

Implementing Responsive Space — Year 1

With the creation of the ORS Office at Kirtland AFB and a Responsive Space budget showing up for the first time, the RS environment has changed substantially from prior years. The goal for all of us shifts to how we go about demonstrating near-term progress and utility and how we convince both ourselves and Congress that we really can do business differently and create responsive, near-term missions at low cost.

There is a very short window to show what can be done. Come join us for the best and most informative discussion of the year. Find out what is being done, what isn't being done, what can be done, and what most likely won't be done to prove that ORS can truly benefit both the warfighter and the broader space community.

*Come Join the Continuing Conversation —
It Will Be Fascinating and Spirited*

Receptions

A reception will be held Monday evening from 5:00 pm to 7:00 pm in the conference hotel. Come and meet the other participants and bring your spouse. A reception will also be held on Tuesday, from 5:20 pm to 8:00 pm. After the reception, if you want to have dinner with old or new colleagues, there are plenty of restaurants nearby. There is an additional reception before the conference banquet on Wednesday.

YOUNG PROFESSIONALS DINNER Energizing Responsive Space: Enabling Change

Join us for an evening with aerospace professionals as we attempt to invigorate the industry and discard predetermined notions about what can and cannot be accomplished. Experienced professionals will be matched with younger counterparts based upon specific interests to participate in a friendly "responsive" competition, enjoy a delectable dinner, and become energized by our special guest speaker.

The Young Professional's Dinner will follow RS6 on Thursday, May 1, 2008. For information and registration, please email Jonathan Hofeller at Jonathan.Hofeller@gmail.com.

Young Professional Sponsors

AIAA	Raytheon
Analytical Graphics, Inc.	SpaceX

RS6 Corporate Sponsors

AeroAstro	Lockheed Martin
AGI	Microcosm, Inc.
Americom Government Services	Microcosm Bookstore
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Colbaugh & Heinsheimer	Raytheon
CSP Associates, Inc.	Scorpius Space Launch Co.
Cutting Edge Communications, LLC	Space Dynamics Laboratory
Delta Velocity Co.	SpaceX

"Responsive Proceedings"

Tired of waiting a year for the proceedings? A CD-ROM with all of the papers will be given out on the last day of the conference. This was a big hit at past Responsive Space conferences.

Information & Registration

You can register on-line via the website or download a registration form to FAX or mail. Want to talk to a real human being about the conference? Call **Julie Jackson** at:

310-219-2700 or FAX 310-219-2710.

Or send us an E-mail at: responsivespace@smad.com

For more information, visit the conference website at:

<http://www.responsivespace.com>

Partial List of Speakers

Cristina Chaplain

Managing Director, Acquisition and Sourcing Management, GAO

RDML Sandra Daniels

Reserve Assistant Communications Network (OPNAV N6R)

MG Thomas Deppe

AFSPC/CV

LtG Michael Hamel

Commander, Air Force Space and Missile Systems Center

Josh Hartman

Special Assistant to the Under Secretary of Defense for Acquisition, Technology & Logistics

BG Jeffrey Horne

Deputy JFCC Space and Deputy Director Mission Support NRO

BG John Hyten

Director of Requirements, Air Force Space Command

LtC James Pruneski

Deputy Director, Operationally Responsive Space Office

Dr. Clifton Phillips

Assistant PEO SPAWAR

Dr. Rodney Robertson

Director Technical Center, US Army Space & Missile Defense Command

Joe Rouge

Director, National Security Space Office

Michael G. Vickers

*Assistant Secretary of Defense Special Operations/
Low Intensity Conflict and Vice Independent Capabilities*

Dr. Peter Wegner

Director, Operationally Responsive Space Office

Points of Contact

General Chair:

Dr. James R. Wertz

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(310) 219-2700

Sponsorship POC:

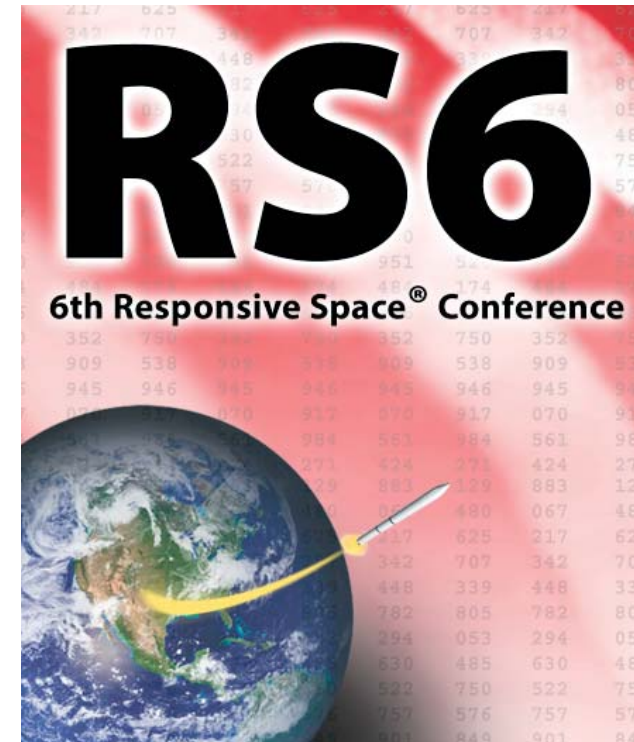
Dr. Robert Conger

rconger@microcosminc.com

(310) 219-2700

PROGRAM

**April 28-May 1, 2008
LAX Westin Hotel**



*Come Join the
Continuing Conversation*

*Sponsored by the
AIAA LA and Orange County Sections, and the
Space Systems and Space Transportation
Technical Committees*

www.responsivespace.com

Rev. 4/25/08

MONDAY, APRIL 28, 2008

12:00 pm–5:00 pm **SSTC MEETING**
 4:00 pm–7:00 pm **REGISTRATION OPENS**
 4:00 pm–7:00 pm **EXHIBITS OPEN**
 5:00 pm–7:00 pm **RECEPTION**

TUESDAY, APRIL 29, 2008

7:00 am–5:00 pm **REGISTRATION**
 7:00 am–8:00 am **CONTINENTAL BREAKFAST**,
 Sponsored by *Colbaugh & Heinsheimer*

7:45 am–6:00 pm **EXHIBITS OPEN**
 8:00 am–8:45 am **WELCOME AND INTRODUCTIONS**
 8:45 am–9:20 am **KEYNOTE ADDRESS**
 Speaker: **Michael G. Vickers**, *Assistant Secretary of Defense Special Operations/Low Intensity Conflict and Independent Capabilities*

9:30 am–10:00 am BREAK, Sponsored by *CSP Associates, Inc.*
 9:50 am–10:25 am Speaker: **Joe Rouge**, *Director, National Security Space Office*

10:25 am–11:00 am Speaker: **RAdm Sandra Daniels**, *Reserve Assistant Communications Network (OPNAV N6R)*

11:00 am–11:35 am Speaker: **Cristina T. Chaplain**, *Managing Director, Acquisition and Sourcing Management, GAO*

11:35 am–1:10 pm LUNCH, Sponsored by *MicroSat Systems, Inc.*
 Speaker: **LtG Michael Hamel**, *Commander, Air Force Space and Missile Systems Center*

1:10 pm–2:55 pm **SESSION I – PROGRAMMATICS AND ECONOMICS**
 Chairs: **C. Russell (Russ) Joyner**, *Pratt & Whitney Rocketdyne*, and **James Wertz**, *Microcosm, Inc.*

1:15 pm 1001: Numerical Optimization Study of LEO to LEO Aeroassisted Orbital Transfer for Small Satellites — **Anil Rao**, *University of Florida*

1:35 pm 1006: Air Force Satellite Control Network (AFSCN) Support for Operational Responsive Space (ORS) — **Len Hodges**, *Schriever AFB*

1:55 pm 1003: ORS Mission Utility and Measures of Effectiveness — **James Wertz**, *Microcosm, Inc.*

2:15 pm 1004: Distinguishing Attributes for the Operationally Responsive Space Paradigm (STUDENT AWARD) — **Lauren Viscito**, *MIT*

2:35 pm 1005: TREADS – Launching ORS Opportunities — **Steven Wichman**, *Redefine Technologies, Inc.*

2:55 pm–3:25 pm BREAK, Sponsored by *Cutting Edge Communications, LLC*

3:25 pm–5:30 pm **SESSION II – ORBIT DESIGN AND MISSION SYSTEMS**
 Chair: **Richard Van Allen**, *Microcosm, Inc.*

3:30 pm 2001: Semi-Analytical Approach to Target Access in the Responsive Space Problem — **Prasenjit Sengupta**, *Texas A&M University*

3:50 pm 2002: Responsive Coverage Using Propellantless Satellites (STUDENT AWARD) — **George E. Pollock**, *Purdue University*

4:10 pm 2003: Angels and Demons—Cooperative and Non-Cooperative Formation Flying with Small Satellites — **Stuart Eves**, *Surrey Satellite Technology Limited*

4:30 pm 2004: Rapid Deployment of Proof-of-Concept Missions — **Franz Thomas Newland**, *Mission Development Group, COM DEV Ltd.*

4:50 pm 2005: Rapid Assembly of Spacecraft Structures for Operationally Responsive Space — **Irene Yachbes**, *Honeybee Robotics Spacecraft Mechanisms Corp.*

5:10 pm 2006: Cube-Sat Based Disaster Detection and Monitoring Systems — **Justin M. Akagi**, *University of Hawaii*

5:30 pm–8:00 pm **RECEPTION**, Sponsored by *Boeing*
 7:00 pm–8:30 pm **THE SPACE SHOW — Live Radio Broadcast**

WEDNESDAY, APRIL 30, 2008

7:00 am–5:00 pm **REGISTRATION**
 7:00 am–8:00 am **CONTINENTAL BREAKFAST**,
 Sponsored by *Americom Government Services*

7:45 am–6:00 pm **EXHIBITS OPEN**
 8:00 am–9:45 am **WARFIGHTER PANEL**
 Moderator: **USSTRATCOM**

9:45 am–10:15 am Speaker: **Josh Hartman**, *Special Assistant to the Under Secretary of Defense for Acquisition, Technology & Logistics*

10:15 am–10:45 am BREAK, Sponsored by *Delta Velocity Co.*

10:45 am–11:30 am **SESSION IIIA – PAYLOADS AND SENSORS**
 Chair: **Jeffery Puschell**, *Raytheon Space Systems*

10:50 am 3001: Technology Development for Lightweight L-Band SAR — **Mark Webster**, *Ball Aerospace*

11:10 am 3002: OASIS: Adaptation of an Operational Airborne Sensor for Responsive Space — **Charles Cox**, *Goodrich Corp.*

11:30 am–12:00 pm Speaker: **BG John Hyten**, *Director of Requirements, Air Force Space Command*

12:00 pm–1:35 pm LUNCH, Sponsored by *Lockheed Martin*
 Speaker: **MG Thomas Depepe**, *AFSPC/CV*

1:35 pm–3:20 pm **SESSION IIIB – PAYLOADS AND SENSORS**

1:40 pm 3005: WiSAR: A New Solution for High-Performance, Smallsat-Based Synthetic Aperture Radar Missions — **Alan Thompson**, *MDA Federal, Inc.*

2:00 pm 3006: Vehicle Based Independent Tracking System (VBITS): A Small, Modular, Avionics Suite for Responsive Launch Vehicle and Satellite Applications — **Edmund Burke**, *Space Information Labs, Inc.*

2:20 pm 3007: A PCI-Based, Multiple-Payload Processing System for the DSX Flight Experiment — **Larry Davis**, *Planning Systems, Inc.*

2:40 pm 4007: Very High Resolution Imaging Using Small Satellites — **Andrew Cawthorne**, *Surrey Satellite Technology Limited*

3:00 pm 6004: Programmable Satellite Transceiver (PST) for Responsive Space — **Bill Asiano**, *Real Time Logic, Inc.*

3:20 pm–3:50 pm BREAK, Sponsored by *Analytical Graphics, Inc.*

3:50 pm–5:35 pm **SESSION IV – SPACE AND SATELLITE SYSTEM DESIGN**
 Chair: **Stanley Kennedy**, *AeroAstro, Inc.*

3:55 pm 4006: Standardization Promotes Flexibility: A Review of CubeSats Success — **Alexander Chin**, *Cal Poly Aerospace Engineering*

4:15 pm 4003: Responsive Spacecraft Bus Implementation for HEO Missions Designed to Bridge Prototype and Operational Systems— **Patrick Stadter**, *JHUAPL*

4:35 pm 4004: Design and Use of a Variable Thermal Layer (VTL) for Rapid Satellite Component Integration — **Will Hafer**, *Infoscitex Corporation*

4:55 pm 4005: Spacecraft Functional Sensitivity: Analysis of the Effects of Subsystem-by-Subsystem Mass and Power Reduction — **Tim Havard**, *Advatech Pacific, Inc.*

5:15 pm–6:30 pm **RECEPTION**, Sponsored by *ATK*

6:30 pm–8:30 pm **CONFERENCE BANQUET**, Sponsored by *SpaceX*
 Speaker: **BG Jeffrey Horne**, *Deputy JFCC Space and Deputy Director Mission Support NRO*

THURSDAY, MAY 1, 2008

7:00 am–8:00 am **CONTINENTAL BREAKFAST**, Sponsored by *Ball Aerospace*

7:45 am–4:00 pm **EXHIBITS OPEN**
 8:00 am–8:30 am Speaker: **Dr. Peter Wegner**, *Director ORS Office*
LtC James Pruneski, *Deputy Director ORS Office /*

8:30 am–10:15 am **ORS WAY AHEAD PANEL**
 10:15 am–10:45 am BREAK, Sponsored by *AeroAstro, Inc.*
 10:45 am–11:15 am Speaker: **Dr. Clifton Phillips**, *SPAWAR*

11:15 am–12:00 pm **SESSION VIA – TECHNOLOGIES AND TECHNIQUES**
 Chair: **Todd Mosher**, *MicroSat Systems, Inc.*

11:20 am 6001: Spacecraft Payload Modularization for Operationally Responsive Space — **Catherine Erkorkmaz**, *MDA Space Missions*

11:40 am 6002: Satellite Component Load Reduction Using SoftRide — **Raman Johal**, *CSA Engineering*

12:00 pm–1:35 pm LUNCH, Sponsored by *Raytheon*
 Speaker: **Dr. Rodney Robertson**, *Director Technical Center, US Army Space & Missile Defense Command*

1:35 pm–2:20 pm **SESSION VIB – TECHNOLOGIES AND TECHNIQUES**

1:40 pm 6003: TopSat-Assessing the Military Utility of a Tactical ISTAR Demonstrator — **H.S. Jolly**, *Defence Science & Technology Laboratory*

2:00 pm 5006: Payload Design Criteria for the DoD Space Test Program (STP) Standard Interface Vehicle — **Michael Marlow**, *DoD Space Development and Test Wing*

2:20 pm–2:50 pm BREAK

2:50 pm–4:15 pm **SESSION V – LAUNCH SYSTEM APPLICATIONS**
 Chair: **Robert Conger**, *Microcosm, Inc.*

2:55 pm 5001: Responsiveness of the Falcon I Launch Vehicle, Associated Challenges, and Projected Improvements — **Jonathan Hofeller**, *SpaceX*

3:15 pm 5002: Virtual Mission Operations Center Integration: The Next Step in Development and Experimentation — **Omar Medina**, *US Naval Research Lab*

3:35 pm 5003: Investigation of Combined Air-Breathing/Rocket Propulsion for Air Launch of Micro-Satellites from a Combat Aircraft — **Avichai Socher**, *Israel Institute of Technology*

3:55 pm 5004: An Affordable Micro Satellite Launch Concept in Japan — **Seiji Matsuda**, *IHI Aerospace Co., Ltd.*

4:15 pm–4:45 pm **WRAP-UP & ORS DISCUSSION**

YOUNG PROFESSIONALS DINNER

4:55 pm–5:30 pm **NO-HOST BAR AND NETWORKING SESSION**

5:30 pm–6:30 pm **ROCKET COMPETITION / NETWORKING**

6:30 pm–7:30 pm **YOUNG PROFESSIONAL DINNER**

7:30 pm–8:00 pm **KEYNOTE ADDRESS** by **Dr. Pete Worden**, *Director NASA Ames Research Center*

INTERNET, Sponsored by *Northrop Grumman Corp.*
 PARKING, Sponsored by *Lockheed Martin*

SPACE NEWS AVIATION WEEK