of the Martian atmosphere, its interactions with the surface and processes controlling weather, climate, distribution of volatiles, and radiation environment	2.1	Modern Ices and Volatiles	S2, S3	Q6, Q9	X	X		X	X
		2.2	Modern Weather	S2, S3	Q6	X	X	X	X	X
		2.3	Relict Ice	S2, S3	Q6					X
		2.4	Climate Evolution	S3	Q6, Q10					
Geology	3. Determine the nature, origin, structure, composition, and evolution of the crust and the interior of Mars and its moons	3.1	Modern Surface Processes	S2, S3	Q5	X	X	X	X	X
		3.2	Crustal Geology	S2, S3	Q5, Q10				X	X
		3.3	Geochronology	S3	Q3, Q5					
		3.4	Martian Interior	S3	Q3, Q5					
		3.5	Martian Moons	S3	Q3					

‡All research areas are aligned with the sustained, decade-long exploration program in understanding of the history and evolution of Mars, while those in orange indicate research areas with greatest overlap with agency priorities of advancing human exploration and/or planetary protection.

§All research areas will have some ‘baseline’ science value in preparing for human exploration, e.g., identifying regions of scientific interest for future landed missions, or serving to maximize efficiency of human activities. Research areas marked here indicate a more substantial scientific role for human exploration beyond the baseline.