

THESEUS Final reporting

Description of the main S & T results/foregrounds

Figures and table

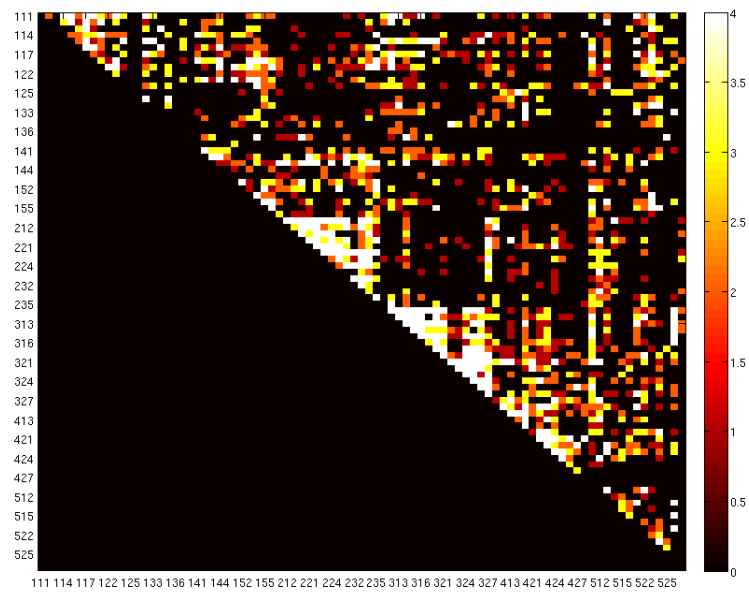


Fig. 1: Interaction matrix between the Key Issues (the lighter the higher)

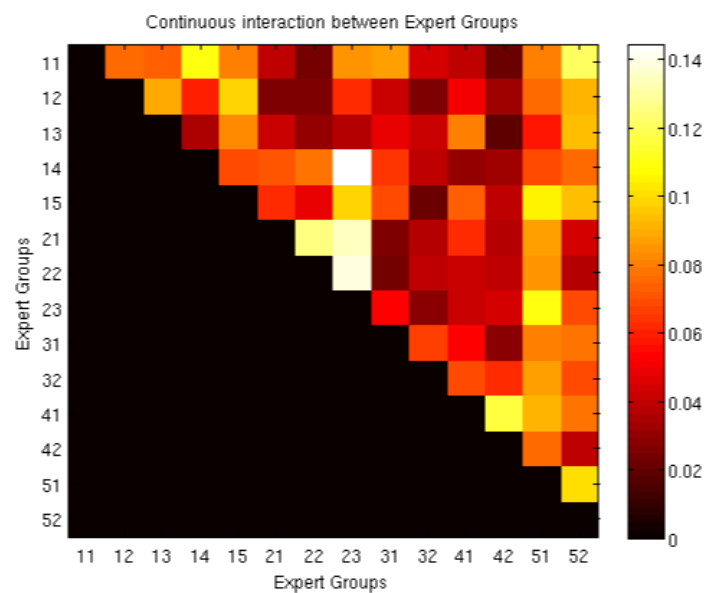


Fig. 2: Interaction matrix between the 14 Expert Groups (the lighter the higher)

HUMAN SYSTEMS	STRESSORS									
	Remoteness	Confinement	Nutrition	Chronobiological factors	environment (dust, atmosphere)	Microflora	Radiation	(Moon, Asteroid, Mars)	Microgravity	High g during launch and entry
	Ø	++	++	+	?	?	+	?	+++	+
	Ø	++	++	+	+++	+	+	?	+++	++
	?	++	++	?	++	+++	++	?	+++	?
	?	?	?	?	?	?	+++	?	?	Ø
	?	?	?	++	?	?	++	?	+++	+
	+++	+++	++	+++	+	?	++	?	++	+
	+	++	+++	++	+++	++	++	?	+++	?

Table 1: Impact of spaceflight stressors on crew (+++ high; ++ medium; + low; ? not known; Ø No impact)

		STRESSORS									
		Remoteness	Confinement	Nutrition	chronobiology	environment (vacuum, dust, radiation)	Microflora	Radiation	hypogravity (Moon, Asteroid, Mars)	Microgravity	High g during launch and entry
COUNTERMEASURES	psychological and skill maintenance countermeasures	++	++	+	+	∅	∅	∅	+	+	+
	Shielding	+	+	∅	∅	∅	∅	+++	∅	∅	∅
	Medication	+	+	+	++	+	++	+	+	+	+
	exercise countermeasures	+	+	+	+	+	?	∅	++	+++	+
	Nutrition	+	+	+++	+	∅	+	+	++	++	+
	Habitat design and safety	+++	+++	+	+++	++	+++	+++	++	++	+
	Mission Planning	+++	++	+	+++	+	+	+	+++	++	+

Table 2: Countermeasures effects to mitigate the effects of stressors (+++ high; ++ medium; + low; ? not known; ∅ No effect)

		COUNTERMEASURES						
		Mission planning	Habitat design and safety	Nutrition	exercise countermeasures	Health care including Medication	Shielding	I and skill maintenance countermeasures
HUMAN SYSTEMS	Bones and muscles	+++	?	++	+++	++	+	∅
	Heart, lung and kidney	+++	++	++	+++	++	+	∅
	Immune system	++	+++	++	+	++	++	?
	Genetic system	+++	?	+	?	++	+++	?
	Neurosensory system	++	+	∅	+	++	++	++
	Behaviour	+++	+++	++	++	++	++	+++
	General Health	+++	+++	+++	+++	+++	+++	++

Table 3: Efficiency of countermeasure on human systems (+++ high, ++ medium, + low, ? not known, Ø No effect)