



MARSHALL STAR

Serving the Marshall Space Flight Center Community

May 18, 2006

An interview with Steve Cook, director of the Exploration Launch Projects Office

The First Step to Space — Marshall's launch vehicle projects

What is Marshall's role in NASA's Constellation Program?

The Marshall Center is the lead for NASA's Exploration Launch Projects, responsible for developing the launch systems for Constellation. This includes the Crew Launch Vehicle and the Cargo Launch Vehicle and Earth Departure Stage.

Marshall's Science and Mission Systems Office supports development of the Launch Abort System and of the service module for the Crew Exploration Vehicle. We also are involved in studying potential lunar landers.

How is the Exploration Launch Projects Office set up here at Marshall?

NASA's Exploration Launch Projects are managed at Marshall through the Exploration Launch Office. It is small, by design, with six launch vehicle element offices to ensure more efficient communications and decision making. We are truly more of a partnership with our office, Marshall's Engineering Directorate and Science and Missions Systems Office, and support from several NASA centers. We could not do this job without help from these offices and the other centers.

The six element offices include the First Stage, Upper Stage, Upper Stage Engine, Core Stage, Flight and Integrated Test, and Vehicle Integration. The First Stage is managed by Rick Burt and is responsible for developing the five-segment reusable solid rocket stage derived from the space shuttle for the Crew Launch Vehicle and Cargo Launch Vehicle.

The Upper Stage, managed by Danny Davis, is developing the cryogenic second stage of the Crew Launch Vehicle, which will later evolve to serve as the Earth Departure Stage for the Cargo Launch Vehicle. The Upper Stage Engine, managed by Jim Snoddy, is responsible for developing the J-2X — a derivative of the workhorse Apollo cryogenic engine — which will power the Crew Launch Vehicle and Earth Departure Stage.

The Core Stage, under Mike Kynard, is developing the cryogenic core stage and engine of the Cargo Launch Vehicle. Flight and Integrated Test, managed by Jim Taylor, is responsible for coordinating our integrated test and verification activities with the Constellation



Emmett Green/MSFC

Cook, director of the Exploration Launch Projects Office, sees face-to-face communication as critical for success. Enjoyment of this historic opportunity is also important in his view.

Test and Verification Office. And Vehicle Integration, managed by Jim Reuter, is responsible for integrating the entire launch stack. All these element offices are supported by a Project Planning and

See Cook on page 4

Discovery one step closer to launch

Workers at Kennedy Space Center, Fla., accompany the Space Shuttle Discovery as it moves away from NASA's Orbiter Processing Facility toward the Vehicle Assembly Building atop an orbiter transporter.



NASA/KSC

Space Shuttle Discovery rolled out of its processing facility and into the nearby Vehicle Assembly Building on May 12 at Kennedy Space Center, Fla. The orbiter was mated to the external tank and twin solid rocket boosters over the weekend.

Space Shuttle Discovery is set to launch on the STS-121 mission during a July 1-19 launch window. The flight will continue the evaluation of flight safety procedures, including shuttle inspection and repair techniques. It also will deliver more supplies and cargo

for future space station expansion.

Steve Lindsey will command the mission, flying with pilot Mark Kelly, spacewalkers Mike Fossum and Piers Sellers, and mission specialists Stephanie Wilson and Lisa Nowak. European Space Agency astronaut Thomas Reiter is also part of the crew and will remain on the International Space Station for several months.

Reiter's arrival will give the station its first three-person crew since May 4, 2003.

NASA releases accident report summary

NASA released a summary May 15 of the findings about why its Demonstration of Autonomous Rendezvous Technology spacecraft did not complete its mission and collided with the intended

rendezvous satellite April 15, 2005.

Because the official mishap investigation board report contains information protected by U.S. International Traffic in Arms Regulations, it will not be

publicly released. Instead, NASA has prepared a summary of the report, which omits the protected information.

The summary is available at <http://www.nasa.gov/dart>.

Von Braun Forum features past and future space pioneers

By Rita Roberts

Sponsored by the Marshall Center, this year's annual Von Braun Forum on May 11 featured America's first space pioneers from NASA's earliest days, former Apollo astronaut Charles Duke and Marshall Center representatives who are today engineering the future of space exploration.

Ed Buckbee, co-author of "The REAL Space Cowboys," former NASA public affairs officer and the first executive director of the U.S. Space & Rocket Center, moderated the forum.

The event, held at the Education Training Facility at the U.S. Space & Rocket Center, celebrated accomplishments of the space program and the contributions of Dr. Wernher von Braun, Marshall's first center director and chief architect of the Saturn V launch vehicle that carried the first humans to the moon.

The panelists, veterans of the space program, discussed the early years of space exploration, when rockets first launched humans into space and to the moon.

Participants drew parallels from the beginning of the space program when the foundations were laid, to the present-day Vision for Space Exploration, which is building on those foundations to explore the moon, Mars and beyond.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

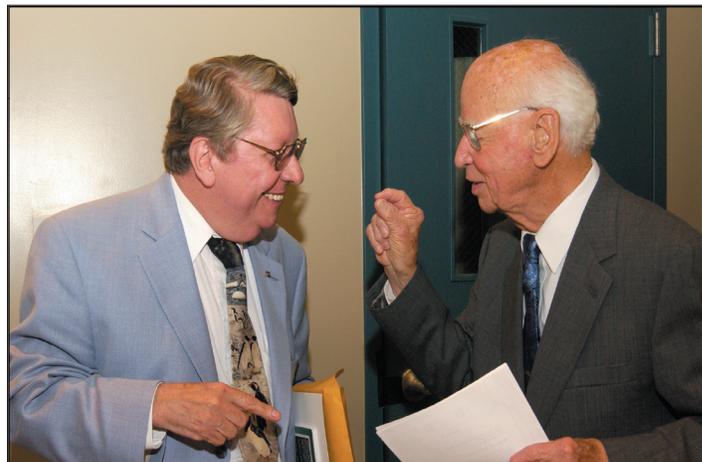


Emmett Given/MSFC

Former Apollo astronaut Charles Duke, left, who discussed what it felt like during lift-off in a Saturn V rocket, listens to original von Braun team member and panelist Dr. Joachim Kuettner discuss his experiences in the early days of the space program.



Dr. Walter Haeussermann, left, original von Braun team member, listens as Robert Lightfoot, manager of the Shuttle Propulsion Office, answers a question from the moderator.



NASA astrobiologist Dr. Richard Hoover, left, and Dr. Ernst Stuhlinger, original von Braun team member, share a laugh as they wait for the forum to begin.



From left, Von Braun Forum participants included Ed Buckbee, NASA alumni and forum moderator; and panelists Dr. Ernst Stuhlinger, an original von Braun team member; Phil Sumrall, manager of Advanced Planning for the Exploration Launch Projects Office; Hans Fichtner, an original von Braun team member; Dr. John Horack, assistant manager of the Science and Mission Systems Office; Charles Duke, former Apollo astronaut; Dr. Joachim Kuettner and Konrad Dannenberg, both original von Braun team members; Mike Rudolph, director of the Engineering Directorate; Dr. Walter Haeussermann, original von Braun team member; and Robert Lightfoot, manager of the Shuttle Propulsion Office.

Cook

Continued from page 1

Control Office, and a small staff that supports project integration and advanced planning. Additional support is provided by personnel matrixed to the Exploration Launch Office from procurement, legal, and the Safety and Mission Assurance Office.

This is a NASA-led effort with industry partnerships, which includes ATK Thiokol for first stage, Pratt & Whitney Rocketdyne for the J-2X, and a future production partner for the upper stage.

How do you integrate your work with NASA Headquarters and other NASA centers?

The Marshall office reports to the Constellation Program Office at NASA's Johnson Space Center, Houston — under the leadership of Jeff Hanley. Hanley reports to the Exploration Systems Mission Directorate at NASA Headquarters in Washington, under the leadership of Scott Horowitz. We have a very productive and close working relationship with both organizations.

Marshall also works closely with our Crew Exploration Vehicle and Mission Operations peers at the Johnson Center, and Ground Operations peers at NASA's Kennedy Space Center, Fla., to execute the integrated program. To support work on the launch systems, we've also partnered with other NASA centers, including Stennis Space Center, Miss., for propulsion testing; Ames Research Center in Moffett Field, Calif., for analytical modeling; and Glenn Research Center in Cleveland for power systems, thrust vector control and in-space propulsion testing.

Can you give a status of where you are now with the project, including testing and reviews?

We began work about seven months ago. In that time, we have fully staffed the office and most of the Engineering Directorate and Safety and Mission Assurance Office to support the project. We've completed one design iteration of the launch vehicle and are well under way with the second cycle; and ATK Thiokol and Pratt &

Whitney Rocketdyne were selected as partners. Marshall also held an Industry Day at the Michoud Assembly Facility in New Orleans to set the stage for our upcoming upper stage production partner acquisition. In terms of testing, we've already completed initial igniter tests at Marshall of the J-2X engine.

We've completed initial weld development at the National Center for Advanced Manufacturing located at Marshall. And we've begun to inspect the J-2X gas generator and turbomachinery systems hardware, which will begin testing early next year. We've also completed initial wind tunnel testing of a scale model of the Crew Launch Vehicle at Marshall, and at NASA's Ames Research Center; and Langley Research Center in Hampton, Va. In addition, we've developed the project office's first integrated budget and schedule and a plan for the first flight test of the Crew Launch Vehicle in spring 2009, and drafted a requirements set and concept of operations.

Our next major milestone is the Systems Requirement Review, which will be held in September of this year. This is where we set the requirements for completing the system design.

It's been a long time since we've done large-scale testing in our test stands, and some of these facilities are undergoing refurbishing. Will Marshall capabilities be used, and can you give us a snapshot of what we can expect to see and hear at Marshall?

Right now, we have 40K (40,000 pounds of thrust) injector testing going on in Marshall's test area in support of the J-2X and RS-68 engines. We'll be doing additional component testing in support of the J-2X in the coming months. Initial weld development work for the J-2X currently being conducted at the National Center for Advanced Manufacturing will transition to the Michoud Assembly Facility. In the future, Marshall will conduct stack dynamic testing at Building 4550. We'll place the entire launch stack in the facility's tower,



Emmett Given/MSFC

Steve Cook, director of the Exploration Launch Projects Office, uses a scale model of the Crew Launch Vehicle, which includes the Crew Exploration Vehicle and Launch Escape Tower, to explain Marshall's role in developing NASA's new crew and cargo launch vehicle systems.

similar to the Saturn and shuttle, and shake the vehicle. We will also be testing the structural elements of the upper stage here at Marshall.

How many people are working on the Crew Launch Vehicle/Cargo Launch Vehicle projects at Marshall and across the agency?

Across the agency, there are currently about 750 civil servants and contractors working the launch vehicles projects. As for Marshall, we're looking at about 600 civil servant and on-site contractor employees.

What can each employee do to help make the Exploration Launch Projects successful?

Communication is the answer to success — constantly communicating with each other face-to-face. We can't over-communicate, and e-mail is not the method

See Cook on page 5

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Worth Copperhead baseball bat, (-13), 31", 18 oz., never used, \$45. 256-828-1234

Hunter brand baseball fan with reversible blades, \$60. 722-9535

Ashley Millennium coffee and two end tables, gold metal frame w/glass top, \$225. 503-5115

1929 Sohmer Baby Grand piano, \$5,000; 1895 Schulz upright piano, \$300. 256-828-8033

Armoire, glass side door, holds up to 27" TV, very heavy, \$300, moving must sell. 852-7526

Sharp microwave, carousel, Model R-440DW, Oct. 2000, white, \$50. 679-8797

Technics SL-D30 direct drive turntable w/Audio Technics cartridge, \$60. 256-355-6525

Weider Club 500 weight bench, 195 lbs. weights plus bar, includes lateral bar, \$200. 256-828-5260

Aquarium w/fish, 30 gallon, stand, light, pumps and all accessories, \$190. 426-4149

Antique oak dresser w/beveled mirror, 2 large and 2 small drawers, \$275. 353-0370

Contemporary family room table set: coffee, end and sofa table \$200; will e-mail pictures. 461-7786

Youth gold clubs, LH set includes 3 woods, 3 irons, putter w/graphite shafts, stand bag, \$50. 880-7305

Antique 1904 teak wood dining room table w/six chairs, matching buffet and hutch, \$800. 256-233-6157

Custom built smoker, 250-gallon tank on 14' trailer, two wooden storage boxes, \$3,500. 520-2327

Kenmore refrigerator/freezer, GE electric stove, under counter microwave, dishwasher, all white, \$1,200. 655-9022

Sealy Posturepedic Emerald LDT, plush queen mattress set & frame, \$500. 216-9282

Telescope, Celestron NexStar 11GPS, integrated GPS, electronic compass, hands-free alignment, programmable, extra filters, accessories, \$2,000. 256-508-0164

Oak entertainment center w/recessed lights, holds up to 36" TV, \$700. 829-0285

Sanyo television, 19", \$30. 865-567-8862

New Ashley Furniture coffee table and two end tables, glass tops, \$200. 722-9989

Fender Blues Jr. guitar amplifier, 1x12, 15 watt w/reverb, \$250. 423-4217

Baldwin Spinet, original owner, new hammers and pedal springs, \$850. 864-2990

Wedding dress, white, size 8, beaded bodice, spaghetti straps with full chiffon skirt, \$200. 830-1445

Brunswick air hockey table, 7', 4 mallets, 9 new pucks, \$150. 256-337-4321

Two Warfedale English made multi-media tower speakers, \$350/pair. 883-1667/evenings

Honda generator 2000IS, \$799; AKC Australian Shepherd, blue merle, 1 yr. old, \$200. 881-7000

AKC German Shepherd puppies, born 2/9/06, German & champion bloodline, parents on premises, \$500. 256-694-5912

Chandelier for dining room, gold, double tier, \$100. 881-2131

Edger, 1.5HP, 3 wheels, \$100. 256-520-2802

Epiphone Casino electric guitar, sunburst finish, w/hardshell case, \$550. 684-0910

Madison Academy boys and girls uniform clothing, large to X-large. 722-5282

Echo edger attachment for split boom trimmer, 2 spare blades, \$50. 776-2263

Bruce nail-down flooring, solid oak, approx. 120 sq. ft., butterscotch, Tavern grade, \$240. 895-9589

Garmin GPS V; \$125; Garmin City select software V7 with full unlock, \$90. 656-7997

Innotek SD2100 rechargeable in-ground pet fencing system and lightning protection system, used little. 325-0085

Color Laser printer, Konica Minolta 2300W, new factory sealed, must sell, make offer. 337-0075

The Beatles "A Hard Day's Night" store display for DVD reissue, 5' tall, \$50. 303-3702/Decatur

Vehicles

1994 Isuzu Rodeo, new engine & warranty, silver, 5 speed, one owner, \$3,500. 694-0388

1990 Yamaha PW80 mini-bike, runs well, can deliver,

\$485. 527-8116

2002 Nissan Pathfinder SE, Bose CD changer, automatic, luggage rack, running boards, 62K miles, \$15,200. 880-9025

1998 Chevrolet Cavalier, 4 door, 4 cylinder, 2.4L, power windows, a/c, automatic, compact disc/radio, \$1,950. 603-3558

2003 Nissan Pathfinder SE, Bose multi-CD, dual power seats, leather, sunroof, 93K miles, \$14,000. 931-937-7830

2004 Nissan Altima 2.5S, white, 49K miles, need payoff. 256-347-4804

1999 Mercedes C280, white w/beige interior, sunroof, all records, \$9,900. 468-3803

1995 Dynasty Elanti 171 ski boat, 135HP Mercruiser w/trailer, \$4,900. 721-3370

Yamaha V-Star 1100, 13.5K miles, windshield, cobra pipes, saddle bags, back rest, \$4,750. 256-694-0173

2001 Toyota Tacoma Xtracab PreRunner, red, 74K miles, warranty, V6/AT, tow package, toolbox, \$15,500. 683-9016

2001 Honda XR100 motorcycle, new rear tires, maintained well, \$1,150. 216-8868

1994 Ford Crown Victoria, white, runs well, \$1,300. 684-5712

1995 CAD Deville, black, \$2,750; 1996 Deville, hunter green, \$3,500; 1994 Cougar, 102K miles, \$2,200. 256-520-2802

1995 Saturn SW2, 227K miles, new tiers, new struts, \$1,800. 256-652-5274

1972 Aristocraft, 19', Mercruiser I/O, hardtop, trailer, all accessories, 750 hrs., dry stored, \$3,500. 256-881-7357

Game/fisher finishing /hunting boat, 12', fiberglass, 9HP Evinrude motor, trailer, \$900. 256-694-1217

1999 Javelin Bass boat, 19' w/1999 Evinrude, 175HP, TM, DF, hydraulic steering, tournament ready, \$11,500. 837-4136

2005 GMC Yukon, blue, leather seats, BOSE speakers, DVD, 3rd row seat, price negotiable. 256-828-2643

1999 Chevy Silverado, 144K miles, reg. cab, PW/PDL/PS, a/c, CD, dual exhaust, slide rear window. 566-1917

1974 Buick Century, 90K miles, one-owner, 2 door, automatic, garage kept, \$2,500. 350-2838

2004 Toyota Tundra, access cab, short bed, liner, toolbox, tow, TRD off-road, white, 30K miles, \$22,900. 337-7745

1997 Mazda 626 LX, 4-cylinder, leather, 6-CD changer, 130K miles, needs transmission work, \$3,000. 658-5678

Wanted

2004 Toyota Sienna. 539-4485

Cook

Continued from page 4

to use. Also, keep interfaces and systems as simple as possible. Finally, have fun — this is a historic opportunity.

What is the biggest challenge to developing NASA's new launch vehicle systems?

The biggest challenge we face is development and overall integration of a new launch system, tested for human flight, from beginning to end — something that has not been done in 30 years.

As director of the Exploration Launch Office at Marshall, what do you consider to be the most important attributes of a good leader?

Integrity is the most important attribute of a good leader, followed by decisiveness, humility and the ability to listen. And ... a good sense of humor.

What are the challenges to managing such a high-profile effort?

It'd have to say communication, keeping systems and interfaces as simple as possible, is the biggest challenge to managing such an effort. Also, keeping a balance between work and family life.

How will America benefit from these launch vehicle systems?

The first step on any exploration endeavor to space is launch — we have to get to space.

Imparting 25,000 feet per second of velocity in eight minutes is hard. We have to develop a safe, reliable, operable and affordable system, and the key is to keep it as simple as possible.

These launch vehicle systems — being developed by the Marshall projects office — are that first step.

One of NASA's creators turns 100

NASA Headquarters news release

When Eilene Galloway was born, the Wright Brothers' historic flight was less than three years old. Now, as she turns 100, she can claim credit for helping to create the agency that landed humans on the moon and is planning to send them back.

Galloway began work with the Congressional Research Service of the Library of Congress in 1941, creating House and Senate documents including a report on "Guided Missiles in Foreign Countries," released just before the Soviets launched Sputnik in October 1957.

In 1958, then-U.S. Senator Lyndon B. Johnson asked her to help with Congressional hearings that led to the creation of NASA and America's entry into the Space Race. "The only thing I knew about outer space at that time," she said,

"was that the cow had jumped over the moon."

Galloway helped write the legislation that created the National Aeronautics and Space Act, which in turn led to the birth of NASA on Oct. 1, 1958. Her work emphasized international cooperation and peaceful exploration.

Later, she served as America's representative in drafting treaties governing the exploration and uses of outer space and launched the field of

space law and international space law. She also served on nine NASA Advisory Committees.

She recently sat down with NASA TV to talk about her experience and turning 100. To watch the video, go to www.nasa.gov.



Eilene Galloway during a NASA TV interview.

Shuttle Buddies to meet May 22

The Shuttle Buddies will meet at 9 a.m., Monday, May 22, at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

Marshall thanks employees, retirees for help in Great Moonbuggy Race

The Academic Affairs Office would like to thank Marshall Center employees and retirees who volunteered to help with the Great Moonbuggy Race held April 7-8. The manager and staff appreciate the dedication, determination and exemplary support provided for a successful event.

MARSHALL STAR

Vol. 46/No. 34

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
<http://www.nasa.gov/centers/marshall>

The Marshall Star is published every Thursday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Classified ads must be submitted by 4:30 p.m. Thursday, and other submissions no later than 5 p.m. Friday to the Marshall Public and Employee Communications Office (CS20), Bldg. 4200, Room 103. Submissions should be written legibly and include the originator's name. Send e-mail submissions to: intercom@msfc.nasa.gov. The Star does not publish commercial advertising of any kind.

Manager of Public and Employee Communications — Dom Amatore
Editor — Jessica Wallace

GPO U.S. Government Printing Office 2006-523-050-20049

PSRRT STD
US POSTAGE PAID
HUNTSVILLE, AL
PERMIT NO. 298