

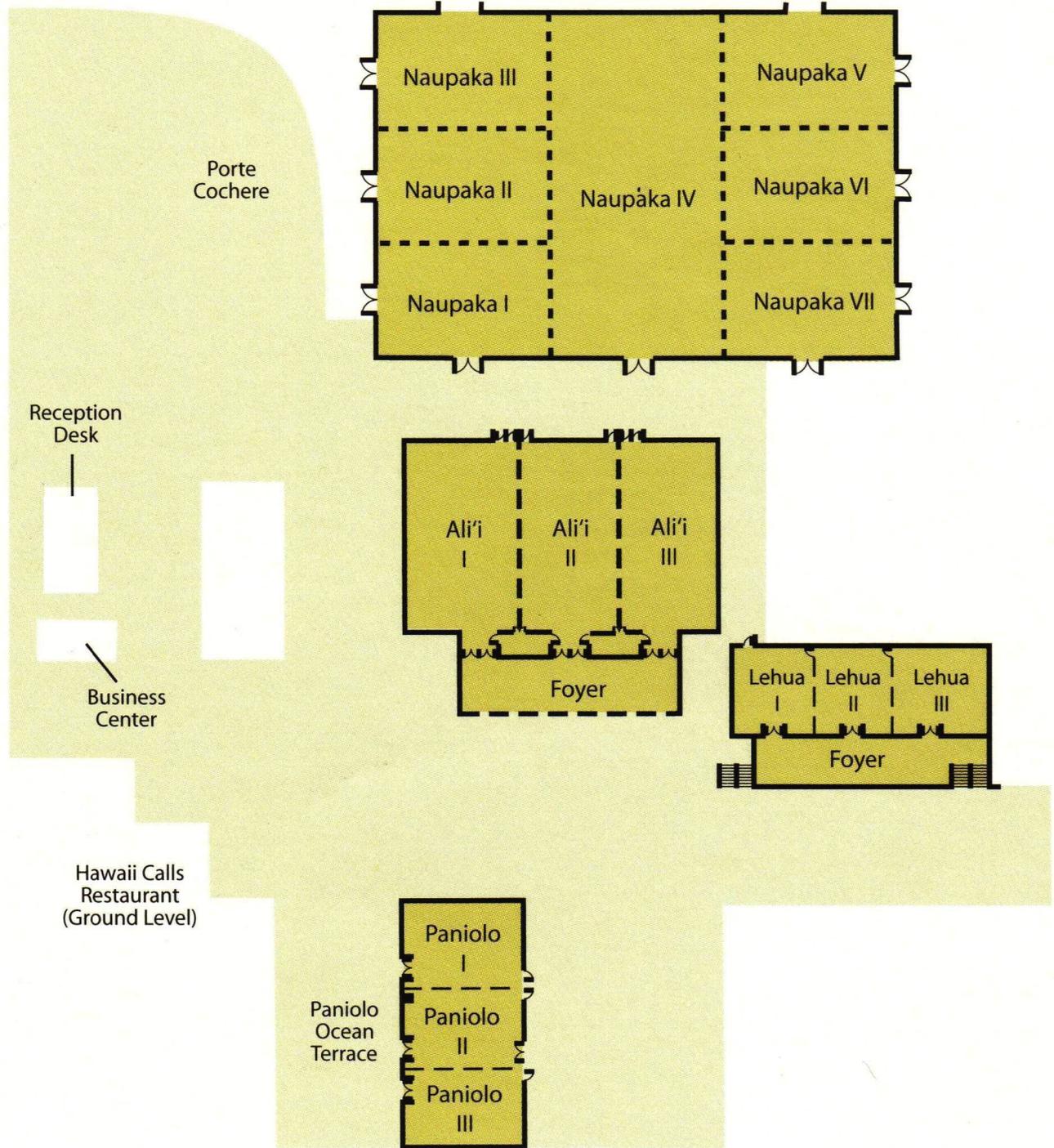


*November 11-15
Big Island of Hawai'i
Waikoloa Beach Marriott*

JUSTSAP 2007
ANNUAL SYMPOSIUM
PROGRAM



BALLROOM CONFIGURATION



All ballrooms located on lobby level.

Japan-U.S. Science, Technology & Space Applications Program
(JUSTSAP)

17th Annual Symposium
Waikoloa Beach Marriott Resort
Kohala Coast - Big Island of Hawai`i
November 11-15, 2007

A Message from the Chairman:

I am very pleased to welcome all of you to the 17th Annual JUSTSAP Symposium at the beautiful Waikoloa Beach Marriott Resort on the "Big Island of Hawai`i".

Themed "Expanding International Collaboration for Space Exploration", this year's symposium will focus on formulating public-private partnerships to catalyze the development and implementation of innovative projects that will support future space exploration and earth observation missions. Five main areas are targeted for discussion, including (1) the Pacific International Space Center for Exploration Systems (PISCES), (2) commercial opportunities for the International Space Station, (3) innovative space energy systems, and (4) the design and promotion of advanced satellites for communications and earth observation (to monitor global climate change), and (5) robotic precursor missions to our moon and Mars. Information concerning the conference agenda and individual Project Team sessions is provided in the pages that follow.

We are delighted that you are joining us for these seminal discussions, and look forward to your invaluable input in developing our Project Team agendas for the coming year. All questions concerning symposium logistics (e.g., duplication of papers, registering guests for symposium meals) should be directed to the UH Hilo Conference Center staff at the symposium registration desk.

My very best wishes to all for a most enjoyable and productive meeting!

With much Aloha,

Stephen Day
JUSTSAP Chairman

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AGENDA

Sunday, Nov. 11

Pre-Symposium Activities

13:00 – 18:00	Delegate Registration	<i>Paniolo Ocean Terrace</i>
11:00 – 15:00	Japan Meeting	<i>Naupaka I</i>
15:00 – 17:30	JUSTSAP Steering Committee Meeting I	<i>Naupaka I</i>
18:30 – 20:00	Delegate Reception	<i>Paniolo Ocean Terrace</i>

Monday, Nov. 12

7:00 – 15:00	Delegate Registration	<i>Naupaka Lanai</i>
7:00 – 8:00	Continental Breakfast	<i>Paniolo Ocean Terrace</i>

OPENING CEREMONIES

Naupaka IV

8:00 – 8:50

Ho'okipa I Ka Malihini

Mr. Takaji Kuroda-sensei, *JUSTSAP Co-Founder*
JUSTSAP Japan Association

Dr. Rose Tseng, *Chancellor*
University of Hawaii at Hilo

Mr. Ted Liu, *Director*
Dept. of Business, Economic Development & Tourism/State of Hawaii

8:50 – 9:20

The Year in Review

Dr. Takashi Iida, *Japan Vice-Chairman*
JUSTSAP

Dr. Frank Schowengerdt, *U.S. Vice-Chairman*
JUSTSAP

AGENDA

Monday, Nov. 12 Continued

- 9:20 – 9:40 **Symposium Theme: Expanding International Collaboration for Space Exploration**
- Stephen Day, Chairman
JUSTSAP
- 9:40 – 10:00 **Hawaii's Expanding Role on the Space Frontier**
- The Honorable George R. Ariyoshi
Former Governor of the State of Hawaii and
Honorary U.S. Advisor – JUSTSAP
- 10:00 – 10:15 **Symposium Agenda & Logistics**
- Mr. Jim Crisafulli, Executive Director
JUSTSAP Secretariat
- 10:15 – 10:45 **Refreshments & Group Photo Session** Paniolo Ocean Terrace
- 10:45 – 11:45 **Space Exploration Roundtable:
Commercial Space Opportunities for Earth and the Moon**
- Dr. Dan Rasky, Director
NASA Ames Space Portal
- Mr. Greg Schmidt, Lead for Strategic Initiatives
NASA Ames Space Portal
- Ms. Lynn Harper, Lead for Integrative Studies
NASA Ames Space Portal
- Mr. Jim Grady, Chief Strategy Officer
NASA Ames Space Portal
- 11:45 – 12:30 **Keynote Address:
Innovating Strategic Partnerships for the Space Frontier**
- Ms. Marguerite Broadwell, Manager
Strategic Planning & Partnerships
Exploration Systems Mission Directorate
NASA Headquarters

AGENDA

Monday, Nov. 12 Continued

- 12:30 – 13:45 **Luncheon (Host: U.S. Secretariat)** *Ali'i Ballroom I*
- Speaker: Dr. Paul Eckert*
International & Commercial Strategist for Business Development
Space Exploration Systems – The Boeing Company
Topic: Options and Opportunities for Innovative Space Commerce
- PROJECT TEAMS PLENARY** *Naupaka IV*
- 13:45 – 14:30 *Pacific International Space Center for Exploration Systems (PISCES)*
- Dr. Frank Schowengerdt – U.S. Vice-Chairman, JUSTSAP*
Dr. Robert Fox – University of Hawaii at Hilo
Dr. Osamu Odawara – Tokyo Institute of Technology
Dr. Michael Duke – PISCES Student Competition
- 14:30 – 15:15 *Commercial Utilization of the International Space Station*
- Dr. Paul Eckert, The Boeing Company*
Dr. Alex Ignatiev – Center for Advanced Materials, University of Houston
- 15:15 – 15:30 **Refreshment Break** *Naupaka Lanai*
- 15:30 – 16:15 *Space-Based Energy Systems*
- Dr. John Mankins, ARTEMIS Innovation Management Solutions*
Dr. Nobuyuki Kaya, Kobe University
- 16:15 – 17:00 *Advanced Satellites for Communications & Earth Observation*
- Dr. James Beitchman, JGB Consult*
Dr. Takashi Iida, NICT Japan
Dr. Yoshiaki Suzuki, NICT Japan
- 17:00 – 17:45 *Robotic Precursor Missions to the Moon and Mars*
- Dr. William Larson, NASA Kennedy Space Center*
Mr. Anthony LaVoie, NASA Marshall Space Flight Center
Dr. Kai Matsui, Japan Aerospace Exploration Agency (JAXA)
- 18:30 – 21:00 **Reception & Dinner (Host: U.S. Secretariat)** *Naupaka Lanai*

AGENDA

Tuesday, Nov. 13

7:30 – 8:30 **Continental Breakfast** *Naupaka Lanai*

8:30 – 10:00 **Project Team Meetings**

ISS Commercial Utilization *Naupaka I*

Space-Based Energy Systems *Naupaka II*

Advanced Satellites for Communications & Earth Observation
Naupaka III

Robotic Precursor Missions to the Moon and Mars
Naupaka IV

10:00 – 10:15 **Refreshment Break** *Naupaka Lanai*

10:15 – 12:00 **Project Team Meetings**

ISS Commercial Utilization *Naupaka I*

Space-Based Energy Systems *Naupaka II*

Advanced Satellites for Communications & Earth Observation
Naupaka III

Robotic Precursor Missions to the Moon and Mars
Naupaka IV

12:00 – 13:30 **Luncheon (Host: Japan JUSTSAP Association)**
Ali'i Ballroom I

Speaker: Mr. Kazumori Hama
Institute for Unmanned Space Experiment Free Flyer

Topic: SERVIS-1 Space Verification Results and Next Steps

AGENDA

Tuesday, Nov. 13 Continued

13:30 – 15:00

Project Team Meetings

ISS Commercial Utilization

Naupaka I

Space-Based Energy Systems

Naupaka II

Advanced Satellites for Communications & Earth Observation
Naupaka III

Robotic Precursor Missions to the Moon and Mars

Naupaka IV

15:00 – 15:30

Refreshment Break

Naupaka Lanai

15:30 – 18:00

Intramural Activities

Bilateral Golf Tournament

Race for Space Treasure Hunt

Bilateral Tennis Tournament

18:30 – 21:00

Reception & Dinner (Host: JUSTSAP Japan Association)

Ali'i Ballroom I

AGENDA

Wednesday, Nov. 14

- | | | |
|---------------|---|------------------------------|
| 7:00 – 8:00 | Continental Breakfast | <i>Paniolo Ocean Terrace</i> |
| 8:00 – 10:00 | Project Team Meetings | |
| | <i>ISS Commercial Utilization</i> | <i>Naupaka I</i> |
| | <i>Space-Based Energy Systems</i> | <i>Naupaka II</i> |
| | <i>Advanced Satellites for Communications & Earth Observation</i> | <i>Naupaka III</i> |
| | <i>Robotic Precursor Missions to the Moon and Mars</i> | <i>Naupaka IV</i> |
| 10:00 – 10:15 | Refreshment Break | <i>Naupaka Lanai</i> |
| 10:15 – 11:45 | Project Team Meetings | |
| | <i>ISS Commercial Utilization</i> | <i>Naupaka I</i> |
| | <i>Space-Based Energy Systems</i> | <i>Naupaka II</i> |
| | <i>Advanced Satellites for Communications & Earth Observation</i> | <i>Naupaka III</i> |
| | <i>Robotic Precursor Missions to the Moon and Mars</i> | <i>Naupaka IV</i> |
| 11:45 – 13:00 | Luncheon (Host: U.S. Secretariat) | <i>Ali'i I</i> |
| | <i>Speaker: Dr. Dan Rasky, Director
NASA AMES Space Portal
Topic: Innovation and Entrepreneurship on the Space Frontier</i> | |
| 13:15 – 15:30 | JUSTSAP Steering Committee Meeting I | <i>Naupaka I</i> |
| 16:00 – 21:00 | Historic Kona Village Tour and Sunset Lu'au | |

AGENDA

Thursday, Nov. 15

7:30 – 8:30

Continental Breakfast

Paniolo Ocean Terrace

CLOSING PLENARY

Naupaka IV

8:30 – 10:30

Project Reports

Project Team/Working Group Leaders

- *ISS Commercial Utilization*
- *Space-Based Energy Systems*
- *Advanced Satellites for Communications & Earth Observation*
- *Robotic Precursor Missions to the Moon and Mars*

10:30 – 10:45

Steering Committee Report

Mr. Stephen Day, Steering Committee Chairman

10:45 – 11:15

Annual JUSTSAP Awards

- *Outstanding Sustained Service Awards – Individual*
- *Outstanding Sustained Service Awards – Team*
- *Outstanding Sustained Service Awards – Institutional*
- *Burton I. Edelson Memorial Awards for Distinguished Service*
- *The Space Exploration Pioneer Award*

11:15 – 11:30

Next Steps and Concluding Remarks

JUSTSAP Chairman

Project Team Meeting
International Space Station Commercial Utilization (ISSCU)
Naupaka I

Tuesday, Nov. 13

8:30 – 10:00

ISSCU Project Team Session I

*Opening Remarks:
A Pragmatic Approach to ISS Utilization*

*Paul Eckert
The Boeing Company*

*Osamu Odawara
Tokyo Institute of Technology*

*Alex Ignatiev
University of Houston*

*Youichi Hasegawa
Japan Manned Space Systems Corporation (JAMSS)*

10:00 – 10:15

Refreshment Break

Naupaka Lanai

10:15 – 12:00

ISSCU Project Team Session II

*Reviving ISS Commerce
Frank Schowengerdt
Spacepartnerships.com*

*JAMSS Activities on Space Commercial Utilization
Youichi Hasegawa
JAMSS*

*ISS as a National Laboratory
Lynn Harper
NASA Ames Research Center*

*Topic Extraction and Social Problem Detection
Based on Document Clustering*

*Masamichi Ishikawa
Tokyo Institute of Technology*

Project Team Meeting
International Space Station Commercial Utilization (ISSCU)
Naupaka I

Tuesday, Nov. 13 Continued

12:00 – 13:30 **Luncheon** *Ali'i Ballroom I*

13:30 – 15:00 **ISSCU Project Team Session III**

Materials Exposure Tests from 2001 to 2006 on ISS
Osamu Odawara
Tokyo Institute of Technology

*ISS as a Platform for External Payloads:
Thin Film Materials and Device Growth*
Alex Ignatiev
University of Houston

*Microgravity Combustion Researches for Fire Safety
in Space Infrastructures*
Shu Usuba and Martin Castillo
Agency of Industrial Science & Technology, METI

Wednesday, Nov. 14

8:30 – 10:00 **ISSCU Project Team Session IV**

ISS Use for Space Solar Power Experiments
John Mankins
Managed Energy Technologies

R&D Status on Next-generation Spacesuits in Japan
Osamu Odawara
Tokyo Institute of Technology

10:00 – 10:15 **Refreshment Break** *Naupaka Lanai*

10:15 – 11:45 **ISSCU Project Team Session V**

Review of Session ~ All Participants

- Summary of ISSCU Future

*- Identification of Japan
US commercial cooperation possibilities for ISS*

- Preparation of Summary Report

Project Team Meeting
Space Energy Systems (SES)
Naupaka II

Tuesday, Nov. 13

8:30 – 10:00

SES Project Team Session I
Welcome and Opening Remarks

Dr. John Mankins
Managed Energy Technologies, LLC

Dr. Nobu Kaya
Kobe University

Overviews of Recent International Activities on
Space-Based Solar Power

Dr. John Mankins
Managed Energy Technologies, LLC

Dr. Nobu Kaya
Kobe University

Invited Guests
U.S. National Security Space Office
International Academy of Astronautics

10:00 – 10:15

Refreshment Break

Naupaka Lanai

10:15 – 12:00

SES Project Team Session II

U.S. Space Energy Presentations

Dr. Neville Marzwell
NASA Jet Propulsion Laboratory

Dr. Frank Little
Texas A&M University

Dr. Henry Brandhorst
Auburn University

Dr. John Mankins
Managed Energy Technologies, LLC

Project Team Meeting
Space Energy Systems (SES)
Naupaka II

Tuesday, Nov. 13 Continued

12:00 – 13:30 **Luncheon** *Ali'i Ballroom I*

13:30 – 15:00 **SES Project Team Session III**
Japan Space Energy Presentations

Dr. Nobu Kaya
Kobe University

Dr. Masahiro Mori
Japan Aerospace Exploration Agency (JAXA)

Dr. Kazumori Hama
USEF

Invited Guests
Mitsubishi Heavy Industries

15:00 – 15:30 **Refreshment Break** *Naupaka Lanai*

15:30 – 18:00 **SES Project Team Session IV**
Mini-Workshop – Part 1
Public-Private Partnerships in Space Energy R&D

Session Leaders:
Dr. John Mankins
Managed Energy Technologies, LLC

Dr. Nobu Kaya
Kobe University

Wednesday, Nov. 14

8:30 – 10:00 **SES Project Team Session V**
Mini-Workshop – Part 2
Public-Private Partnerships in Space Energy R&D

10:00 – 10:15 **Refreshment Break** *Naupaka Lanai*

10:15 – 11:45 **SES Project Team Session VI**
Closing Discussion & Report Preparation
All Participants

Project Team Meeting

Advanced Satellites for Communications & Earth Observation (ASCEO)
Naupaka III

Tuesday, Nov. 13

8:30 – 10:00

ASCEO Project Team Session I

Theme: Cooperation on Broadband by Satellite

Current Status of WINDS

Mr. Takashi Takahashi
NICT

Large-scale U.S. Broadband Satellite Networks

Dr. James Beitchman
JGB Consult

Proposed Experiments Using WINDS

Dr. Norman Okamura
PEACESAT – University of Hawaii

10:00 – 10:15

Refreshment Break

10:15 – 12:00

ASCEO Project Team Session II

Theme: Cooperation on Broadband by Satellite and Possible Collaboration in the QZSS Project

Current Status of QZSS (Quasi-Zenith Satellite Project) and TWSTFT (Two-way Satellite Time and Frequency Transfer) between U.S. and Japan

Mr. Yoshiaki Suzuki
(on behalf of Mr. Yasuhiro Takahashi)
NICT

12:00 – 13:30

Lunch (Ali'i I and II)

13:30 – 15:00

ASCEO Project Team Session III

Theme: Using the WINDS Satellite as a Testbed for Lunar/Mars Communications – PISCES

Communications Systems for Future Mars Communities

Dr. Takashi Iida
NICT

Mr. Yoshiaki Suzuki
NEC

Project Team Meeting

Advanced Satellites for Communications & Earth Observation (ASCEO)
Naupaka III

Wednesday, Nov. 14

8:30 – 10:00

ASCEO Project Team Session IV

Discussion: Using Satellites to Monitor Climate Change

All Participants

10:00 – 10:15

Refreshment Break

10:15 – 11:45

ASCEO Project Team Session V

Discussion: Project Reports

All Participants

Project Team Meeting

Robotic Precursor Missions to the Moon (RPMTM)

Naupaka IV

Tuesday, Nov. 13

8:30 – 10:00

RPMTM Project Team Session I

Theme: Robotic Mission Architectures & Capabilities

Discussion Facilitators:

*Mr. Anthony LaVoie, LPRP Project Manager - NASA MSFC
Mr. Takeshi Hoshino, SELENE-2 Pre-Project - JSPEC, JAXA*

Each facilitator will give a presentation (no more than 15 minutes) that discusses their current thinking on the robotic lander program. What are the capabilities of the platform, will it be a lander or a rover? What are the payload capabilities for each (Mass & Power)? What part of the lunar surface can the lander reach (poles possible? shadowed craters?) The goal of the presentation is to present a starting point for discussions that will allow us see what technologies could fit into the planned architectures and provide feedback to mission planners on how they might modify their architectures to accommodate more precursor needs.

10:00 – 10:15

Refreshment Break

Naupaka Lanai

10:15 – 12:00

RPMTM Project Team Session II

Theme: Engineering Precursor Mission Needs

Discussion Facilitators:

*Mr. Frank Peri, ETDP Manager - NASA Langley Research Center
Mr. Shigeru Aoki, Shimizu Corporation
Mr. Larry Clark, ISRU Manager - Lockheed Martin Corporation*

A 10-minute presentation from each facilitator that should discuss technologies under development that would benefit from a robotic precursor mission prior to use within a human program. The presentations could also consider technologies that might be key for future robotic missions that need a preliminary test before they are inserted into the critical path of a robotic mission. The goal of each presentation is to present a starting point for discussions that will allow the discussion group to develop a list of high, medium and low technologies that would benefit from precursor missions.

12:00 – 13:30

Luncheon

Ali'i Ballroom I

Project Team Meeting

Robotic Precursor Missions to the Moon (RPMTM)

Naupaka IV

Tuesday, Nov. 13

13:30 – 15:00

RPMTM Project Team Session III ***Theme: Science Precursor Mission Needs***

Discussion Facilitators:

Dr. Mike Duke, Former Director - Center for Space Resources/CSM
Dr. Manabu Kato, Science Group - JSPEC, JAXA

A 15-minute presentation from each facilitator that should address science objectives that would benefit from a robotic precursor mission. The goal of the presentation is to present a starting point for discussions that will allow us to develop a list of high, medium and low science objectives to pursue on the surface prior to humans returning to the moon.

Wednesday, Nov. 14

8:30 – 10:00

RPMTM Project Team Session IV ***Theme: Rover-based vs. Lander-based Missions***

Discussion Facilitators:

Dr. Terry Fong, Director - Intelligent Robotics Group, NASA Ames
Dr. Takashi Kubota, Rover Group - JSPEC, JAXA

A 15-minute presentations from each facilitator that addresses how the use of mobility systems can benefit engineering and science precursor missions, and discusses the optimal mix of stationary lander vs. rover-based missions. The presentation should consider technologies discussed in Tuesday's sessions and explore which require a mobile mission to complete and which can be accomplished from a stationary lander.

10:00 – 10:15

Refreshment Break

Naupaka Lanai

10:15 – 11:45

RPMTM Project Team Session V ***Discussion: Collaboration Possibilities***

Discussion Facilitators:

Mr. William Larson, Chief - Applied Sciences Div., NASA KSC
Mr. Tetsuji Yoshida, Shimizu Corporation

Based on the presentations and discussions during the project team meetings, what have we identified that seems best suited to a collaborative effort between Japan and the U.S.? Once we have established what the project team agrees to work on, what are the next steps? (Recommendations Report to NASA/JAXA?, Mission Trade Studies? etc.)

Mahalo nui loa to our Sponsors and Affiliates for their sustained support for JUSTSAP over the years!

Alliance for Commercial Enterprises in Space	NASA Johnson Space Center
ARTEMIS Innovation Management Solutions, LLC	NASA Kennedy Space Center
ATK	NASA Marshall Space Flight Center
Auburn University	National Institute of Advanced Industrial Science and Technology
The Boeing Company	National Institute of Information and Communications Technology
The Canadian Space Agency	NEC TOSHIBA Space Systems, Ltd.
Center for Space Nuclear Research	NORCAT
Center for Space Power – Texas A&M University	NT Space
The Colorado School of Mines	Off Earth – WPT
Consulate General of Japan - Hawaii	Omnisat, LLC
Dept. Of Business, Econ. Dev. & Tourism/ State of Hawaii	Optimum Process Technologies
Electric Vehicle Controllers Ltd.	PEACESAT
Enterprise Honolulu	Raytheon Company
The Futures Channel	Rensselaer Polytechnic Institute
The George Washington University	Rocketplane Global Inc.
Geohazards Consultants International	Rutgers University
Hawaii Island Economic Development Board	Science Applications International Corp. (SAIC)
Hawaii Space Grant College	Shimizu Corporation
Institute for Unmanned Space Experiment Free Flyer (USEF)	The Space Foundation
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JAMSS America, Inc.	Texas Center for Advanced Materials
Japan Aerospace Exploration Agency (JAXA)	Tokyo Institute of Technology
Japan Manned Space Systems Corporation	UH Hilo Conference Center
Japanese Space Forum	United Space Alliance
JUSTSAP Japan Association	The United States Navy
Kobe University	University of Hawaii
Lockheed Martin Space Systems	University of Houston
Lunar Transportation Systems, Inc.	Institute for Unmanned Space Experiment Free Flyer (USEF)
Nagaoka University of Technology	Wood Associates
NASA Ames Research	
NASA Jet Propulsion Laboratory	



Program Layout & Design by:
University of Hawai'i at Hilo
Conference Center

200 West Kawili Street
Hilo, Hawai'i 96720-4091

Phone: 808 - 974 - 7555
FAX: 808 - 974 - 7684

Website: <http://uhhconferencecenter.com/>