3rd Responsive Space Conference
Los Angeles, CA • April 25–28, 2005

RS3

Come Join Us for the continuing conversation on Responsive Space !

The demand for truly responsive space assets is growing rapidly and becoming officially recognized with documents such as the newly released "U.S. Space Transportation Policy" and the Air Force "Operationally Responsive Spacelift Mission Needs Statement."

This is the opportunity to find out what your organization can do to participate in making space meet critical national needs in a changing world. This conference will address the vision and needs of DoD, NASA, and the commercial community.

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

The local host is Microcosm, Inc.

www.ResponsiveSpace.com

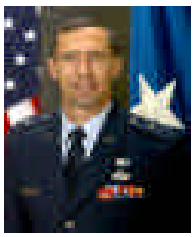
Speakers

Lieutenant General Brian Arnold
Director, Space and Missile Center

Major General Craig Cooning
Director, Air Force Space Acquistion

Major General (ret) Robert S. Dickman
Former Deputy UnderSecretary AF—Military Space
New Executive Director of AIAA

Major General Michael Hamel
14th Air Force



Brig. General Larry James
USAF Vice Commander,
Space and Missile Center

Statement of Purpose

The first Responsive Space conference in April, 2003, set the stage for responsive space, asked where we are today, and how we can get to a vision that the community embraces and America needs — **data from space returned within hours of an identified need**. While there wasn't unanimity of opinion, there was a general consensus on several issues:

- The need for responsiveness has been brought home by unfolding events — 9/11 and the war on terrorism, the war in Iraq, and the Columbia disaster.
- We're not there yet, and, in some respects, have gone backward since the days of Apollo and the opening of the space program.
- We must make progress if we are to respond to the challenges of today and prevent a recurrence of past events.
- We must have not just responsive launch systems (although these are critical), but responsiveness in all components of the space mission.

RS1 and RS2 looked at all aspects of responsive space, but certainly the attention was focused largely on launch systems. We began with the premise that given responsive launch-on-demand, all else would follow. In RS3, we want to look at what that really means and ask, **How do we create truly Responsive Missions**? What does it take to return data within hours and how will responsive missions differ from current missions?

To make technical progress, we must be able to fly experiments quickly and at low cost — and they must be sufficiently economical to be built to inventory, ready for launch when needed. We need to be able to launch student experiments while the experimenters are still students and before cadet experimenters have retired from active duty!

Conference Activities

Receptions

A reception will be held Monday evening from 5:00pm to 7:00pm in the conference hotel. Come and meet the other participants and bring your spouse. A reception will also be held on Tuesday, from 5:10pm to 7:10pm. After the reception, if you want to have dinner with old or new colleagues, there are plenty of restaurants within a short drive from the hotel.

Breakfast Networking

Getting around LA is challenging during morning rush hour. Come early for a continental breakfast and networking session from 7:00am to 8:00am on Tuesday, Wednesday, and Thursday.

Conference Banquet

There will be a speaker at the banquet on Wednesday from 7:00pm to 9:00pm. The cost is included in the registration. Your spouse or guest is welcome at an additional charge of $60.00.

Local Tours

Tours are available of several of the local aerospace firms. Visit Microcosm and see the AIAA LA Section Wright Flyer project — a flying replica of the Wright Brothers original 1903 airplane, now almost complete. It's fascinating to see the plane being built. Come see it — and bring your friends that are interested in the history of aviation or the future of rocketry

Bring Your Family

The Westin Hotel LAX is an excellent location for the entire family. Boat tours are available of the local area and to Catalina Island. Of course, Disneyland, Knott's Berry Farm, Universal Studio and other Southern California adventures are nearby, as are the Getty and other world-class museums. And within a day's drive are San Diego, Sea World, Tijuana, Palm Springs, Sequoia and King's Canyon National Parks, Death Valley, Santa Barbara, Vandenberg AFB and the Western Test Range, and Route 1 from Morro Bay to Monterey—probably the most scenic coast highway in North America.

Call or E-mail us (see the "Information and Registration" section) and tell us what sorts of things interest you or your family and we'll make suggestions, let you know whether you need reservations, and the best way to get there. We'll do what we can to make the trip enjoyable for you and your family. Come join us. It's a beautiful time of year in LA. By the way, we'll have morning meetings to give families suggestions and the chance to meet and do things together if they like.

"Responsive Proceedings"

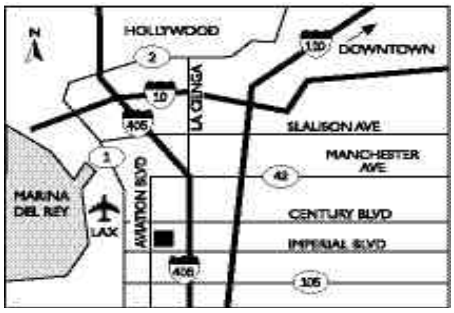
Tired of waiting nine months or a year for the proceedings volume? A CD-ROM with all of the papers presented will be given to all participants on the last day of the conference. This was a big hit at the previous conferences.

NASA Town Hall Meeting

The NASA Town Hall Meeting with high level representatives of JPL, Goddard Space Flight Center, and NASA HQ will immediately follow the conference on Thursday evening at the same hotel sponsored by AIAA and National Space Club.

Location and Weather

The Responsive Space Conference will be held at the beautiful Westin Hotel LAX in Los Angeles, California. Located near LAX, it is an easy commute to Century City, Marina del Rey, the freeways to downtown Los Angeles, and most recreational attractions such as Disneyland. It's also in the heart of the Southern California space industry, close to SMC, JPL, Aerospace Corp., and many of the nation's leading prime contractors and innovative small businesses.



We recommend booking your rooms well in advance. The conference rate of $100.00 single or double is available by calling the hotel at 1-888-625-5144 or (310) 216-5858 and mention that you are attending the Responsive Space Conference. Please make your reservations by April 4, 2005 to assure this special rate. By the way, the weather will be great with daytime highs in the 70's and overnight lows in the high 50's. Bring a sweater, as meeting rooms tend to be cool.

Co-sponsors of Responsive Space

The Responsive Space conference is sponsored by the LA and Orange County Sections and the Space Systems and Space Transportation Technical Committees of the AIAA. Microcosm is the local host. The industrial co-sponsors are:

Raytheon

AIAA

Space Dynamics Laboratory
Utah State University Research Foundation

BOEING

LOCKHEED MARTIN

Michigan Aerospace

EMS Technologies

MICROCOSM Inc.
Space Mission Engineering

MICROSAT SYSTEMS

NORTHROP GRUMMAN

AIRLAUNCH

GOODRICH

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3RD RESPONSIVE SPACE CONFERENCE SCHEDULE

■ MONDAY, APRIL 25, 2005

3:00 pm – 5:00 pm **REGISTRATION**

4:00 pm – 6:00 pm **EXHIBITS OPEN**

5:00 pm – 7:00 pm **RECEPTION**

■ TUESDAY, APRIL 26, 2005

7:00 am – 5:00 pm **REGISTRATION**

7:00 am – 8:00 am **CONTINENTAL BREAKFAST AND NETWORKING SESSION**

7:45 am – 6:00 pm **EXHIBITS OPEN**

8:00 am – 8:30 am **WELCOME AND INTRODUCTIONS—Dr. James R. Wertz, General Chairman**

8:30 am – 9:30 am **KEYNOTE ADDRESS**

9:30 am – 10:00 am **BREAK**

10:00 am – 12:00 pm **NATIONAL SECURITY SPACE OFFICE PANEL**

12:00 pm – 1:30 am **LUNCH**

1:30 pm – 2:55 pm **RESPONSIVE SPACE MISSIONS: APPROACHES, APPLICATIONS, AND EXAMPLES I**

Chair–Paul Kolodziejski, Schafer, Inc.

How to achieve responsive missions will be discussed from an applications, business and analytic perspectives. Approaches, with an emphasis on reconfigurability, will be addressed.

A)	Responsive Missions: Applications for the Joint Warfighter	Hartley Saunders II, Futron Corp.
B)	Changing the Value Proposition of Operational Space Missions	Mark Scrivier, Space Missions, MDA
C)	On-Demand Science Missions	John J. Webb, Instarsat LLC
D)	Design and Analysis Approach for a Rapid Response Hyperspectral Imaging Mission	Thomas G. Chrien, Raytheon
Alt)	Responsive Space Operations Architecture Development Status Report	Patrick Frakes, NSSO

2:55 pm – 3:25 pm **BREAK**

3:25 pm – 5:10 pm **RESPONSIVE SPACE MISSIONS: APPROACHES, APPLICATIONS, AND EXAMPLES II**

Chair—Dr. Richard Van Allen, Microcosm, Inc.

A)	Coverage, Responsiveness, and Accessibility for Various "Responsive Orbits"	James Wertz, Microcosm, Inc.
B)	A Configurable Rideshare Carrier for the Falcon I Launch Vehicle	Gerry Murphy, Space Access Technology (SAT)
C)	Reconfigurable and Adaptable Spacecraft: Requirements, Challenges, and Approaches to Enable Responsive Space Mission Applications	James P. Huang, Boeing
D)	Small-Satellite Surveillance Missions Providing Unique Military Capabilities	Stuart Eves, Surrey Satellite
E)	Responsive, Multi-functional Morphing Space Systems – A New System Paradigm	Terry A. Weisshaar, DARPA/DSO
Alt)	Commercial Suborbital Spaceflight and Its Relevance to Responsive Space	Jeff Foust, Futron Corp.

5:10 pm – 7:10 pm **RECEPTION AND NETWORKING**

■ WEDNESDAY, APRIL 27, 2005

7:00 am – 5:00 pm **REGISTRATION**

7:00 am – 8:00 am **CONTINENTAL BREAKFAST AND NETWORKING SESSION**

7:45 am – 6:00 pm **EXHIBITS OPEN**

8:00 am – 10:05 am **RESPONSIVE SPACECRAFT**

Chair—Colonel Norm Anderson, AFRL/VS

Approaches to making satellites more responsive will be addressed with an emphasis on modularity and testbeds. An example of an extremely rapid and successful program will be highlighted.

A)	"Plug and Play Spacecraft"–A Key Enabling Technology for Responsive Space	David R. Newman, MicroSat Systems
B)	CubeSats as Responsive Satellites	Armen Toorian, California Polytechnic State University
C)	KUTESat-2, A Student Nanosatellite Mission for Testing Rapid-Response Small Satellite Technologies in Low Earth Orbit	Trevor Sorensen, University of Kansas
D)	AeroAstro's SMARTBus™. Low-Cost Modular Approach Supporting Responsive Space Missions	Aaron Rogers, AeroAstro
E)	The Deployable Structures Experiment: Design of a Low-Cost, Responsive R&D Space Mission and Responsive Enabling Technologies	Dan Cohen, Planning Systems
F)	The Little Probe that Could: Four Months from ATP to Launch	Tom Adams, Design_Net Engineering
Alt)	None yet identified	

10:05 am – 10:35 am **BREAK**

10:35 am – 12:20 pm **RESPONSIVE TECHNIQUES FOR INTEGRATION AND OPERATIONS**

Chair—Chris McCormick, BroadReach Engineering

Advances in integration and operations that lead the way to more responsive missions will be discussed.

A)	Key Elements of Rapid Integration and Test	Terrance Yee, MicroSat Systems
B)	A Prototype Capability for an Automated Checkout, Control and Maintenance System (ACCMS) to Enable Responsive Ground Operations	William H. Findiesen, Boeing
C)	Software as a Tall Pole in Achieving Rapid Configuration and Integration	Ken Center, Design_Net Engineering
D)	Multi-Mission Space Operations Center	Jason Parker, Schriever AFB
E)	Standardization to Optimize Integration and Testing	Col. Norm Anderson, AFRL
Alt)	Distributed Spacecraft Integration	Steve Wichman, Colorado Space Grant Consortium
Alt)	Government Secure Lean Manufacturing for Responsive Space, the NNA-KCP	John Hicks, NNSA-Kansas City Plant

12:20 pm – 1:50 pm **LUNCH**

1:50 pm – 3:10 pm **TECHNOLOGY PANEL**

3:10 pm – 3:40 pm **BREAK**

3:40 pm – 5:05 pm **TECHNOLOGY THAT FEEDS RESPONSIVE SPACE MISSIONS**

Chair—Mark Webster, Ball Aerospace

New methodologies and technologies that support more responsive satellite development will be discussed, with an emphasis on plug and play.

A)	Space Plug-and-Play Avionics	Denise Lanza, AFRL/VSSE
B)	Satellite Plug-and-Play Transceiver	K. Dewayne Brown, NNSA-Kansas City Plant
C)	Small Cell Lithium-Ion Batteries: The Responsive Solution for Space Energy Storage	Chris Pearson, AEA Technology
D)	Reconnaissance Payloads for Responsive Space	Charles Cox, Goodrich Corp.
Alt)	Common Satellite and Launch Vehicle Communications Technologies for an Operationally Responsive Space Launch Capability	Joseph H. Rothenberg, Universal Space Network

5:05 pm – 7:00 pm **RECEPTION AND NETWORKING**

7:00 pm – 9:00 pm **CONFERENCE BANQUET**

■ THURSDAY, APRIL 28, 2005

7:00 am – 8:00 am **CONTINENTAL BREAKFAST AND NETWORKING SESSION**

7:45 am – 2:30 pm **EXHIBITS OPEN**

8:00 am – 10:00 am **RESPONSIVE RANGE PANEL**

Moderator—Paul Klock, 30th Space Wing

What are the impediments to responsive launch (from a range perspective) and what can be done?

10:00 am – 10:30 am **BREAK**

10:30 am – 12:15 pm **LAUNCH VEHICLES & OPERATIONS, GRAND BALLROOM**
Chair—Russ Joyner, P&W

A)	Aquarius Low Cost Launch Main Engine Study Early Results	Andrew E. Turner, Space Systems/Loral
B)	Operationally Responsive Space is Here Now Using Minotaur Class Vehicles	Mitch Elson, Aero Thermo Technology
C)	The Evolution of Space Launch Design in the Early 21st Century	Matt Steele, Orbital Warren Frick, Orbital
D)	Space Operations Vehicle (SOV): Design Approach and Operability Drivers for Affordable, Hi-Tempo Space Access	Jon J. Carpenter, Boeing
E)	Operationally Responsive Space: The Vision Launch Architecture Is Dependent On The Requirements	Slater Voorhees, Lockheed Martin

12:15 pm – 1:45 pm **LUNCH**

1:45 pm – 3:00 pm **AF/DARPA FALCON PROGRAM UPDATE**

3:00 pm – 3:30 pm **BREAK**

3:30 pm – 3:45 pm **WRAP-UP SESSION**
(CD-ROM OF ALL PAPERS, INCLUDING ALTERNATES, AVAILABLE TO PARTICIPANTS)

3:45 pm **CLOSE OF RS3**

4:30 pm – 6:30 pm **NASA TOWN MEETING REGISTRATION/NETWORKING**
(RECEPTION FOR NASA TOWN HALL MEETING PARTICIPANTS)

6:30 pm – 9:00 pm **NASA TOWN HALL MEETING – DINNER AND PANEL**

Information and Registration

For more information, visit the conference website at:

http://www.responsivespace.com

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 Regina Jenkins at 310-726-4100 or FAX 310-726-4110. Or send us an E-mail at:

responsivespace@smad.com

Remember,

April 25-28, 2005 – LAX Westin Hotel

Points of Contacts

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Planning the Future of Responsive Space.