

**International Symposium for Personal Spaceflight
ISPS-2006**

MAKING SPACEFLIGHT PERSONAL



AGENDA

**Tuesday, October 17, 2006
8 am to 5 pm**

**Wednesday, October 18, 2006
8 am to 6 pm**

**New Mexico Farm and Ranch
Heritage Museum
Las Cruces, New Mexico
USA**

Presented By:

New Mexico Space Grant Consortium

X PRIZE Foundation

American Institute of Aeronautics and Astronautics

Association of Space Explorers

New Mexico State University

National Space Society



Opening Personal Spaceflight

Welcome to the second annual International Symposium for Personal Spaceflight (ISPS-2006) held each year as part of the X PRIZE CUP in Las Cruces, New Mexico - USA. We are pleased to have the Association of Space Explorers (ASE) & the American Institute of Aeronautics & Astronautics (AIAA) join with us this year to enhance your understanding of the requirements & of the thrills & opportunities that await you in a place called space. They will also add depth & breadth from their knowledge and experience about the past & the present progress being made to get you there.

The traveling public & space business community needs to have safe affordable & routine access to space. Through ISPS we work to enable synergy necessary to create market driven space transportation serving multiple space markets and their customers. Synergistic relationships among civilian commercial & military organizations will create new systems, vehicles, and destinations. The fundamentals of building ground & flight operation systems & a responsive regulatory environment are necessary first steps for personal space flight development. We understand the importance of a combined industry-government role in these undertakings. The environment is changing yet some things will remain constant at least in the near term. The government will take a lead role in establishing a uniform regulatory environment & to ensure public safety. Industry will drive innovation in vehicle development, market development, & financing because it is responding to emerging needs. Both government & industry decisions will be based on these ventures being profitable & contributing to the security & economic well being of the country.

The winning of the Ansari X PRIZE in October 2004 by a privately financed & privately developed spaceship, flying out of a civilian spaceport was but the first step in making spaceflight personal. This event quickly was followed this year by the successful orbiting of Genesis I, a test platform & prototype for a future space travel destination – a space hotel. Your chance to live, work & play in space will happen sooner than you might imagine possible but also longer than you would like.

ISPS-2006 will deal with the interrelated factors that will drive the government programs & control the success & timing of commercial ventures – technology, market, human factors, finance & operating & regulating the infrastructure. ISPS-2006 has been expanded to two days & seven tracks featuring guest speakers & expert panels. We have added more time to interact with the exhibitors & other attendees. We also have added a New Mexico adventure to the symposium with an “on-the-trail” ranch barbecue. A tour package is available on Thursday that includes the White Sands Missile Range (WSMR) & NASA’s White Sands Test Facility (NASA-WSTF).

We again look forward to your participation in ISPS-2006, as together we help build the bridge to your personal future in space.

Patricia C. Hynes, PhD
CO-CHAIR ISPS
New Mexico Space Grant Consortium
New Mexico State University

William A. Gaubatz, PhD
CO-CHAIR ISPS
X PRIZE Foundation

Tuesday, October 17, 2006

Opening Plenary Session

8:30 Symposium Opening

Introductions

Master of Ceremonies – Sam Donaldson

Welcoming Comments

Lt. Governor Diane Denish

Chairman of X PRIZE Foundation – Peter Diamandis

President of New Mexico State University – Michael V. Martin

President International Space University- Michael Simpson, France

Mayor of Las Cruces – William Mattiace

8:50 Plenary Session- Meeting the Challenges

Session Overview: Opening space to the general public requires developments in the market place as well as developments of the new vehicles & supporting infrastructures that will enable average people to fly without extensive training & specialized equipment. Our keynote speakers will discuss the challenges of creating the markets & new systems for personal spaceflight & space destinations & lessons learned from the government space programs that will help to create safe & enjoyable experiences for your personal spaceflight experience.

A Commercial View of Space

George French, President, Rocketplane Kistler

George Sowers, Director Business Development & Advance Programs, Lockheed Martin

Ken Davidian, Centennial Challenges, NASA Headquarters

Alex Tai, Vice President Operations, Virgin Galactic

A Personal View From Space

Thomas Jones, Astronaut, STS-59, STS-68, STS-80, STS-98

9:35 Meet The Exhibitors For Coffee

Track 1- Vehicle Entry To Space

Sponsored By: El Paso Electric

Co-Chairs: Thomas D. Burton, Department Head, Mechanical Engineering,
New Mexico State University
Jonathan Oliver, Project Manager, Modern Technology Solutions Inc.

9:50 Session 1 The New Entries Panel With The Entrepreneurs

Session Overview: This panel will consist of entrepreneurs who competed for the X PRIZE & who have continued the development of their launch & space vehicle systems. These entrepreneurs are privately financed, & their basic approach is to utilize existing technology to develop safe & inexpensive suborbital flight systems for the personal & commercial space flight industries. A main goal is to enable routine flights of the general public to & from & through space. A roadmap for this industry might include suborbital flights from single spaceports, progressing to suborbital flights between nearby spaceports & finally to orbital flights & flights between spaceport pairs located halfway around the world. Innovative system designs utilizing both horizontal & vertical launch systems are currently under development. During the past year there have been significant advances in this community of space pioneers. Each panelist will summarize the significant achievements & milestones accomplished by their groups during the past year, as well as key plans & challenges for the future. There will be a limited amount of time for questions from the audience.

Panelists:

- Steven Bennett, CEO, Starchaser Industries
- Pablo De Leon, President, Pablo De Leon and Associates
- Brian Feeney, President, da Vinci Project
- Jeff Greason, President, XCOR Aerospace
- Yishifumi Inatani, Senior Director, ISAS/JAXA, Japan
- Mike Kelly, Vice President Operations, X PRIZE Cup
- Chuck Lauer, Director of Business Development, Rocketplane Kistler
- Tim Pickens, President, Orion Propulsion
- Dumitru Popescu, President, Aeronautics & Cosmonautics Romanian

Track 1- Vehicle Entry to Space

Sponsored By: Jacobs Technology

Co-Chairs: Jonathan Oliver, Project Manager, Modern Technology Solutions Inc.
Thomas D. Burton, Department Head, Mechanical Engineering,
New Mexico State University

11:15 Session 2 Vehicle Lessons Learned Panel with the Current Space Transportation System Developers

Session Overview: Developing a new space vehicle is a challenging endeavor. Producing commercially-developed vehicles to carry people into space is especially challenging. The XPRIZE CUP competitors have taken on this challenge with their pioneering spirit & innovative ideas. As they progress toward their goals, they will draw on lessons-learned from the past & new technologies being developed in the government laboratories. This session will bring together some of the people & vehicles that laid the foundation for the future of personal spaceflight. They will discuss the technical, financial, & personal challenges they had to overcome in order to achieve the goal of spaceflight. Join in on the exciting conversation as representatives from current space transportation programs share their past experiences, plans, & thoughts for the future.

Panelists:

- Robert “Bob” Richards, Vice-President, Launch Systems Group, Orbital Sciences Corporation
- Gwynne Shotwell, Vice-President of Business Development, SpaceX
- Mike Holguin, Senior Manager, Atlas Program, Lockheed Martin
- Jeff Zweber, Senior Manager, Air Force Research Laboratory

12:15 Meet The Exhibitors For Lunch

Track 2- Personal Entry to Space

Sponsored By: NMSU College of Agriculture and Home Economics
STEINBORN/TCN Commercial Real Estate

Co-Chair: Chang Lee, Assistant Professor, School of Hotel Restaurant & Tourism Mgt.,
New Mexico State University

1:15 Session 1 Developing Space Tourism

Session Overview: Space tourism is about changing imagination into personal experiences. Space tourism is the segment of the overall space industry with the greatest potential for growth for the foreseeable future. But, how soon will space travel actually be accessible to all? Our speakers will discuss this question, provide their estimates of timelines for opening spaceflight to people & answer your questions. The leaders in space tourism will help you to understand the reality of the market & forecasts of the market & timelines. You will learn about the development of space themed resorts that will provide on earth “space” experiences. You will learn more about the investments being made by companies dedicated to opening space to people.

People used to find the term “space tourism” futuristic. Panelists in this track will discuss what is needed & what is being done to make space tourism accessible to the general public. Each panelist will share their experience, challenges & visions for next decades.

Panelists:

- Joe Fuller, President, Futron Corporation
- David Livingston, Founder & Host, The Space Show
- Michael Henderson, Chairman & CEO, Moon World Resorts
- Lowell Catlett, Dean, NMSU College of Agriculture and Home Economics
- Julie Schuster, Executive Director, International UFO Museum and Research Center
- Misuzu Onuki, CEO, Zspace, Japan
- Alex Tai, Vice President Operations, Virgin Galactic

2:45 Meet The Exhibitors For Dessert
Sponsored By: Lockheed Martin - Littleton, Colorado

Track 3 — Medical Considerations For Suborbital & Orbital Flight

Sponsored By: X PRIZE Foundation

Co-Chairs: Jay C. Buckey, Jr., Astronaut, Association of Space Explorers
Jonathan Clark, Space Medicine Liaison, National Space Biomedical Research Institute

3:15 Session 1 Are You Fit To Fly? Spaceflight & Human Physiology

Session Overview: What happens to the body in short-duration spaceflight? When, & why, are these changes important? What might be some of the criteria for determining your fitness for your personal spaceflight? This presentation will identify the major physiological factors of a flight into space & provide advice on how to prepare for & mitigate common problems like space adaptation syndrome (motion sickness), & post-flight lightheadedness. Simple at-home post-flight rehabilitation techniques will also be presented.

Panelists:

- Jay C. Buckey, Astronaut, Association of Space Explorers
- Jonathan Clark, Space Medicine Liaison, National Space Biomedical Research Institute
- Mario Runco, Jr., Astronaut, Association of Space Explorers, NASA/JSC

Track 3 — Medical Considerations For Suborbital & Orbital Flight

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Co-Chairs: Jay C. Buckey, Jr., Astronaut, Association of Space Explorers
Jonathan Clark, Space Medicine Liaison, National Space Biomedical Research Institute

4:00 Session 2 Personal Hygiene In Space

Session Overview: Spaceflight veterans' perspectives on the realities of establishing & maintaining personal hygiene standards in space. Topics include daily hygiene tips & practices, dos and don'ts, what you owe your crewmates, exercise & clean up.

Panelists:

- Thomas D. Jones, Astronaut, Association of Space Explorers
- James S. Voss, Astronaut, Association of Space Explorers
- Leroy Chiao, Astronaut, Association of Space Explorers

Reception & Dinner: NM Farm and Ranch Heritage Museum

5:30 Reception
 No Host Bar and Tour the Museum
 NMSU Rodeo Team Practices at NMSU Rodeo Arena
 Parade of Breeds at Museum
 Dowsing Demonstration at Museum
7:00 New Mexico Barbecue at Museum
8:30 Trails End – Depart For Hotels

Reception Sponsored By: Barnett's Las Cruces Harley-Davidson/Buell, LLC

Wednesday, October 18, 2006

Master of Ceremonies – Steve Traver

Track 4- Maximizing Your Experience

Sponsored By: New Mexico Economic Development Department

Chair: Thomas D. Jones, Astronaut, Association of Space Explorers

8:00 Session 1 Food, Spacewear, & Photography

Session Overview: Eating “the right stuff.” These veteran space fliers will discuss general nutrition, food preparation, & menu choices. What to wear for efficient & comfortable personal clothing will be discussed. Tips showing the right way to capture matchless photos of the home planet on your trip to space will be presented.

Panelists:

- Thomas D. Jones, Astronaut, Association of Space Explorers
- Leroy Chiao, Astronaut, Association of Space Explorers
- Mario Runco Jr., Astronaut, Association of Space Explorers & NASA/JSC

9:00 Session 2 Enhancing Your Time in Space

Session Overview: An astronaut’s guide to social interaction “around the table” in orbit; strategies for successful teamwork. Simple experiments & measurements you can make to track your adaptation to weightlessness. Fun, out-of-this-world free-fall activities with toys, food, & space gear to round out your space experience.

Panelists:

- Thomas D. Jones, Astronaut, Association of Space Explorers
- James S. Voss, Astronaut, Association of Space Explorers
- Mario Runco Jr., Astronaut, Association of Space Explorers & NASA/JSC
- Leroy Chiao, Astronaut, Association of Space Explorers

10:00 Meet The Exhibitors For Coffee

Sponsored By: CALCULEX

Track 5- Spaceports, Your Entry Point

Sponsored By: New Mexico space Grant Consortium

Co-Chairs: Rick Homans, Cabinet Secretary, New Mexico Economic Development Department & Chairman, Spaceport America,
Jay Jordan, Dean & Director, Physical Science Lab, New Mexico State University

10:30 Session 1 Spaceport America

Session Overview: Like the forward line of a successful football team, spaceports do not always receive the attention like the quarterback-vehicles. But try running a play or a spaceflight without them. The development of a commercial spaceport requires the blending of the talents & patience of the community, the developing agency, the architects & builders, the users & the regulating agencies. This session brings these elements together as applied to the on-going development of the New Mexico's Spaceport America. Discussions of the economic, architecture, financing & operations challenges will be presented together with the design & construction approaches & cooperative efforts underway with the FAA Office of Commercial Space Transportation to license & regulate the spaceport & users. Our discussions will also include the past, present, & future participation of White Sands Missile range with spaceport America. This is a "case-study" whose lessons-learned can be applied worldwide.

Panelists:

- Rick Homans, Cabinet Secretary, New Mexico Economic Development Department & Chairman, Spaceport America
- John O'Connor, Chairman & CEO, DMJM Aviation
- Rear Admiral Paul K. Arthur, USNR-Ret, Former Technical director & Deputy to the Commander, White sands Missile Range

Track 5- Spaceports, Your Entry Point

Sponsored By: New Mexico space Grant Consortium

Co-Chairs: Rick Homans, Cabinet Secretary, New Mexico Economic Development
Department & Chairman, Spaceport America
Jay Jordan, Dean & Director, Physical Science Lab, New Mexico State University

11:20 Session 2 Developing The Spaceport Network Panel Discussions With Q&A

Session Overview: For the space frontier to become routinely accessible, new gateways must be established that can serve the needs of the new personal spaceflight industry & of the space-faring public. These gateways, better known as spaceports, will become the earthbound hubs of the emerging space-based economic sector. Spaceports will be the links to in-space manufacturing facilities, natural resource exploitation, science centers, resorts, & entertainment facilities. They will become the centers of space commerce and trade. Spaceport-pairs could provide one-hour links between travel points, & global business & vacation travel can undergo a revolution of the type introduced by the “jet-age”. This international infrastructure will require evolutionary as well as revolutionary development. International cooperation between industry & governments will be crucial. Appropriate regulations will be required to govern locations and operations of spaceports as well as the operations & maintenance of the vehicles that will operate from them. In this track papers will be presented on business, technical and regulatory issues involved in the operations of today’s rudimentary spaceports, as well as plans for their expansion & the development of the new spaceports.

Panelists:

- Stu Witt, Director, Mojave Spaceport
- Nick Pelster, Technical Director, California Space Authority
- Burton Lee, Stanford University
- Lonnie Sumpter, Executive Director, NM Spaceport Authority
- Herbert Bachner, Manager of Space Systems Development Division, FAA
- Alex Tai, Vice President Operations, Virgin Galactic

12:15 Meet The Exhibitors For Lunch

Track 6- Business Entry to Space

Sponsored By: Rio Grande Natural Gas
El Paso Electric

Co-Chairs: James Hayhoe, Economic Development Consultant,
Soldering Technology International
Bob Sweitzer, Director, Southern NM Technology Ventures

1:15 Session 1 Community Entry to Space

Session Overview: Representatives of Dona Ana, Sierra, and Otero Counties will discuss the benefits & impacts to their communities by the emergence of the Spaceport America. Their approaches & experiences can become a model for other communities engaged in similar developments. Regional solutions to challenges and opportunities are being sought. Commercial Space is coming to Southern NM as an economic entity and it will impact communities in Dona Ana, Sierra, and Otero counties in varying degrees. No one community can manage, predict or coordinate all of the outcomes of the economic entity. Four specific areas of interest will be discussed during the session- transportation, tourism, education, & attracting business.

Panelists:

- William Mattiace, Mayor, Las Cruces, NM
- Judd Nordyke, Mayor, Hatch, NM
- Russ Peterson, Sierra County Commission chairman
- Cathy Harper, NM Space Museum, Alamogordo, NM
- Steven Montañó, New Mexico Economic Development Department

Track 6- Business Entry to Space

Sponsored By: Technology Ventures Corporation

Co-Chairs: James Hayhoe, Economic Development Consultant,
Soldering Technology International
Bob Sweitzer, Director, Southern NM Technology Venture Corporation

2:25 Session 2 Commercial Path For Entry to Space

Session Overview: Space holds infinite opportunities; wealth awaits those commercial developments moving beyond today's exploration stage. Like frontiers of the past, the commercial development of Space depends upon entrepreneurial drive, coupled with encouraging government policies and supporting infrastructures. At the end of the day, the success of the space pioneers comes from economic realities. This Track explores space markets through the eyes of four innovative companies who are forging their way to profits in this emerging economic sector.

Panelists:

- Tim Gormley, Chief Operating Office, Rocket Racing League
- Sam Dinkin, CEO, SpaceShot Inc.
- Kirby Ikin, Managing Director of Asia Pacific Aerospace Consultants, Australia
- Ray Duffy, Senior Vice President, Willis Inspace

3:40 Meet The Exhibitors For Dessert

Track 7- In Space With The Explorers

Sponsored By: X PRIZE Foundation

Co-Chairs: John-David Bartoe, Astronaut, Association of Space Explorers
Andy Turnage, Executive Director, Association of Space Explorers

4:00 Session 1 Up Close & Personal With Space Ask the Astronauts Your Questions

Session Overview: Come and participate in this interactive environment & ask these experienced astronauts the questions that will help you make an informed decision about the risks & rewards of flight into space.

Panelists:

- Jay Buckley Jr., Astronaut, Association of Space Explorers
- Thomas Jones, Astronaut, Association of Space Explorers
- William Readdy, Astronaut, Association of Space Explorers
- Mario Runco Jr., Astronaut, Association of Space Explorers, NASA/JSC
- Leroy Chiao, Astronaut, Association of Space Explorers
- James S. Voss, Astronaut, Association of Space Explorers

Closing Ceremony Personal Spaceflight

William A. Gaubatz, PhD, Co-Chair ISPS
Patricia C. Hynes, PhD, Co-Chair ISPS

5:00 Prologue For The Future

Today's developments are the prologue for your personal future in space.

Panelists:

- Michael Simpson, President, International Space University, France
- Peter Diamandis, Chairman, X PRIZE Foundation