

SPACECOM

SPACE COMMERCE CONFERENCE AND EXPOSITION

NOVEMBER 15-17, 2016 | HOUSTON, TX

ENERGY



MARITIME



ADVANCED MANUFACTURING



AGRIBUSINESS



MEDICAL



SPACE APPLICATIONS FUELING BUSINESS INNOVATION

Where executives learn how to apply space technology and space-based assets to gain a competitive advantage.

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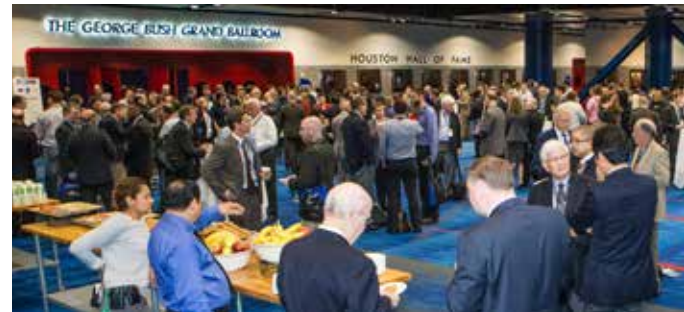
SpaceCom — the Space Commerce Conference and Exposition — is the premier interactive, three-day event packed with education, applications in action and connections that showcase how your business challenges can be solved with the new array of products, services and solutions fueled by space technologies.

SpaceCom emphasizes real-world technology challenges experienced by terrestrial industries — with a focus on **ADVANCED MANUFACTURING**, **AGRIBUSINESS**, **ENERGY**, **MARITIME** and **MEDICAL**.



Entrepreneurial business executives seeking to grow with new business opportunities can engage our distinguished faculty of **MORE THAN 80 VISIONARIES**, **STRATEGISTS** and **EXPERTS** to explore partnerships and learn about real-world applications in action.

The SpaceCom conference is complemented with an exceptionally dynamic and **INTERACTIVE EXHIBIT FLOOR** with **OVER 150 LEADING-EDGE COMPANIES** showcasing their products and services.



“This expo helped me accelerate my launch. It was a successful event and made a big difference to my small business by opening doors to LEO economic development opportunities.”
Chris Leggett, Founder, Space Bioprinter

SpaceCom features **VENTURE CAPITALISTS**, **ANGEL INVESTORS** and **PRIVATE EQUITY EXECUTIVES**. Learn about funding options and ways to secure investment to accelerate your advancement.

REAL-WORLD APPLICATIONS IN ACTION

Attend SpaceCom to learn more about how terrestrial industries are already using space technology and access to space-based assets to fuel business innovation.



ADVANCED MANUFACTURING

Innovative space technologies reduce production cycles and increase supply chain efficiency.

- 3D printing of rocket engines and components
- Alloy and material testing in low gravity and harsh environments
- Woven composite high strength/low weight materials



AGRIBUSINESS

The tsunami of data, imaging and sensing information coming from satellites opens up new and exciting precision farming techniques, not available 12 months ago!

- Water usage optimization
- Crop infestation and yields
- Smart farming, drones and automated equipment



ENERGY

Learning from space about exploration, drilling, harsh environments and remote management increases capabilities and efficiencies here on Earth.

- Pipeline performance and power line inspections
- Security provisions at plants, refineries and rigs
- Remote subsea inspections and remote medical care



MARITIME

Satellite information systems are a vital source of data for ports, shipping companies, fishing fleets and governments. The quality, cost and access of these systems has improved dramatically.

- Automated Identification Systems improvements
- Autonomous vessel operations and uses
- Current monitoring for bunker fuel efficiency



MEDICAL

Zero gravity and harsh environment research/testing at the National Laboratory aboard the International Space Station (ISS) fuels numerous advances.

- Stem cell research, protein crystal growth, capillary and multiphase flow analysis
- Surgical procedures using space-based robotic capabilities
- Remote medicine and telemedicine across vast distances



\$800M WAS INVESTED

by venture capital and angel investments in space-related startups in 2015.

Source: 2015 An Epic Year for the Space Industry (Space Angels Network)

DISCOVER VITAL APPLICATIONS THAT IMPACT YOUR ORGANIZATION

The entire SpaceCom program focuses on in-depth education, interactive exchanges and fostering connections to help attendees explore new markets, improve profits and get deals done. Learn from the visionaries and innovators in your industry.

1

APPLYING SPACE TECHNOLOGIES TO TERRESTRIAL ACTIVITIES



Steven Ward, *Director, Monsanto's The Climate Corp.*, will show how Monsanto combines big data, hyper-local weather monitoring, agronomic modeling and high-resolution weather simulations to help the global \$3 trillion agriculture industry stabilize productivity and improve profits.

2

DEPLOYING SATELLITE IMAGING, SENSING AND DATA



Dan Berkenstock, *Founding CEO, Terra Bella, Google, Inc.*, will discuss Terra Bella's high-resolution satellite imagery applications, including monitoring the flow of goods and commodities to help economists, supply chain managers and logistics operators identify operational inefficiencies and anticipate supply chain bottlenecks.



3

UTILIZING ISS RESOURCES THROUGH CASIS



Kenneth Savin, *Senior Advisor, Eli Lilly and Co.*, will share study results from the International Space Station about medicines designed to prevent muscle wasting, and its implications for people on Earth and missions to Mars.



GENERATE BOTTOM-LINE RESULTS ON YOUR CONFERENCE ATTENDANCE

4

DEVELOPING AN INTERNATIONAL NETWORK OF SPACEPORTS



Barry Matsumori, *SVP, Virgin Galactic*, will discuss Virgin Galactic's goal to give thousands of space tourists the ride of their life, as well as their initiative to deploy thousands of next-generation, lightweight, sophisticated satellites that will connect the world.

5

BUILDING AN INFRASTRUCTURE NETWORK IN LOW EARTH ORBIT (LEO)



Robert Bigelow, *Founder, Bigelow Aerospace*, will showcase how inflatable habitats, recently tested on the International Space Station, will be used for Earth-orbiting space stations and for the potential use in the development of the moon, asteroids and Mars.



6

ACCESSING FUNDING FOR ENTREPRENEURIAL BUSINESSES FOCUSED ON THE LEO MARKET



Sunil Nagaraj, *Vice President, Bessemer Venture Partners*, will explore how Bessemer makes their investment choices with the expectation of achieving high returns and reshaping the future of space commerce in the process.



DISCOVER INNOVATIVE CONTENT, PRODUCTS AND LATEST APPLICATIONS OF SPACE TECHNOLOGIES AT SPACECOM'S EXPOSITION

Sponsors, exhibitors and contributing organizations include:

AEXA	Baylor College of Medicine	for Commercial Space Transportation	Made in Space	SatShot	TDK Corporation
APICS	Bessemer Venture Partners	Flexitech, LLC	Manufacturing Technology	Scientific Instruments	Technology Collaboration Center of Houston (TCC-Houston)
ATEC	Bigelow Aerospace	Genesis Engineering	Manufacturing Today	Securitas Critical Infrastructure Svcs	Techshot
Aerospace Medical Association (AsMA)	BioServe Space Technologies	Glenair, Inc.	Midland Development Corporation (MDC)	Shell Oil	Tempus Global Data
Aerospace States Association (ASA)	Blue Origin	Gretna Machines	Mil-SAT	Silicon Valley Space Center (SVSC)	Terra Bella
Aerotek	CAMX — The Composites and Advanced Materials Expo	Griffin Communications Group	Moon Express	Society for the Advancement of Material and Process Engineering (SAMPE)	The Climate Corp
Agile Aero	CTIA Super Mobility 2015	Houston Angel Network	NASA	Society of Satellite Professionals International	The Henry Ford Innovation Institute
Air Law Institute (ALI)	Canadian Space Commerce Association (CSCA)	Houston Technology Center	Nanoracks	Space Angels Network	The Maritime Alliance (TMA)
Airbus	Cecil Spaceport	In-Q-Tel	National Ocean Industries Association (NOIA)	Space Florida	The Tauri Group
American Composites Manufacturers Association (ACMA)	Coalition for Deep Space Explorations	International Association for the Advancement of Space Safety (IAASS)	National Oceanic and Atmospheric Administration (NOAA)	Space Safety Magazine	Tietronix
Angelus Funding	CropGrower, LLC	International Space Safety Foundation (ISSF)	National Space Biomedical Research Institute (NSBRI)	Space.com	ULA
Association for Manufacturing Technology (AMT)	Danish Aerospace Company (DAC)	Intuitive Machines	NavCom Technologies	SpaceNews	Urthecast
Association of Equipment Manufacturers (AEM)	Deep Space Industries	Iridium PRIME	New Space	SpaceVR	Virgin Galactic
BIO International Convention	Deltion Innovations, Ltd.	Jacobs Engineering Group Inc.	Oceaneering	SpaceX	Waco Spaceport
Bastion Tech	Destination Imagination	Journal of Space Safety Engineering	OrbCOMM	Spaceport Camden	Winstead
Bay Area Houston Economic Partnership (BAHEP)	DynaQual	Lampasas Economic Development	PlaneWave	Sparx Engineering	
	Eli Lilly and Co.	Laser Light Communications	Rice Space Institute	Stinger Ghaffarian Technologies, Inc. (SGT)	
	European Space Agency				<i>As of July 28, 2016</i>
	FAA Center of Excellence				

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TAKE ADVANTAGE OF INTERACTIVE ACTIVITIES, PANELS AND DISPLAYS YOU WON'T SEE OR EXPERIENCE ANYWHERE ELSE!



INNOVATION THEATER
Explore the latest commercial space product and service innovations



ROBONAUT 2 (R2)
Get up close and personal with NASA's state-of-the-art, highly dexterous, humanoid robot



ROBOTICS SHOWCASE
Meet young engineering leaders and see winning entries from local robotics competitions



SPACE VR THEATER
Experience space travel like never before with virtual reality headsets



APPLICATIONS IN ACTION THEATER
Learn how to apply commercial space technologies to the fuel business innovation



TECHNOLOGY FOR THE BENEFIT OF HUMANITY: PANEL OF ASTRONAUTS OF THE PAST, PRESENT AND FUTURE
Hear astronauts from several eras discuss missions and the future of human space travel

AT-A-GLANCE AGENDA

DAY 1: GAMECHANGERS CREATING NEW MARKETS

TUESDAY, NOVEMBER 15

7:30 – 8:30 a.m.	Registration, Continental Breakfast and Networking
8:30 – 9:15 a.m.	Welcome and Opening Remarks
9:15 – 10:00 a.m.	Keynote: Terrestrial Industry Stuart Bradie, President and Chief Executive Officer, KBR
10:00 – 10:30 a.m.	Break
10:30 – 11:45 a.m.	Panel: The State of Global Space Commerce
11:45 a.m. – 1:15 p.m.	Keynote: Space Industry Disruptor Dan Berkenstock, Founding CEO, Terra Bella, Google, Inc.
1:30 – 2:45 p.m.	Panel: Technology Intersection Points
2:45 – 3:15 p.m.	Break
3:15 – 4:20 p.m.	Exhibit Hall Preview: Experience the Overall Effect
3:20 – 4:15 p.m.	Panel: The Satellite Data Revolution
4:30 – 7:00 p.m.	Opening Reception and Exhibits

DAY 2: COLLABORATION BETWEEN INDUSTRIES TO FIND INTERSECTION POINTS

WEDNESDAY, NOVEMBER 16

7:30 – 8:30 a.m.	Registration, Continental Breakfast and Networking
8:30 – 8:45 a.m.	Welcome and Keynote Introduction
8:45 – 9:15 a.m.	International Keynote: The Next Steps in Space Commerce Jean-Jacques Dordain, Former Director General, European Space Agency
9:15 – 9:30 a.m.	Break
9:30 – 10:15 a.m.	Working Groups on Intersection Points (Session I) <ul style="list-style-type: none"> Technology Intersection Points: Robotics Enabling Big Data: Earth Observation Microgravity Applications: Unique Materials Emerging Markets: Business Plan Development <ul style="list-style-type: none"> International Space Station National Lab: Capabilities Pricing, Timing and Future Applications in LEO Space Resource Mining
10:00 a.m. – 5:00 p.m.	SpaceCom Exposition
10:15 – 10:45 a.m.	Break
10:45 – 11:30 a.m.	Working Groups on Intersection Points (Session II) <ul style="list-style-type: none"> Technology Intersection Points: Imaging Enabling Big Data: Advanced Communications Microgravity Applications: Advances in Pharma and Biotech Emerging Markets: Capital Source Development <ul style="list-style-type: none"> International Space Station National Lab: Accessing the Station Spaceports: Revenue Opportunities Public Policy Considerations
11:30 – 11:45 a.m.	Break
11:45 a.m. – 12:45 p.m.	Applications in Action (Industry-Specific Show Floor Tours) <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="background-color: #0070C0; color: white; padding: 5px 15px; border-radius: 5px;">Advanced Manufacturing</div> <div style="background-color: #003366; color: white; padding: 5px 15px; border-radius: 5px;">Agribusiness</div> <div style="background-color: #00A651; color: white; padding: 5px 15px; border-radius: 5px;">Energy</div> <div style="background-color: #008080; color: white; padding: 5px 15px; border-radius: 5px;">Maritime</div> <div style="background-color: #92D050; color: white; padding: 5px 15px; border-radius: 5px;">Medical</div> </div>
12:30 – 2:00 p.m.	Lunch on the Exhibit Floor
2:00 – 3:30 p.m.	Concurrent Application Workshops <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="background-color: #008080; color: white; padding: 5px 15px; border-radius: 5px;">Water</div> <div style="background-color: #00A651; color: white; padding: 5px 15px; border-radius: 5px;">Climate</div> <div style="background-color: #00A6C0; color: white; padding: 5px 15px; border-radius: 5px;">Natural Resources</div> <div style="background-color: #92D050; color: white; padding: 5px 15px; border-radius: 5px;">Remote Medicine</div> <div style="background-color: #003366; color: white; padding: 5px 15px; border-radius: 5px;">Materials</div> <div style="background-color: #666666; color: white; padding: 5px 15px; border-radius: 5px;">Infrastructure</div> </div>
3:30 – 5:00 p.m.	Exhibits

DAY 3: PRACTICAL BUSINESS SOLUTIONS AND THE FUTURE

THURSDAY, NOVEMBER 17

7:30 – 8:30 a.m.	Registration, Continental Breakfast and Networking
8:30 – 8:45 a.m.	NASA ISS Feed & SpaceCom STEM Announcement
8:45 – 9:15 a.m.	Keynote: Investing in Space Commerce Robert Bigelow, Founder, Bigelow Aerospace
9:15 – 10:30 a.m.	Panel: Start-up Stars Panel with Investor Critique
10:00 a.m. – 3:00 p.m.	SpaceCom Exposition
10:30 – 11:00 a.m.	Break
11:00 a.m. – 12:00 p.m.	Panel: Technology Opportunities at the Intersection of Industries (Workshop Follow-up)
12:00 – 12:20 p.m.	Featured Presenter: SpaceX — Commercial Crew and Beyond Garrett Reisman, Director of Crew Operations, SpaceX
12:20 – 1:15 p.m.	Technology for the Benefit of Humanity: Panel of Astronauts of the Past, Present and Future
1:00 – 3:00 p.m.	Lunch, Exhibits and Special Show Floor Programming
3:30 – 7:30 p.m.	NASA Johnson Space Center Tour

SPACECOM FACULTY

SpaceCom 2016 unites a world-class lineup of visionaries, strategists, distinguished experts and thought leaders from aerospace, targeted industries and academia to inspire and challenge you with the real solutions that can impact your organization's success.

Josh Alban, VP of Business Development, Planet Labs

Stephen Altemus, President, Intuitive Machines, Inc.

Dr. Robert Ambrose, Principal Investigator, Game Changing Development Program Software, Robotics & Simulations Division, NASA

David Anhalt, Vice President and General Manager, Iridium PRIME

Kieran Arnold, Head of Networks and Systems, Satellite Applications Catapult

Jim Bell, PhD, Professor, School of Earth and Space Exploration, Arizona State University

Dan Berkenstock, Founding CEO, Terra Bella, Google, Inc.

Robert Bigelow, Founder, Bigelow Aerospace

Dale Boucher, CEO, Deltion Innovations, Ltd.

Cynthia Bouthot, Director of Business Development, Center for the Advancement of Science in Space (CASIS)

Guillermo Bosch, SVP for Sales and Marketing, SSC Space U.S., Inc.

Stuart Bradie, President and CEO, KBR

Robert H. Brumley, Senior Managing Director, Laser Light Communications, LLC

Sean Casey, Co-Founder and Managing Director, Silicon Valley Space Center

Carissa Christensen, Managing Partner, The Tauri Group

Kenneth Copenhaver, GIS Consultant/Principal, CropGrower LLC

Stefanie Countryman, Associate Director, BioServe Space Technologies

Dr. Jeffrey Davis, Director, NASA Human Health & Performance Directorate

Frank Culbertson, President, Space Systems Group, Orbital ATK

Capt. Bill Diehl, U.S. Coast Guard (Ret.), President, Greater Houston Port Bureau

Mary Lynne Dittmar, Executive Director, Coalition for Deep Space Exploration

Dorit Donoviel, Director, Biomedical Innovations Laboratory, Center for Space Medicine, Baylor College of Medicine

Jean-Jacques Dordain, Former Director General, European Space Agency

Phil Downen, Vice President, Government Programs, UrtheCast

Dr. Scott Dulchavsky, CEO, Henry Ford Innovation Institute

John Elbon, Vice President and General Manager, The Boeing Company

Johnnie Engelhardt, Senior Payload Integration Engineer, MEI Technologies

Daniel Faber, Chief Executive Officer, Deep Space Industries

Lanny Faleide, President, SatShot

Juliana Garaizar, Managing Director, Houston Angel Network

William Gerstenmaier, Associate Administrator, Human Exploration and Operations, NASA

Jeff Greason, CEO and Co-Founder, Agile Aero

Ronald Hatch, Senior Systems Analyst, NavCom Technologies, Inc.

Ryan Holmes, Founder and CEO, SpaceVR

Steven Howard, Project Leader, Spaceport Camden

Patricia Hynes, Director, FAA Center of Excellence for Commercial Space Transportation, NMSU

Kyohei Iwamoto, Senior Technology Strategist, Technology Strategy Department, R&D Planning Division, Sony Corporation

Kevin Jackson, Chief Engineer and CTO, Flexitech, LLC

Gregory Johnson, President and Executive Director, Center for the Advancement of Science in Space (CASIS)

Michael Jones, President, The Maritime Alliance

Jim Keravala, COO, Shackleton Energy

Jim Kuzma, SVP and Chief Operating Officer, Space Florida

Richard Larson, Executive Director of Business Development, MEI Technologies

David Lindenbaum, Systems Engineer, In-Q-Tel

Jennifer Lopez, Commercial Innovation Technology Development Lead, Center for the Advancement of Science in Space (CASIS)

Arturo Machuca, General Manager, Ellington Airport and Houston Spaceport

Stuart Martin, CEO, Satellite Applications Catapult

Barry Matsumori, Technology & Development Executive, Virgin Galactic

Dr. Vernon McDonald, Group President, Wyle

Don McMonagle, Vice President NASA Programs, Raytheon

Shawn W. Miller, Technical Director, Navigation & Environmental Solutions, Raytheon Intelligence, Information and Services

Dr. Henk Mooiweer, Principal, Innoventate LLC

Benjamin Moses, Technical Director, Association for Manufacturing Technology

Massoud Motamedi, Director, Center for Biomedical Engineering, The University of Texas Medical Branch

James Muncy, Principal, PoliSpace

Sunil Nagaraj, Vice President, Bessemer Venture Partners

Soichi Noguchi, Astronaut, Japanese Space Agency (JAXA)

Dr. Ellen Ochoa, Director, NASA Johnson Space Center

Marcia O'Malley, Professor of Mechanical Engineering, Rice University

Ruth Perry, Marine Science and Regulatory Policy Specialist, Shell Oil Co.

Richard Pournelle, Senior Vice-President of Business Development, NanoRacks

Bob Prochnow, Executive Director, Technology Collaboration Center of Houston

Michael Read, Manager, ISS National Lab Office, NASA Johnson Space Center

Stephan Reckie, Founding Managing Member, Angelus Funding

Garrett Reisman, Director of Space Operations, SpaceX

Robert Richards, CEO, Moon Express

Robert Richards, Vice President, Civil & Defense Division, Space Systems Group, Orbital ATK

Joe Rothenberg, Director, Terra Bella Engineering & Operations, Google, Inc.

Andrew Rush, CEO, Made In Space

Kenneth Savin, Advisor, Clinical Innovation, Eli Lilly and Co.

Garyn Schenewerk, General Counsel, SpaceX

Kay Sears, VP of Strategy and Business Development, Lockheed Martin Corp.

Kirk Shireman, Manager International Space Station, NASA

George Sowers, Head of Advanced Programs and Chief Scientist, United Launch Alliance

John Stolte, Jr., Executive Vice President, Technology and Operations, ORBCOMM Inc.

Christopher Stott, Chairman and CEO, ManSat LLC, Chairman Emeritus at Society of Satellite Professionals International

Larry Strader, Manager, External Pursuits Program Office, Jacobs Engineering Group, Inc.

Dr. Adam Van Etten, Research Scientist, In-Q-Tel

Stephen Volz, Assistant Administrator for Satellite and Information Services, NOAA

Charles Walker, Independent Aerospace Professional and First Commercial Astronaut

Carl Walz, Director Business Development, Oceaneering International, Inc.

Steven Ward, Director of Geospatial Sciences, The Climate Corporation

Stuart Witt, Former Chief Executive Officer and General Manager, Mojave Air & Space Port Center

Yossi Yamin, CEO, SpacePharma

■ Keynote Speaker

CONFERENCE PROGRAM

TUESDAY, NOVEMBER 15

DAY 1: GAMECHANGERS CREATING NEW MARKETS

8:30 – 9:15 a.m.

Welcome and Opening Remarks

9:15 – 10:00 a.m.

KEYNOTE: Terrestrial Industry

KBR provides an energy industry perspective on the evolution of the low Earth orbit economy. KBR President and CEO Stuart Bradie will discuss public/private models used in the energy sector that could enable next generation satellite and space station operations in low Earth orbit.

Speaker:

- Stuart Bradie, *President and Chief Executive Officer, KBR*

10:30 – 11:45 a.m.

Panel: The State of Global Space Commerce

Like the Internet 20 years ago, the commercial space sector today is full of entrepreneurial spirit. Investors are putting billions into promising space start-ups. We have passed through an inflection point, and some early winners are emerging, but the real tipping point in commercial space is still down the road. This panel will assess the current state of Global Space Commerce and review the promising space innovations and how they will impact the world economy.

Moderator:

- Carissa Christensen, *Managing Partner, The Tauri Group*

Speakers:

- Frank Culbertson, *President, Space Systems Group, Orbital ATK*
- John Elbon, *Vice President and General Manager, The Boeing Company*
- William Gerstenmaier, *Associate Administrator, Human Exploration and Operations, NASA*
- Stuart Martin, *CEO, Satellite Applications Catapult*
- Kay Sears, *VP of Strategy and Business Development, Lockheed Martin Corp.*

11:45 a.m. – 1:15 p.m.

KEYNOTE: Space Industry Disruptor

In 2009, Dan Berkenstock, a PhD student at Stanford University, had an idea about combining hi-definition satellite imagery with advanced data analytic tools to look at the Earth in a fundamentally more comprehensive way. In this keynote, Dan Berkenstock, Founding CEO of Google Inc.'s Terra Bella (formerly Skybox Imagery), will share the evolution of his disruptive thinking, and demonstrate how Terra Bella, and technology like it, will dramatically inform terrestrial industries, including maritime, agribusiness, mining, and emergency and disaster response.

Speaker:

- Dan Berkenstock, *Founding CEO, Terra Bella, Google, Inc.*

1:30 – 2:45 p.m.

Panel: The Technology Intersection Points

Technology transfer between NASA and terrestrial industries is a two-way street. In this discussion, the panel representing five unique industries will review examples of space tech making a difference on Earth, how emerging space technologies will advance capabilities, and ultimately what NASA and the space industry are gaining from their terrestrial partner companies.

Moderator:

- Larry Strader, *Manager, External Pursuits Program Office, Jacobs Engineering Group, Inc.*

Speakers:

- Michael Jones, *President, The Maritime Alliance*
- Benjamin Moses, *Technical Director, Association for Manufacturing Technology*
- Ruth Perry, *Marine Science and Regulatory Policy Specialist, Shell Oil Co.*
- Steven Ward, *Director of Geospatial Sciences, The Climate Corporation*

3:15 – 4:20 p.m.

Exhibit Hall Preview: Experience the Overview Effect

In this Exhibit Hall preview, Ryan Holmes will share the evolution and potential impact of his virtual reality innovation that will allow people anywhere to have the transformative experience of orbiting the Earth. Attendees are invited to have the VR experience on the show floor.

Speaker:

- Ryan Holmes, *Founder and CEO, SpaceVR*

3:20 – 4:15 p.m.

Panel: The Satellite Data Revolution

Satellite technology is undergoing revolutionary change. As satellites get smaller and more sophisticated, and as launch costs come down, a new generation of satellite applications is coming online. This explosion of satellite-generated data is creating new challenges and opportunities for the data analytic software developers who help end users make sense of the tsunami of information flow. This panel will discuss the latest developments and help the audience appreciate and stay ahead of the tidal wave of data that is already here.

Moderator:

- Christopher Stott, *Chairman and CEO, ManSat LCC, and Chairman Emeritus at Society of Satellite Professionals International*

Speakers:

- David Anhalt, *Vice President and General Manager, Iridium PRIME*
- Capt. Bill Diehl, *U.S. Coast Guard (Ret.), President, Greater Houston Port Bureau*
- Joe Rothenberg, *Director, Terra Bella Engineering and Operations, Google, Inc.*
- John Stolte Jr., *Executive Vice President, Technology and Operations, ORBCOMM*
- Stephen Volz, *Assistant Administrator for Satellite and Information Services, NOAA*

WEDNESDAY, NOVEMBER 16

DAY 2: COLLABORATION BETWEEN INDUSTRIES TO FIND INTERSECTION POINTS

8:30 – 8:45 a.m.

Welcome and Keynote Introduction

Speakers:

- James Causey, *Executive Director, SpaceCom*

8:45 – 9:15 a.m.

INTERNATIONAL KEYNOTE:

The Next Steps in Space Commerce

After a long and impressive tenure as Director General of the European Space Agency, Jean-Jacques Dordain is lending his considerable knowledge and talents, on behalf of Luxembourg, to driving the development of the nascent space mining industry. Weaving highlights from more than 12 years as the head of ESA, Dordain will make the case for a robust identification and eventual utilization of the resources of the solar system for the further benefit of humankind.

Speaker:

- Jean-Jacques Dordain, *Former Director General, European Space Agency*

9:30 – 10:15 a.m.

Technology Intersection Points: Robotics

Robotics and artificial intelligence are making their way into our homes and workplaces at an ever increasing rate. Space mission requirements have driven the evolution of robotic capability. At the same time, terrestrial industries have developed robotics in myriad ways to suit their needs. As we move into the next phase of robotics capabilities, how do we push the boundaries of the technology collaboratively to meet the new challenges in space and on Earth? This session will give an overview on the state of the robotics technology, and engage the audience in a stimulating discussion on the bleeding edge challenges in the field.

Speakers:

- Stephen Altemus, *President, Intuitive Machines, Inc.*
- Dr. Robert Ambrose, *Principal Investigator, Game Changing Development Program Software, Robotics & Simulations Division, NASA*
- Marcia O'Malley, *Professor of Mechanical Engineering, Rice University*
- Carl Walz, *Director Business Development, Oceanering International, Inc.*

9:30 – 10:15 a.m.

Enabling Big Data: Earth Observation

New satellite instruments and software analytics are adding value to Earth observational images to the benefit of a range of industries from maritime to agriculture to emergency preparedness to fishery. From accurate weather forecasting to crop irrigation management, the applications of multi-spectral satellite imaging are improving dramatically, and at the same time becoming more accessible to the wider markets. This session will explore the potential applications for Earth observation instruments, and engage the audience in a discussion on potential new applications for this technology.

Speakers:

- Josh Alban, *VP of Business Development, Planet Labs*
- Guillermo Bosch, *SVP for Sales and Marketing, SSC Space U.S., Inc.*
- Kenneth Copenhaver, *GIS Consultant/Principal, CropGrower LLC*
- Phil Downen, *Vice President, Government Programs, UrtheCast*

9:30 – 10:15 a.m.

Microgravity Applications: Unique Materials

Space research has already been a boon to materials sciences. The microgravity environment of space is a proven valuable testing ground for a wide range of metallurgic and silicon materials. The ISS National Laboratory makes it possible for companies to fly experiments and get results back faster than

CONFERENCE PROGRAM

ever. In this session, attendees will gain knowledge on latest materials research aboard the ISS and on how that research impacts manufacturing decisions on Earth.

Speakers:

- **Johnnie Engelhardt**, *Senior Payload Integration Engineer, MEI Technologies*
- **Jennifer Lopez**, *Commercial Innovation Technology Development Lead, Center for the Advancement of Science in Space (CASIS)*
- **Andrew Rush**, *President, Made In Space*

9:30 – 10:15 a.m.

Emerging Markets: Business Plan Development

Any new commercial venture requires sufficient capital and sound ROI analysis. The right business plan is the difference between success and failure. In this session, attendees will refine their space business strategies. Come with ideas, or work with others, and learn how to get started on producing a winning plan for your space-related business venture.

Speakers:

- **Bob Prochnow**, *Executive Director, Technology Collaboration Center of Houston*
- **Stephan Reckie**, *Founding Managing Member, Angelus Funding*
- **Dr. Adam Van Etten**, *Research Scientist, In-Q-Tel*

9:30 – 10:15 a.m.

International Space Station National Lab: Capabilities

What are the capabilities and features of the ISS that private companies and organizations can access? What are the commercially promising research areas aboard ISS (i.e., space biology; fluids and combustion science; Earth sensing; protein crystallization)? What are the requirements for getting a commercial experiment on the ISS? This session will review the benefits and capabilities of using the ISS for commercial purposes.

Speakers:

- **Cindy Bouthot**, *Director of Business Development, Center for the Advancement of Science in Space (CASIS)*
- **Michael Read**, *Manager, ISS National Lab Office, NASA Johnson Space Center*

9:30 – 10:15 a.m.

Pricing, Timing and the Future of Applications in LEO

The increasing availability of affordable, timely access to low Earth orbit is creating new problem-solving opportunities for terrestrial industries. From drought detection for agriculture to digital oil field management to autonomous maritime navigation, every sector of the economy can find space-based solutions to pressing challenges. Established and new launch service companies will discuss the applications they are supporting with their diverse launch capabilities. Attendees will come away with a better understanding of the relationship between launch services and space applications.

Speakers:

- **Jeff Greason**, *CEO and Co-Founder, Agile Aero*
- **Barry Matsumori**, *Technology & Development Executive, Virgin Galactic*
- **Robert Richards**, *Vice President, Business Development Civil & Defense Division, Space Systems Group, Orbital ATK*
- **George Sowers**, *Head of Advanced Programs and Chief Scientist, United Launch Alliance*

9:30 – 10:15 a.m.

Space Resource Mining

Serious plans are underway, backed by serious investment, for private companies to tap into the mineral resources of the Solar System, starting with mining on the moon and asteroids. What opportunities do these nascent ventures present to both entrepreneurs and mature companies? The panelists will briefly describe their business model and will engage in a facilitated conversation on how others can get involved.

Moderator:

- **Mary Lynne Dittmar**, *Executive Director, Coalition for Deep Space Explorations*

Speakers:

- **Dale Boucher**, *CEO, Deltion Innovations, Ltd.*
- **Daniel Faber**, *CEO, Deep Space Industries*
- **Jim Keravala**, *COO, Shackleton Energy*
- **Robert Richards**, *CEO, Moon Express*

10:45 – 11:30 a.m.

Technology Intersection Points: Imaging

NASA pioneered imaging technology to study the planets and stars, as well as the home planet, Earth. That imaging technology has transitioned to vital medical equipment, energy exploration, deep ocean fishery and salvage, and a range of health monitoring devices. What is on the leading edge of imaging capabilities and what are the emerging new possibilities? This session will explore the challenges and hopes for imaging technology for space and Earth applications.

Speakers:

- **Jim Bell**, *PhD, Professor, School of Earth and Space Exploration, Arizona State University*
- **Dr. Scott Dulchavsky**, *CEO, Henry Ford Innovation Institute*
- **Dr. Vernon McDonald**, *Group President, KBRwyle*
- **Massoud Motamedi**, *Director, Center for Biomedical Engineering, The University of Texas Medical Branch*

10:45 – 11:30 a.m.

Enabling Big Data: Advanced Communications

Telecom may be the most mature commercial space sector, but it is in the process of undergoing a new revolution. Lighter, cheaper satellites and more affordable launch options are part of the cause. The emerging technology and constellation architecture is another. Broadband satellite innovations promise to bring Internet service to the 3 billion remaining Earth inhabitants without access. Laser Comm advances will greatly improve speed and accuracy. In this session, the speakers will review the technology and engage in a dialogue on the potential market applications for the new capabilities.

Speakers:

- **Kieran Arnold**, *Head of Networks and Systems, Satellite Applications Catapult*
- **Robert H. Brumley**, *Senior Managing Director, Laser Light Communications, LLC*
- **Ronald Hatch**, *Senior Systems Analyst, NavCom Technologies, Inc.*
- **Kyohei Iwamoto**, *Senior Technology Strategist, Technology Strategy Department, R&D Planning Division, Sony Corporation*
- **Kevin Jackson**, *Chief Engineer and CTO, Flexitech LLC*

10:45 – 11:30 a.m.

Microgravity Applications: Advances in Pharma and Biotech

From protein crystal and 3D tissue growth to drug development/testing and understanding diseases, microgravity has proven to have unique and desirable effects on biological processes. In this session, attendees will explore how microgravity can enhance biomedical research and what capabilities the ISS has in place to handle biological materials. This session is particularly relevant to anyone in the pharmaceutical or biotech field.

Speakers:

- **Stefanie Countryman**, *Associate Director, BioServe Space Technologies*
- **Dr. Jeffrey Davis**, *Director, NASA Human Health & Performance Directorate*
- **Kenneth Savin**, *Advisor, Clinical Innovation, Eli Lilly and Co.*
- **Yossi Yamin**, *CEO, SpacePharma*

10:45 – 11:30 a.m.

Emerging Markets: Capital Source Development

Financing is the lifeblood of any business venture. Fortunately, the commercial space sector is one of the hottest investment categories at the moment. In 2015, more than \$3 billion of private investments were made to commercial space companies. Though it's never been a better time to be a space entrepreneur, prospective companies must still prove their worthiness, and will have to work hard to find and get the attention of investors. This session will review all of the potential sources of investment, particularly those unique to the space arena, and strategies for making a powerful pitch. Come ready to share your ideas and business plans, and the session presenters will give you solid coaching assistance.

Speakers:

- **Sean Casey**, *Co-Founder and Managing Director, Silicon Valley Space Center*
- **Juliana Garaizar**, *Managing Director, Houston Angel Network*

10:45 – 11:30 a.m.

International Space Station National Laboratory: Accessing the Station

You have a commercial experiment you would like to fly on the International Space Station. Now what? This session will cover the basics of getting your business idea from your lab and onto the ISS, from vehicle options to timing to the NASA paperwork to return to scheduling astronaut time to work on your payload. There is much to consider. To help facilitate broad utilization of the facility, NASA has partnered with The Center for the Advancement of Science in Space to provide support for all U.S. entities wishing to use the ISS National Lab.

Moderator:

- **Richard Larson**, *Executive Director of Business Development, MEI Technologies*

Speakers:

- **Cindy Bouthot**, *Director of Business Development, Center for the Advancement of Science in Space (CASIS)*
- **Robert H. Plunkett**, *Deputy Program Manager, MEI Technologies, Inc.*
- **Robert Richards**, *Vice President, Strategy and Business Development, Advanced Programs Division, Orbital ATK*

CONFERENCE PROGRAM

10:45 – 11:30 a.m.

Spaceports: Revenue Opportunities

Spaceports will rely on tenant spaceflight service companies, or spacelines, to anchor the economics of transportation hub. Spaceports, however, have the opportunity, and necessity, to develop a range of revenue streams in conjunction with space tenants. This panel will discuss the options under consideration, or being implemented, at spaceports — some well in advance of spaceflight operations. What are the opportunities for entrepreneurs of all kinds to partner with spaceports?

Moderator:

- Patricia Hynes, *Director, FAA Center of Excellence for Commercial Space Transportation, NMSU*

Speakers:

- Steven Howard, *Project Leader, Spaceport Camden*
- Jim Kuzma, *SVP and Chief Operating Officer, Space Florida*
- Arturo Machuca, *General Manager, Ellington Airport and Houston Spaceport*
- Stuart Witt, *Former Chief Executive Officer and General Manager, Mojave Air & Space Port Center*

10:45 – 11:30 a.m.

Public Policy Considerations

The future of space commerce is dependent on supportive public policy. The rapid evolution of the commercial space sector is forcing governments to write new laws that not only clarify the rules of doing business in space, but also provide sufficient incentives for space entrepreneurship. In this session, a panel of policy experts will discuss some of the critical policy developments of the past year, and engage in a dialogue of what more must be done to further propel commercial space growth. Topics to be discussed will include launch indemnification, orbital debris migration and international coordination.

Speakers:

- James Muncy, *Principle, PoliSpace*
- Richard Pournelle, *Senior Vice-President of Business Development, NanoRacks*
- Caryn Schenewerk, *General Counsel, SpaceX*

11:45 a.m. – 12:45 p.m.

Applications in Action (Industry-Specific Show Floor Tours)

2:00 – 3:30 p.m.

Concurrent Applications Workshops

Attendees will engage in collaborative concurrent discussions on the use of space-based technologies and satellite data to derive solutions for common technical challenges faced on Earth. Led by subject matter experts, each workshop will target a challenge faced across multiple industries.

Water: The Vital Resource

- Michael Jones, *President, The Maritime Alliance*

Climate: Affecting Every Business

- Lanny Faleide, *President, SatShot*
- Shawn W. Miller, *Technical Director, Navigation & Environmental Solutions, Raytheon Intelligence, Information and Services*

Natural Resources: Effective Husbandry

- Dr. Henk Mooiweer, *Principal, Innovate LLC*

Remote Medicine: Quality Care Anywhere and Everywhere

- Dr. Jeffrey Davis, *Director, NASA Human Health & Performance Directorate*
- Dorit Donoviel, *Director, Biomedical Innovations Laboratory, Center for Space Medicine, Baylor College of Medicine*

Materials: Reshaping Our World

- Benjamin Moses, *Technical Director, Association of Manufacturing Technology*

Infrastructure: Smart and Secure

- Larry Strader, *Manager, External Pursuits Program Office, Jacobs Engineering Group, Inc.*

THURSDAY, NOVEMBER 17

DAY 3: PRACTICAL BUSINESS SOLUTIONS AND THE FUTURE

8:30 – 8:45 a.m.

NASA ISS Feed & SpaceCom STEM

Announcement

Speaker:

- Kirk Shireman, *Manager International Space Station, NASA*

8:45 – 9:15 a.m.



KEYNOTE: Investing in Space Commerce

Since 1999, Robert Bigelow and his company, Bigelow Aerospace, have been on a mission to provide affordable and habitable destinations for national space agencies and corporate clients. In 2006 and 2007, it launched orbiting prototype habitats. And in May 2016, NASA attached a Bigelow Aerospace habitat, BEAM, to the International Space Station. In this keynote, Bigelow will share his vision of how his company will assist human exploration and the discovery of beneficial resources, whether in Low Earth Orbit (LEO), on the moon, in deep space or on Mars.

Speaker:

- Robert Bigelow, *Founder, Bigelow Aerospace*

9:15 – 10:30 a.m.

Panel: Start-up Stars Panel with Investor Critique

A panel of investors and incubators will review and critique presentations of promising new space-related start-ups. The audience will be able to participate in the collaborative, lively pitch session.

Speakers:

- Sean Casey, *Co-Founder and Managing Director, Silicon Valley Space Center*
- David Lindenbaum, *Systems Engineer, In-Q-Tel*
- Sunil Nagaraj, *Vice President, Bessemer Venture Partners*
- Stephan Reckie, *Founding Managing Member, Angelus Funding*

11:00 a.m. – 12:00 p.m.

Panel: Technology Opportunities at the Intersection of Industries (Workshop Follow-up)

The panelists will be the Industry workshop facilitators from Day 2 of SpaceCom 2016. They will give brief top-line outcomes from

their sessions, and engage with each other and the audience on the intersection of where space technologies are applying across industries, and how industry is meeting the needs of the space community.

Moderator:

- Barry Matsumori, *Technology & Development Executive, Virgin Galactic*

Speakers:

- Dr. Jeffrey Davis, *Director, NASA Human Health & Performance Directorate*
- Dorit Donoviel, *Director, Biomedical Innovations Laboratory, Center for Space Medicine, Baylor College of Medicine*
- Lanny Faleide, *President, SatShot*
- Michael Jones, *President, The Maritime Alliance*
- Shawn W. Miller, *Technical Director, Navigation & Environmental Solutions, Raytheon Intelligence, Information and Services*
- Dr. Henk Mooiweer, *Principal, Innovate LLC*
- Tim Shinbara, *Vice President, Manufacturing Technology, Association for Manufacturing Technology*

12:00 – 12:20 p.m.

Featured Presenter: SpaceX — Commercial Crew and Beyond

Garrett Reisman is SpaceX's Director of Space Operations, which includes helping lead the team responsible for developing the Crew Dragon spacecraft that is slated to begin ferrying astronauts to the International Space Station in 2017. In this talk, Reisman will provide a status report on Crew Dragon, an update on SpaceX operations, and look further into the future, including the ultimate goal of enabling humans to become a multi-planetary species.

Speaker:

- Garrett Reisman, *Director of Space Operations, SpaceX*

12:20 – 1:15 p.m.

Technology for the Benefit of Humanity: Panel of Astronauts of the Past, Present and Future

Dr. Ellen Ochoa, Director of NASA Johnson Space Center, will lead a lively discussion among a panel of fellow space travelers that will give a first-hand look at past, present and future research and technology that has and will continue to impact terrestrial industries and life on Earth.

Moderator:

- Dr. Ellen Ochoa, *Director, NASA Johnson Space Center*

Speakers:

- Gregory Johnson, *President and Executive Director, Center for the Advancement of Science in Space (CASIS)*
- Don McMonagle, *Vice President NASA Programs, Raytheon*
- Soichi Noguchi, *Astronaut, Japanese Space Agency (JAXA)*
- Charles Walker, *Independent Aerospace Professional and First Commercial Astronaut*

1:00 – 3:00 p.m.

Lunch, Exhibits and Special Show Floor Programming

3:30 – 7:30 p.m.

NASA Johnson Space Center Tour

As of July 28, 2016

REGISTRATION INFORMATION

ONLINE REGISTRATION IS NOW OPEN!

Register by September 9 to take advantage of early-bird discounts!

Conference Program Hours:

Tuesday, November 15

7:30 a.m. – 7:00 p.m.

Wednesday, November 16

7:30 a.m. – 5:00 p.m.

Thursday, November 17

7:30 a.m. – 3:00 p.m.

Exposition Show Floor Hours:

Tuesday, November 15

4:30 – 7:00 p.m.

Wednesday, November 16

10:00 a.m. – 5:00 p.m.

Thursday, November 17

10:00 a.m. – 3:00 p.m.

	Until September 9	Until November 11	Onsite
Full Conference — Complete access to all three days of SpaceCom, including 25+ conference sessions, the SpaceCom Expo Floor, opening night reception, daily breakfasts/lunches and post-show white paper			
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Government	\$1,095	\$1,395	\$1,695
Single Day Conference — Access to one day of conference sessions, the SpaceCom Expo Floor, breakfast/ lunch and post-show white paper			
Industry	\$295	\$395	\$495
Government	\$235	\$295	\$395
Expo-Only — Access to the SpaceCom Expo Floor for all three days of the event and the opening night reception			
Industry	\$30	\$40	\$50
Government	\$30	\$40	\$50
Single Day Expo-Only — Access to the dynamic SpaceCom Expo Floor (available Wednesday or Thursday only)			
Industry	\$20	\$20	\$20
Government	\$20	\$20	\$20

Visit www.spacecomexpo.com for special student pricing.

Hotel Information

SpaceCom 2016 has worked closely with several Houston-area hotels to provide great rates, exceptional service and no service fees. Visit www.spacecomexpo.com to secure discounted accommodations in the Official SpaceCom 2016 hotel block (based on availability).

Airport Information

Houston's airport system is the fourth largest in the U.S. and is served by two major airports, Bush Intercontinental (IAH), located 20 miles north of downtown, and William P. Hobby (HOU), located about 11 miles south of downtown.



“SpaceCom 2015 was an immensely valuable conference to promote commercial space as the gateway for innovative applications across many industries and academia.”

Wendy Niemann, Associate Director, Industry Development, Destination Imagination

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for the commercial space industry."*

Stuart Martin, CEO, Satellite Applications CATAPULT
in his November 18, 2015 keynote

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2016 KEYNOTE SPEAKERS



Dan Berkenstock
Co-Founder, Terra Bella, Google Inc.



Robert Bigelow
Founder, Bigelow Aerospace



Stuart Bradie
*President and Chief Executive
Officer, KBR*



Jean-Jacques Dordain
*Former Director General, European
Space Agency*

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