



Volume 29, Issue 3
July 2013

Sponsored by LOCKHEED MARTIN

MARS STAR



MARS Activities This Quarter:

**Annual Picnic at Clement Park on
September 4, 2013**

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Bridge	Dave & Kathy Martz	303-683-9524
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EzyBytes	John Flater	303-794-6250

REMINDER:

If you move, please give the membership VP a change of address. Also, if you are a snowbird, let us know when you are leaving and when you plan to return so your MARS STAR can be sent to you. It costs us 70 cents for each STAR package returned.

(Published quarterly by MARS Associates, Retirees of Lockheed Martin Corporation and United Launch Alliance, Denver, CO)

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IMPORTANT PHONE NUMBERS

LM Employee Service Center	1-866-562-2363
Savings Information Line (ING)	1-800-444-4015
Aetna Plans	1-888-562-8111
CIGNA Point of Service (POS) (Hourly Only)	1-800-244-6224
Kaiser Permanente	303-338-3800
PacifiCare – Hourly only	1-800-877-9777
LMHealthworks Plan	1-877-458-4975
MEDCO Prescription Drugs	1-877-458-4975
Vision Service Plan	1-800-877-7195
Delta Dental of Colorado	1-800-610-0201
Kay Girodo	1-800-610-0201, x609
kgirodo@ddpco.com	
Peliton Benefits	303-850-4798
LTC/Vision/Dental	
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Janet Saxon	x776

MARS Associates

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MARS Website: <http://www.marsretirees.org>

Cover:

L: Launch of Space Shuttle Columbia with Lockheed Martin's External Tank (ET) – see the Historian Corner

R.: Launch of Atlas V GPS IIF-4 from Cape Canaveral AFS – See ULA report



President's Corner

By Allen Sanders
(alsal75@comcast.net)

I hope all of you are having an enjoyable summer. The seasons pass by very quickly, it seems.

The Colorado Rockies are up and down, which is not anything new this season. The MARS day at the Rockies was May 22 and we sold out our 100 requested reserved seats. The seats were in left field as in the past, but were in lower seating sections, well out of the sun even at the start of the game, and we all had a much better view. And, the Rockies beat the Diamondbacks 4 to 1. The Rockies organization gave MARS a voucher for a 4-pack of tickets to a future game. The tickets were drawn at the Rockies picnic area prior to the game from the names of those in attendance and the voucher was won by Helen Wells. For those who missed the opportunity to be part of the annual Rockies event, be sure & sign up early next year when the flyer appears in your MARS STAR packages. Linda Stearns, MARS' current secretary and past VP of Membership, coordinates the tickets and reservations, with lots of help. Thanks much to all who get involved.

We also held our senior luncheon on July 10 at the Wildlife Experience, for MARS members in a senior status.

Our next major activity is the Annual Picnic at Clement Park, on Sep 4. Look for the flyer in this mailing.

As I mentioned in the last issue, Rick Ambrose has taken over duties as Executive Vice President of Lockheed Martin Space Systems Company from Joanne Maguire, effective April 1. Look for his words to MARS members in his column in this issue of the STAR.

The MARS membership hidden number in the April STAR was 58. It was on page 9, a standalone paragraph within the Historian article. It belongs to Al Kubala, but the free one year's membership was not claimed by him. Someone else now has a chance in this STAR. Find your membership number written out in words in this STAR (Your number is on your membership card and on every STAR mailing label). Then call in to any Officer or Director before the next STAR publication in October and the next year's MARS dues are free.

Throughout the year, MARS members volunteer to work Lockheed Martin Space Systems Company and United Launch Alliance activities. On May 14, the Lockheed Martin Health Fair was supported by Duane Del Duca, Bob & Jean Lines, Larry Major and myself. Lockheed Martin held a Historic Memorabilia sale in June. Kind of a garage sale of LM items such as models, insulated containers, coffee mugs, mounted/framed posters, etc, all for the benefit of Operation Santa Claus and Mile High United Way. Helping from MARS were Theodore Bornhoeft, Ralph Dergance, Bob Lines, Larry Major, and myself. Hidden in the background of these MARS volunteers, but an essential and tireless participant, is Hazel Chapman, who coordinates the schedules for the volunteer help. Lockheed Martin has other activities on the horizon, including plans for a car show tentatively scheduled for Sep 11. If you would like to volunteer to help at these activities, contact Hazel at the number on the inside front cover of each STAR.



Next Up!!!

By Duane Del Duca
(ddelduca@comcast.net)

I do believe it is summer; we certainly got enough of it in the middle of June to help get us all in the right frame of mind. I trust everyone's summer plans are in place or about to mature into just what you want.

If you have a hole in your plans and you enjoy hiking, then read on in this issue of the STAR. The new hiking club is ready for your enjoyment. I must apologize for mistyping Sue Janssen's phone number in last month's STAR but her enthusiasm and tenacity got a meeting scheduled, several hikes planned and a group of active participants ready to go. In fact when you read this, you will find that the June hike has already taken place. **Congratulations to Sue and her husband Lee for grabbing a firm hold of this one and running with it.** The Club's plans for the balance of the summer are outlined in her report and in the calendar on the back page of this issue. Also look for the Flyer (enclosed in this mailing) that addresses each hike in more detail. *Oh by the way the correct phone number is 303-936-8339.*

The Planners Club has decided to disband as a formal club and instead will periodically meet informally to swap stories and experiences as many other MARS groups do. For those interested, please contact Dolph Hellman at **(mablehead8hell9dw3@hotmail.com)** and let Dolph know you would like to join them for food and conversation. I am sure you will be more than welcome.

We met with the Colorado Springs Group of Lockheed Martin Retirees at their summer get-together in the Cafeteria at the local Lockheed Martin Facility. Al Sanders, Linda Stearns and I enjoyed a great barbeque lunch and meeting with some old acquaintances. Al left several packets of MARS information, including Applications for Membership, with the Lockheed Martin Director of Personnel. We could have left even more packets had we had them. The next meeting of the Colorado Springs Group of Retirees will be held in the November 2013 time frame and we hope to have more of us attend.

I know I repeat this almost every quarter but we still need all the help we can get in contacting recent retirees from Lockheed Martin or ULA so we can discuss the merits of belonging to the MARS organization. If you know of anyone who is contemplating retirement or who has already retired, contact one of the Officers or have them contact one and we will contact the potential member and let them know who we are and what we do.

Don't forget to look for the hidden number and compare it to your membership number. Who knows, you could win a free membership for the coming year.

Introducing Rick Ambrose



*Executive Vice President,
Space Systems Company*

Thank you for allowing me to introduce myself to the MARS membership. My name is Rick Ambrose, and I became executive vice president of Space Systems Company this April, following Joanne Maguire's retirement. I view my new role as something of a homecoming, as I previously served as vice president and general manager of SSC's Surveillance and Navigation Systems line of business before moving to Information Systems & Global Solutions.

Although our industry faces challenges right now, I look forward to a new era of achievement for our company. We recently celebrated our first 100 years, which were marked by decade after decade of innovation and achievement. The patriotism, dedication, and break-through talent of employees past and present helped secure our nation and expand the boundaries of human knowledge. This spirit of innovation is part of our DNA as a company, and I am confident we will continue to lead our industry in innovation and service to our country.

Thank you for your many contributions to our nation and company. It is an honor to be associated with you and with the legacy you helped to create. I look forward to our continuing partnership.

From the Editor's Desk

Tom Pighetti (tjpihetti@q.com)

Linda Shupe (shupel@comcast.net)

If you come across an error when studying your STARS, please contact us so corrective action can be taken. Send e-mail to Tom and Linda or snail mail to MARS Associates, Attn: Editor, P.O. Box 1128, Littleton, CO 80160-1128. Thanks in advance.



Activities Updates

Bob Lines

robtlines@hotmail.com

ROCKIES 4, DIAMONDBACKS 1!

MARS Associates at the Colorado Rockies 2013 was a perfect day—bright and sunny but not too hot. We started with a buffet in the Platte River Picnic area at 11:30. A choice of hot dogs or brats with sides, unlimited soft drinks, potato chips, and COOKIES!!! We had 100 tickets available for the game with **every one** sold! A very few people couldn't make it at the last minute but most of them found substitutes to go in their place. With our group purchase, we were given a pass for four free tickets for any Premium Game on Monday-Thursday in the 2013 season. Pam Hull was drafted to pick a name from the hat—Helen Wells was the lucky winner!

Our seating was much better this year. We were close to the field on the third base side—the main level in sections 146 and 147—and most of the seats were in the shade of the Club level. The Rockies made a good day even better by beating the Arizona Diamondbacks!

SENIOR LUNCHEON

We're excited to have our 2013 Senior Luncheon at The Wildlife Experience on July 10th. The venue comes highly recommended and the menu looks to be a winner. We'll take pictures and get them

posted on the MARS website as soon after the event as possible.

ANNUAL PICNIC

We are all set for the picnic, which will be held at Clement Park on September 4th. Bennett's BBQ will again cater the event. We have booked the Bluegrass quartet again this year and we are looking forward to the day.

HOLIDAY CELEBRATION

This year's event will be at The Inverness Hotel on December 11th.



Senior Fare

By William Schrott

wmschrott@msn.com

I have talked to several MARS members over the last six months and it is very apparent to me that a lot of us do not know what valuable and informative information is on the MARS Associates webpage. The address for the page is www.marsretirees.org.

When you open the page, this statement identifies the purpose and intent of this site.

"This site presents activities and information that will enhance the social, cultural and educational needs of retirees from Lockheed Martin Corporation (including all business units and predecessor companies) and United Launch Alliance (independent of their original company affiliation). Membership benefits are open to retiree and spouse, individual retiree, or the surviving spouse of a retiree."

When you get to the page and the first screen, you'll see all of the different sources of information. On the left of the page there is a directory of general information. The listing includes Welcome, Officers/Directors, Health Benefits, Email Listings, Membership, MARS STAR, MARS Moments, Events, and Volunteer. Right below that are links to all the

different clubs that you as a member can participate in.

The events page shows the schedule of meetings, social events, and the delivery of the STAR. On that page you will see the next two major events, the Senior Lunch on 7/10/2013 at the Wildlife Experience and the Annual Picnic on 9/4/2013 at Clement Park. The officers/directors page supplies all the information needed to contact MARS officers and directors.

The medical benefits pages supply contact points and information on MARS sponsored programs. This includes Delta Dental, EYEMED, VSP, and long term care. Hot links are provided to LM Health Works and DORA Department of Regulatory Agencies (Division of Insurance).

Following lower on the page, we provide phone number and/or websites for all the medical plans that new and present LM retirees would be interested in.

Further down the main (Welcome) page, you will see a link to "Senior Fare Event and Travel Discount". Here is a list of organizations offering special services and/or discounts. They include Rockies, Hearing Rehab Center, H. M. Brown Associates, Contact PC, KwalPaint, Sherman-Williams, Waste Connection, Jazz Carwash, AT&T, Avis, and Discounts from various golf courses in the metro area.

On the front (Welcome) page of the www.marsretirees.org, there is a section called "Site of the Month". This section provides hot links to very interesting and informative web sites. The June web page is "Visual Tour of the International Space Station". You can also get the list of all the websites since 2005. Please look at the list. I am sure you will love many of the sites and you can add them to you "favorites list".

I encourage all of you to go to our website (www.marsretirees.org). You will find a wealth of information there. If you have problems navigating the page call me at 303-683-9566 or email at wmschrott@msn.com.



Membership

By Barb Espinoza

(barb.j.espinoza@comcast.net)

MEMBERSHIP STATISTICS

As of June 24, 2013 MARS Associates' active membership is 1,500 including 874 seniors. These numbers reflect a decrease in membership of eighty four since April, 2013. Please welcome the following new members:

Colorado

Bailey	Gerald & Dixie Zehner
Conifer	Glenn Gibson & Jane Wallace-Gibson
Lakewood	Vincent & Cheryl Conca Sam Dominick
Littleton	Rodney & Susan Burge Betty Glass Jo Haugland & Bill Klatil John & Gloria Johnson Curtis & Gail Trullinger Rosie & David Wasendorf
Morrison	Susan Madison
Northglenn	Darlyne O'Leary
Parker	Joan Dudley

Other States

Melbourne, FL Alfonso & Bertha Navarrete

Dropped Members

Unfortunately, 91 members have chosen to not renew their membership and have been dropped.

MARS bylaws state that members who have not paid dues as of March 31st are considered delinquent.

Delinquent members will receive a Drop Notice in mid-May and will be unable to participate in any MARS activities or discounts.

If you know a former member who did not renew please let them know that it's not too late...they can be reinstated upon payment of their 2013 dues.

MARS Membership Unit

MARS membership is defined in the policy manual as a family unit consisting of the retiree and spouse (or significant other), although the membership card and mailing data are in the retiree's name. In the event the retiree dies, the spouse becomes the member in his/her own name and may remain a MARS member by continuing to pay the annual dues. Senior membership status (age 75 and above) is based on the retiree's date of birth, even for the surviving spouse member.

Change of Address, email address or phone number?

We are still experiencing a number of STAR packages being returned for incorrect addresses. The United States Post Office does not forward bulk mail and they charge MARS for all returned mail.

When you move please include the MARS membership team in your list of people to contact. Notify me by letter, e-mail or phone of any change to home address, phone number or email as soon as possible.

In Memoriam Data

Please contact me or Roy Kannady with any information regarding the passing of a member or their spouse. We want to make sure their passing is acknowledged in the ***In Memoriam*** section of the STAR.

Thank You for your continuing membership and participation in MARS events.

I look forward to seeing old friends and making new ones at the Annual Picnic in September.

Please contact: Barb Espinoza,
VP, Membership, at: MARS Associates,

P.O. Box 1128, Littleton, CO, 80160-1128; Phone 303-338-0338; or email barb.j.espinoza@comcast.net.

MARS Associates In Memoriam

By Roy Kannady
(kannadyr1@asme.org)

Members

Anderson, Ernest Z. "Ernie" (D: Apr 2013)
(Preceded by Betty (D: Feb 2002))
Littleton, CO
[HTTP://TINYURL.COM/MARS-2415](http://TINYURL.COM/MARS-2415)

Polhemus, John T. (D: May 2013)
(Survived by Irma R.)
Englewood, CO
[HTTP://TINYURL.COM/MARS-3112](http://TINYURL.COM/MARS-3112)

Riedel, Charles L. "Chuck" (D: Jun 2013)
(Survived by Anne L.)
Denver, CO
[HTTP://TINYURL.COM/MARS-2823](http://TINYURL.COM/MARS-2823)

Taliaferro, Lue Ellie (D: Jun 2013)
(Survived by Jack D.)
Centennial, CO
[HTTP://TINYURL.COM/MARS-0636](http://TINYURL.COM/MARS-0636)

Non-Members

Barth, William F. "Bill" (D: Apr 2013)
Denver, CO
[HTTP://TINYURL.COM/MMCLMC-0140](http://TINYURL.COM/MMCLMC-0140)

Hammond, Edward I. "Ed" (D: Apr 2013)
(Survived by Marian Kay)
Littleton, CO
[HTTP://TINYURL.COM/MMCLMC-0139](http://TINYURL.COM/MMCLMC-0139)

O'Connell, Alex (D: May 2013)
(Preceded by Shirley Ann (May 2012))
El Dorado Hills, CA
No Obituary Published

Steinmeyer, Irene (D: Dec 2012)
(Survived by Horton "Curley")
Denver, CO
[HTTP://TINYURL.COM/MMCLMC-0136](http://TINYURL.COM/MMCLMC-0136)

Tutchton, James W. (D: Apr 2013)
(Survived by Lauana)
Castle Rock, CO
[HTTP://TINYURL.COM/MMCLMC-0137](http://tinyurl.com/mmclmc-0137)

Historian's Corner

Ray Ziehm (POC)
(rzandmm@comcast.net)

The External Tank Program

The External Tank Program
By Joe Marcus.

One of Lockheed Martin's most significant aerospace program wins was achieved during the competitive proposal cycle for the Space Shuttle External Tank. The External Tank (ET) was the component of the Space Shuttle launch vehicle that contained the liquid hydrogen fuel and liquid oxygen oxidizer. During lift-off and ascent it supplied the propellants under pressure to the three Space Shuttle Main Engines in the orbiter. Ten seconds after the main engines were cut off, the ET was jettisoned and re-entered the Earth's atmosphere.



Typical ET separation after achieving orbit.

This ET product was of a size range beyond Lockheed Martin Denver's experience base of years of Titan Rocket production that featured a 10-foot diameter product. This required significant rethinking in how the production process should be adjusted to accommodate parts handling, welding, and testing of products that approach 30 feet in diameter. The program was centered at the customer's own Michoud Assembly Facility outside of New Orleans, Louisiana, and the contract was won

following an intense competition with the Boeing Company in 1973.

The Boeing Company's prior experience in the Michoud facility included production of the Saturn V SI-C stage, which was 33 feet in diameter. But very creative Lockheed Martin (then Martin Marietta) folks assembled an exceptional team of specialists who put together a proposal that appealed to the customer, the NASA organization based at the George C. Marshal Space Flight Center in Huntsville, Alabama. The win by Lockheed Martin was significant because, by design, the tanks were expendable after each launch. This led to an eventual production contract to build well over 100 articles. In fact, 135 ET's flew missions and an additional 6 were in the build process or substantially complete but not commissioned to fly.

In setting up the factory at Michoud, the Lockheed Martin team had assembled a well-considered factory flow, and included plans to utilize a number of existing facility features used in the prior moon rocket program. This efficient approach allowed the Lockheed Martin team to bid the ET proposal on a very desirable low-cost, low-risk basis, and the contract was awarded in mid-1973.

To assure the continued success of the ET Program for the NASA customer, the company carefully selected strong general managers to run the operations through the years. The LM team at Michoud after the proposal win included such notables as George Smith, Ken Timmons, Rick Davis, Tom Marsh, and Dennis Deel. These managers were believers that customer satisfaction was the ultimate objective for running any large, complex program. They listened to the customer's requirements and desires and followed through to assure success.

As the ET design evolved over the opening years of the contract, the final sizes and features were solidified. The ET system consisted of three basic major elements: the Liquid Oxygen tank, the Intertank joining structure, and the Liquid Hydrogen tank.

The Liquid Oxygen (LOX) vessel featured a bullet-nosed configuration to enhance aerodynamics. Its volumetric capacity was 19,744 ft³ and the base diameter was 27.6 feet. The proof pressure test for the LOX tank was elegantly simple in that it used a simple standpipe extending above the forward end of the tank to achieve the require aft dome proof pressure value.

The Intertank structure was the interface at the aft mounting flange of the LOX tank and continued with a 27.6 foot diameter and featured a massive structural beam at its midpoint that was designed to take the full forward thrust loads of the solid rocket boosters on each side of the ET.

The aft tank of the ET stack was the Liquid Hydrogen (LH₂) tank. Its capacity was 53,488 ft³ and, like the LOX tank and Intertank, had a base diameter of 27.6 feet. The LH₂ tank also featured provisions for critical attachments with the Shuttle Orbiter Spacecraft. These orbiter attachments had to bear the full thrust and aerodynamic load between the Shuttle and the ET for all launch and flight regimes.

The LH₂ tank presented a number of significant challenges to the design, analysis and ground test disciplines. The first reality was that the propellant, liquid hydrogen, has such a low density that a pneumatic proof test was virtually a requirement, since any reasonable test liquid (like water) would cause a significant overdesign of the tank with a resulting adverse weight impact. The second reality was that since the LH₂ tank had to absorb and resolve all the flight dynamic loads imposed by the orbiter and other impacts by the solid rocket boosters, significant point loads in proof test would need to be applied simultaneously with the application of proof internal pressures. This combination of proof pressure and application of large point loads represented a significant test risk that had to be dealt with comprehensively.

The answer to this risk issue was to create the LH₂ tank proof test facility, also known as the Building 451, which was designed and built at a remote site location from the main Michoud Assembly Facility factory. The primary reason for the remote location was that if a catastrophic test failure occurred on an LH₂ tank under pneumatic proof pressure test values, the potential damage to adjacent buildings and employees could be non-trivial. The Building 451 had blow-out panels that would quickly vent large volumes of escaping gas in case of a tank failure. This would enable most of the facility to survive a tank failure with minimum disruption. Other features built into Building 451 included a simulated Intertank interface ring at the front of the LH₂ tank, and a number of hydraulic actuator cylinders located in the vicinities of Shuttle Orbiter and Solid Rocket Booster interface points. All testing was performed from a remote, "bomb shelter-like" building wherein the test conductors and observers could safely monitor all test pressures

and loads required to properly proof test the LH₂ tanks. In the history of the ET program, no catastrophic failure of an LH₂ tank ever occurred in the proof test.

As the program evolved, it was clear that payload weight capability of the Orbiter would have to be enhanced in order to make the placement of the International Space Station a practical reality. For each pound of ET weight reduction, the Orbiter would gain nearly a pound of additional payload capacity. Design, stress, and weights specialists examined virtually all aspects of the original, standard weight ET. Their analyses determined that a number of areas on the ET were initially designed somewhat conservatively. This enabled strategic thinning of select materials and reduction of section sizes without adversely affecting flight integrity or margins of safety. An additional weight savings was achieved by discontinuing the application of the white protective paint layer over the insulation foam, which saved an additional 600 pounds. These efforts resulted in lightweight versions of the tank being built that reduced total weight by approximately 11,000 pounds. This greatly enhanced Shuttle cargo weight capability, which was key to enabling the build of the International Space Station.

Other interesting aspects of the ET program included the following:

- The ET was judged as the backbone of the Shuttle flight configuration as it provided the structure to join the Orbiter vehicle and the Solid Rocket Boosters together as a flight system.
- The ET was 153.8 feet tall, taller than the Statue of Liberty (151 feet).
- There were approximately 480,000 parts in each ET.
- Dry weight of the original, standard weight ET was approximately 78,000 pounds.
- Liquid Oxygen weight on the ET was 1,359,142 pounds.
- Liquid Hydrogen weight on the ET was 226,237 pounds.
- Propellant flow rates during flight were 17,592 gallons per minute for LOX, and 47,365 gallons per minute for LH₂.



Typical ET approaching final assembly steps

For decades, the Space Shuttle program relied heavily on the ET to enable effective delivery of critical humans and cargo to orbit. The entire proposition of taking manned space exploration to higher levels of achievement, such as the International Space Station and the corresponding scientific exploration and analyses, is noble. The Shuttle system proved to be a reliable workhorse to take man into the 21st Century. Although sadly there was loss of human life during the Space Shuttle Program (Challenger and Columbia), the determined advancement of human space flight and our understanding of previously unexplored horizons was a rich reward.

four one five.

Bridge Club

By Dave & Kathy Martz
martz20@comcast.net

Bridge is so interesting because each hand is new. Do you know that you could play bridge all day, every day for 1000 years and still never see the same deal twice?

Please come join us at our monthly get together! All MARS members are welcome. We play on the **3rd Friday of each month at the Buck Community Recreation Center (Littleton) from 10 AM to 2 PM** (pack your lunch). The club provides the cards and all requirements for the games, as well as coffee, tea, and hot water for your enjoyment.

We have couples, as well as singles, playing. If you don't have a bridge partner, the club can assist in finding one for you, if you let us know in advance.

If you have any questions, please contact any of the following Bridge Club Officers:

Presidents:

Dave & Kathy Martz, 303-683-9524

Vice-President:

Bill Kacena, 303-973-2685

Secretary:

Theodore Bornhoeft, 303-933-9730

The 2nd Quarter 2013 winners are as follows:

April 19 (5 tables)

1st – Fred & Mary Ems

2nd – Gene Lewis & Glen Gerlach

3rd – Bill & Mavis Kacena

4th – Theodore Bornhoeft & Ed Bock

May 17 (4 tables)

1st – Paul & Marie Stanton

2nd – Curt & Phyllis Brudos

3rd – Theodore Bornhoeft & Bill Kacena

June 21 (3 tables)

1st – Maurice LaRue & Joe Pohlen

2nd – Loman & Pat Park

3rd – Fred & Mary Ems

4th – Theodore Bornhoeft & Nicka Romero

Dinner Club

By Dave & Carol Zeller
nana_x8@q.com

The Dinner Club has been enjoying excellent participation each month, and we look forward to continued success. We're also receiving suggestions from members for new venues to try out. We really appreciate and encourage your input.

We held a drawing in May at Nono's Café for \$10 gift certificates. The three winners were Rita Nicholson, Ralph Mueller and Tess Thompson.

The balance of 2013 is as follows:

- July 11 **Imperial Chinese Restaurant**, lunch
- AUGUST **NO ACTIVITY PLANNED – TAKING THE MONTH OFF!**
- September 10 **Cinzetti's Italian Restaurant**, dinner

- October 15 **Pappadeaux's**, lunch
- November 13 **Mt. Vernon Country Club**, lunch
- DECEMBER **DEFERRING TO MARS HOLIDAY LUNCHEON**

Given the huge response we receive each month, sending in your reservation and check as soon as possible is highly recommended.

Please remember that it is preferred that you send a single check to simultaneously reserve spaces for multiple Dinner Club events. Please do not combine Dinner Club events with other MARS events; those go to a different address. Also, **please remember to include the name(s) of guest(s) on the reservation slips.** This will greatly simplify preparation for your events.

We are very conscientious about taking and returning phone calls from all members concerning any questions, problems or issues. However, you may get our voice mail for any call that comes in "blocked call" or "private caller." We will always respond to your messages promptly, so **do leave a message.**

At this time, we are looking for a new sponsor for our annual luncheon at Mt. Vernon Country Club. The couple who previously sponsored our group has discontinued their membership, thus making it necessary to find a new sponsor. If any member(s) do maintain a Mt. Vernon membership, we would very much appreciate hearing from you. This sponsorship does not require anything special from the member(s) in terms of activity or cost. We'll need your sponsorship to continue our annual visit that we know everyone enjoys.

Blessings to everyone for a happy, fun and safe summer!

Golf League

By John Alfeld
(johna70@cpines.net)

The early winner in the golf league was Mother Nature. We had two rounds at Common Ground cancelled in April because of snow, and rain caused problems for one of the days at Broken Tee. It was May before we got to tee it up at Common Ground.

The weather has been cooperative since and we have been able get into the routine of cursing our luck rather than the weather.

Our system of having each member be a co-chair once or twice during the season provides for a greater involvement by everyone. In this regard, I applaud the membership for their enthusiasm in making the league a success. It certainly makes my job easier.

As always, we welcome new members to the league. I would encourage any MARS member who would like to get out on the course on a regular basis to contact me at 303-688-1089 to discuss the opportunity to participate in the league. There is flexibility in the scheduling process to allow for vacations and other personal needs. I would also like to reiterate our desire to set up a women's group within the league with their own block of tee times. The league is for all MARS members who wish to play golf. We are out there to have a good time; and based on my own experience, to help the economy by bolstering sales in the golf ball industry.

Come out and join the hunt for Titlists and Callaways.

Photography Club

By John Flater
(jfflater@msn.com)

The MARS Photography Club meets the second Thursday of every other month at 1:30 PM in the Littleton Bemis Library meeting room. Sometimes room scheduling conflicts arise and the meeting date may have to be changed. The current schedule can always be found on the main MARS website as explained at the end of this report. Normally scheduled meetings for the year are February, April, June, August, October, and December. Meetings always feature a program of projected images presented by members or invited guests. **Visitors are welcome even if they are *not* "photo geeks".**

At many meetings, the subject of **the presentation is a TRAVELOGUE** in which slides or video of a vacation are shown and the presenter adds narration. If you enjoy seeing images and hearing experiences from others' travel vacations, give the MARS Photo Club a try. After the program

we have a coffee break during which members share travel and photography tips.

Some programs are related to photographic techniques and tools and are illustrated by slides, prints and/or equipment. **If you** and/or your significant other **are interested in film or digital photography** join us for interesting programs, fascinating photos and an opportunity to upgrade technical and creative photographic skills by sharing knowledge and experiences. New members and guests are always welcome at our meetings, so bring a friend if you like. Ideas, comments and suggestions for programs are appreciated.

In addition to the presentation, our meetings usually include a competition of images taken by club participants. The image subject matter may be Open (any subject) or for some competitions a specific subject matter. The competition prints category may be in color and/or monochrome (usually black and white). A participant may submit up to three prints. Awards for 1st, 2nd, 3rd and Honorable Mention may be made depending on the number of images entered. Entries are judged and critiqued by invited judges or club members. After each meeting competition, the **Photography Club** page (section) of the MARS web site <http://www.marsretirees.org> is updated to show thumbnail images of the winning pictures and future meeting topics.

Recent Meetings

Thursday, April 11, 2013

Jim Kummer presented a TRAVELOGUE titled "**Photography of Alaska**"

This presentation was very interesting because of the use of the scenery as a setting for many excellent wildlife photos. A great number of the images presented native bears in many different poses in various wildlife settings.

After the presentation the club's regular photo competition was judged by John Chapter. The subject was "**Open**" and winners were:

1st place: "Grand Canyon Sunset" Larry Stearns

2nd place: "Sunset at Avon Lake" John Flater

3rd place: "Moon Over Denver" Larry Stearns

Honorable Mention: "New Born Baby Girl"
Becky Englebright

Thursday, June 13, 2013

The meeting was canceled due to scheduling conflicts for several members.

Future Meetings (as now scheduled):

Thursday, August 8, 2013

Susan Janssen will present a **TRAVELOGUE** DVD of her "**Scuba Diving the Philippines 2009**". Meeting competition subject is **Foreign Travel**.

Thursday, October 10, 2013

The presentation will be ***A Celebration of Bridge Images: USA Vintage Color Images by an Anonymous Photographer***, edited and presented by John Chapter. It will provide an opportunity for attendees to reminisce about old photo techniques and geographic locations.

Meeting competition subject is **Open**.

To verify future meeting dates, competition subject and program topic: go the **MARS** website <http://www.marsretirees.org>, then - click "**Photography**" on the Clubs button at the lower left to get the photo club's webpage. Here you'll see **Check the Meeting Schedule below..** If the Program has the word **TRAVELOGUE**, it's a vacation show-and-tell; the Competition topic is also listed. Come and enjoy both.

Competition reminder: Meeting photo competition entries may be prints as small as 4"x 6" to make it more practical for those using digital cameras to print images on their own printers. All submissions must be affixed to a mat board/cardboard or foam backing of at least 8"x10" or as large as 16"x20" for ease of handling and display.

Hiking Club

By Sue Janssen (susan.g.janssen@gmail.com)

A new hiking club has been formed! Eight enthusiastic MARS members met in Littleton on 4 June to share ideas and plan summer events.



Hiking club members planning the summer hikes. Left to right: Linda Berry, Allen Sanders, Jan and Bob Todd, Sue and Lee Janssen, Bob Berry. Photo by Gene Dionne.

Objectives of the club were established:

- Accommodate various levels of hiking abilities
- Provide regular hiking opportunities for MARS members
- Find new hiking buddies
- Emphasize the health aspects of hiking
- Provide a safety net to fellow hikers (especially experienced hikers helping new hikers)
- Focus on easy to moderate day hikes (for now)

Hikes are planned for the third Wednesday of each month. Club members volunteer to be the POC for each hike. Members must RSVP to the hike Point of Contact at least 2 days in advance of the event. Participants will pay their own entrance and parking fees if required. Participants must sign a waiver releasing MARS and other club members of liability. Also, participants are expected to arrive at the designated meeting place on time – the group will not wait more than 15 minutes for late-comers.

The club will hold two meetings per year: one in the spring to plan the summer schedule and one in the fall for the winter schedule. All club members are invited to attend. There are no officers therefore your help in planning hikes is key to the success of the club.

By the time you have received this issue of the STAR, the hiking season will have begun. The first hike to Staunton State Park was enjoyed by 7 members. Bob Todd organized the hike along the Staunton Ranch Trail, the Old Mill Trail, and the Border Line Trail to the Staunton Rocks Overlook. The trail signs indicated the total hike was 8.2 miles long, but several of the hikers were double-checking with their GPS.



Happy hikers take a well-deserved break along the trail. Left to right: Paul and Lonnie Jones, Lee Janssen, Jan and Bob Todd, Linda and Bob Berry. Photo by Lee Janssen.

The next hike will be on July 17 to Shrine Ridge (near Vail Pass). This is a beautiful wildflower hike so bring your field guide and camera. Hikers who reach the ridge will be rewarded with a 360° view of snow-capped mountains. Contact Sue Janssen at susan.g.janssen@gmail.com if you have questions and to RSVP for the hike.

If you wish to join the MARS Hiking Club, contact Sue Janssen at susan.g.janssen@gmail.com. She will add you to the club contact list. The flyer with a summer schedule of hikes is included in this issue and is also posted on the MARS website. Happy trails!

The MARS Associates Website

By Jim Kummer
(jkummer@comcast.net)

Recently I took a road trip down South, visiting Branson, Memphis and Nashville, among other destinations. In Memphis we visited Graceland and took a river boat cruise. In Nashville we enjoyed music city and the Country Music Hall of Fame. We were fortunate to have avoided the rough weather that area has most recently experienced. We stayed in motels along the way; nowadays, most hotels and motels offer free Wi-Fi, which permits laptops and tablet computers to connect to the web. Bringing your portable computer permits keeping current with email, and sending pictures to friends and relatives back home. You can access GOOGLE maps, MAPQUEST, etc to get directions on your trip, and you can query the tourist websites to discover local attractions to visit. We were also able to check show times at Branson.

Using free Wi-Fi deserves some caution. Free Wi-Fi is an un-trusted network. Serious hackers could potentially access your portable computer. For this reason, you should protect your portable device with antivirus software. In addition, any website with which you exchange sensitive personal information should provide secure transfer protocol. This is noted by the HTTPS (S is for "secure") at the front of the URL web address. In INTERNET EXPLORER, you'll also see a lock symbol at the right of the address bar. These indicators tell the user that the data transmission is encrypted, so that outsiders listening in cannot see that actual content of the data. Even with these safeguards, it's advisable to minimize access to sensitive websites like your bank account and brokerage account. If you are entering your credit card information, you absolutely need to use the secure access.

At the MARS website, www.marsretirees.org, you'll see topical and timely information valuable to members. Each month there is offered a Site of the Month for member's education and enjoyment. Here are the monthly sites of the month from the last quarter- these you'll find interesting, and we're sure they're free of virus and malware.

- April –
Provide your data to police,
Fire and EMT with www.smart911.com
- May –
Find Digital Information Resources
at www.digitalliteracy.gov/
- June –
A 25-minute Visual Tour of the
International Space Station at
www.youtube.com/embed/doN4t5NKW-k

Your website committee members are: Linda Stearns, Paul Bingham, Duane "Smitty" Smetana, Bob Knickerbocker, and Jim Kummer (Webmaster).

Denver News /What's New

By Pat Kenning
(patamk@yahoo.com)

Bill Dowe recently passed away at the age of 95.

Panama Canal IV with Nick

Another travelogue! I have 6 grandsons and have related some of our adventures over the years, taking them on various trips and cruises.

My first trip to the Panama Canal was with my late husband Robert in April, 1988, a complete transit of the Canal. It was HOT, and I got an eye infection so our trip was cut short at Acapulco. Number 2 was with my daughter, Mary, during February in the early '90's just to Gatun Lake and several islands. I took my oldest grandson on the same trip over Christmas in '98. Lots of sad stories aboard. Number 4 grandson, Nick, was due to graduate from CSU in May, 2013 in civil engineering. He did it in 4 years and now has a JOB!!

I'd been hinting to him that I'd like to take him to the Panama Canal, one of the engineering marvels of the modern world, but he didn't seem too interested (or busy!) until Christmas break this year. By then the only date open was Jan 8-18 on the Coral Princess. I told him not to worry - there would be plenty of young people to hang out with. There were - the crew and waiters. He did find a few guys and gals after several days afloat; along with 'younger grandparents" who thought he was great. He 'acquitted himself admirably" neither gambling (he was 21) smoking or drinking. He was horrified at the cost of one beer (\$8.00) that he did have, smiled a lot and we did talk. I was pleased with him at the Captain's Welcome & Farewell parties. He was dazzled with the atrium and the layout of the ship, which he explored day and night. He had hoped to see more stars but the ship's running lights obscured them.

Our first port was Aruba, where we strolled the very different cityscape. I found the statue of a very young Queen Wilhelmina, of the Netherlands, that Bob & I had seen years ago. Next stop, Cartagena; where Nick, in his high school Spanish, negotiated a 3 hour tour of the city with a surprised taxi driver - and grandmother!

Then the Canal! We only went to Gatun Lake but a 7 hour transit tour to the Pacific was offered, on a ferry with 300 other passengers and a narrator. Tiring and long but worth it said Nick. After being bused back to Colon, we were on our way to the next island. He took lots of great photos. At sea, he swam, worked out and ate lots of pizza and burgers. The few times we ate in the dining room, he participated in dinner table conversation and asked me what escargots were. He did not order them!.

Limon, Costa Rica was location of the thrilling zip-line which he wisely took in the early morning. In Ocho Rios, Jamaica (Only three rivers, he informed me), he opted for the rather active waterfall hike

along with about a thousand other tourists he estimated.

As for me, I loved walking the deck at sea, meandering the friendly towns and generally relaxing. When I told some friends about our trip, several said they would never take their grandkids anywhere! Too bad for them. It's a good way to get to know them, one on one. They have grown up since you baby sat years ago. Nick was very observant of the ship, ports and people - and probably me, too! He'll make a great engineer - just like his Dad!

Lockheed Martin Demonstrates ADAM Ground-Based Laser System in Increasingly Complex Tests Against Free-Flying Rockets

SUNNYVALE, Calif., May 8, 2013 – Lockheed Martin [NYSE: LMT] today announced that it has successfully demonstrated the Area Defense Anti-Munitions (ADAM) system in multiple tests against free-flying Qassam-like rocket targets. The prototype laser system has destroyed eight small-caliber rocket targets in flight at a range of approximately 1.5 kilometers (0.9 miles) in tests conducted in March and April 2013.

Lockheed Martin is developing the transportable, ground-based ADAM laser system to provide a defense against short-range threats, including improvised rockets such as Qassam rockets, unmanned aerial systems and small boats.

The tests represent increasingly complex scenarios against representative airborne targets. In 2012, the system successfully destroyed 11 small-caliber rocket targets in simulated flight tethered to a cable at a range of approximately 2 kilometers (1.2 miles). The system also successfully engaged an unmanned aerial system target in flight at a range of approximately 1.5 kilometers (0.9 miles) in 2012.

"Our test results demonstrate the capabilities of the ADAM system to provide a practical, affordable directed-energy solution to the real-world problem of close-in threats," said Tory Bruno, president of Strategic and Missile Defense Systems, Lockheed Martin Space Systems Company.

Designed for short-range defense of high-value assets including forward operating bases, the ADAM

system's 10-kilowatt fiber laser is engineered to destroy targets up to 2 kilometers (1.2 miles) away. The system precisely tracks targets in cluttered optical environments and has a tracking range of more than 5 kilometers (3.1 miles). The system is being designed to be flexible enough to operate against rockets as a standalone system and to engage unmanned aerial systems with an external cue. Lockheed Martin based the design on commercial hardware components paired with its laser beam control architecture and software to provide the performance needed for these types of threats without the cost and time required for full custom development. The system is integrated in a container that is mounted on a trailer, making it readily transportable.

"High-energy lasers complement kinetic energy systems and have unique attributes, including very low cost per engagement, a virtually unlimited 'magazine' and minimal collateral damage," said Doug Graham, Lockheed Martin's vice president of advanced programs for Strategic and Missile Defense Systems.

Lockheed Martin has been a pioneer in the development and demonstration of high-energy laser capabilities for more than 30 years and has made key advances in areas such as precision pointing and control, line-of-sight stabilization and adaptive optics.

Media Contact:

Lynn Fisher, 408-742-7606; lynn.m.fisher@lmco.com
Find more information, including video of a test engagement at www.lockheedmartin.com/adam

RAMM – Baltimore News

By Dottie Ruth
(dotruth725@comcast.net)

We had our Spring Dance in May and although the attendance was smaller than last year the affair was enjoyed by all. It is so good seeing our friends of so many years. Our RAMM picnic is being held in June and we are looking forward to a day of good food, our cake auction, bingo, soft crabs raffle, and talking memories of years ago. Yes, memories of the early Glenn L. Martin days.

In December of 1928 the Glenn L. Martin Company was incorporated in Maryland and on October 7,

1929 Mr. Martin and his staff with about 1500 employees moved into the new plant. Many Baltimore lads graduating from high school during the thirties and forties were eagerly seeking jobs at this new plant, my husband, Mel Ruth being one. Mel graduated in June of 1939 and was immediately hired along with many others. There were so many youngsters at the Martin Company that the plant was affectionately called "Boys Town."

When World War II was declared, the same boys served in the military and women replaced them at the Martin Company until those who were lucky enough to return, came back to their jobs. Most of the young men that started at Martin remained there until their retirement, after working forty-some, fifty-some years. There was loyalty between employees and management in those days, so long ago. Glenn L. Martin was like a father figure to many at the plant even quietly helping some with personal problems. It was great working for the company and friendship lasted over the years.

These are the same people that formed and joined the Retiree Association of Martin Marietta in 1986 and that is why of our original 1300 members we are now down to 253. Most have passed away and many have health problems and are unable to attend our events. Yes, we are small, but we hope to continue our affairs, our monthly meetings and events at the Glenn L. Martin Museum.

We are old and fading into the sunset, but what a wonderful generation we have been. Until next time, enjoy your summer.

Cape Canaveral News

By Dick Olson

(Olsons5145@aol.com)

Justin T. Solnay, 11, passed away Friday, April 26, 2013 at Shands Hospital, Gainesville. Justin is survived by his father, Jim; mother, Patti; brother, Tyler; grandmother, Carolyn Campbell; grandparents, Bill and Sherryl Huseonica. Donations may be made to the [American Heart Association](http://donate.americanheart.org), donate.americanheart.org.

About 20 people showed up on a rainy Thursday for the May Retiree luncheon. Regulars Hal Castleton, Nick Geso, Ken Gerard, Larry Gleason, Roger Wright, Bill Masterson, Abe Smith, Cal Moser, Wendell

McDaniels, Walt Starkey, Larry Cuppet, Don Anderson, Dick Hinshaw, Dave Kintigh, Joe Kiropolsky, Jimmie Weddle and Ray Caldwell. Bob Grissom made his first luncheon since he and his wife Rebecca moved back to Titusville from North Carolina. Bill Masterson looks good and says he is feeling better every day since his heart surgery a few weeks ago. Dave Kintigh said he would try to get his neighbor Tom Kunka to the next luncheon as Tom is now retired.

Larry Cuppet's 95th birthday party was held on Sunday May 19th.

Jerry Jamison's Retirement events were held on Wednesday June 12 in Vandenberg and June 20 at the Cape.

We had a fair turnout at our May Titan Group Get-Together. A good time was had by all. Hope we will do better this month. In attendance were Beth & Terry Watkins, Jim Latham, George Avis, Andrew Konarski, James Teele, Tom & Sharon Nelson, Hal Penley, Kathy Jones, Andy Hardy, and yours truly.

This past month we saw the passing of Edna Hamilton, Trudy Perry's Mom. Our prayers and condolences go out to her family and friends.

This past week, Kelli McGhee underwent brain surgery in Sarasota; this should be her final surgery to end her vertigo and balance issues. You can send her e-mail at kellimac13@hotmail.com

There are many Titan Team members that are unemployed, looking for work. So if you have a lead on some job opportunity, please pass it on to me in order that I might pass it on to the group. Your job leads will be greatly appreciated.

Tropical Storm Andrea descended upon us and we experienced rains from the northern boundaries of the storm. The storm effects were experienced through the weekend with heavy rains, flooding, and tornadoes.

Kind of a light turnout for the retiree luncheon on a rainy day in June. About twenty retirees made the scene. Regulars Hal Castleton, Ken Gerard, Jerry Moskovitz, Wendell McDaniels, Matt Masterson, Cal Moser, Bob Anderson, Dick Hinshaw, Brooks Kilgore, Bill Rhode, and Don Anderson. Some that we haven't seen for a while, Chris Hutchmacher, Sylvia and John Sansing, Jim and Linda Milby up from Fort Meyers, Barry House, Ed McMechen down from north Florida, and Guy McMechen. A newcomer to

the group, Lynn Lohne made her first lunch. Lynn was a Quality Inspector in the Propulsion area.

The July luncheon will be held the second Thursday since the first Thursday falls on the 4th; will see you on July 11th.

Bob Rodamer and I have decided to host the 14th annual Old Car BBQ again this year but we are going to have it at KARS Park instead of Bob's grove. Figure on Nov. 2nd. We will get flyers out later this year.

REALM (Orlando News)

(realm.fl.news@gmail.com)

By Andrea Lawrence

(andrea.j.lawrence@gmail.com)

No article submitted this quarter.

Martin Marietta Retiree's Club (Vandenberg News)

By Charlie Radaz

(fcjradaz@aol.com)

The April meeting was held at the Radisson Hotel at the Santa Maria Airport. Our guest speaker was Cindy Ransick, Executive Director of the Santa Maria Historical Society and Museum. She was chosen for this position last year. In going thru the museum's holdings, she discovered that they had a collection of rare letters during the Civil War between President Lincoln and a close male confidant regarding significant issues during the war. The presentation was timely since an Open House was scheduled for the public to view the letters the Saturday following our meeting! Approximately 30 members and guests attended.

Our May meeting was held on the 30th at Pea Soup Andersen's in Buellton with 24 members and guests attending. Club President Neil Baker announced that Don Hilbig had passed away on 11 April. Don was a former USAF member that worked on the SLC-6 redesign for shuttle.

Club member Bud Gurney filled in as our speaker describing a recent trip in the Mediterranean that he and his wife, Carol, had enjoyed. They were on the

Star Clipper for 17 days visiting a number of ports between Lisbon and concluding in Monte Carlo. Heather Quinn won the 50-50 drawing of \$21.00.

President Neil and Charlie Radaz conducted an open forum to get ideas from members concerning ways to improve attendance. Subjects discussed were communications, programs, and meeting locations.

The June 27th meeting was held at the Historic Santa Maria Inn with 34 members and guests. We sadly recognized the passing of club member, Joe Mathis. Joe failed to recover from a fall in his home on June 5th. He was a former USAF member and Martin Marietta Ordnance Chief on all Titan space launches and a number of other company programs. Our speaker was Aaron B. Smith, attorney from Santa Maria, who gave an excellent program on wills, trusts and probate. He answered a number of questions from attendees and had a detailed handout for all. The 50-50 drawing was conducted by member Larry Loos and winners were Heather Quinn (\$15) and Charlie Radaz (\$18).

Our next meeting will be on 25 July at the Embassy Suites Hotel in Lompoc; we are working on having Warden Richard Ives as guest speaker to tell us about the Lompoc Prisons.

Our club normally meets the last Thursday of each month at noon. We rotate between Santa Maria, Lompoc and Buellton. All former employees, their spouses and associate contractors are welcome to attend, visit, and share informal stories.

Call Aubrey Collins (805) 937-8299 or Neil Baker (805) 733-1847 for location and reservations.

United Launch Alliance News

By Christa Bell

(christa.m.bell@ulalaunch.com)

United Launch Alliance Launches 70th Successful Mission in 77 Months with the Launch of the GPS IIF-4 Satellite for the Air Force.

Cape Canaveral Air Force Station, Fla., (May 15, 2013) - A United Launch Alliance (ULA) Atlas V rocket successfully launched the fourth Global Positioning System (GPS) IIF-4 satellite for the U.S.

Air Force at 5:38 p.m. EDT today from Space Launch Complex-41.

"The ULA team is honored to place another next-generation GPS satellite on orbit for our U.S. Air Force customer," said Jim Spornick, ULA vice president, Mission Operations. "Today's successful delivery of the GPS IIF-4 mission represents the 70th launch success in the 77 months since ULA was formed – an accomplishment made possible by seamless integration of the customer and industry team; reliable production and launch operation processes; and a one-launch-at-a-time focus on mission success for these critical space assets."

This mission was launched aboard an Atlas V 401 Evolved Expendable Launch Vehicle (EELV), which includes a 4-meter diameter payload fairing. The booster for this mission was powered by the RD AMROSS RD-180 engine and the Centaur upper stage was powered by a single Pratt & Whitney Rocketdyne RL-10A engine.

"The ULA team has launched 51 GPS missions on Delta II and Delta IV vehicles and this mission marks the first operational GPS mission launched on an Atlas V launch vehicle," said Spornick. "Successfully and efficiently integrating and launching these satellites on both EELV launch systems provides operational flexibility and in the future, capabilities such as dual launch will provide even greater flexibility and also enable lower launch costs for our customers."

GPS IIF-4 is the fourth in a series of next generation GPS satellites and will join a worldwide timing and navigation system utilizing 24 satellites in six different planes, with a minimum of four satellites per plane positioned in orbit approximately 11,000 miles above the Earth's surface. The GPS IIF series provides improved accuracy and enhanced performance for GPS users.

The EELV program was established by the United States Air Force to provide assured access to space for Department of Defense and other government payloads. The commercially developed EELV Program supports the full range of government mission requirements, while delivering on schedule and providing significant cost savings over the heritage launch systems.

ULA program management, engineering, test, and mission support functions are headquartered in Denver, Colo. Manufacturing, assembly and integration operations are located at Decatur, Ala., and Harlingen, Texas. Launch operations are located

at Cape Canaveral AFS, Fla., and Vandenberg AFB, Calif.

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Contact:
Jessica Rye, (321) 730-5646, jessica.f.rye@ulalaunch.com

United Launch Alliance Launches Second Successful Mission for U.S. Air Force in Just Nine Days

Cape Canaveral Air Force Station, Fla., (May 24, 2013) – A United Launch Alliance (ULA) Delta IV rocket successfully launched the fifth Wideband Global SATCOM (WGS-5) satellite for the U.S. Air Force at 8:27 p.m. EDT today from Space Launch Complex-37. This mission launched just nine days after ULA successfully launched the GPS IIF-4 satellite last Wednesday, May 15.

"United Launch Alliance and our many mission partners continue to focus on mission success, one-launch-at-a-time," said Jim Spornick, ULA vice president, Mission Operations. "We are honored to work with such a strong industry and government team and deliver another critical communication capability to orbit to support our nation's warfighters throughout the world."

This mission was launched aboard a Delta IV Medium-plus configuration vehicle using a single ULA common booster core powered by a Pratt & Whitney Rocketdyne (PWR) RS-68 main engine, along with four ATK GEM 60 solid rocket motors. The five-meter diameter upper stage was powered by a PWR RL10B-2 engine with the satellite encapsulated in a five-meter diameter composite payload fairing. The WGS-5 launch marked the third flight of the Delta IV medium+ (5,4) configuration and the 22nd flight of the Delta IV family of launch vehicles.

This was the first Delta IV launch following the low engine performance that was identified on the successful Global Positioning System (GPS) IIF-3 launch last October. Although the GPS IIF-3 spacecraft was accurately placed into the required orbit, ULA, Pratt & Whitney Rocketdyne (PWR) and our U.S. Air Force teammates embarked on an investigation to determine why the upper stage engine performance was lower than expected. Prior to this mission, rigorous hardware inspections along with vehicle and operational design modifications were implemented to prevent a recurrence of the

fuel leak in the RL10 engine that was the direct cause of the low engine performance on the GPS IIF-3 launch.

“The team has worked tremendously hard and exceptionally well to complete a robust investigation and get us to a successful launch today,” said Spornick. “We sincerely thank the PWR team and our customer community for working with us throughout the investigation and flight clearance process, as well as the involvement from senior industry technical advisors.”

Wideband Global SATCOM provides anytime, anywhere communication for the warfighter through broadcast, multicast, and point to point connections. WGS is the only military satellite communications system that can support simultaneous X and Ka band communications.

ULA's next launch is the Atlas V MUOS-2 mission for the U.S. Navy scheduled for July 19, from Space Launch Complex-41 at Cape Canaveral Air Force Station, Fla.

The EELV program was established by the United States Air Force to provide assured access to space for Department of Defense and other government payloads. The commercially developed EELV Program supports the full range of government mission requirements, while delivering on schedule and providing significant cost savings over the heritage launch systems.

ULA program management, engineering, test, and mission support functions are headquartered in Denver, Colo. Manufacturing, assembly and integration operations are located at Decatur, Ala., and Harlingen, Texas. Launch operations are located at Cape Canaveral AFS, Fla., and Vandenberg AFB, Calif.

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Contact:
Jessica Rye, (321) 730-5646, jessica.f.rye@ulalaunch.com

Following photos were taken at:

2013 MARS Day at the Rockies on 2 May 2013

2013 Seniors Luncheon on 10 July

2013 MARS Day at the Rockies on 2 May 2013. Photos by Allen Sanders.



MARS Day at the Rockies (Cont.)



2013 Seniors Luncheon on 10 July. Photos by Duane Del Duca.



Seniors 85 and above who attended the Senior Luncheon.

Lester Lippy

- Sam Lukens
- Fred Hicks
- Dan Fullerton
- Paul Brown
- John Gille
- Bill Richardson
- Healy Smith
- Joe Dole
- Bill Albers
- George Ondeck
- Sam Finer
- Byron Beaty
- Reid Clausen
- Ev Palmer
- Boots Bouthroyd
- Carlos De Moraes
- Joe Borgerding
- George Sammet

2013 Seniors Luncheon (Continued)



2013 Seniors Luncheon (Continued)



See the slideshow for the event photos on the MARS Website at www.marsretirees.org

MARS ASSOCIATES EVENT SCHEDULE

EVENT/MONTH	2013						2014					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Board of Directors	3		3		6		8		4		7	
Officers	3	7	3	2	6	4	8	5	4	2	7	4
Bridge	19	16	20	18	15	20	17	21	21	18	16	20
Dinner	11	NONE	10	15	13	NONE	TBD	TBD	TBD	TBD	TBD	TBD
Golf	Thu	Thu	Thu	Thu						Thu	Thu	Thu
Photo		8		10		12		13		10		12
Hiking Club	17	21	18	16	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
EzyBytes	26	30	27	25	NONE	6	31	28	28	25	30	27
Web Committee	2	6	NONE	1	5	3	7	4	4	1	6	3
CO Rockies Game											TBD	
Sr. Luncheon	10											
Annual Picnic			4									
Holiday Celebration						11						
Annual Meeting									5			
Items due for MARS STAR			30				6	TBD	TBD	TBD	TBD	TBD
STAR Repro. Deadline	22			14			14	TBD	TBD	TBD	TBD	TBD
STAR Mailing	31			23			23	TBD	TBD	TBD	TBD	TBD

DATED: July 2013

1. BOD meets the first Wed of every other month at The Egg & I near Southglenn at 09:30 am.
2. Officers meet the first Wed of every month at The Egg & I near Southglenn at 09:30 am.
3. Bridge meets the third Fri of every month at 10:00 am at the Buck Recreation Center.
4. Dinner Club: 7/11/2013 - Imperial Chinese Restaurant; Aug - No Activity Planned; 9/10/2013 - Cinzetti's Italian Restaurant; 10/15/2013 - Pappadeaux's; 11/13/2013 - Mt. Vernon Country Club; Dec - No Activity.
5. Golf meets every Thu from Apr through Oct of each year.
6. Photo meets the second Thu of every other month at 1:30 pm at the Bemis Public Library in Littleton.
7. Hiking Club: 7/17/2013 - Shrine Ridge; 8/21/2013 - Silver Dollar Lake 9/1//2013 - Colorado Trail (Segment 5); 10/16/2013 - Castlewood Canyon State Park.
8. EzyBytes computer volunteers meet at 1:00 PM the last Fri of the month except Nov when we meet on the first Fri in Dec - all meetings at Buck Recreation Center.
9. Web Committee meets at noon at Sweet Tomatoes on West Bowles, Littleton on the Tuesday prior to BOD and/or Officers Meeting.
10. Sr Lunch July 10, 2013 at The Wildlife Experience.
11. Annual Picnic at Clement Park Sept 4, 2013.
12. 2013 Holiday Celebration is Dec 11 at Inverness.
13. 2014 Annual Meeting is March 5, 2014.
14. Mars day at the Rockies TBD

This schedule is maintained by Duane Del Duca MARS President Elect.