

Open Global Community NEO Workshop

## **Session 5: Mission Duration: Quantifying the Risks**

“In all aspects, particularly the psychological, the risks surrounding the project were very real. Whosoever should elect to inhabit such a spot must reconcile themselves to enduring the bitterest temperatures in nature, a long night as black as that on the dark side of the Moon, and an isolation which no power on Earth could lift...

Now, against the cold the explorer has simple but ample defenses. Against the accidents which are the most serious risks of isolation he has inbred resourcefulness and ingenuity. But against darkness, nothing much but his own dignity.”

- Richard E. Byrd, *Alone*  
(quoted from *Bold Endeavors* by Jack Stuster)

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## **Session 5: Mission Duration: Quantifying the Risks**

Discussion of the effects and associated risks on humans and vehicle systems during long duration interplanetary space missions to NEOs. A variety of areas will be discussed, including radiation exposure (cumulative dosage and episodic risks), physiological effects, psychological & social-psychological concerns, habitability issues, system redundancy, contingencies, abort scenarios, etc., along with NASA's cumulative experience to date.

### **Chairs**

**Dan Mazanek, NASA Langley Research Center**

**Rob Landis, NASA Ames Research Center - Assigned to Johnson Space Center**

### **Panel**

**Craig Kundrot, Deputy Program Scientist, Human Research Program, NASA Johnson Space Center**

*"Long Duration Space Missions: Human Subsystem Risks and Requirements"*

**Jack Stuster, Vice President, Principal Scientist & Author, Anacapa Sciences, Inc.**

*"Acceptable Risk: Human Missions to Near-Earth Objects"*

**Ron Turner, Fellow, Analytical Services, Inc. (ANSER)**

*"Radiation Risks and Challenges Associated with Human NEO Missions"*

**Andy Thomas, Astronaut (Shuttle/MIR/ISS), ESMD Architecture Development, NASA Johnson Space Center**

*"Some Crew Perspectives of a NEO Mission"*