



ASSOCIATES

Volume 32, Issue 3  
July 2016

*Sponsored by LOCKHEED MARTIN*

# MARS STAR



## **MARS Activities This Quarter:**

### **MARS Annual Picnic**

September 7, 2016

**Clement Park**

See Enclosed Flyer!

# MARS Associates: A Social Club for Retirees of Lockheed Martin & United Launch Alliance

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VP Membership	Barb Espinoza	303-338-0338
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Secretary	Linda Stearns	303-797-3557
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Baltimore	Dottie Ruth	410-665-3207
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Colo Springs	Doug Tomerlin	719-594-6392
ULA	TBD	
Vandenberg	Charlie Radaz	805-733-2051

## CLUB CONTACTS

Bridge	Dave & Kathy Martz	303-683-9524
Dinner	Skip & Pam Hull	303-973-4717
Golf	Don Petermann	720-984-4975
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## **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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Director	Allen Sanders	303-973-4135
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Director	Bill Wise	303-771-4887

## IMPORTANT PHONE NUMBERS

LM Employee Service Center	1-866-562-2363
CitiStreet 401K Hotline	1-800-444-4015
Aetna Plans	1-888-562-8111
Anthem BlueAdvantage HMO	1-866-863-0484
CIGNA Point of Service (POS) (Hourly Only)	1-800-832-3211 1-800-224-6224
CIGNA Healthcare of Colorado for Seniors	303-782-9662
CitiStreet (PSP-SSP-CAP)	1-800-444-4015
Medicare Plus (Aetna)	1-888-562-8111
PacifiCare Secure Horizons	1-800-771-4347
CVS Caremark Prescription Drugs	1-888-562-3784
Vision Service Plan, Rancho Cordova, CA	1-800-877-7195
Kaiser Permanente	303-338-3800
United Dental Health	1-800-545-3260 303-425-1537
Delta Dental of Colorado	1-800-610-0201
Jeff Satterwhite	1-800-610-0201 x683 303-889-8683 <a href="mailto:jsatterwhite@ddpco.com">jsatterwhite@ddpco.com</a>
The Wright Group Services	
LTC/Vision/Dental	(303) 228-2209
Janet Saxon	<a href="mailto:jsaxon@twgservices.com">jsaxon@twgservices.com</a>
One Exchange	1-844-596-0460

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

**Cover:** Juno spacecraft simulation as it arrives at Jupiter on July 4, 2016. Built by Lockheed Martin and launched by United Launch Alliance.

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## **From the Editor's Desk**

Kathy Campbell ([kjcampbell65@msn.com](mailto:kjcampbell65@msn.com))  
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Bill Cossaboom edited this issue. For comments or corrections, contact Bill or Bonnie Snodgress, V.P. of Communications.

MARS welcomes your submissions. Submissions must be relevant to the MARS organization, informative, and appropriate for this newsletter. No personal dialogues or opinion pieces will be accepted.

Please submit your article for approval **in advance** to the V. P. of Communications. Articles will be included as time / space allows.



## President's Corner

By Robin Valore

([rvalore@gmail.com](mailto:rvalore@gmail.com))

Here we are at the start (or by the time you get this mailing, the middle) of the summer of 2016. I hope all of you have enjoyed the fine weather we've been having and have been able to spend some quality time with your family and friends. The annual Rockies picnic and game was held on Wednesday, June 29. I am sorry to say that I had to cancel at the last minute because of a family emergency, but Stacey was there with you all, so I'll defer to her article to fill you in on the fun that (I'm sure) was had by all.

A few updates I would like to make you aware of since my last STAR article:

- 1) Duane Del Duca and I attended the annual Colorado Springs Lockheed Martin spring retiree BBQ on Thursday, May 19. There were approximately 50 – 60 retirees in attendance. We enjoyed an outdoor BBQ on a beautiful spring day and the food was excellent, as always. There have been layoffs due to the previously known IS&GS consolidation to other L/M entities so there were about 15 to 20 recent retirees in attendance. I gave an overview of MARS and there were several questions about our organization from the crowd. We were able to leave a few recent spare STARS there for folks to pick up and read. We also enjoyed an ice cream social sponsored by Lockheed Martin after the lunch which neither Duane or I could pass up. It was a very good event and we are hopeful to pick up some new members as a result.
- 2) I need to start here by giving kudos to our MARS web administrator, Jim Kummer. He is one of the volunteers that keeps our website up to date and in incredible condition. When I took over as President, Jim sent me a list of the volunteer activities/opportunities listed on our website. I have to say I didn't know this page existed. At any rate, we have reconfirmed and

updated the volunteer page so that everything is current. I would encourage you all as retirees to check out ways that you can volunteer for other organizations in need of help; everything from helping with tax returns to volunteering at the Children's Museum of Denver. One of our new Board of Directors, Bill Wise, is a long time volunteer for the STEM (Science, Technology, Engineering & Math) program and plans to introduce that organization as one of our volunteer activities in the very near future. I suspect many of you may remember that organization from your Lockheed Martin/ULA days.

- 3) It is with sad regret that I announce the resignation of Barb Espinoza as our VP of Membership. She has presided in this position for five and a half years. Now, her family situation dictates she spends more time with them. This was a really hard decision for Barb because she has reaped much satisfaction from her work and participation in the MARS organization. Barb has agreed to fulfill the duties for of position through until the end of July. As luck would have it, Linda Stearns (the current MARS secretary) agreed to assume this position through the end of what would be Barb's term – March of 2017. So basically, what that means is this: we will be in search of candidates for the VP of Membership to take over in March of 2017 and also candidates to backfill Linda as the Secretary of MARS. **The Secretary position is not an elected position but is a much-needed Officer as it also supports the Board of Directors – and one we will need to fill immediately.** So having said all of that, if you are interested in being considered for one of these two openings, please contact myself or any of the other **officers or directors.** Any of us can fill you in on the responsibilities for each of these positions. Barb – on behalf of the Officers, Board of Directors and MARS membership – you will be missed, but we wish you well as you spend time with your family.

Our next major event is the Senior Luncheon, which will be over by the time of this mailing. Most of you already know, this event was created for MARS members who are 75 years and older. It was held on Wednesday, July 13, at a new venue this year – the Embassy Suites Hotel in the Denver Tech Center. You can watch for a summary of how the

event went in the October issue of the STAR. As always, your feedback on this new venue is much appreciated.

Finally, I don't want to end this article without reminding all of you about the MARS annual picnic to be held on September 7 at Clement Park. This is without a doubt one of our more popular events, so be sure and get your reservations in early. The flyer is enclosed in this edition of the STAR. I look forward to seeing you all there.

Have a wonderful and safe rest of your summer!



### **Next Up!!!**

By Stacey DiMercurio  
([staceydimercurio@gmail.com](mailto:staceydimercurio@gmail.com))

I have very much enjoyed my first quarter as your President Elect. What's not to enjoy?! I have been attending the Officers and Board of Directors meetings and have been impressed with the leadership team. They are very professional and take their MARS duties seriously. You can rest assured that MARS is being run professionally; with membership feedback and desires always in mind as decisions are made.

I also enjoyed participating in one of the monthly Dinner Club luncheons that was held at the Inverness Hotel. The food was delicious, and the company of other Lockheed Martin Retirees delightful. If you have not been to one of the luncheons, organized beautifully by Pam and Skip Hull, you are missing out. Hope to see you at one soon!

The Rockies game was fun despite the loss. What is more American than going to the ballpark, eating hot dogs and brats, then watching a baseball game with friends in picture perfect Colorado weather? Many thanks to Linda Stearns who does a great job organizing this annual MARS event (including making sure we have seats in the shade!) Check out pictures from the game later in this STAR.

Remember to check out the back cover of this and all future MARS STARs for the Event Schedule. Be sure to let me know if you catch an error or have an update via my email address [staceydimercurio@gmail.com](mailto:staceydimercurio@gmail.com).

Hope to see all of you at the Annual Picnic on September 7 at Clement Park!



### **Activities Updates**

By Jennifer Schmidt  
([tomandjens@gmail.com](mailto:tomandjens@gmail.com))

Summer is here, finally! Hope all of you are having a good one!!

Remember there are lots of activities to enjoy in our state. The Renaissance Festival is in Larkspur, CO. The mountains are lovely this time of year, and Vail has a wonderful Sunday morning market, in the Village, with vendors, food, and many unique things to purchase.

Of course the Rockies are in full swing at Coors Field. Hope you are all able to get out and enjoy the summer. If all else fails, there is Florida!! The beach is always nice.

We hope to see you all at our upcoming 2016 MARS events. By the time you get this MARS STAR the Rockies game and the Senior Luncheon (for 75 +) will be past.

However, the September 7<sup>th</sup> picnic and our Holiday Celebration in December are upcoming. Information on all of these events, plus the flyer and sign-up is forthcoming!!

Here's to a GREAT 2016!! We all hope to see you at our events. Great meals, great friends, great stories!!!

As always please contact any of us if you have questions or concerns. Thanks, Jennifer

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## Senior Fare

By Dave Boggy  
([davidboggy@comcast.net](mailto:davidboggy@comcast.net))

MARS Associates is operated through the voluntary service of members of the organization like yourselves. Each year we seek out individuals who would be willing to serve as Officers or Directors or to help with the other functions necessary to provide the services that MARS associates have come to anticipate and enjoy. This year is no exception as the terms of several Officers and Directors are scheduled to expire.

If you are interested in serving within the MARS organization please let us know by talking with any of the current Officers or Directors, or by contacting myself. Phone numbers and email addresses of all MARS Associates Directors and Officers are listed on the MARS Associates website ([www.marsretirees.org](http://www.marsretirees.org)). We would love to hear from you.

The MARS Annual Picnic coming up on September 7 at Clement Park will provide another opportunity for you to meet personally with some of our major vendors. As I receive many phone calls and emails inquiring about Delta Dental and the vision plan I know there are many questions that come up which are best addressed by the plans' official representatives.

As in past years you can expect to see representatives from Hearing Rehab Center, Delta Dental, Kaiser Permanente, Red Rocks, SAMS and The Wright Group Services who will be happy to field your questions and provide information about their services. Please plan to take advantage of this opportunity.



## Membership

By Barb Espinoza  
([barb.j.espinoza@comcast.net](mailto:barb.j.espinoza@comcast.net))

As of August 1, 2016, you will have a new Vice President of Membership. It has been a pleasure working with you and getting to know so many of you over the past five years, I will miss you!

### MEMBERSHIP STATISTICS

As of July 4, 2016, MARS Associates' active membership is 1,399, which includes 810 seniors. Unfortunately 91 members did not renew their memberships during the 2016 renewal period.

Please welcome the following new or reinstated (\*) members:

#### Colorado

Arvada	Sherry Winkleblack & Kirk Pounds
Colorado Springs	Pamela Dade
Denver	Michael Delvaux & Robin Reed Gary Mahonchak
Englewood	Stephanie & Steven Ohnigian
Golden	Sharon & Douglas Ford
Highlands Ranch	Andrew & Donna Ebert
Littleton	Timothy Boggs Michael & Jill Gass Stephen & Rosemary Hantelman Teresa Knight

	Joseph Knight Frank & Judy Pansini Thelma Schmidt
Lone Tree	John & Darcie Mitchell
Parker	Suzanne & Christopher Morasci
Sedalia	Kevin & Gail Dize Alan Heusdens & Kathie Moses

### Other States

Fremont CA	George & Jenny Dankiewicz
Lompoc CA	Ralph & Heather Quinn

### **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?**

Please remember to include the MARS membership team in your list of people to notify when you move. 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 MARS is charged for all returned mail.

"Snow Bunnies" remember to let us know when you return home! Thanks.

### **In Memoriam Data**

Please contact Bev Baugher ([bevbaugher@earthlink.net](mailto:bevbaugher@earthlink.net)) 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.

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](mailto:barb.j.espinoza@comcast.net).

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## **MARS Associates in Memoriam**

By Beverly Baugher  
([bevbaugher@earthlink.net](mailto:bevbaugher@earthlink.net))

### ***Members***

Arndt, Arthur L. (D: March 2016)  
(Survived by Florence Arndt)  
Centennial, CO  
<http://tinyurl.com/zdbtbnk>

Bogema, Bernard "Lee" (D: April 2016)  
Centennial, CO  
<http://tinyurl.com/z9p3omo>

Croucher, William "Bill" C. (D: May 2016)  
(Survived by Norma Croucher)  
Englewood, CO  
No obituary published.

Darrow, Eugene A. (D: April 2016)  
Aurora, CO  
<http://tinyurl.com/z4ybvyr>

Fox, Edgar "Ed" D. (D: May 2016)  
Sedalia, CO  
No obituary published.

Gibson, Albert "Al" R. (D: June 2016)  
(Survived by Victoria "Vickie" Gibson)  
Roanoke, VA  
<http://tinyurl.com/jhtb7lr>

Hershey, E. Faye (D: April 2016)

(Survived by Richard Hershey)  
Littleton, CO  
<http://tinyurl.com/zh6lzd>

Johnson, James A. (D: June 2016)  
(Survived by Mary Johnson)  
Highlands Ranch, CO  
No obituary published.

Knox, Robin B. (D: March 2016)  
Littleton, CO  
<http://tinyurl.com/hgy6hoc>

Lockhart, Bruce W. (D: June 2015)  
Littleton, CO  
<http://tinyurl.com/jv8dgm>

Malinick, George (D: November 2015)  
Centennial, CO  
<http://tinyurl.com/pknyo8x>

Manzer, Robert E. (D: April 2016)  
(Survived by Shadine Manzer)  
Littleton, CO  
<http://tinyurl.com/j292e96>

Marizza, Donald S. (D: May 2016)  
Centennial, CO  
<http://tinyurl.com/jp8clxe>

Schwindt, Shirley M. (D: June 2016)  
(Survived by Raymond "Ray" Schwindt)  
Denver, CO  
<http://tinyurl.com/jh6bnx7>

Sealman, Thomas F. (D: June 2016)  
(Survived by Mary Sealman)  
Centennial, CO  
No obituary published.

Sitter, Norman E. (D: April 2016)  
Denver, CO  
<http://tinyurl.com/zgxf5u9>

### ***Non-Members***

Baker, Robert "Bob" L. (D: May 2016)  
Clifton, CO  
<http://tinyurl.com/hpju9h8>

Donato, Vincent W. (D: March 2016)

Centennial, CO  
<http://tinyurl.com/j8noazn>

Homan, Robert "Bob" (D: June 2016)  
(Survived by Joyce Homan)  
Henderson, NV  
<http://tinyurl.com/h8shy39>

Hope, John A. (D: April 2016)  
(Survived by Charlotte Hope)  
Centennial, CO  
<http://tinyurl.com/hef9aza>

Kronauer, Clifford J., Jr. (D: May 2016)  
(Survived by Charlotte Kronauer)  
Centennial, CO  
<http://tinyurl.com/zsw9mh5>

Rowland, Jennie (D: April 2016)  
(Survived by Robert "Bob" Rowland)  
Denver, CO  
Obituary not available online.

Sanders, James B. (D: April 2016)  
Highlands Ranch, CO  
<http://tinyurl.com/jpdotfx>

Shields, W. Marika (D: March 2016)  
Centennial, CO  
<http://tinyurl.com/h2p952y>

Van Pelt, Betty Jean (D: May 2016)  
(Survived by John "Jack" Van Pelt)  
Littleton, CO  
<http://tinyurl.com/gl4qdns>

Workman, David R. (D: May 2016)  
(Survived by Donna Workman)  
Fort Worth, TX  
<http://tinyurl.com/jyv5zf4>

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### **Historian's Corner**

Ray Ziehm (POC)  
([rzandmm@comcast.net](mailto:rzandmm@comcast.net))

### **The Viking Mars Lander Cameras**

By Vincent Corbett

The Martin Marietta Space Systems Denver Division was awarded a contract to design, build, and fly

two Viking spacecraft systems to orbit and land on the planet Mars. The mission was to be composed of two spacecraft, Viking I, and Viking II, each consisting of a spacecraft bus, a Mars orbiter, and a vehicle containing the lander capable of entering the atmosphere and safely landing on the Martian surface. The primary mission objectives were:

- characterize the composition of the Mars atmosphere and surface
- characterize the planets structure
- search for evidence of life
- obtain high-resolution images of the Martian surface

Viking I was launched from Cape Kennedy on August 20, 1975, and was inserted into Mars orbit some 304 days later on June 19, 1976. The original plan was to land on Mars on July 4, 1976, however, late data from Arecibo Observatory in Puerto Rico showed that the planned landing site was too rocky, and therefore dangerous. More time was required to find a more suitable landing site. Mission planners studied imagery data from the orbiter as it surveyed the surface and found that Chryse Planitia was acceptable, and on July 20, 1976 the Viking I lander touched down successfully.

Chryse Planitia is a smooth circular plain in the northern equatorial region of Mars. The Viking II lander touched down safely on September 3, 1976. These were the first successful landings on Mars with fully functional craft. The Soviet Union had earlier landed spacecraft on Mars but they were not successful. It is unfortunate that the lander did not come into view when Mark Watney was walking through the area in the book and movie "The Martian."

The Viking spacecraft lander is a six-sided aluminum structure 18.2 inches deep enclosed by top and bottom plates and supported on three landing legs. The interior is environmentally controlled and contains many of the electronic equipment and sensor boxes.

The lander camera system consists of two redundant facsimile type cameras. The cameras are two cylindrical objects on the top of the vehicle and were mounted one meter apart to enable

collecting stereo images and to provide a baseline from which the sizes of objects could be calculated. The camera's field of view was 0.04 degrees per pixel for high resolution, and 0.12 for low resolution.

Elevation capability was 40 degrees above the horizon to 60 degrees below, with a scan capability of 342 degrees in azimuth. Twelve photo diodes formed the Photo Sensor Array. Actual size of the array is in the order of a 25-cent coin. The camera's primary function was to characterize the landscape from near the lander to the horizon. It also became a part of the mission operations to support the soil sampler site selection, to image its trenches, and to survey parts of the lander for accumulation of dust.

The scientists were interested in the Meteorology, Biology, Molecular Analysis, Seismology and other scientific areas, but the general public (and probably also the scientists) were more interested in viewing the photographs to look for signs of life: canals? The paramount science interest was to see just what Mars looked like. During a weight reduction meeting a suggestion was made to remove one camera, but the answer was, "we can't go to Mars with a one-eyed lander."

The cameras divide the scene of interest into a grid of many tiny squares called pixels. The subject is scanned one line at a time via a nodding mirror that is sequentially indexed in azimuth, and each element of light energy from each pixel, is converted into electrical energy. The tiny photo sensor array senses the signal and sends it to the signal processing electronics.



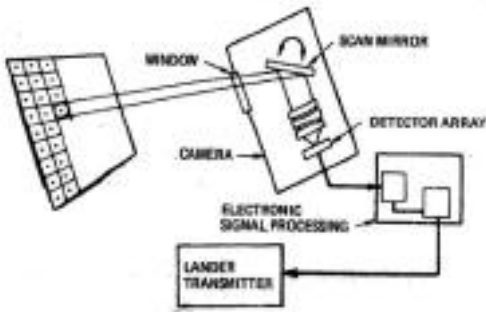


Image Generation  
via the Nodding Mirror

Martin Marietta (MMC) selected the ITEK Corporation to provide the camera for the Viking mission. There were seven bidders; however ITEK's proposal displayed excellent experience with satellite imaging using a facsimile camera. ITEK is located in Burlington, Massachusetts, and Martin management decided that a resident team would be required to preclude communication problems due to the distance between Denver and Burlington that could jeopardize the tight program schedule. I was "asked" to be the manager of this team for an approximate period of three years. The team consisted of three electronic engineers, a quality control person, and a sub-contract administrator.

The concept of a resident team was accepted by ITEK senior management, but at the worker bee level, things were not so smooth. After the first review with the NASA customer, they all recognized that we were part of the solution, and team operations improved. The design and test phase proceeded with expected type of development issues which were exacerbated by the requirement that only parts on a NASA approved parts list could be used and the design had to be compatible with worst case mission events.

The photo diodes for the Photo Sensor Array were to be provided by an ITEK subcontractor who was familiar with this area of microelectronics and had experience working in a laboratory environment. However, their culture did not respond to a schedule, consider failure analysis, use of parts only

from an approved parts list, and operation in a clean room environment. A major speed bump was encountered with the photo sensor diodes reliability as there were many diode failures following what proved to be some "random successes", and the camera system was put on the NASA Viking Top Ten Problem List. This brought constant attention of Martin Marietta top management as well as NASA. Twice monthly meetings with the lead NASA Langley imagery engineer and MMC top management were conducted considering technical, schedule, and cost issues.

The ITEK designers were very good, but their history was to work on cameras in a controlled environment. However, the signal amplification in the data processor was completely changed because the resistance, capacitance, and delay times of the photo diodes changed due to the extreme cold temperature required by the worst case analysis. Their design schedule was thrown out of whack, and a joint effort by MMC and ITEK was required to solve the problem. Finally, after many reviews with MMC management and NASA, Bill Purdy stood up and said, "MMC will make the photo diodes for you." The contract with the sub-contractor was cancelled, and MMC provided the diodes to ITEK. This created a complex contractual situation, but we worked through it and the worst of the setbacks was over.

The very first image taken by the breadboard camera was of a Playboy centerfold. The technician rushed into the status review with the "exciting" image and was told to go back and try again. He came into the meeting with an image taken through a laboratory window of the company parking lot. It was still "exciting" and the scientists and NASA officials wanted copies to take back to their peers. Finally, we knew the system would work as planned.

One day, Tim Mutch, the head of the NASA lander imagery team and I were in my office listening to the litany of problems and he suggested I take the day off and go sailing with him in Narraganset Bay. Tim, my teenage son, and I met him there, and as my son had just finished summer camp and having learned to sail a small boat, did the sailing while Tim Mutch and I talked through the issues. It was a beautiful day and the trees were outstanding. Tim Mutch said he would do the mooring approach, but when we stepped out of the boat, it floated away.

My son Tim immediately dove into the cold water and retrieved the line. Since the boat was named Viking, Tim Mutch surmised that lately anything related to Viking was subject to a problem, but he left our meeting convinced that the camera was a doable project.

Another issue that came later in the game was that Mars wind velocities were estimated to sometimes reach 200 MPH and could damage the nodding camera mirror, and fill the camera housing with dust. This caused a fix that included a dust cover (called the mast) in front of the mirror when the camera was not in use, along with a labyrinth passageway to the camera. Denver testing proved out the system.

A Proof Test Capsule (PTC) camera was also built to undergo the environmental testing at ITEK, and later testing while situated in the lander, in Denver. The two environments that were the most worrisome were the sterilization procedure (high temperature: 140 degrees F for 110 hours, and a low temperature test at minus 190 degrees F). The high temperature proved not to be a problem, but at about minus 150 degrees the camera stopped its scanning rotation. Everyone immediately thought this was some serious problem, but it turned out to be a slight interference with the mast that bound up the camera. Sometimes you get lucky.

Shipping the PTC camera to Denver was done with it strapped in a first class seat of a commercial airliner. The captain announced over the plane's intercom what the strange thing in a first class seat was, and that it was to fly to Mars. We were the last to deplane and several of the passengers patted the drum holding the camera and said, "See you on Mars."

With the camera in Denver there was an immediate demand to use it for myriad tests. The science team wanted to do some testing outside in the red rocks above the plant. Two engineers had built a camera controller (since the camera would be normally be controlled by the lander electronics) that allowed the science team to do their thing. They made image after image and were very pleased with the results. They also liked the

geology found there, and had written on the rocks an annotation of each image. They didn't understand that we just do not paint on the rocks around here, but they later bought some thinner and cleaned everything up.

The thinking in the early 1970s was that Mars contained significant sandy areas, so it easy to sell the idea of a special test at the Great Sand Dune National Park. We rented a truck to carry the equipment, and John Montgomery, the camera technician, drove the truck to the dune proper. He went as far as we could go into the sand, knowing we get the truck towed out if necessary. The camera was set up on a small hill using a 50-foot long umbilical and protected by a large golf umbrella, and the testing began. Carl Sagan was there as part of the team, and bought two live turtles and a snake to image in the event life forms were found on Mars. They imaged the turtles going the same direction as the camera scan movement, and then going in the opposite direction. As to be expected the turtles going with the camera scan were elongated, and in the other direction they were shortened. Carl stated he didn't expect to see any turtles on Mars anyway.

We stayed in a motel in Alamosa, Colorado, and that evening I was sitting out on the second floor deck drinking a cool one when Carl Sagan came up and sat beside me, also with a cool one. I had only talked to him a time or two, but the night sky was spectacular, and he made it more so. His discussion was sort of a prelude to his successful TV series, *Cosmos*. When the testing was complete, Tim Mutch suggested we take a group photo using the camera. Once the camera slit passed him in the lineup, he would run behind the camera and be photographed again. He was in the same photo at seven different positions.

During the Viking prelaunch checkouts the cameras performed flawlessly, and after the launch the cameras were placed in a sleep mode during the journey to Mars. There were concerns as to whether they would turn on after landing, but there was no problem with either camera. The day after the first landing I was in the ground station and Bill Purdy and Tom Pownell were in the executive lounge. After about forty minutes the television

monitors showed the camera line scans beginning, and when about six scan lines appeared it was evident that the cameras were working properly.

The first image showed some of the Mars terrain and also part of the lander leg. Bill and Tom came out to join everyone and they both had tears in their eyes. There were many tears that day.



The Famous First Mars Image (Lander foot in lower right corner)



The Soil Color



A Mars Panorama

Both landers' cameras were used extensively, surveying in all directions in all phases of high resolution, low resolution, color, and infrared over a period of several years. Thousands of images of outstanding quality were made and now fill a large library of magnetic tapes. One of my friends from the Denver Museum of Nature and Science was awarded his PHD based on his study of the Viking

images. During the landed life on the Martian surface all cameras performed flawlessly. They provided detailed images of Martian features of all sizes, via color, infrared, panoramic, and stereo photos. The Viking I landing site on Mars was later named The Thomas A. Mutch Memorial Station.

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## Bridge Club

By Dave & Kathy Martz  
([martz20@comcast.net](mailto:martz20@comcast.net))

Bridge is truly a mental challenge, per the quote below from a bridge master!

*"Many games provide fun, but bridge grips you. It exercises your mind. Your mind can rust, you know, but bridge prevents the rust from forming."*  
Omar Sharif

Come join us at our monthly get together! All MARS members and their guests are welcome. We play on the **3<sup>rd</sup> 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. There is a small fee to the Buck Center as well as a small fee to the club (which helps with supplies and the year-end party in December).

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, but you need to 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 2<sup>nd</sup> Quarter 2016 winners are as follows:

**April 15 (4 ½ tables)**

1<sup>st</sup> – Ernie & Cecile Berliner

2<sup>nd</sup> – Bill & Mavis Kacena

3<sup>rd</sup> – Bart Wright & Joe Pohlen

4<sup>th</sup> – Dave & Kathy Martz

### May 20 (4 ½ tables)

1<sup>st</sup> – Theodore Bornhoeft & Trudy White

2<sup>nd</sup> – Joe Pohlen & Jerry Baab

3<sup>rd</sup> – Ernie & Cecile Berliner

4<sup>th</sup> – Mike Davis & Mary Stirling

### June 17 (4 tables)

1<sup>st</sup> – Paul & Marie Stanton

2<sup>nd</sup> – Dean & Winnie Kolves

3<sup>rd</sup> – Bill & Mavis Kacena

4<sup>th</sup> – Mike Davis & Mary Stirling

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## Dinner Club

By Skip and Pam Hull  
([pamhull.7@msn.com](mailto:pamhull.7@msn.com))  
303-973-4717

We have scheduled the final two months of monthly outings for the members of MARS for 2016. Attendance has been steady so far this year, but we still have room for additional reservations for most venues. That said, please remember, venues that have attendance limits need your reservation sooner than later if you wish to attend.

The next set of restaurants scheduled at this time for 2016 are as follows:

- Sept 20 – Sakura Hibachi (Flyer already mailed last MARS STAR)
- Oct 16 – Simms Steakhouse Sunday Brunch (no Broncos game this Sunday)
- Nov 2 – Los Dos Potrillos
- December – No Dinner Club; (MARS Holiday Celebration)

If you have a suggestion for a new venue, please let us know, by email [pamhull.7@msn.com](mailto:pamhull.7@msn.com) or by phone 303-973-4717 (please leave a message if we are not home).

Please remember that it is helpful if you send a single check to simultaneously reserve spaces for multiple **Dinner Club** events. Also, please remember to include the name(s) of guest(s) and a

good phone number where you can be reached on the reservation slips in case of last minutes changes. This will greatly simplify preparation for these delightful events.

We hope to see more of you joining us for dinner or lunch this year. It is a great chance to rekindle old friendships or make new friends. Remember, you already have something in common with most of the attendees.

Finally, to quote a cooking channel chef, Alton Brown, we wish you “Good Eats”.

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## Golf League

By Don Petermann  
([donnarlen3@gmail.com](mailto:donnarlen3@gmail.com))



### ***Golf is heating up, or at least the weather IS***

All are welcome to join the MARS Golf League or come as a guest!!

The MARS Golf League started playing April 7 under the guidance and watchful eyes (??) of:

Don Petermann - President

Vice President - Bo Rodriquez

Tom Cooke - Secretary Treasurer

Tom Hall - Handicap Chair (for 2017 - Tom Ripper - in training):

The schedulers; Bob Bowe, Duane DeIDuca, and John Flemming.

Plus all the members who volunteered to be weekly tournament Co-Chairs!

Thanks everyone for volunteering!

All rounds are being played at Broken Tee Golf Course from the "Gold tees." From the feedback I've gotten, all seem to think this has been a good change.

We still encourage everyone who likes to play golf regardless of skill level, to join us for fun, good companionship and exercise.

We play every Thursday through October 27th. You can play as often as you like, there is no commitment to play every week of the season.

Please go to the MARS web site: <http://www.marsretirees.org/> and click on "Golf" for all the details on our league. Also please feel free to contact any one of the officers or schedulers for more information. Phone numbers and email addresses are on our golf web site.

Old member or new, young or not so young, we look forward to you joining us for some great fun and who knows....maybe even some good golf!?! I hope to see you out golfing!



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## Photography Club

by John Chapter  
[johnchapter@msn.com](mailto:johnchapter@msn.com)  
303-986-8277

The goal of the *MARS Photography Club* is to provide a meeting place for like-minded people interested in photography and photographic arts. Our club goal is to have fun and provide an educational opportunity to help improve our photography. Club members vary from beginners to more advanced photographers. If this sounds like you please come to one of our meetings. We generally have ten to twenty members and guests in attendance.

Our meeting programs and presentations often include travelogues presented by our club members or outside people. We strive for a program mix of educational,

entertaining, and related subjects. Please check out the MARS Associates Website at <http://www.marsretirees.org/> If this sounds interesting, please stop by for one of our meetings. There is no obligation and it is free.

### **Where We Meet**

The MARS Photography Club meets at the Littleton Bemis Library, located at 6014 S Datura Street, in Littleton Colorado, on the second Thursday of the month, from 1:00pm to 3:30pm. We meet in January, February, March, April, May, September, October, and November.

Please note that there are no meetings in June, July, and August, as many members are on vacation. In December, we have a holiday luncheon at a local restaurant.

### **Our 2016 March, April, May Meeting Highlights**

The last three months club presentations have all been made by club members using DVDs that they have made. Often these DVDs include not only images but also many include background music and may even include narration. These presentations are often similar to film-shorts and can be very entertaining. In March, 2016, BJ Anthony presented her excursions along the California coast, in April Sue Janssen showed a DVD on her recent trip to Tanzania, followed by John Chapter's virtual trip to ancient and modern Rome in search of an antique image location of the aqueduct of Claudius in May. These presentations were both educational and interesting, illustrating what can be accomplished.

Several sample images have been chosen from our latest presentations that give a brief idea of what of what our programs look like.

**BJ Anthony's** California Coast video included many of the places she visited. She narrated the DVD for her presentation, which gave her maximum flexibility. This beautiful orchid image was taken by BJ Anthony.



**Sue Janssen's** presentation included video of the many exciting animals and sites she visited in Tanzania and Ngorongoro Crater. Sue's photo of a lion was taken from the top of a safari vehicle.



**John Chapter's** presentation was different in that it was a virtual trip to locate the actual location, outside Rome, that the original 1900 antique image was taken. An image detail that follows is of the ancient *Aqueduct of Claudius* that John purchased at a local antique store. John combined images from online with his own images taken of Italy on several trips.



John also included, in his presentation, a related image, of *Opera Colorado* personal. The image was from a recent Italian festival at *Belmar Colorado*, which fit John's presentation well.



### **Competition Winners**

The last several months we did not have enough entries to have our usual image competitions. Members are reminded to bring images to our competitions if possible.

### **A Special September 2016 Upcoming Program**

Our next program is on *September 8, 2016* at the Littleton Bemis Library at our usual time as listed above. This program is a special treat as *Barbara Rudolf*, a professional travel agent, will present a recent trip that she made to *Cuba*. She spent 11 days in Cuba in 2015, with other travel agents to get a deeper perspective of the country and its people. You should not miss this program!

You can become a part of the *MARS Photography Club in 2016*. We would love to have you be a part of our club! You will

have a great time, improve and share your own images with our photo club. If you have any questions, please contact *John Chapter*, email address, [johnchapter@msn.com](mailto:johnchapter@msn.com)

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## Hiking Club

By Sue Janssen  
([susan.g.janssen@gmail.com](mailto:susan.g.janssen@gmail.com))

The hiking club started 2016 with three excellent hikes.

The April hike was to Mt Falcon Park in Jefferson County. Sue Janssen suggested hiking the trails on the west side on April 20. However, Mother Nature dumped at least 2 feet of snow on the Front Range a few days prior. The hike was rescheduled for the following week. But Gene Dionne wanted to get a few miles under his boots and suggested hiking the Castle trail from the east. Gene, his buddy Steven, Ken Ruiz and Sue met at the east trailhead on a sunny, but cool Wednesday morning. The trail had some snow in the shady spots and was quite muddy so our trekking poles came in handy. But it felt good to get outside. We had interesting conversations over lunch at the Red Rock Grill in Morrison. A week later, Al McKinney, Tara O'Brien and Sue met at the west trailhead.

There are many options for routes on this side of the park and we decided to take the Parmalee trail, dropping about 800 feet through Ponderosa pine forest, and then regaining the top to a meadow where we heard turkey and saw fresh turkey tracks in the muddy trail. As we rounded to the east aspect, we noticed the first wildflowers blooming! We took the Ute trail loop to add a little bit of distance and to enjoy the "frosting" of snow on the pines. We continued up the Tower trail to a small, elevated platform for views toward the city. We finished with the Meadow trail back to the parking lot. It was a pleasant, 4.5 mile hike on a cool spring morning. We decided to stop for lunch at the Sit 'N Bull Saloon, a small and rustic restaurant in Indian Hills.



Gene Dionne, Sue Janssen and Ken Ruiz enjoy the fresh air, snow and sunshine on the Castle trail.



Tara O'Brien, Al McKinney and Sue Janssen catching their breath at the Tower near the top of Mt Falcon

Allen and Sally Sanders planned the May hike at Indian Creek Trail in Pike National Forest west of Sedalia. But the spring monsoons made the trail muddy so the hike was cancelled.

We had 10 people enjoy the June hike organized by Tara O'Brien - an urban stroll in Berkeley Lake Park near 48th & Tennyson. We saw cattails & lots of red-winged blackbirds & we also had a lovely view of Lakeside Amusement Park. After circling the lake, we continued down Tennyson, seeing the historic Smiley Library & colorful murals along the way. We toured the old Elitch Garden's Carousel and Theater before grabbing some lunch at a local pizza/brew pub. Then it was a one-mile hike back to our cars. The temps were hot but not intolerable when you are equipped with water, floppy hats, and a desire for a good cold one at lunch!

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## Eco-tourism in Thailand: Spending your Vacation Dollars Wisely

By Jim Craft

Eco-tourism -- It's a word that means "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (TIES, 2015).

As a recent Lockheed Martin retiree (2013) one of the things on my "bucket" list of things to do was travel. Like so many other recent retirees I finally found myself with the time to visit and explore foreign countries and cultures. Not just a quick visit or business trip here or there, but the opportunity to really get to know the environment. I chose Thailand because I had heard the stories of how friendly the people are and about all the varied and wonderful sites, the sparkling clear water in the warm southern beaches, the grand temples in Bangkok, the lush tropical forests in the northern hillsides (also, my wife is of Thai heritage and still has relatives living there, so it seemed like a good choice).

On our first visit we did most of the touristy stuff, tours of the Grand Palace, Floating Market, Ayutthaya, Emerald Buddha, and some other sites. Bangkok is truly an international city and there is never a shortage of wonderful things to see or places to go.



One of the things I noticed was that there were elephants everywhere, either live or on signs, statues, pictures. There is even a beer called Chan (Elephant) beer with their picture on it.

Now, I am really a nut for elephants and I just love seeing these magnificent creatures. And it is not uncommon to see an elephant walking the streets of Bangkok with his or her trainer (mahout) selling bananas to the tourists to feed to the elephants. And of course

there are innumerable elephant camps and shows where they perform all kinds of feats and give rides for the tourists.

When I returned home some weeks later and was talking to a friend of mine (a seasoned traveler), I commented on the wonderful elephants I had seen. He brought up a few points, which I thought a lot about later and subsequently took to heart.

(1) Thailand has a large tourism industry and elephants are a big part of that. However, they are often utilized to maximize income from tourist dollars and unfortunately the care and treatment of the elephants themselves sometimes becomes secondary;

(2) The discerning tourist will take the time to research the elephant camps and avoid the ones that use sharp metal hooks or the heavy uncomfortable chairs or overwork and, or mistreat their elephants. It is better to give your valuable tourist dollars to the more humane camps and show that it is possible for those camps to be kind to the animals and still show a profit;

(3) Northern Thailand (for example, around Chiang Mai) is the best place to go to see the elephants in their natural habitat. The crowded, noisy streets of Bangkok do not seem to be the ideal environment for elephants. Plus the northern latitudes and higher elevation in the North Country near Doi Suthep and Doi Inthanon [the two largest mountains] make it a little cooler and more bearable for the tourist than in Central or Southern Thailand.

So I did some research and was excited to find an eco-friendly resort in Northern Thailand called the Chai Lai Orchid (<http://chailaiorchid.com/>). The Chai Lai advertises itself as the "ultimate eco travel experience". It is in a small village named Mae Wang, about an hour southwest of Chiang Mai (Thailand's 2<sup>nd</sup> largest city).

The owner, Alexa, is an American who now lives in Thailand and bought the resort about 5 years ago. The Chai Lai Orchid is a series of Nature Bungalows tucked along the Maewin River. From the main road you walk along a suspension bridge across the river to get to the resort.





The first thing you notice is all the elephants walking around, most from the elephant camp that adjoins (but is separate from) the hotel. After crossing the bridge you approach the open-air restaurant that overlooks the river.

It is a truly beautiful site. The relaxation of coming down to the riverside café in the morning and sipping your coffee in this remarkable habitat cannot be truly described in words. Watching the frequent rafters float along the river or the mahouts taking their elephants down for their morning bath. All your cares and worries disappear.

Alexa runs what she calls a “social business” whose aims are to promote “sustainable tourism, kindness to elephants and helping at-risk women”. Many of the hotel workers are local Hilltribe women (mostly Karen) from the local mountain villages. As part of this mission, a portion of the revenue from her business goes to support ongoing community programs, mostly for education, health care, job skills and training, and purchasing (“rescuing”) elephants.

Alexa also works with a fabulous NGO charity called Daughters Rising which seeks to provide training and jobs for local Hilltribe girls that are at risk for human trafficking, still a significant problem in some of the poor border areas of Burma and Thailand. Education and skills training is seen as their ticket to escape poverty as well as other predatory dangers that often go with it.



During my last visit there she invited me to attend the opening ceremony for a new preschool they were opening in one of the local villages. It was heartening to see that my tourist dollars were not only being spent on having a relaxing vacation for myself but also to support important social causes.

There is usually a small group of volunteer “farang” staff at the hotel (mostly American and western European). Some come regularly for a few months, others stay longer. They assist Alexa in running the Chai Lai Orchid and organizing outings and such. They also help coordinate and supervise different volunteer programs where tourists can come and help volunteer in the community and work on a variety of local projects - helping build clinics, teaching English (or other subjects) at the local school, cooking classes, music lessons, etc.). It is an awesome way to get involved, up close and personal with the local population and the culture and to make friendships that can last a lifetime.

With Alexa’s assistance, I have been volunteering at the nearby Mae Win Sammakee School as an English teacher for the last two years.



I usually head over to Thailand in late spring, the beginning of their school year. Every morning for about four weeks (with weekends off) I get up and go down to the Café for my morning coffee and my “American breakfast” and wait for the taxi driver to come rambling over the bridge. He drives me down to the local village school and drops me off where I spend the next several hours teaching classes and assisting the full-time Thai English teacher, Miss Yaw.



I often bring my laptop so we can display the lessons of the day (the "Genki English" site has several good samples). In Miss Yaw's classroom I can connect the laptop to a ceiling-mounted AV projector, which is perfect for displaying the English lessons (and also watching Disney videos during the break☺). The experiences have been unforgettable.

Last Spring (2015) my sister and her husband and their three children who all live in Florida came to visit us in Chiang Mai on a vacation stopover to Phuket, the southern beach resort. I took Sophia, my precocious 8-year-old blonde blue-eyed niece, to visit one of the local villages - and the children just flocked around us! It's like they had never seen a blonde blue-eyed kid their own age before. Come to think of it, I'm pretty sure they hadn't.



So if you are interested in bamboo rafting, mountain camping, trekking, visiting ethnic Hilltribe villages,

swimming with elephants, nature hikes, or just relaxing in one of the most beautiful spots on earth and want to practice responsible eco-tourism then this may be a place to consider.

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## The MARS Associates Website

By Jim Kummer  
([jkummer@comcast.net](mailto:jkummer@comcast.net))

I recently enjoyed a trip to the mid-west – had a great time, and was still able to connect to email and the internet while away from home. Hotels, restaurants and cruise ships often offer free or inexpensive WI-FI. This allows you to use your cellphone, laptop or tablet while avoiding the extra cost of data on your provider's plan. You can keep connected with home while away, and send pictures to friends and family.

When you use public WI-FI, you must exercise caution. It is possible to eavesdrop with the proper equipment and software. I never access my brokerage account or bank account via public WI-FI. Also, when you connect to the public WI-FI, you need to carefully look at the WI-FI server's name. If, for example you're staying at a Hilton hotel, they might offer WI-FI named "hiltonguest". Someone else in the hotel could set up a WI-FI server named "hiltonquest". If you mistakenly connect to that server, your entire dialog can be captured by that bandit server. Moreover, a virus or ransom ware could be placed on your device. As with any interaction with the internet, use it with caution.

If you find yourself often in need of conducting business while on the road you might consider investing in a Virtual Private Network (VPN) service. VPN will hide all your traffic and you can find several well-regarded products by doing a Web search.

While at home or away on vacation, check the MARS website often. There you will find an excellent source of information for MARS members. Topical and timely information is available for your perusal. Here are the monthly websites of the month from the last quarter.

- April –** You'll find numerous topics of interest at [lmc.retireezone.com](http://lmc.retireezone.com)
- May -** Take a Look at [www.refdesk.com](http://www.refdesk.com), the "Fact Checker for the Internet"
- June –** Get the Latest Political News at [www.realclearpolitics.com](http://www.realclearpolitics.com)

Your website committee members welcome your suggestions for improvement, and for proposed websites of the month. Email them to me at [jkummer@comcast.net](mailto:jkummer@comcast.net). Your website committee members are: Duane "Smitty" Smetana, Linda Stearns, Paul Bingham, Bob Knickerbocker, and Jim Kummer (Webmaster).

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## Colorado Springs Lockheed Martin Retiree Group News

By Doug Tomerlin  
([dougincs@aol.com](mailto:dougincs@aol.com))

Our spring luncheon was a BBQ on Thursday May 19 at the Colorado Springs Lockheed Martin Federal Drive Building 2 patio and cafeteria. Approximately 78 were in attendance. One retiree, company nurse Jan Vassar, flew from New York to attend the luncheon. A number of grilling main courses were offered at very reasonable prices, ranging from bratwursts, hamburgers, steak and salmon. As usual, everyone had a great time and many retirees stayed long after the meal was completed to visit with each other.

Robin Valore, president of MARS Associates spoke to the group about the benefits of joining MARS Associates and answered questions from new retirees. We also appreciated attendance by Duane Del Duca, MARS Associates director. A hardy thanks to Lockheed Martin for coordinating and setting up the luncheon.

If you would like more information about the retiree group or luncheons, please contact Doug Tomerlin at [dougincs@aol.com](mailto:dougincs@aol.com).

We welcome the following retirees who have joined the Colorado Springs Lockheed Martin Retiree Group since the last newsletter:

- Don Heseltine
- Andrea Black
- Pam Hinchman

We are all deeply saddened by the passing away of fellow retiree Benny Johnson and Phyllis Smith, the wife of retiree Fred Smith.

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## RAMM – Baltimore News

By Dottie Ruth  
([dotruth725@comcast.net](mailto:dotruth725@comcast.net))

The RAMMs had their Spring Fling Dance in May attended by 77 members and friends. It is always so nice getting together socially and seeing those who cannot come to our monthly meetings, but able, with the help of friends, to attend our dance.

In June we had our picnic and 53 people munched on hot dogs, salad and sweet slices of watermelon followed by those old-fashioned ice cream sandwiches. We always have a cake auction and laugh at those trying to outbid each other for those home-baked goodies. In addition, there is a soft crab raffle and I was one of the winners of the four drawings, winning six soft crabs. Lucky me!

Naturally, when seniors get together we always end up having games of Bingo. Yes, our picnic was successful from start to finish with a beautiful summer day.

The RAMMs are struggling to reach a quota for our events and our treasury is suffering for it. We have a loss at our meetings and events and are afraid the RAMM organization can only survive another year or two. With that dismal outlook we close wishing everyone a healthy, safe, and enjoyable summer.

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## Cape Canaveral News

By Dick Olson  
([Olsons5145@aol.com](mailto:Olsons5145@aol.com))

### Luncheons

April - Had a pretty good turnout for lunch with a few people we haven't seen much of. Jimmy Bryant, Lynn Johnson and Donna Dean joined us along with regulars Jerry Teague, Hal Castleton, Dave Kintigh, Bill Masterson, Jerry Moskovitz, Chris Hutchmacher, Roger Wright, Abe Smith, Don Anderson, Wendell McDaniels, Larry Gleason, Tom Savage, Dick Hinsaw, Bob Rodamer, Frank Indihar and Bob Matschner.

Larry Gleason let us know that Al Cramer had passed away a couple weeks ago. Al worked in Materiel. If anyone notices an obituary that I

haven't mentioned please let me know so I can pass it along.

**May-** Pretty good turnout on a beautiful Florida spring day. Convertible weather. Jan Oaten, who worked for Jim Simmons in the Procedure Group, joined us. It was her first visit or the first in a very long time and either way we were glad she was able to make it. The regulars, Hal Castleton, Bill Rhode, Jimmy Weddle, Chris Hutchmacher, Frank Indihar, Jerry Moskovitz, Abe Smith, Ken Hawes, Dave Kintigh, Don Anderson, Roger Wright, Tom Savage, Jerry Teague, Bob Anderson, Dick Hinshaw, Larry Gleason, Bill Masterson and Walt Starkey were all on hand.

After hearing from Bill Hendry and having to remove him from the Titan deceased list I did have a few people ask me to check and see if they were on it. So far so good.

Seen in the local paper that Bobby Fisher passed away. Bobby was a Range Safety officer and supported Titan for many years.

Wish you all a Happy Mother's Day.

**June-** Kind of a light turnout for lunch. Guess all the retirees are starting summer vacation. The regulars that made the scene were Hal Castleton, Bill Rhode, Jimmie Weddle, Jerry Moskovitz, Ken Hawes, Frank Indihar, Chris Hutchmacher, Roger Wright, Jerry Teague, Larry Gleason, Walt Starkey, Jan Oaten and a couple of guys we haven't seen for a while, Roger Schmidt and Herb Mathias.

Had an email from Dick Shaw, former battery PIE, who is down from Denver and said he would try to make the afternoon meeting a Beef O'Brady's if he couldn't make it for lunch.

Heard via the grapevine that Donna Dean is having some heart related problems and will probably require surgery. Our thoughts are with you Donna.

## **Martin Marietta Retiree's Club (Vandenberg News)**

By Charlie Radaz  
([fcmjradaz@aol.com](mailto:fcmjradaz@aol.com))

We met April 28th at Pea Soup Andersen's in Buellton with 19 members and guests attending. Our speaker was Bruce Porter, candidate for Santa Barbara County Supervisor for the 3rd District. He talked about Santa Barbara County problems and issues. Member Jerry Wetterholm was winner of \$25.00 in the 50-50 drawing.

Our May 26th meeting was held at the Santa Maria Airport Radisson with about 25 members present. The speaker was Mr. Ric Tokoph, Maintenance and Operations Manager, Santa Maria Airport. The airport serves private and commercial aircraft with its' latest runway extension, the airport handles the latest DC-10 fire fighting aircraft.

The June 30th meeting was held at the Embassy Suites in Lompoc with a comprehensive presentation given by John Demko, NASA Resident Office Manager at VAFB. He briefed NASA plans, activities and programs including some thought-provoking future missions.

Our next meeting will be 27 July at the Historic Santa Maria Inn with a talk by Bruce Fall's son-in-law, Dr. Joseph P. Bassi's. His presentation is entitled, "Space Weather And You"!

We were very sad to learn of the passing of long time member, Doug Gilman, on 30 June .Doug worked at Vandenberg, Denver and other Martin Marietta locations. He and his wife, Gene, have been consistent, dedicated members of the Club for years driving down from Paso Robles just for our monthly meetings.

The 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.

Please call Aubrey Collins (805) 937-8299) for the location and reservations.

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## **United Launch Alliance News NASA's Juno Spacecraft to Rendezvous with Jupiter Five Years after Launch on an Atlas V Rocket**

**Cape Canaveral Air Force Station, Fla., (July 4, 2016)** – An Atlas V rocket successfully launched the Juno spacecraft for NASA Aug. 5, 2011. After approximately five years and more than 1.74 billion miles, the spacecraft reached its orbit around Jupiter to begin its mission to study the planet from its innermost core to the reaches of its magnetic field.

“Today we celebrate the rendezvous of NASA’s Juno spacecraft with Jupiter, the most dominant object in our solar system other than the sun,” said Laura Maginnis, ULA vice president of Custom Services. “Congratulations to the entire team, who developed the spacecraft and launched it atop an Atlas V rocket back in 2011. They can now begin to analyze the data Juno will provide us about the planet’s composition, origin and evolution during its scientific mission. We are honored to have been Juno’s ride!”

This mission was launched aboard an Atlas V 551 configuration vehicle, which includes a 5-meter diameter payload fairing along with five Aerojet Rocketdyne solid rocket motors attached to the Atlas booster. The Atlas booster for this mission was powered by the RD AMROSS RD-180 engine, and the Centaur upper stage was powered by the Aerojet Rocketdyne RL10A engine.

The Juno spacecraft will be the first to use a polar orbit to study Jupiter through 33 orbits for its scientific mission before being commanded to enter Jupiter’s atmosphere for mission completion. During its highly elliptical 11-day orbits, Juno will come within 3,100 miles of the planet’s cloud tops while measuring magnetic and gravity fields, atmospheric composition and performing infrared, ultraviolet and visible light photography. This mission will help

expand understanding of the many planetary systems being discovered around other stars.

With more than a century of combined heritage, United Launch Alliance is the nation’s most experienced and reliable launch service provider. ULA has successfully delivered more than 100 satellites to orbit that provide critical capabilities for troops in the field, aid meteorologists in tracking severe weather, enable personal device-based GPS navigation and unlock the mysteries of our solar system.

## **United Launch Alliance Successfully Launches MUOS-5 Satellite for the U.S. Air Force and U.S. Navy**

**Cape Canaveral Air Force Station, Fla., (June 24, 2016)**– A United Launch Alliance (ULA) Atlas V rocket successfully launched the MUOS-5 satellite for the U.S. Navy. The rocket lifted off from Space Launch Complex-41 June 24 at 10:30 a.m. EDT.

MUOS-5 is the final satellite in the five-satellite constellation, which provides warfighters with significantly improved and assured communications worldwide.

“We are honored to deliver the final satellite in the MUOS constellation for the U.S. Navy,” said Laura Maginnis, ULA vice president, Custom Services. “Congratulations to our navy, air force and Lockheed Martin mission partners on yet another successful launch that provides our warfighters with enhanced communications capabilities to safely and effectively conduct their missions around the globe.”

The mission was ULA’s fifth launch in 2016 and 108th launch since the company formed in 2006. MUOS-5 was the seventh mission to be launched aboard an Atlas V Evolved Expendable Launch Vehicle (EELV) 551 configuration vehicle, which includes a 5-meter diameter payload fairing and five solid rocket boosters. The Atlas booster for this mission was powered by the RD AMROSS RD-180 engine and the Centaur upper stage was powered by the Aerojet Rocketdyne RL10C-1 engine.

“I am so proud of the team for all their hard work and commitment to 100 percent mission success,” Maginnis said. “It is amazing to deliver our second national security payload from the Cape in just two weeks. I know this success is due to our amazing people who make the remarkable look routine.”

ULA's next launch is the Atlas V NROL-61 mission for the National Reconnaissance Office, scheduled for July 28 from Space Launch Complex-41 at Cape Canaveral Air Force Station, Florida.

The EELV program was established by the U.S. 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.

With more than a century of combined heritage, United Launch Alliance is the nation's most experienced and reliable launch service provider. ULA has successfully delivered more than 100 satellites to orbit that provide critical capabilities for troops in the field, aid meteorologists in tracking severe weather, enable personal device-based GPS navigation and unlock the mysteries of our solar system.

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