

# **Formation of the AIAA Space Colonization Working Group and Technical Committee (SCWG-TC)**

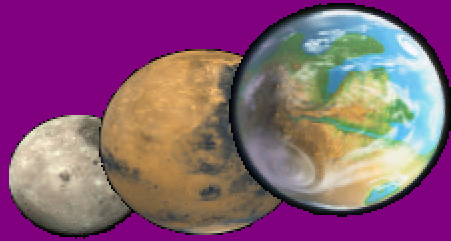
## **Space Resources Utilization Round Table III**

**24 October 2001  
Denver, Colorado**

**Presented by  
Dr. Eric E. Rice, AIAA/SCWG-TC Chairman  
ORBITEC President and CEO**

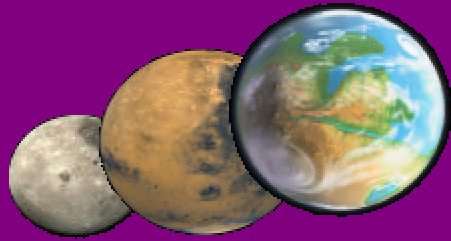


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# Introduction

- **AIAA Technical Activities Committee (TAC) Has Approved the Formation of a New AIAA Working Group (WG)**
- **Sponsored by the AIAA Space and Missiles Group**
- **Intent Is to Form a New AIAA Technical Committee (TC)**
- **First Two Meetings of the WG/TC Were Held in Madison, WI, June 26-27 and Golden, CO, October 22-23**
- **The Charter, Organization, and Subcommittees Were Approved by the Attendees**

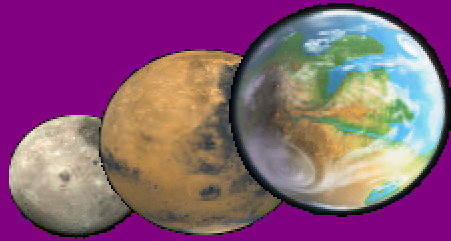


# AIAA

## Space Colonization TC Charter

**Promote Identification and Development of Advanced Concepts, Science, and Technology That Will Support, Enhance and Enable Permanent Human Presence in Space. The SCTC Will Foster:**

- **Development of Human Space Colonization, Including: (A) Space Tourism; (B) Space Base Operations in Orbit, in Transit, and on Planetary Surfaces; (C) Robotic/Automated and Human Space Exploration and Data Needs; (D) Use of Insitu Space Resources; (E) Human Colonization in Space; and (F) Mars and other Planetary Terraforming Activities;**
- **Development of: (A) Informed Positions; (B) Forums for Communication, Networking, and Policy Development; (C) Creation and Distribution of Educational Materials; and (D) Development of Technical Interchange and Awareness on Emerging Issues to Our Members, the AIAA, Industry, Academia, the General Public, the Federal and Foreign Governments; and**
- **Leadership in Developing: (A) Mission Justifications; (B) Assessments of Environmental, Legal and Science Ethics; (C) Identification of Technical Issues; (D) Identification of Social Issues; (E) Implementation Criteria; and (F) Space Colonization Methods and a Credible Timetable.**



# SCTC Organization



- **The SCTC Has Four Officers and Eleven Subcommittees**
- **The Officers are the Chair, Vice-Chair (VC), Secretary, and Treasurer and Shall Serve Two-year Terms**
- **VC Will Automatically Become the Chair When the Chair's Term Is Up**
- **Officer Elections Take Place at the Winter Meeting for the Following Year**
- **SCTC Members Serve (Nominally) Three-year Terms**
- **All SCTC Members Are Expected to Be Active Participants on at Least Three Subcommittees and Attend at Least Two Meetings per Year**
- **Membership Extensions Are Made at the Chairman's Discretion and as Is Necessary to Fulfill Officer Commitments**
- **The Chairman Is Ultimately Responsible for SCTC Operations, Including Submitting an Annual Report to AIAA**

### Advanced Concepts & Programs

Bill Siegfried, Chairman  
Bob Cassanova, Vice Chairman

Tourism (t)  
Larry Ortega  
Eric Rice

<u>Bases (B)</u> Paul Spudis Scott Baird Bob Cataldo Chris Guidi Niklas Jarfstrat Herman Koelle Hum Mandrell Gary Martin Michael Reeder Eligar Sadeh Harrison Schmitt Aileen Yingst	<u>Colonization (C)</u> Doug O'Handley Mark Craig Mike Duke Burke Fort Richard Gertsch Jerry Grey George Miley Lewis L. Peach, Jr. Jerry Sanders David Smitherman
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Exploration (X)  
Bill Siegfried  
Stan Borowski  
Robert Cassanova  
Benton Clark  
Yoji Ishikawa  
Lindsay Keller  
Ed McCullough  
David S. McKay  
Bob Sackheim

Terraforming (T)  
Chris McKay  
Haym Benaroya  
Kandis Elliott  
Jim Graham  
Joe Howell  
Joel Levine  
Tom Meyer

ISRU (I)  
Bob Zubrin  
Leslie Gertsch  
Robert Gustafson  
Alex Ignatiev  
Mark Jacobs  
Jim Jordan  
Bill Larson  
Diane Linne  
Takashi Nakamura  
Bryan Palaszewski  
Clyde Parrish  
Kristian Pauly  
Brant White

### Science & Technology

Ed McCullough, Chairman  
Eric Rice, Vice Chairman

Tourism (t)  
Larry Ortega (acting)  
Eric Rice

<u>Bases (B)</u> Hum Mandell Scott Baird Bob Cataldo Chris Guidi Niklas Jarfstrat Herman Koelle Gary Martin Michael Reeder Eligar Sadeh Harrison Schmitt Paul Spudis Aileen Yingst	<u>Colonization (C)</u> David Smitherman Mark Craig Mike Duke Burke Fort Richard Gertsch Jerry Grey George Miley Doug O'Handley Lewis L. Peach, Jr. Jerry Sanders
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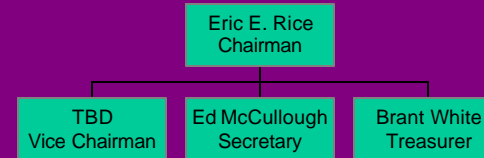
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Kristian Pauly  
Brant White  
Bob Zubrin

# AIAA/SCTC

## 22 October, 2001



### Executive Subcommittee

Eric Rice, Chairman, N&E, TCM  
Ed McCullough, Secretary, S&T  
Brant White, Treasurer  
Mike Duke, M, C&W  
Leslie Gertsch, E&O  
Richard Gertsch, A  
Tom Meyer, EA  
George Miley, P&W  
Bill Siegfried, AC&P

### Conferences & Workshops

Mike Duke, Chair  
Eric Rice, VC  
Scott Baird  
Robert Cassanova  
Benton Clark  
Yoji Ishikawa  
Bill Larson  
Diane Linne  
Chris McKay  
Eligar Sadeh

### External Affairs

#### (TC Liaison Congressional Liaison and CVD)

Tom Meyer, Chair  
Eric Rice, VC  
Bob Cataldo  
Jerry Grey  
Herman Koelle  
Bob Sackheim

### Membership

Mike Duke, Chair  
Eric Rice, VC  
Bob Sackheim  
Jerry Sanders  
Bill Siegfried

### Publications & Website

George Miley, Chair  
Takashi Nakamura, VC  
Burke Fort  
Mark Jacobs  
Niklas Jarvstrat  
Hum Mandell  
Ed McCullough  
Tom Meyer  
Clyde Parrish  
Kristian Pauly  
Harrison Schmitt  
Paul Spudis

### Awards

Richard Gertsch, Chair  
Lewis L. Peach, Jr., VC  
Haym Benaroya  
Mark Craig  
Joel Levine  
Bryan Palaszewski

### Nomination & Elections

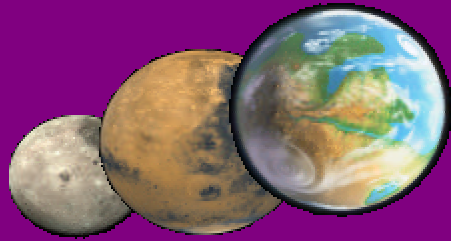
Eric Rice, Chair  
Ed McCullough, VC

### Education and Outreach

Leslie Gertsch, Chair  
George Miley, VC  
Stan Borowski  
Kandis Elliott  
Richard Gertsch  
Robert Gustafson  
Chris Guidi  
Joe Howell  
Alex Ignatiev  
Jim Jordan  
David S. McKay  
Gary Martin  
Doug O'Handley  
Larry Ortega  
David Smitherman  
Brant White  
Aileen Yingst  
Bob Zubrin

### TC Meetings

Eric Rice, Chair  
Michael Reeder, VC



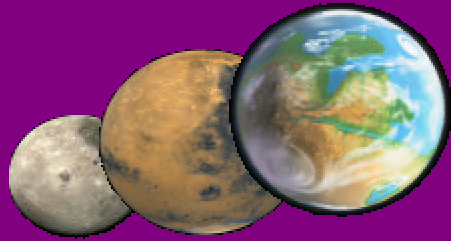
# SCTC

## Subcommittees



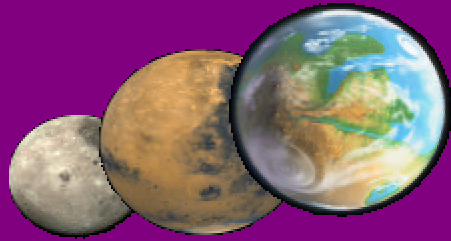
**Each Subcommittee Shall Have a Chair and Vice Chair and Each Member of the TC Shall Be Assigned Membership on (1) the Advanced Concepts and Programs, (2) Science and Technology, and (3) at Least One Other Subcommittee**

- **Executive Subcommittee (Officers and Subcommittee Chairs)**
- **Advanced Concepts and Programs**
- **Science and Technology**
- **Conferences and Workshops**
- **Publications and Website**
- **Education and Outreach**
- **External Affairs (TC Liaison, Congressional Liaison, and CVD)**
- **Membership**
- **TC Meetings**
- **Awards**
- **Nominations and Elections**



# **Executive Subcommittee**

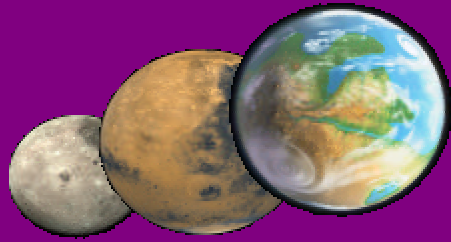
- **The Executive Subcommittee Will Be Comprised of TC Officers and Subcommittee Chairs**
- **This Subcommittee Will Provide Guidance to the Activities of the TC**
- **It Will Provide Input on Strategic Planning and Issue Development for AIAA Position Papers and Planning for Debates and Technical Presentations at TC Meetings**
- **This Subcommittee Will Be Chaired by the TC Vice Chair**



# **Advanced Concepts and Programs Subcommittee**

- **This Subcommittee Will Involve Development and Study of Advanced Concepts and the Development of New Programs Related to Space Colonization as Given in the Charter**
- **The Subcommittee Will Provide Leadership in Developing:**
  - (a) **Mission Justifications**
  - (b) **Assessments of Environmental, Legal and Science Ethics**
  - (c) **Identification of Technical Issues**
  - (d) **Identification of Social Issues**
  - (e) **Implementation Criteria**
  - (f) **Space Colonization Methods and a Credible Timetable**
- **This Subcommittee Will Recommend Programmatic or Advance Concepts Presentations to be Provided at TC Meetings and Elsewhere**

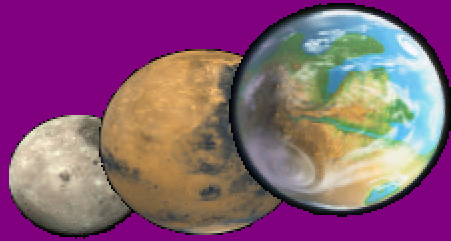




# Science and Technology Subcommittee



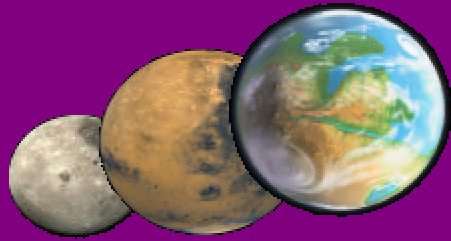
- **This Subcommittee Will Involve Development and Study of Related Science and Technology Related to Space Colonization as Given in the Charter**
- **The Subcommittee Will Provide Leadership in Development of Science and Technology Development Issues that Support Human Space Colonization**
- **This Subcommittee Will Recommend Technical Presentations to Be Provided at TC Meetings and Elsewhere**



# Conferences and Workshops Subcommittee



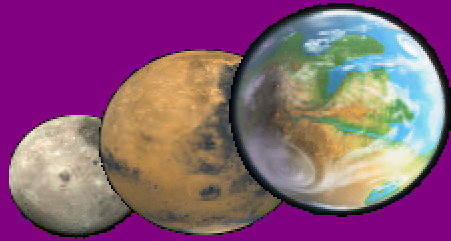
- **The Conference and Workshops Subcommittee is Responsible for Organizing, Leading, Selecting and Chairing Technical Sessions for Various AIAA Conferences and Workshops**
- **Initial Consideration Will be Given to the Aerospace Sciences Meeting, Space Programs Meeting, and Joint Propulsion Conference**



# **Publications and Website Subcommittee**



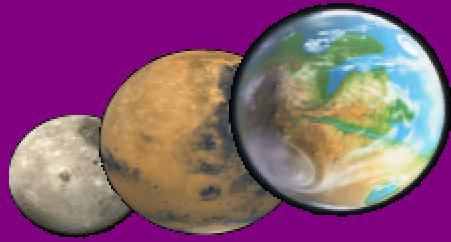
- **The Publications and Website Subcommittee Prepares and Publishes Articles, Assists With AIAA and Other Periodicals, Prepares the Annual Summary on Space Colonization for Publication in Aerospace America, and Conducts Public Relations Activities to Promote the Advancement of Space Colonization, as Needed**
- **This Subcommittee is Also Responsible for Soliciting Papers for Publication in AIAA and Other Journals, as Well as Providing Technical Reviewers for Such Journals Upon Request**
- **This Subcommittee Will Also Coordinate the Development of Position Papers for Publishing by the AIAA**
- **The AIAA SCTC's Website is Developed and Maintained by the Subcommittee**



# Education and Outreach Subcommittee



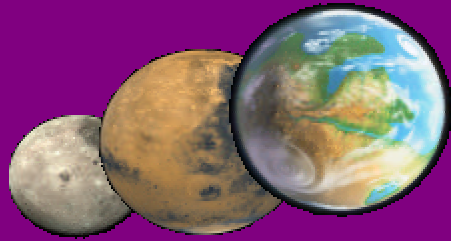
- **The Education and Outreach Subcommittee is Responsible for Developing Educational and Outreach Strategies, Tool and Materials for the TC Membership, AIAA, Industry, Academia, Federal Government and the General Public**
- **It Also Participates in the AIAA Student Design Competition by Providing Contest Topics and Project Judges**
- **The Subcommittee Promotes and Conducts Education Activities and Develops Specific Items (Short Courses, Conference Seminars, Tools and Materials, etc.) to Increase AIAA Member and Public Awareness, Education, Policy Maker Interest, and Professional Knowledge of Space Colonization**



# External Affairs Subcommittee



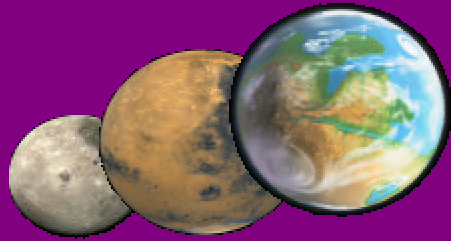
- **The External Affairs Subcommittee is Responsible for Organizing the TC's Involvement in Congressional Visit Day (CVD) and Any Additional Congressional Liaison**
- **This Subcommittee Provides Assistance in Updating and Publishing Educational Materials to be Used in CVD Each Year**
- **The Subcommittee will also Coordinate with other AIAA TC's to Break New Ground in TC Cooperation Keeping in Mind Future Plans of Jointly Held Sessions and Workshops at AIAA Conferences**
- **This Subcommittee will also be Active in Inviting Local AIAA Section Representatives to SCTC Meetings**



# Membership Subcommittee



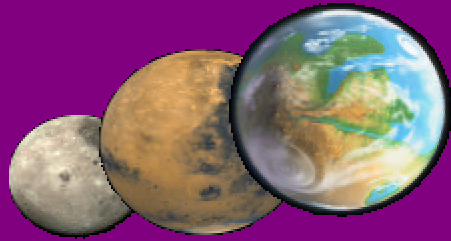
- **This Subcommittee Seeks Members who are Enthusiastic about the Space Colonization and Related Key Subjects as Given in the Charter**
- **Members Who Attend the Minimum Meetings (2/year) and Who Actively Contribute Will Be Kept on the TC for Their 3-year Appointment**
- **A Warning Notice Will Be Sent to Those Who Do Not Attend the Required Yearly Minimum TC Meetings Who Do Not Actively Contribute and They May Be Dropped From the SCTC With the Discretion of the SCTC Chair**
- **The Membership Subcommittee Will Work Closely With the Chairman to Keep Balanced Membership Across Organizations and Charter**



# TC Meetings Subcommittee



- **There Will Be Two to Four Regularly Scheduled Meetings of the SCTC as Appropriate. The TC Vice Chair is to Head This Subcommittee**
- **Some TC Meetings Should be in Conjunction with AIAA Conferences and Workshops Such That Travel Costs of the Members Can Be Mminimized**
- **A Member of the TC Shall Volunteer or Be Appointed to Host Each TC Meeting**
- **Telecons Should Be Considered as Appropriate for TC and Subcommittee Meetings**
- **The Host Shall Plan the Function, Provide Travel Option Data for Members, Provide Relevant Web Sites for Local Information and Include at Least One Social Dinner Event and One Facility Tour of Interest for Each Meeting**
- **The Host Shall Work Closely With the TC VC and Chair**

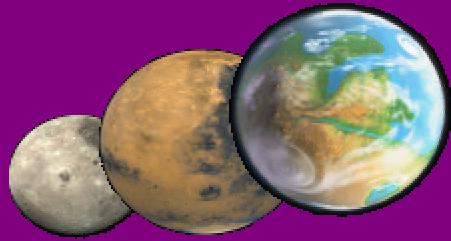


# Awards Subcommittee



- **The Awards Subcommittee is Responsible for Candidate Nomination and Selection of the Best Paper Award at Conferences or Workshops Sponsored by the SCTC**
- **The SCTC Should Consider a College Scholarship for Outstanding Students Studying in the Fields of Interest to the TC**
- **Money Can Be Raised From Funds Provided to the TC by AIAA and Through Short Courses and Workshops**
- **At Some Future Time, We Need to Consider a Professional Award (Properly Named After a Key Space Colonization Person) to Some One Who Has Provided Significant Contributions in the Field**

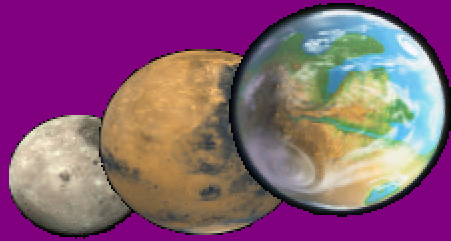




# Nominations and Elections



- **This Subcommittee Organizes the Election Process for the Chair, Vice-Chair, Secretary, and Treasurer of the Committee**
- **Election is Held Once Every Two Years or when Required to Fill Officer Vacancies**
- **This Subcommittee Is Chaired by the Current TC Chairman**

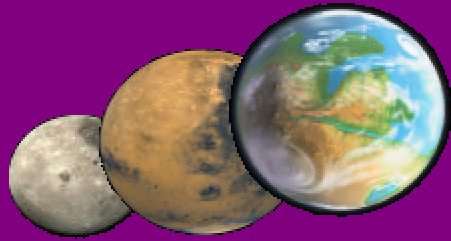


# Near-Term TC Establishment Plan



**The Steps That Are Envisioned to Form the TC Are as Follows:**

- 1. Achieve Initial Blessing From TAC (done)**
- 2. Send Out First Information Package to Potential TC Members Seeking Input (done)**
- 3. Establish the Initial Membership List for the SCWG/TC (done)**
- 4. Send Out the Second Notice on the TC (done)**
- 5. Hold the First Working Group Meeting for June 25-27, 2001 in Madison, WI, Where Founding Members, Officers (Chair, Vice Chair, Secretary, and Treasurer), and Subcommittee Chairs Would Be Selected and the Work Shall Begin (done)**
- 6. Refine the Scope of the TC and Submit Required Documents to AIAA TAC (Emily Springer) for TC Approval (done)**
- 7. Organize Two Technical Sessions at the AIAA Aerospace Sciences Meeting for Reno, 2002 (done)**
- 8. Hold the Second Meeting Oct. 22-23, Golden, CO (done)**
- 9. Request a Budget of \$2000 from AIAA to Begin Activities**
- 10. Hold the Third SCTC Meeting in Reno, NV January 15-16, 2002**
- 11. Obtain TAC TC Approval at the Reno, NV AIAA Aerospace Sciences Meeting in January 2002**



# ADVISORY COUNCILS



**The TC Is Considering the Development of Various Expert Advisory Councilors or Advisors Who Can Help Support the TC in the Various Areas of Work**