

# INTERNATIONAL SPACE MEDICINE SUMMIT 2020

Oct. 29–30, Nov. 6 • Rice University's Baker Institute for Public Policy • Houston, Texas

## *Agenda*

### **Thursday, October 29**

#### Welcome, Introductions and Opening Remarks

- 0830      **The Honorable Edward P. Djerejian**  
Director, Rice University's Baker Institute for Public Policy
- George W.S. Abbey**  
Senior Fellow in Space Policy, Rice University's Baker Institute for Public Policy
- Bonnie J. Dunbar**  
John and Bea Slattery Chair, Department of Aerospace Engineering,  
Texas A&M University
- Jeffrey Sutton**  
Director, Center for Space Medicine, Baylor College of Medicine

#### Opening Address

Introduction: **George W.S. Abbey**, Baker Institute

- 0855      **Michael Fossum**  
Vice President and Chief Operating Officer, Texas A&M University at  
Galveston

#### Panel I — Lunar Exploration

Introduction: **George W.S. Abbey**, Baker Institute

- 0915      Moderator: **Leroy Chiao**, Astronaut

##### Panelists

Bonnie J. Dunbar, Astronaut  
Fred Haise, Astronaut  
Oleg Kotov, Cosmonaut  
Michael Lembeck, University of Illinois  
Kathy Lueders, NASA  
James Pattarini, NASA  
Harrison (Jack) Schmitt, Astronaut  
William Shepherd, Astronaut

##### Topics

- Lunar exploration and international cooperation
- Private companies and their role in supporting lunar exploration

##### Discussion and Summation

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## Panel II — Maximizing Use of the International Space Station

Introduction: **Jeffrey Sutton**, BCM

1030 Co-Moderators: **Chris Hadfield**, Astronaut and **Dan Burbank**, Astronaut

### Panelists

Michael Lopez-Alegria, Astronaut  
Michael Barratt, Astronaut  
Bonnie J. Dunbar, Astronaut  
Elaine Fomina, IBMP  
Oleg Kotov, Cosmonaut  
Bill McArthur, Astronaut  
Luca Parmitano, Astronaut  
Julie Robinson, NASA  
William Shepherd, Astronaut

### Topics

- Sharing facilities and data Cooperative research
- Effective utilization and sharing of crew time
- Discussion and Summation

## Panel III — Lifetime Surveillance

Introduction: **Bonnie Dunbar**, Astronaut

1145 Moderator: **Michael Barratt**, Astronaut

### Panelists

Susan Bloomfield, TAMU  
Bill Carpentier, NASA  
Jacquelin Charvat, Wyle  
Rebekah Reed, NASA  
Brad Rhodes, NASA  
Mary Van Baalen, NASA  
Sergi Vaquer, ESA

### Topics

- Information available concerning the short- and long-term medical consequences of long-duration exposure to space and subsequent re-adaptation to Earth's environment
- Uncertainties in the projection of the risks of late effects from space radiation
- Sharing data
- Texas A&M RADAR Project-International Data Repository

Discussion and Summation

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## ***Friday, October 30***

### **Panel IV — New Frontiers in Space Medicine – Session I**

Introduction: **Jeffrey Sutton**, BCM

0830 Moderator: **Serena Auñón-Chancellor**, Astronaut

#### Panelists

Michael Barratt, Astronaut  
Jeffrey Chancellor, Idaho State University  
Jon Clark, BCM  
Steve Laurie, Wyle  
Kris Lehnhart, NASA  
James Pattarini, NASA  
Liz Warren, ISS National Lab

#### Topics

- Assuring safety for participants with medical deficits
- Recent findings on Spaceflight Associated Neuro-ocular (SANS) and Vascular considerations in long-duration spaceflight
- International fluid shift data
- Medical implications of the upcoming lunar missions
- Pandemic quarantine and contingency plans for Covid-19

#### Discussion and Summation

### **Panel IV — New Frontiers in Space Medicine – Session II**

Introduction: **Richard Jennings**, UTMB

1030 Moderator: **Michael Barratt**, Astronaut

#### Panelists

Serena Auñón-Chancellor, Astronaut  
Ludmila Burakova, IBMP  
Grace Douglas, NASA  
Joe Dervay, NASA  
Kristin Fabre, BCM  
Will Li, Angiogenesis Foundation  
Maybritt Kuypers, ESA  
Robert Mulcahy, NASA

#### Topics

- Effects related to mission duration
- Long duration space flight and challenges and nutrition
- Overview of NASA GeneLab project

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- Contribution of 'omics studies to human research goals
- Enabling precision medicine for space crews
- Performing genomic experiments in the ISS laboratory
- Ethical issues in astronaut genomic studies
- Centrifuge study results

Discussion and Summation

## Panel V — Human Spaceflight and Automation

Introduction: **George W.S. Abbey**, Baker Institute

1145 Moderator: **Steve Robinson**, Astronaut - UC Davis

### Panelists

Dan Burbank, Astronaut  
Trey Davis, NASA  
Alvin Drew, Astronaut  
Garrett Reisman, Astronaut  
William Shepard, Astronaut  
Aleksandra Stankovic, Harvard  
James Wetherbee, Astronaut  
Iya Whiteley, University College London

### Topics

- Automated control criteria
- Requirements for human control
- Back-up control options
- Testing, verification and training

Discussion and Summation

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## ***Friday, November 6***

### Panel VI — Education and STEM Advances

Introduction: **George W.S. Abbey**, Baker Institute

0830 Co-Moderators: **Bonnie J. Dunbar**, Astronaut, and **Karl Doetsch**

#### Panelists

Chris Barber, International Space School Educational Trust (ISSET)  
Alex Blackwood, International education business Partnership Network (IPN)  
Ludmila Buravkova, IBMP  
Linda Godwin, Astronaut  
Francesco Fusco, Foundation for International Space Education  
Michael Lembeck, University of Illinois  
Stephen Robinson, Astronaut  
Salizhan Sharipov, Cosmonaut  
Andrew Turnage, Association of Space Explorers

#### Topics

- Stimulating interest in science and engineering education
- Benefits of an international educational program
- Benefits and opportunities for student exchange programs
- SpHERES

#### Discussion and Summation

### Panel VII — Apollo 13: 50th Anniversary

Introduction: **Richard Jennings**, UTMB Galveston

1015 Moderator: **Gerry Griffin**, NASA

#### Panelists

Michael Berry, NASA  
Bill Carpentier, NASA  
Fred Haise, Astronaut  
Joseph Kerwin, Astronaut  
Jack Lousma, Astronaut  
Glynn Lunney, NASA  
Bill Moon, NASA  
Bill Reeves, NASA  
Bill Stovall, NASA

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## Topics

- Critical systems that were essential and utilized not as designed
- Lessons learned considering the ability to use both the Lunar Module and Command Modules systems that were operated in off nominal conditions
- Implications to spacecraft design considering the present plans to return to the moon

## Discussion and Summation

## Discussion Groups

The discussion groups provide an opportunity for all participants to collaborate with a group leader on an assigned topic. Each group will be tasked with developing a written report on their topic.

1130

### **Group A**

Cooperative Research

Team Leader: Bill McArthur, Astronaut

### **Group B**

Team Leader William Shepherd, Astronaut

Design considerations for lunar and space exploration spacecraft

### **Group C**

Education

Team Leaders: Bonnie J. Dunbar, Astronaut and Karl Doetsch