



*Sponsored by LOCKHEED MARTIN*

**Volume 38, Issue 1**  
**January 2022**

# MARS STAR



## **MARS STAR has gone digital!!**

If you currently receive a printed copy, you will continue to receive a printed copy. To receive hard (printed) copies in the future, contact Carl Kaminski at 303-726-1546 or via email at [carlcolo@centurylink.net](mailto:carlcolo@centurylink.net).

## **MARS Activities This Quarter:**

**Annual Meeting** on March 9, 2022 at the Denver Marriott South at Park Meadows - **See page 29**

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

### **OFFICERS**

President	Dick Sosnay	303-972-9209
President-Elect	Ken Marts	303-868-2168
VP Activities	Linda Duby	303-249-1665
VP Business	Bill Schrott	303-808-3083
VP Communication	Mike Carroll	303-941-4193
VP Membership	Carl Kaminski	303-726-1546
Treasurer	Charlie Haupt	303-798-7113
Secretary	Al Nemes	303-908-0157
Historian POC	Barb Sande	303-887-8511

### **DIRECTORS**

Director Chair	Roger Rieger	303-912-6217
Director	John Janczy	303-973-3847
Director	Bill Wise	303-771-4887
Director	Robin Zen	303-335-6443
Director	Monte Kopke	303-973-4301
Director	Daniel Crumb	303-909-0490
Director	Debbie Carr	303-503-7113
Director	Dan Ellerhorst	303-794-0750
Director	Heidi Urie	303-588-6762

### **MARS STAR**

Editor	Tom Pighetti	303-979-7933
Editor	Linda Stearns	303-797-3557
Memorials	Norma Emerson	303-646-1137
Webmaster	Jim Kummer	303-986-3966
Volunteers	Judy Nielsen	303-905-3957

#### **Reporting:**

Cape Canaveral	Dick Olson	321-452-4015
Colo Springs	Doug Tomerlin	719-594-6392
Vandenberg	Charlie Radaz	805-733-2051

### **CLUB CONTACTS**

Bridge	Dave & Kathy Martz	303-683-9524
Car Club	Roger Rieger	303-912-6217
Dinner	Becky & Gary Englebright	303-973-4062
	Anita Kannady	303-794-9210
Golf	Bo Rodriguez	303-798-9157
Hiking	Sue Janssen	303-936-8339
Photography	John Chapter (Pres)	303-986-8277

#### **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)*

### **IMPORTANT PHONE NUMBERS**

LM Employee Service Center 1-866-562-2363

### **MARS Important Phone Numbers**

(Be sure to have your MARS ID available)

#### **MARS Delta Dental of CO**

Individual Team (representatives) 1-877-516-6512  
Ron Rueger (Account Mgr) 303-889-8616

#### **Assured Partners of CO**

MARS Delta Dental "Vision" (EyeMed)  
MARS Vision Service Plan (VSP)  
Jon Elmore 303-228-2206  
Hudson Howard 720-510-9505  
Sharla Leary 720-510-9507

Aetna/Medicare Plus 1-888-562-8111

Kaiser Advantage Plus 303-338-3800

#### **MARS Associates**

P. O. Box 1128  
Littleton, CO 80160-1128

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

**MARS Facebook:**

<https://www.facebook.com/groups/MARSAssociates>

#### **Cover:**

**L:** Starlab commercial space station -- Starlab will anchor NASA's Commercial Low-Earth Orbit Destinations project as the space economy continues to grow -- see pg. 22.

**R:** Dick Sosnay's Holiday Celebration welcoming speech at the Wellshire Event Center (see page 33)

---

---

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

Linda Stearns ([linda80120@comcast.net](mailto:linda80120@comcast.net))

Tom Pighetti ([tipighetti@q.com](mailto:tipighetti@q.com))

For comments or corrections, contact Tom (issue editor) or Mike Carroll, 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 Dick Sosnay

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

As we start the New Year, I hope that all our members had a great holiday season, and the MARS officers and directors wish you a Happy New Year. After a weak start to the year due to the on-going pandemic, the MARS Association finished 2021 strong, with an outstanding Holiday Luncheon at the Wellshire Event Center. We had about 200 attendees, including members and their guests, as well as 3 members of the HR staff at Lockheed Martin, a superb vocal quartet from Colorado Christian University who entertained us with Christmas carols after lunch, and, of course, 2 outstanding members of the Marine Corps, who were there to support Toys for Tots. Thanks to all for supporting your MARS Association and making this an extremely fun and enjoyable event. Thanks to the Wellshire Event center for providing a wonderful space to celebrate the holidays, and a very tasty luncheon. And thanks to Linda DUBY our VP of Activities for organizing this great event. As I look back through the year, I am encouraged by how well we seem to be recovering from the effects of the pandemic, with very strong attendance at our fall and winter events. That gives me great hope for the coming year.

I am also encouraged to see many new members joining MARS. In particular, I would like to welcome those who are joining from the Starduster retiree organization. To those new members who are located in the Denver area, please join us, and take advantage of our events, activities and clubs. They are great fun and a way to meet old friends from your time working at Lockheed Martin (LM) and United Launch Alliance (ULA), and a way to meet new friends that share many of your interests. For those of you not in the Denver area, we are also glad to have you onboard, and we hope that the MARS Association can provide you a means of staying connected with what is going on at LM, ULA and within the defense and space industry that many of us have spent a great deal of our lives supporting. While it is difficult for you to join in our local events, I would like to readdress a possibility that I have mentioned in a previous MARS STAR issue. If you would like to get together with LM or ULA retirees in your geographical location, please let me or one of the officers know, and we can try to help by providing you with membership lists for those in your area. If you have any other ideas of how MARS can support you, please also let us know.

As we have ramped up after the pandemic, we are in the process of offering new activities to our members. We have been having Happy Hours a few times a year, which have proven to be popular get-togethers. We are

planning to offer more of those this year. Our informal marketing committee (largely thanks to the effort of long-time director Bill Wise and President-Elect Ken Marts) have also come up with a slew of other possible new activities, including a sleigh ride in Breckenridge, which will have been completed before this issue is released. But we are also looking at some of the old narrow-gauge train rides throughout Colorado in the summer, a trip to the Denver Museum of Nature and Science, a trip to the Central City Opera, a trip to the Wings Over the Rockies Museum at the old Lowery AFB, and tours of the plant at Waterton. At the Christmas Luncheon, we had an exhibit talking about those opportunities in order to gauge the interest in participating in those events. We also sent out a mass email to our members to see who else might have an interest in those events. Based on responses collected to date, we are in the process of setting those up. If you are interested in participating in some of those events, please let us know. If you have other ideas on events that MARS can support, please let one of the officers or directors know. We are looking not only for people to participate in those events, but also those to set up and lead other events, please let us know.

As I have said many times, we are a volunteer organization, and we are always looking for volunteers to support us. That includes not only being an officer or director, but also all the other volunteer positions we have, including MARS STAR editors, Historian, Volunteer coordinator, managing our Memorials section of the MARS Star, helping the web committee, and managing and running the MARS website and the MARS Facebook page. And running one of our 6 MARS clubs, including the Bridge Club, Car Club, Dinner Club, Golf Club, Hiking Club, and Photography Club. And if you are a volunteer in a local organization, we are interested in hearing about it. We will help you promote that organization in the MARS STAR by letting other MARS members know about it -- you can provide organizational information, and how interested MARS members can join. And we provide a \$50 dollar check to the organization as thanks for you writing an article. This issue does not have a volunteer organization article, since we could not find a volunteer to write it. If you are interested in promoting your volunteer organization in future MARS STARS, please let us know.

Coming up in a few months, I hope to see many of you at our Annual meeting in March. It will be a wonderful opportunity to meet fellow MARS members, have a great lunch, hear an interesting speaker (Dr. Vanessa Aponte Williams, Senior Manager of Human Spaceflight for Lockheed Martin) talk about Human Spaceflight, and also learn about our planned MARS activities for the upcoming year. Thanks for all your support last year, and I am looking forward to an exciting and interesting year for our MARS Association.



## Next Up

By Ken Marts

[martshouse2@aol.com](mailto:martshouse2@aol.com)

2021 is now in the history books. Looking back, what I view as amazing Space accomplishments are: Captain Kirk; aka. William Shatner, made it to the edge of space via Blue Origin, Laura Shepard Churchley also made it to suborbital space via Blue Origin. Laura is the eldest daughter of America's first astronaut in space, Alan Shepard. and commercial ventures, while expensive, are in their infancy of reality via Blue Origin and several other start-up companies. Back to Earth, MARS accomplishments were getting back to in-person events including the Senior Luncheon, Rockies baseball, Picnic, and Holiday Celebration. We even had a couple of well-attended Happy Hours. We're in the planning stages of several new events for 2022 that will offer more people, more opportunities to enjoy retirement and getting together with old friends and meeting new ones. Stay Tuned!!

This issue also welcomes new members from the Starduster organization. Please extend a hearty cheer for these new members who want to continue staying in touch with Lockheed Martin and its accomplishments under the guidance of our new CEO, Jim Taiclet. Starduster members may recognize the contributions Pete Harrigan is making to our quarterly newsletter with his "In The News" column. The digital edition of STAR features title summaries of LM articles with hotlinks to the full articles. We apologize to those receiving hard copy who need to type the link into their browser to get access to these same articles. Future editions may include some of your other members who've contributed monthly or periodic articles. We're still growing as an organization and determining our best path forward to make MARS an organization you're proud of.

I look forward to an exciting 2022 and beyond and I encourage all members to email me or call me with your comments on what you'd like to see and hear from YOUR MARS organization. Your input is always appreciated.

Ken Marts

[Martshouse2@aol.com](mailto:Martshouse2@aol.com) or [kmarts4109@msn.com](mailto:kmarts4109@msn.com)

(303) 868-2168



## Director's Notepad

By Roger Rieger

Chairperson, BoD

[rrieger10731@gmail.com](mailto:rrieger10731@gmail.com)

Happy New Year! Hope you were able to join your MARS friends at the 2021 Holiday Celebration, enjoying good company, food, and Christmas cheer! It was our largest turnout! A big shout out goes to Linda Duby for all her continuing hard work organizing our major MARS events. If you have not yet given her your personal thanks, please do! MARS is a volunteer organization and without all of the hard work put in by your MARS Officers, STAR editors, Historian, Webmaster, Facebook admin...I could go on and on, but I won't, you get the message. MARS would cease to exist. If you don't believe me, see the discussion regarding the MARS Stardusters organization elsewhere in the newsletter. Or the Baltimore, Orlando, Vandenberg LM retirement organizations which have all closed up shop due to lack of volunteers. So, if one of your 2022 New Year's resolutions was to become more involved in a volunteer organization, I CAN HELP! Reach out to me, or any of the BOD members or MARS Officers and let us know your interests!

I would also like to extend a huge welcome to Heidi Urie who volunteered to join the MARS Board of Directors and lend her expertise and time to your MARS organization. Thank you, Heidi.



## Activities Updates

By Linda Duby

[lindaduby@comcast.net](mailto:lindaduby@comcast.net)

Happy 2022! I hope everyone had a wonderful holiday season and is looking forward to the new year.

The last event of 2021 was the Holiday Celebration which was held at the Wellshire Event Center on December 1. We had a great response to the event with 181 members and their guests attending. The Wellshire did a great job on the food and the service. Also attending the event, were two Marines, Sgt. Amy Paz and Sgt. Johnathan Brown, representing Toys for Tots. Our members were very generous with gifts and donations to this worthwhile organization. Also in attendance were 3 special guests from Lockheed Martin HR, including Reese Reynolds/HR Director and a long time liaison between MARS and LM, and a friend of MARS, Shamina Fletcher, Executive Assistant to Nick Spain, VP- HR for Space and Brian Wilson, Technical Assistant to Nick Spain.



This year we had entertainment provided by a group of singers from Colorado Christian University. Thank you to the singers – Sarah Bergman, Kallie Kay, Joe Bernard, and Jonathan Pine. And, thank you to Bill Wise for arranging for this talented group to perform at our luncheon.

Our next event is the Annual Meeting on March 9, 2022. This year the meeting and luncheon will be held at the Denver Marriott South at Park Meadows. The hotel is located at 10345 Park Meadows Drive near the Park Meadows Mail. The speaker this year will be Vanessa Aponte Williams who is the Human Space Flight Exploration Senior Manager of Advanced Programs, Commercial Civil Space at Lockheed Martin.

The flyer for the Annual Meeting is included in this issue of the STAR and is posted on the MARS website (<https://www.marsretirees.org>). It will also be posted on the MARS Facebook page. There are two ways to make reservations and payment – mail a check with the form on the flyer or electronically through the STRIPE link on the flyer. Please note that you can edit your order on STRIPE if you make a mistake – just click “Edit This Submission” link on the receipt.

There will be more information about the upcoming events in 2022 in future issues of the STAR. We are still in the planning stages for the Luncheon Honoring Senior Members, Rockies Game and Picnic, and the Annual Picnic. We are looking forward to be able to hold all our normal events this year plus more happy hours.



## Business

By William Schrott  
([wmschrott@msn.com](mailto:wmschrott@msn.com))

With New Years upon us, I hope you all have a plan to successfully implement your New Year’s resolutions. Every year I strive to lose a lot of weight. But on January 1<sup>st</sup> when I go for a walk, I see that I still project a rather large shadow.

I’m sure all of us have reviewed our insurance, investments, and vaccination status. Stay safe and be kind to others



## Membership Report

By Carl Kaminski  
([carcolo@centurylink.net](mailto:carcolo@centurylink.net))

### Membership Report

By Carl Kaminski  
([carcolo@centurylink.net](mailto:carcolo@centurylink.net))

As of January 1, 2022, there are 1,349 MARS Associates members, including 703 senior members. We have a total of 154 new members who have joined MARS for the 2021 CY.

Please welcome the following new members who have joined this quarter:

### Colorado

Castle Pines	Joanne Beckham, Jeanne & Robin Muetzel
Cedaredge	Steve Driessen
Denver	Rosanne Caravella, Eric & Valerie Seale
Highlands Ranch	Dale Arnold & Patty Jones-Arnold, Julie Dodd, Diane & Brad Eckhoff, Jack Troutman, Gary & Judy Tsuji
Lakewood	Kathy Myers, Luke Sanchez
Larkspur	Dan & Nancy Steege
Littleton	Tom Booth, Paul Cogeos, Rick & Betsy Glesner, Darren & Laurie Hamer, Connie Heisler, Ed & Ginny Lyons, Bob McKenry, Todd & Lonna Schaap, Hal Slusser, Dick & Lynne Stowell
Lone Tree	Gina Curet
Longmont	Lloyd & Sharon Fisher
Parker	Wayne & Andrea Evenson
Sedalia	Joyce & Daniel Satchell, Carolyn Stevens

### Other States

### Alabama

Trinity Steven & Nancy Wilson

### **Arizona**

Gilbert Tom Schaefer Sr.

### **California**

Carlsbad Gainey & Lynn Best II

Chatsworth Avrom & Debbie Solomin

Coronado David Ellefson

Glendale John & Sue Clauss Jr.

Granada Hills Keith & Candi Beswick

Lake Arrowhead Carole & Walter Bunch

Los Olivos David Pedersen

Oxnard Sherm & Judia Mullin

Parlier Gil & Guille Lujan

Pleasanton Gene Heiman, Scott & Kathy Rubin

Porter Ranch Norm Gleit

San Diego Kel Copeland

San Marino David & Jodie Egawa

Santa Monica Roger Merideth

### **Delaware**

Newark Joe Trybus

Rehoboth Beach Pete & Joanne Harrigan

### **Florida**

Clearwater Gary & Barbara Kraus

Oviedo Jon Duberke

Parrish Wally Howison

Rotonda West John Plowman

Titusville Janeann Sleeman

Viera Joseph & Sheryl Iovanna

### **Georgia**

Acworth Vic Cox

Ball Ground Peter & Mary Clukey

Kennesaw Dave Beasley

Marietta Pat Adams

### **Illinois**

Dix Pat & Kathy Burke

### **Maryland**

Bethesda Barbara Reinike

### **North Carolina**

Calabash Dan O'Connor

Pinehurst Maria Greth

### **New York**

Liverpool Earl Turner

### **Pennsylvania**

Bensalem Larry & Jeri Santucci

### **South Carolina**

Seneca Bob & El King

### **Texas**

Decatur Roger & Deni Halterman

Fair Oaks Ranch Brett Mussey

Farmers Debbie & Ray Woods

## Branch

Keller	Mo Johnson & Gilda Rogers
Livingston	Mike & Candi Rote
Rio Hondo	Martin Salinas
Southlake	Vonn Zauber

## Virginia

Richmond	Cheryl Marin
Woodstock	Cindy Sumner

## Washington

Kent	John & Deb Huleatt
Port Ludlow	Curt Ueda

## Membership Renewal

Once again, it's time for membership renewal. There is a hard copy of the renewal form contained in this issue of the STAR. In addition, clicking on the Membership tab from the main page of the MARS Retirees website ([MARSRETIRES.ORG](https://marsretirees.org) → [MEMBERSHIP](https://marsretirees.org/membership)) will provide access to a form which can be downloaded, filled out and printed for mail-in. You can type directly into this form from your web browser and print it out or printout the blank form and fill it in. Either approach should work. Also, you can renew directly online by selecting the red 'Renew' button under Membership Online Processing. This will allow you to pay via credit card and save the hassle of mailing your renewal form and payment via USPS. If you have any questions contact Carl Kaminski directly at 303-726-1546.

## NEW MEMBERS

Do you know someone who recently retired from LM or ULA? First year membership in MARS is free for 2022. Direct them to the website for more information or have them contact one of the Officers or Directors.

## Change of email address or phone number?

Given the rapidly changing environment we are all dealing with, it's more important than ever that we have current email and phone information for our members. Please remember to include the MARS membership team in your list of people to notify when you have a new phone number or email. We want to make sure all communications are timely.

## **In Memoriam**

By Norma Emerson  
([emer801@msn.com](mailto:emer801@msn.com))

*Please contact me at the above email address or at 303-646-1137 with information about the passing of a member, the spouse of a member or other MM/LM retirees so they can be acknowledged in the Memoriam section.*

*MARS Associates expresses our deepest sympathy in the loss of your loved one, and a donation will be made to a charity chosen by the Officers and Board of Directors in their memory.*

## **Members**

Bunnell, Clarence Edward (D: August 2021)  
(Survived by Lynn Bunnell)  
Highlands Ranch, CO  
<https://tinyurl.com/yrz2e77d>

Carney, Raymond "Ray" (D: October 2021)  
(Survived by Janice Carney)  
Lakewood, CO  
<https://tinyurl.com/p43uk7uk>

Cole, James "Jim" (D: November 2020)  
(Survived by Marie Cole)  
Littleton, CO  
<https://tinyurl.com/yc6ub42c>

Ikard, Robert "Spike" (D: October 2021)  
(Survived by Lou Ikard)  
Littleton, CO  
No obituary published

Markham, Bobby "Bob" (D: December 2021)  
Centennial, CO  
<https://tinyurl.com/mrxs3hyf>

Paulson, Wallace "Wally" (D: October 2021)  
(Survived by Barbara Paulson)  
Corona Del Mar, CA  
<https://tinyurl.com/fywu4dt>

Raymond, Lena F. (D: November 2021)  
(Survived by William Raymond)  
Lakewood, CO  
<https://tinyurl.com/27259md6>

Richardson, Kenneth "Ken" (D: September 2021)  
(Survived by Frances Richardson)  
Monument, CO  
<https://tinyurl.com/4ybc2b6e>

Stang, Donald (D: December 2021)  
Holyoke, CO  
No obituary published

Stowell, Lynne (D: November 2021)  
(Survived by Richard "Dick" Stowell)

Littleton, CO  
<https://tinyurl.com/49eb4z7a>

## Non- Members

Bornhoeft, Theodore "Ted" (D: November 2021)  
(Survived by Sandra Bornhoeft)  
Littleton, CO  
<https://tinyurl.com/jktmeuar>

Haas, Dr. Willard "Bill" Haas (D: August 2021)  
(Survived by Nancy Haas)  
Centennial, CO  
<https://tinyurl.com/fsh469xb>

Holloway, Charles (D: November 2021)  
Daytona Beach, FL  
<https://tinyurl.com/4y97f3su>

Hunt, Janice (D: September 2021)  
Aurora, CO  
<https://tinyurl.com/yzm5phwh>

Keogh, William "Bill" (D: July 2021)  
(Survived by Jolene Keogh)  
League City, TX  
<https://tinyurl.com/yc3kb2cb>

Kopec, Mary Beth (D: August 2021)  
(Survived by David Kopec)  
Denver, CO  
<https://tinyurl.com/yd9j7zxa>

Kripakov, Nicholas (D: December 2021)  
(Survived by Lynn Kripakov)  
Centennial, CO  
<https://tinyurl.com/hhjkwjz4>

McAnally, James "Jim" (D: November 2021)  
(Survived by Lea McAnally)  
Centennial, CO  
<https://tinyurl.com/tatj58t8>

McFarlin, Glenda (D: November 2021)  
Stillwater, OK  
<https://tinyurl.com/52ypy73v>

Menapace, Marilyn (D: November 2021)  
(Survived by Richard Menapace)  
Cedaredge, CO  
<https://tinyurl.com/3r5mtdws>

Richardson, Robert "Bob" (D: November 2021)  
(Survived by Allene Richardson)  
Littleton, CO  
<https://tinyurl.com/56xx5uuv>

Schmidt II, Mark (D: October 2021)  
(Survived by Betty Schmidt)  
Castle Rock, CO  
<https://tinyurl.com/y48dsmkd>

Serotta, Maurice "Maury" (D: November 2021)  
(Survived by Betty Ann Serotta)  
Denver, CO  
<https://tinyurl.com/s5k5vzs9>

Thorpe, Richard Eugene (D: November 2021)  
(Survived by Patricia Thorpe)  
Denver, CO  
<https://tinyurl.com/4vpk3huv>

---

---

## The MARS Associates Website

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

The website committee would be happy to acquire some new members. The duties are light, the members are amicable, and you can acquire some new skills. We meet once a month either at an in-person luncheon or by ZOOM. Attending to the pages of the website is done on your home computer at your convenience. If you're at all interested, send me an email, or call (303-986-3966) and we'll discuss it.

Here are the websites of the month that the web committee has offered for your browsing pleasure.

**December – Official photos from Lockheed**

**Martin at [Photostream](#)**

**November - For Mortgage Loan and other useful calculators, take a look at [www.calculator.net/](http://www.calculator.net/)**

**October – Find quotes of all kinds at <https://www.brainyquote.com>**

Your website committee members welcome your suggestions for improving the website. It's been a while since we received any site of the month suggestions. If you frequent websites that would be of interest to our membership as websites of the month, email them to me at [jkummer@comcast.net](mailto:jkummer@comcast.net). Your website committee members are: Al Butvidas, Bob Knickerbocker, Linda Stearns, Duane "Smitty" Smetana, and Jim Kummer (Webmaster).

---

---

## Historian Corner

By Barb Sande  
([barbsande@comcast.net](mailto:barbsande@comcast.net))

## ANNOUNCEMENT!!

Another roundtable session will be scheduled in the May, 2022 timeframe (date and time TBD, using a Zoom meeting) to discuss the challenges associated with the



Cassini mission processing and launch. The launch of the spectacularly successful NASA/JPL Cassini mission to Saturn celebrates its 25<sup>th</sup> anniversary on October 15, 2022 and I will write a summary article from the roundtable for the appropriate MARS STAR near that anniversary date. I would like participants who worked on: the Titan IV booster vehicle, the Centaur upper stage and the propulsion components and instruments built by our heritage companies for the Cassini spacecraft; we also want folks who supported the launch processing at CCAFS. If you were involved in this mission and want to participate in the roundtable, please send me an email and advise me of your preferred dates in May at [barbsande@comcast.net](mailto:barbsande@comcast.net). (Note: I will NOT be available from May 16-20, 2022 and I will likely schedule this in an afternoon session because of morning conflicts). More announcements will be made via email and on the Facebook MARS Associates page.

## GENERAL ITEM OF INTEREST

I would like to remind readers of the history corner that it contains a section listing historical missions from 10 to 60 years ago for a three-month period for our heritage companies. If you scan through this section, it is interesting to note how the activity ramped up significantly in the last part of 1961, with many launches of Atlas and Titan ICBMs, launches of Polaris missiles and Pershing missiles, and nascent launches of satellites.

## HISTORY ON THE ROAD

No program profile is on tap for this edition. The History on the Road is being revived as people start traveling again, with overviews of the interesting space collections at Kennedy Space Center Visitor Complex in Florida. In the last edition, I also noted that I would provide an overview of the Cosmosphere in Hutchinson, Kansas; that facility is currently undergoing a massive renovation project, so the overview is deferred to a future issue (and hopefully another visit to see the renovations).

### Kennedy Space Center Visitor Complex

The Visitor Complex at Kennedy Space Center can be considered the “granddaddy” of space museums and exhibits, with enough displays and activities to keep a family busy for multiple days. The main complex, just outside the security gates to the KSC areas, is located on Space Commerce Way on Merritt Island, an easy drive from central Florida locations like Orlando, Cocoa Beach, Melbourne and Daytona Beach. I first visited the KSC visitor center in the summer of 1968 with my parents. At that time, it was a single building with a few displays and a book store, along with optional bus rides through KSC and CCAFS. My family repeated this visit in July, 1971, before seeing the launch of Apollo 15 (see the 2021Q4 MARS STAR Historian Corner). The center has grown since then to include many buildings and exhibits on-site

(including the fantastic Rocket Garden) along with the Apollo/Saturn V facility north of the VAB (Vehicle Assembly Building), which is part of the regular bus tours. In recent years, a huge new facility was built to display the Space Shuttle Atlantis and the Astronaut Hall of Fame was moved to the complex after being located on Space Commerce Way near A1A (now part of the “Heroes and Legends” exhibit).

A map of the main facility is shown below:



MAP Courtesy KSC Visitor Complex (NASA)

Steve and I last visited the KSC Visitor Complex in January, 2020, coincidentally on the same day as the successful SpaceX Falcon 9 Crew Dragon Abort test (it was great to see a launch, then go enjoy this fabulous archive of space history). I have included a few pictures from that visit to KSC. The Complex opened later in the day due to the launch and we did not have a chance to see all of the exhibits and activities, but we did spend time at the Apollo/Saturn V facility (reached by the Tour bus) and also enjoyed the very moving experience viewing the Space Shuttle Atlantis; those two exhibits are discussed at length in this article.

The current (as of 12/2021) one-day admission at the KSC Visitor Complex is \$57 for adults (age 12+) and \$47 for a child (ages 3-11). Parking is \$10 per car (more for larger vehicles and RVs); there are no public transportation options for getting to the Visitor Complex. This admission includes the following attractions:

- 1) Heroes and Legends, featuring the U.S. Astronaut Hall of Fame
- 2) Apollo/Saturn V center (reservations required for complimentary bus transportation)
- 3) Astronaut Encounter presentations
- 4) Planet Play (indoor play space for children, with an adjacent wine and beer garden for the parents!)
- 5) Space Shuttle Atlantis with the Shuttle Launch Experience
- 6) NASA Now (includes a tribute to the Heroes of Mission Control)

- 7) Rocket Garden (check out the heritage Titan, Atlas and Delta vehicles, along with the Saturn IB!)
- 8) Journey to Mars: Explorers Wanted
- 9) 3D Space Films in the IMAX theater
- 10) Character appearances

There are several restaurants and gift shops on the premises and you can actually buy authentic SpaceX merchandise in one of the stores!

Since the COVID-19 pandemic started, the full KSC bus tour and special bus tours to the Cape Canaveral Space Force Station side of the Cape have been suspended, although the buses to/from the Apollo/Saturn V Center have been reinstated (reservation required). There are also special experiences that are not included in the general admission, including Chat with an Astronaut and Astronaut Training Experiences.

### Apollo/Saturn V Center

As noted previously, the Apollo/Saturn V Center is a separate facility located north of the VAB on KSC grounds and is only accessible by the tour buses since it is in a restricted area. I know this for a fact, because I tried to visit the Center after it opened in 1996 when I was at the Cape supporting a Titan mission and they turned me away. I ended up doing the tour the morning of the day we launched the TIVB/Centaur Cassini mission (October 15, 1997) on my way to the airport, just so I could see this facility; I admit to being emotionally overwrought witnessing the Apollo 8 launch re-creation and walking under the restored Saturn V (I attribute *most* of this reaction to being up all night the night before and the triumph of the successful Titan/Centaur Cassini launch!).

In the early 1990s, the Smithsonian Institute undertook a massive restoration project costing nearly \$100 million of the Saturn V flight article that was displayed for years outside the VAB. This restoration included a complete pedigree trace and review of the components installed on that flight article (which included stages from cancelled missions Apollo 18 and 19). Simultaneously, a 100,000 square foot facility was built to house this restored vehicle and provide many other displays of artifacts from the Apollo era. Before entering the main facility, visitors are treated to a re-creation of the Apollo 8 launch, as I noted above. The firing room has consoles from the launch operations center and the countdown is done in an authentic way. The room shakes with the noise and shock waves from the five F1 engines.



**Firing Room and Apollo 8 Countdown**  
(Photo Copyright Steve and Barb Sande)



**All Systems Are Green/GO for Apollo 8!**  
(Photo Copyright Steve and Barb Sande)

Visitors are then escorted through double doors to stand directly underneath the F1 engines at the aft end of Stage I; shock and awe are appropriate terms! Each one of these Rocketdyne engines was capable of over 1.5 million pounds of thrust, still the most powerful single combustion chamber liquid-propellant engines ever developed.



**Five Stage I F1 Engines on Restored Saturn V**  
(Photo Copyright Steve and Barb Sande)



The 363-foot-tall Saturn V fills the space in this building and the stages are separated so that the engines on all stages can be seen. Along the sides are other displays, including the Command Module from the Apollo 14 mission (*Kitty Hawk*), an unused Lunar Module (LM-9), and an unused Command Service Module (CSM-119). The large artifacts are surrounded by interactive displays and support equipment, including a replica of the lunar rover. Another theater shows a simulation of the Apollo 11 lunar landing. A new exhibit, *Ad Astra per Aspera* (To the Stars with Difficulty), opened in 2017 to honor the fallen astronauts of Apollo 1; we missed seeing this when we visited the Apollo/Saturn Center in 2020.

The Apollo/Saturn V Center has a gift shop, cafeteria-style restaurant and visitors can go outside to the Moon Tree Garden and an adjacent viewing stand (Banana Creek Launch Viewing Area) that is used for pre-registered visitors wanting to view current SpaceX, ULA and soon-to-come Artemis launches. If you are in the vicinity, check the launch schedules and register early with the KSC visitor center. A link is provided at the end of the article. A scenic viewpoint at the waterside also allows for great photos of the Vehicle Assembly Building (VAB). The buses, now that they are running again, return visitors to the main visitor complex at regular intervals.



**View of the VAB Outside Apollo/Saturn Center**  
(Photo copyright Steve and Barb Sande)

### Space Shuttle Atlantis Exhibit

The buses returning from the Apollo/Saturn V Center conveniently drop off visitors near the huge (64,000 square foot) building that opened in 2013 to house and display Space Shuttle *Atlantis* and provide for other displays and experiences associated with the Space Shuttle Program. Outside the facility is a full-scale stack of two solid rocket boosters and the External Tank (for some reason, we neglected to stop and take pictures of this impressive outdoor display).

Visitors to the Space Shuttle building are brought to an upper level of the building using ramps or an elevator. A short movie has been created to talk about the design of a winged spacecraft that could return to Earth and land on a runway. This is followed by a surround-sound experience in a large adjacent room showing shuttle launches and operations (great sound!!). Finally, a screen opens to show the forward end of the actual Orbiter Vehicle *Atlantis*. Most visitors are extremely moved by this experience, seeing the teary eyes (including both of us) and hearing the gasps among the crowd. The orbiter vehicle (OV-104) is hung from the ceiling and displayed at an angle of 43.2 degrees; the payload bay doors are open and the Canadarm is extended, a sight that was only seen in space until the end of the program.



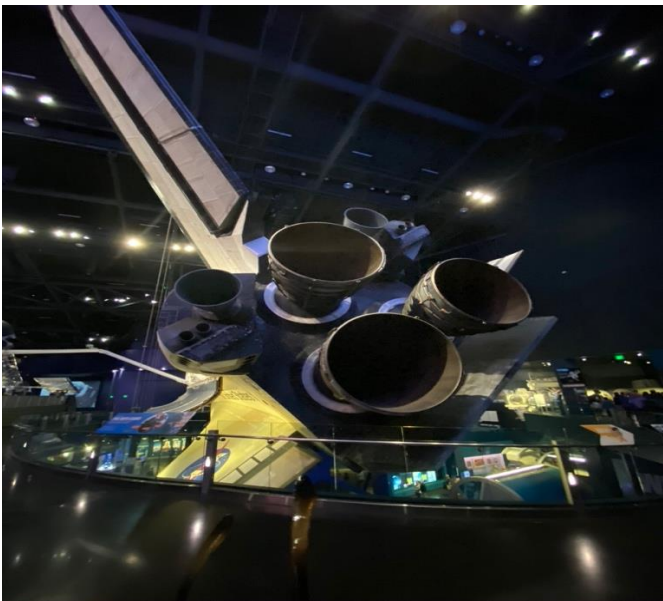
**View looking down the Saturn V; Mission Patches at Right (Apollo/Saturn Center)**  
(Photo Copyright Steve and Barb Sande)



**Steve (at far left) is Moved by the Sight of Atlantis**

(Photo Copyright Steve and Barb Sande)

Nearby, there is a full-scale replica of the Hubble Space Telescope. Ramps going down in the building go past the three main engines of the orbiter and through various displays of support equipment, early shuttle concept designs (including one that was considered using a Titan vehicle) and displays about ISS operations. At the bottom, you can get a good look at the thermal protection system. The Space Shuttle Launch Experience, using simulators to simulate a shuttle launch, is now part of the overall Atlantis exhibit and is also located on the ground floor.



**Three RS-25 Space Shuttle Main Engines**

(Photo Copyright Steve and Barb Sande)

Another area on the ground floor of the building is the "Forever Remembered" hall, with personal mementos provided by the families of the fallen 14 Space Shuttle

astronauts, along with recovered pieces of both Challenger and Columbia. Viewing these mementos and remembering both of those failures so vividly brought more tears to our eyes.



**Personal Memorabilia for Astronaut Rick Hubbard (Commander, Died on STS-107, February 1, 2003)**

(Photo Copyright Steve and Barb Sande)

## Summary

The KSC Visitor Complex is a must-see, even for veterans of launch vehicle and satellite programs who spent a lot of time at KSC and CCAFS, because there are always new and interesting exhibits and experiences. In a state filled with tourist destinations, KSC still attracts nearly 2 million visitors a year. We enjoyed our visit very much in 2020; after walking around the exhibits and the Complex, we were also happy that the venerable and popular Dixie Crossroads restaurant in Titusville was a short drive away!





### Delicious Broiled Rock Shrimp at the Dixie Crossroads, Titusville

(Photo Copyright Steve and Barb Sande – yes, that is powdered sugar from the fritters on the table!)

### Resources and Links

#### Kennedy Space Center Visitor Complex Main Website:

<https://www.kennedyspacecenter.com>

Information and registration for upcoming launches:  
<https://www.kennedyspacecenter.com/launches-and-events/events-calendar/see-a-rocket-launch>

General Information about KSC Visitor Complex:  
[https://en.wikipedia.org/wiki/Kennedy\\_Space\\_Center\\_Visitor\\_Complex](https://en.wikipedia.org/wiki/Kennedy_Space_Center_Visitor_Complex)

### On This Date in History

This section has space milestones retrieved from publicly available information for LM, ULA and heritage programs from 10 to 60 years ago (2011, 2001, 1991, 1981, 1971, 1961). Delta launches prior to the formation of ULA, unless it included an LM or heritage company payload or upper stage, are not listed. No classified programs are identified, even if the program is now considered unclassified, with the exception of the Discoverer program (Corona). The events reflect milestone activity in the quarter previous to the release of the MARS STAR -- where appropriate, key press releases are also included; significant milestones are in bold. The list is not intended to be all-inclusive due to historical record inaccuracies. Occasionally, a major space milestone not accomplished by any of our heritage programs will be included due to its historical significance.

### Events in October (10 to 60 years ago)

- 10/28/2011: Six Technology Demo/Research satellites launched by ULA Delta II 7920-10, SLC-2W, VAFB
- 10/05/2001: Classified USA-161 launched by LM Titan IVB (404), SLC-4E, VAFB
- 10/11/2001: Classified USA-152 launched by LM Atlas IIAS, LC-36B, CCAFS
- **10/24/2001: LM Mars Odyssey successfully achieves orbit at MARS (still operational as of 12/15/2021)**
- No events in 1991
- 10/13/1981: MM MGM-31A Pershing launched (two), Fort Bliss, Texas
- 10/21/1981: MM MGM-31A Pershing launched (two), Fort Bliss, Texas
- 10/31/1981: Classified launch, MM Titan III (23C), LC-40, CCAFS
- 10/17/1971: ASTEX launched by Thorad SLV-2G/Lockheed Agena-D, SLC-1W, VAFB
- 10/21/1971: RCA ITOS-B launched by Delta N6, SLC-2E, VAFB; **LAUNCH FAILURE**
- 10/23/1971: Classified launch, MM Titan III(24B), SLC-4W, VAFB
- 10/02/1961: GD SM-65E Atlas launched, LC-11, CCAFS
- 10/04/1961: Lockheed UGM-27 Polaris A2 launched, USNS Observation Island, ETR
- 10/05/1961: GD SM-65E Atlas launched, LC-13, CCAFS
- 10/07/1961: MM HGM-25A Titan I launched, LC-19, CCAFS
- 10/10/1961: MM MGM-31 Pershing I launched, LC-30A, CCAFS
- 10/13/1961: Discoverer 32 launched, Thor DM-21/Lockheed Agena-B, LC-75-3-4, VAFB
- 10/16/1961: Lockheed UGM-27 Polaris A1 launched, USS *Ethan Allen*, ETR
- 10/21/1961: Experiments launched by GD Atlas LV-3A/Lockheed Agena-B, LC-1-2, Point Arguello
- 10/23/1961: Lockheed UGM-27 Polaris A2 launched, USS *Ethan Allen*, ETR
- 10/23/1961: Discoverer 33 launched, Thor DM-21/Lockheed Agena-B, LC-75-3-5, VAFB; **LAUNCH FAILURE**
- 10/24/1961: MM HGM-25A Titan I launched, LC-20, CCAFS

### Events in November (10 to 60 years ago)

- **11/26/2011: Mars Science Laboratory Curiosity launched by Atlas V 541, LC-41, CCAFS; maiden flight of Atlas V 541, largest rover to Mars at that time**
- No events in 2001
- 11/04/1991: Lockheed UGM-133 Trident D-5 launched, USS *Kentucky*, ETR



- 11/08/1991: Four classified payloads launched (USA-72, 74, 76, 77), MM Titan IVA-403A, SLC-4E, VAFB
- 11/11/1991: Lockheed UGM-133 Trident D-5 (four) launched, USS *Pennsylvania*, ETR
- 11/24/1991: STS-44 (Atlantis) launched, LC-39A, KSC; 6-person crew, DoD mission (DSP-16)
- 11/28/1991: Lockheed DSMP-11 launched by GD Atlas-E, SLC-3W, VAFB
- **11/12/1981: STS-2 (Columbia) launched, LC-39A, CCAFS; 2-person crew, technology demo satellites; second shuttle launch**
- 11/15/1981: Lockheed UGM-96 Trident I C4 launched, USS *Benjamin Franklin*, ETR; **LAUNCH FAILURE**
- 11/20/1981: RCA Satcom 3R launched by Delta 3910/PAM-D, LC-17A, CCAFS
- 11/03/1971: DCSC II A1/A2 launched by MM Titan III(23C), LC-40, CCAFS
- 11/02/1961: MM MGM-31 Pershing I launched, LC-30A, CCAFS
- 11/03/1961: Lockheed UGM-27 Polaris A1 launched (3), USS *Ethan Allen*, ETR
- 11/05/1961: Discoverer 34 launched, Thor DM-21/Lockheed Agena-B, LC-75-1-1, VAFB; **LAUNCH FAILURE**
- 11/08/1961: Lockheed UGM-27 Polaris A2 launched, USS *Ethan Allen*, ETR
- 11/09/1961: Lockheed UGM-27 Polaris A2 launched, LC-29A, CCAFS
- 11/10/1961: GD SM-65E Atlas launched, LC-13, CCAFS; **LAUNCH FAILURE**
- 11/15/1961: Discoverer 35 launched, Thor DM-21/Lockheed Agena-B, LC-75-3-4, VAFB
- 11/15/1961: MM MGM-31 Pershing I launched, LC-30A, CCAFS
- 11/18/1961: Ranger 2 (lunar test flight) launched by GD Atlas LV-3A/Lockheed Agena-B, LC-12, CCAFS; **LAUNCH FAILURE**
- 11/22/1961: MM HGM-25A Titan I launched, LC-20, CCAFS
- 11/22/1961: Samos 4 launched by GD Atlas LV-3A/Lockheed Agena-B, LC-1-1, Point Arguello; **LAUNCH FAILURE**
- 11/29/1961: GD SM-65F Atlas launched, LC-11, CCAFS
- **11/29/1961: Mercury-Atlas 5 launched by GD Atlas LV-3B, LC-14, CCAFS; Carried Enos the Chimp**
- 11/29/1961: GD SM-65D Atlas launched, LC-576B-2, VAFB
- 11/29/1961: MM HGM-25A launched, LC-19, CCAFS

### ***Events in December (10 to 60 years ago)***

- No events in 2011
- 12/05/2001: STS-108 (Endeavour) launched, LC-39B, KSC; seven-person crew, Raffaello MPLM logistics module, ISS Assembly
- 12/07/1991: Eutelsat 2F3 launched by GD Atlas II, LC-36B, CCAFS
- 12/15/1981: Intelsat V F-3 launched by GD Atlas SLV-3D/Centaur-D1AR, LC-36A, CCAFS

- 12/04/1971: Classified launched by GD Atlas SLV-3A/Lockheed Agena-D, LC-13, CCAFS; **LAUNCH FAILURE**
- 12/14/1971: Classified payloads (4) launched by Thorad SLC-2G/Lockheed Agena-D, SLC-1W, VAFB
- 12/20/1971: Intelsat IV F-3 launched by GD Atlas SLV-3C/Centaur-D, LC-36A, CCAFS
- 12/01/1961: GD SM-65E Atlas launched, LC-13, CCAFS
- 12/01/1961: MM MGM-31 Pershing 1 launched, LC-30A, CCAFS
- 12/06/1961: Lockheed UGM-27 Polaris A1 launched, LC-25A, CCAFS
- 12/07/1961: GD SM-65D Atlas launched, LC-576B-3, VAFB
- 12/12/1961: GD SM-65D Atlas launched, LC-11, CCAFS; **LAUNCH FAILURE**
- 12/12/1961: Discoverer 36 launched by Thor DM-21/Lockheed Agena-B, LC-65-3-4, VAFB; also launched OSCAR-1, first amateur-built satellite
- 12/13/1961: MM HGM-25A Titan I launched, LC-20, CCAFS
- 12/15/1961: MM HGM-25A Titan I launched, LC-19, CCAFS
- 12/20/1961: GD SM-65E Atlas launched, LC-13, CCAFS; Cosmic ray research
- 12/21/1961: GD SM-65F Atlas launched, LC-11, CCAFS; **LAUNCH FAILURE**
- 12/22/1961: Samos 5 launched by GD Atlas LV-3A Lockheed Agena-B, LC-1-2, Point Arguello; **LAUNCH FAILURE**
- 12/28/1961: MM MGM-31 Pershing I launched, LC-30A, CCAFS

Reference websites:

<https://nssdc.gsfc.nasa.gov/planetary/chronology.html#2014>

[https://en.wikipedia.org/wiki/Timeline\\_of\\_spaceflight](https://en.wikipedia.org/wiki/Timeline_of_spaceflight)

<https://www.ulalaunch.com/missions>

<https://news.lockheedmartin.com/news-releases?year=2021>

<https://space.skyrocket.de>

<http://www.astronautix.com>

### **Next Edition**

Be sure to check out the next History Corner where I profile the 60<sup>th</sup> anniversary of the Mercury/Atlas Friendship 7 flight of John Glenn. Coming soon: Apollo 16, 25<sup>th</sup> Anniversary roundtable of the Titan/Centaur Cassini launch, Apollo 17. 2023 will include a series about the Apollo/Skylab missions.

Barb Sande, MARS STAR and MARS Facebook Page Historian. Contact me at [barbsande@comcast.net](mailto:barbsande@comcast.net) or 303-887-8511 or find the closed group MARS Associates page on Facebook.

## Bridge Club

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

Since the MARS Bridge Club has changed to Duplicate Bridge style of play, we have added several new members. We welcome Charlie Haupt, and Jan & Mark Ugale to the club. The play is social and welcoming, not tournament, with light conversation, while we play.

All MARS members and their guests are welcome. With a few exemptions, we normally play on the **3<sup>rd</sup> Friday of each month at the Buck Community Recreation Center in Littleton from 10 AM to 2 PM.** You'll need to pack a lunch, as we stop midday to eat. The club provides the cards and all required items for the games. We also provide coffee, tea, and hot water. There is a small fee for the Buck Center, as well as a small fee to the club (which helps with supplies and the year-end Holiday party). Come and join us by calling ahead to reserve a place at the tables.

In November, we celebrated the upcoming holidays with our annual Potluck. We also invited some of the past players who can no longer play each month. We had a wonderful time with good food and great friends!

We have couples, as well as singles, playing. If you're a single, invite a friend to be your partner. Your partner does not need to be a member of MARS to play.

If you want to join us for bridge or 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

The 4th Quarter 2021 winners are as follows:

### October 15 (4 tables)

- 1<sup>st</sup> – Bill & Mavis Kacena
- 2<sup>nd</sup> – Dave & Kathy Martz
- 3<sup>rd</sup> – Curt & Phyllis Brudos
- 4<sup>th</sup> – Mike Davis & Mary Stirling

### November 19 (3 ½ tables)

- 1<sup>st</sup> – Ernie & Cecile Berliner
- 2<sup>nd</sup> – Ed & Laurie Bock
- 3<sup>rd</sup> – Bob Dawson & Jerry Baab
- 4<sup>th</sup> – Dave & Kathy Martz

### December 17 (4 tables)

- 1<sup>st</sup> – Dave & Kathy Martz
  - 2<sup>nd</sup> – Ernie & Cecile Berliner
  - 3<sup>rd</sup> – Ed & Laurie Bock
  - 4<sup>th</sup> – Leo Johnson & Joni Rosenberger and Mike Davis & Mary Stirling tied
- 
- 

## Car Club

By Roger Rieger  
([rrieger10731@gmail.com](mailto:rrieger10731@gmail.com))  
303-912-6217

Carol Lovelace  
([cyberbear51@comcast.net](mailto:cyberbear51@comcast.net))  
303-358-7459

Greetings MARS members and fellow Car Clubbers! Hope everyone had a great holiday season and were able to enjoy good, safe family time together. With the recent snow, most of the cars have been garaged for the season, maybe making an appearance on warmer days.

The Car club was able to get together in December and explore the Forney Museum of Transportation, touring the exhibits with a museum docent guide.



Group L-R: Carol Lovelace, Myron Kuge, Steve Axelson, Eva Lillibridge, Terry Lillibridge, Karen Paulson, Rhonda Ernst, Dave Ernst, Roger Rieger, Dick Shaw



Little Boy Toys





**Big Boy Toys**

This was a trip that we had planned to do last year, but was postponed due to the pandemic. Along with a lot of really cool cars and motorcycles, the museum also is the home of the restored Big Boy locomotive. If you have not had the opportunity to visit the museum, I can highly recommend it! After our museum visit, we enjoyed lunch and adult beverages at the Blue Moon Brewing Company in the River North district.



The club was also represented at the annual MARS Holiday event and were proud and honored to present the monies donated at our annual car show to the US Marine Corp Toys for Tots program. Photos for all these fun car club events can be seen on the MARS Associates website, under the "Car Club" tab, as well as on the MARS Associates facebook.car club page. Please also watch these pages for next year's events, starting with a club meeting in March to plan for 2022 Car club events! Happy motoring and hope to see you soon at a club event! There is nothing special you need to do to join the MARS Car Club, all it takes is to be a MARS member in good standing, and a desire to have fun! If you are interested in joining the club, please drop either Carol or myself an email, we'd love to have you!

## Dinner Club

By Becky and Gary Englebright

[englebright@me.com](mailto:englebright@me.com)

303-941-3167 (Gary)

303-263-6457 (Becky), and

Anita Kannady

[anitakannady@yahoo.com](mailto:anitakannady@yahoo.com)

303-794-9210

I think everyone will agree when we say that we will be so glad when things settle down to a new normal, whatever that is. Then we will all know the rules so we can do some effective planning for dining out.

To err on the side of safety, we again put the Dining Club on pause until we at least get through the current COVID-19 surge and we reach a point that it is safe to gather in a restaurant and the restaurant has the staff to serve us.

A big thank you to everyone for their patience and understanding with the luncheon cancellations. If you're reading this and have not been getting update emails from us, it is probably because we don't have an email address for you. If you would like to be added to our email list, you can call or email. See contact information above. Any email information sent to us will be kept in confidence.

We want to encourage anyone who is interested to join us for any of the luncheons. Please send us an email so that you can be added to our mailing list.

On a different note, we are looking for someone to take over the Dining Club, whether full-time or part-time. It would involve deciding on restaurants, scheduling them, and collecting the money. If you, or anyone you know, is interested, feel free to call or email us.

---

---

## Golf League

By Bo Rodriguez

[boandpat@comcast.net](mailto:boandpat@comcast.net)

Happy New Year to all! May the New Year bring you many pleasurable moments on the golf course.

It is hard to believe the 2022 MARS Golf League season is just around the corner; our committee is underway in planning our "kick-off" meeting to commence the new season. Each year, we attempt to increase our golf league membership by encouraging MARS Associate members (both **men and women**) to join. Ladies, come join with several other women golfers to increasing our overall player number in our league.

Our league invites you to participate in our summer golf that begins on Thursday, April 7th, 2022. Our league plays each Thursday, exclusively at Englewood's Broken Tee Golf Course -- weather permitting. Our club's primary purpose is to realize a pleasurable golfing experience by promoting social interaction and friendly competition using the certified USGA handicap system. We are having our annual "Kick-Off" meeting on Thursday, March 3rd, 2022 at the Broken Tee Golf Course grill (2101 W. Oxford Ave.) at 10:00 AM. We encourage you to attend this meeting as we will review our league's order of business and the rules of golf imposed by the USGA. **In the event the COVID-19 virus prevents Broken Tee from providing open access to their community room for our "Kick-Off" meeting, we will arrange a method to communicate our golf league information to all MARS Associate members interested in participating.** In this case, please contact me or Tom Ripper our Handicap Chairman by email in advance so that we can arrange the exchange of information with you to accommodate commencement of our league play.

Tom Ripper – [tomripper@q.com](mailto:tomripper@q.com)

Bo Rodriguez – [boandpat@comcast.net](mailto:boandpat@comcast.net)

**See the attached flier in the MARS Star for more information – pg. 31.**

Broken Tee Golf Course is an 18-hole championship course with some tight fairways and some small lakes to challenge the average golfer. It offers affordable golf rates (**age 62+** non-resident \$25 green fee, **age -62** non-resident \$30 green fee), which is hard to beat in the region. If you choose to ride, golf carts are \$17 per player. The great thing about our league, is that there aren't any up-front green fees; you only pay when you play. Come join us this season for fun and exercise! League members get "Happy Hour" prices on select bar beverages. If you have any questions regarding our golf league, please feel free to view our MARS website: [www.marsretirees.org](http://www.marsretirees.org) and click on "Golf" or contact me if you like at: (303)798-9157.

A big congratulations to Dave Boggy as being our most improved league player in this past year. Dave's handicap rating at the start of last season was 16.2 and he ended the season with a 14.0 handicap index.

---

---

## Hiking Club

By Sue Janssen

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

With the warm and dry fall there was plenty of opportunity for hiking, but not snowshoeing. Fortunately, as I type this, it is snowing in Summit County. I got what I wanted for Christmas – 6 inches of fresh snow! I hope

you all had a wonderful holiday and got **your** wishes. May 2022 bring many new adventures.

Gene Dionne organized and led a hike up to Silver Dollar Lake on Friday, October 29th from the trailhead just off the road from Georgetown to Guanella Pass. MARS participants included Dan Ellerhorst, Val Gregory, Don Foley and a guest/friend of Gene's – Ang Tshering Lama, a very experienced climbing guide and expedition leader from Nepal.

Silver Dollar Lake and Murray Lake Trail is a 4.1 mile, ~1,000-foot vertical gain, out and back trail that features several lakes and is rated as moderate difficulty. The trail offers a number of activity options and is best used from March until September but this year's minimal snowfall made this a good choice even in late October. There turned out to be more snow than expected, especially in gullies and hollows, so microspikes and trekking poles were the order of the day. There was some "post holing" in the deepest snow but, in general, this was a most pleasant hike in excellent weather!



"Weee! This is fun!" Dan



A nice sunny day! Left to right: Val Gregory, Don Foley, Dan Ellerhorst





**A bit of post holing along the trail to Silver Dollar. Lakes. (Ang Tshering Lama in yellow jacket)**

The plan, following the climb, was to have lunch at the Happy Cooker in Georgetown but that was too busy (plus they had minimal staff) so most of the team (at Dan's suggestion) ended up at Coopers on the Creek, near the Georgetown Visitors Center. An excellent lunch overlooking the Creek from the back deck was a nice way to end the outing."

November 17<sup>th</sup> was National Hiking Day and some of our members reported how they celebrated. Val Gregory braved the wind and got out of her car near Rock Springs Wyoming. Sue and Lee Janssen made their usual loop from their house around deKoevend Park along the Highline Canal Trail. Vicky Eberhardt strolled around Hudson Gardens and did a little bird watching.



**Only 250 steps for the hour, at the rest area east of Rock Springs, WY. It's a bit windy, surprise, surprise! (Selfie by Val Gregory)**



**This hawk posed for the camera at Hudson Gardens (Photo by Vicky Eberhardt)**

Sue and Tom Pawlowski organized the December activity. A group of ten intrepid MARS hikers braved the high winds on December 15 to hike and explore Red Rocks Amphitheatre and the surrounding area. We met at the Trading Post and decided to go forward with our 1.4-mile Trading Post Trail Hike. The well-maintained trail loops around the Trading Post and through standing red rocks. We saw a herd of deer and beautiful rock formations.





**Along the Trading Post Trail at Red Rocks Park. Pictured from left: Ken Marts, Rick Hjelm, Tom Pawlowski, Val Gregory, Mark Nash, Robin Zen, Vicky Eberhardt, Mike Bartlett, Barb Costly-Adams (Photographed by Sue Pawlowski)**



**Made it to the top! Pictured from left: Tom Pawlowski, Val Gregory, Barb Costly-Adams, Vicky Eberhardt, Sue Pawlowski, Mike Bartlett, Mark Nash, Rick Hjelm**



**Rock Formations photographed by Val Gregory**



**A carved bench at the base of the Funicular Trail (Photo by Val Gregory)**

All ten hikers met at The Morrison Inn for some well-deserved Mexican food and a lively discussion on our first live concerts, inspired by our time at Red Rocks!

We are planning winter and spring activities. If you wish to join the MARS Hiking Club, contact Sue Janssen at [susan.g.janssen@gmail.com](mailto:susan.g.janssen@gmail.com) who will add you to the club distribution list. Please provide your email address, home phone and cell phone for the roster. The schedule of hikes is posted on the MARS website (<http://www.marsretirees.org/>). Even if you have never gone snowshoeing or hiking you are welcome to join in the fun.

Happy trails!



After the first hike, eight hikers climbed to the top of the Amphitheatre via the ramp and the stairs while two hikers visited the Colorado Music Hall of Fame in the Trading Post. The view of Denver from the top is a great reward for all of those steps! We intended to hike the Geologic Overlook Trail that climbs up above the Amphitheatre but decided against that trail due to the high winds that day. We circled back to the Trading Post via the Funicular Trail to return to our cars. An open-car funicular railway carried tourists to the top of Mt Morrison from 1909-1920, the scar from the tracks is still visible today. Our total hiking distance was just under 3 miles.



## Photography Club

By John Chapter

[johnchapter@msn.com](mailto:johnchapter@msn.com)

303-986-8277

The MARS RETIREES Photography Club meetings have moved to an all-virtual format *using the popular ZOOM program due to COVID*. Prior to COVID, we met at the Littleton Bemis Library. New members may join at any time by contacting Jim Kummer ([jkummer@comcast.net](mailto:jkummer@comcast.net)). The only requirement is that you are a Lockheed Martin Retiree.

Each month has a program and a competition. To see the winning photos and our program schedule go to the Photography Club, on the Mars Retirees Website. For the last quarter, meeting topics and winners are as follows:

- **September 2021** -- Program: Tom Frickell, *Backpacking through the Canadian Rockies*. Competition Winners: First Place: *A Reflection* by Larry Stearns; Second Place: *Staubach Falls, Switzerland* by Rick Price; Third Place: *Gotcha!* by Larry Stearns; Honorable Mention: *Gunnison Fly Fishing* by Dave Ernst; Honorable Mention: *Parrot, Denver Zoo*, by Tom Frickell.
- **October 2021** -- Program: One of John Chapter's National Geographic Instructional Videos. Competition Winners: First Place: *American Basin* by Tom Cotter; Second Place: *There's Gold in That Thar Hill* by Larry Stearns; Third Place: *California Gulch Carpet* by Tom Cotter; Honorable Mention: *Bright Orange* by Larry Stearns.
- **November 2021** -- Program: Rick Price, *Country Roads of Bavaria*. Competition Winners: First Place: *John Deere Line-Up* by Tom Frickell; Second Place: *Eagle in Clouds* by Tom Frickell; Third Place: *Flicker with Mulberry* by BJ Anthony; Honorable Mention: *Do You Like My Mustache* by Tom Cotter.
- **December 2021** -- No program. Our usual holiday luncheon was cancelled due to COVID.
- **January 2022** -- Members will discuss virtual versus live meetings or a possible hybrid option.

Overall, the MARS Photo-Club meets on second Thursday, at 1:00 PM and all club members are sent an email invitation describing meeting activities. We meet in January, February, March, April and May. We do not meet in June, July and August as club members are on vacations. In December we like to have a holiday luncheon at a local restaurant.

John Chapter [johnchapter@msn.com](mailto:johnchapter@msn.com), Photo-Club President

Jim Kummer [jkummer@comcast.net](mailto:jkummer@comcast.net), Technical Lead

## Colorado Springs Lockheed Martin Retiree Group News

By Doug Tomerlin

[dougincs@aol.com](mailto:dougincs@aol.com)

Our Colorado Springs retiree group did not sponsor any group activities since the last newsletter. The last luncheon in August at Cheddars Scratch Kitchen had good attendance. We are hoping to have another luncheon in February or March 2022. We were sad to report that two retirees passed away since the last newsletter: Mike Cadd in October and Joe McKee in November. Our deepest condolences go to their families and friends.

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

Gabe Karr

Allen Meyer

Jeff Chandler

If you would like more information about the Colorado Springs Lockheed Martin Retiree Group or luncheons, please contact Doug Tomerlin at [dougincs@aol.com](mailto:dougincs@aol.com).

---



---

## Cape Canaveral News

By Dick Olson

[olson5145@aol.com](mailto:olson5145@aol.com)

### Luncheons

**November 2021** -- Another really light turnout. Present were Abe Smith, Bill Rhode, Roger Wright, Ken Webb, Bob Rodamer, Bob Matschner and Ron Price who joined us I believe for the first time.

Roger reported that Titan Team member Kim Winters has passed away and don't have any details on services at this time. Kim worked in Materiel and had just moved back to this area this spring when she attended one of our luncheons. Will keep you posted as new info is received.

Would like to wish everyone a happy **Thanksgiving**,

**December 2021** -- Fair turnout this month. Present were Wendell McDaniels, Abe Smith, Ken Webb, Roger Wright, Bill Rhode, Ken Hawes, Bob Rodamer, Don Bollinger and a couple guys we haven't seen for quite a while, Dave Kintigh and Al Morosky

Still nothing on services for Hank Ambrosch.

Without our knowledge, Bob bought everyone's lunch. Thank you, Robert.



Please take a moment to remember the Cape Titan Team members that we lost this past year: Sid Warren, Betty Guthrie, Howard Shaffer, Gordon Newman, Marti Metcalf, Tom Malone, Joe Dean, Glenn Stelzer, Kim Winters, Joe Kiripolsky and Hank Ambrosch.

I would like to wish everyone a Merry [Christmas](#), a Happy Holiday Season and a great New Year. See your next year.

**January 2022** – Had a better turnout this month. Regulars present were Bill Rhode, Jimmy Weddle, Ken Webb, Roger Wright, Bill Masterson, Abe Smith, Don Bollinger and Bob Rodamer. Those that we haven't seen for quite a while were Ralph Graves, Ken Hawes, Ray Caldwell and Jerry Moskovitz.

Discussed Herb Matthias's upcoming services on the 22nd and the celebration of life at his son's house following. His son Mike would love to have Herb's Titan buddies join them.

Also noted that Darrel Poye's wife Cheryl passed away just before [Christmas](#).

Hope everyone had a happy holiday season and are looking forward to a new and better year.

### **Recent Obituaries**

**Joseph Kiripolsky**, 94, passed away on November 5, 2021. The Titan Team will miss him as stories abound about Joe's flying and motorcycle escapades.

**Henry (Hank) Ambrosch**, 80, passed away on November 26. Hank was kind of the unofficial Titan documentarian and always had a camera or video recorder in hand for our picnics, car shows, launch parties and other events and shared with all.

**Charles Lynn Holloway**, 87, passed away on November 27. He was employed by Martin Marietta (Cape Canaveral) for 30+ years where he worked on the Gemini / Titan Manned Space Program, as well as the unmanned Titan launches.

**Herbert Matthias**, 89, Herb passed away Dec. 31. Herb worked in the Operations Mechanical group for years before retiring.

**Cheryl Poye** passed away just before Christmas – details pending.

**Joe Andrukaitis** from Pad Safety has passed away – details pending.

## **Lockheed Martin (LM) News**

### **NOAA's Next-Gen Weather Satellite, Built by LM, Moves Closer to Launch**

**KENNEDY Space Center, Florida, Nov. 10, 2021** – Today, the next-generation Geostationary Operational Environmental Satellite (GOES)-T successfully arrived at KSC, Florida, to begin launch preparations. It is the third of four satellites in the National Oceanic and Atmospheric Administration (NOAA)'s [GOES-R weather satellite series](#) built by LM [NYSE: LMT] in Littleton, Colorado.

GOES-T will help NOAA provide forecasters in the U.S. and western hemisphere with sharper, more defined images of severe storms, hurricanes, wildfires and other weather hazards.



#### **GOES-T-Weather-Satellite-Ship-Buckley**

"The technology and instruments we've developed for the GOES-R series enable GOES-T to observe Earth and space weather faster and more accurately than ever," said LM GOES-R chief engineer, Jagdeep Shergill. "LM has built more than 100 weather and environmental observation spacecraft throughout our history, and we couldn't be more excited to add GOES-T to that lineup as we use continue to evolve the technology toward the future with each system we build."

#### **Hitching a Ride with a Friend**

Given that GOES-T is the size of a small school bus, it needed a spacious ride to Florida. For this, the team looked no further than the LM-built [C-5M Super Galaxy](#) aircraft.

To protect GOES-T's sensitive, state-of-the-art instruments, the LM team enclosed the spacecraft in a shipping container that functioned as its own miniature cleanroom environment. That container was then transported from the company's Littleton facility to Buckley Space Force Base in Aurora, Colorado, where it was carefully loaded onto the C-5 for transit to Florida.

#### **Forecasting Fit for the Future**

GOES-T, like the other satellites in the GOES-R series, will provide significant benefits to North America in the form

of climate monitoring, ecosystems management, commerce and transportation. Measurement of weather data in these areas is increasingly important as severe weather patterns driven by climate change impact lives and livelihoods around the world.

GOES-T will also help with:

- Mapping of tropical storms and hurricanes in the Pacific Ocean
- Producing real-time fire boundaries seen on Google Maps by tracking wildfire conditions and related weather
- Supporting NOAA's Search and Rescue Satellite-Aided Tracking (SARSAT) system, which has helped rescue thousands of people
- Generating total lightning data that can give early indications of a storm's strength, thanks to a first-of-its-kind lightning mapper built by LM

### **More about the Mission**

The GOES-R Series is a collaborative acquisition and development effort between NOAA and the National Aeronautics and Space Administration (NASA) to develop, launch and operate weather satellites. NOAA manages the GOES satellites and distributes their data to users worldwide, while NASA oversees the acquisition of the spacecraft and instruments, in addition to the management of the launch through NASA's Launch Services Program.

### **LM Names Robert Lightfoot as Space's Executive Vice President**

BETHESDA, Md., Nov. 30, 2021 /[PRNewswire](#)/ -- LM (NYSE: LMT) announced today that Robert Lightfoot will be the new executive vice president of the company's Space business area. The appointment is effective Jan. 1, 2022.

Lightfoot, currently the vice president of Operations for LM Space, spent 29 years at NASA in several critical leadership roles to support space operations, exploration and science missions, including as the agency's acting administrator; director of the Marshall Space Flight Center in Huntsville, Alabama; and director of Propulsion Test at Stennis Space Center in Mississippi. He succeeds Rick Ambrose, who will retire March 1, 2022 after more than 20 years of service to the company. Ambrose will serve as a strategic advisor as part of a smooth and disciplined transition process.



**Robert-Lightfoot**

"I'm honored to lead LM Space and work with our customers to strengthen their missions of security, exploration and discovery through innovation and partnership," said Lightfoot.

### **Nanoracks, Voyager Space, and LM Awarded NASA Contract to Build First-of-its-Kind Commercial Space Station. Starlab to anchor NASA's Commercial Low-Earth Orbit Destinations project as the space economy continues to grow**

Nanoracks, in collaboration with Voyager Space and LM [NYSE: LMT], has been awarded a \$160 million contract by NASA to design its [Starlab](#) commercial space station as part of the agency's Commercial Low-Earth Orbit (LEO) Development program. Starlab will enable NASA's initiative to stimulate the commercial space economy and provide science and crew capabilities prior to the retirement of the International Space Station (ISS).

The initial \$160 million award to Nanoracks is made via a funded Space Act Agreement through 2025. This initial NASA-provided funding will be supplemented with customer pre-buy opportunities and public-private partnerships. Fully owned by Nanoracks, Starlab is planned to reach initial operating capability in 2027, which ensures continuous human presence in LEO by U.S. entities. NASA will have the opportunity to purchase crew and payload services on Starlab through separate services contracts with Nanoracks.

Nanoracks has unparalleled commercial experience on the ISS. Joined by Voyager Space's sophisticated investment strategy and expertise in operational integration and LM's engineering knowledge and strategic vision, the Starlab team presented a formidable program for the future of LEO commercialization.

The basic elements of the Starlab space station include a large inflatable habitat, designed and built by LM, a metallic docking node, a power and propulsion element, a large robotic arm for servicing cargo and payloads, and the George Washington Carver (GWC) Science Park. The GWC Science Park is a state-of-the-art laboratory system which will host a comprehensive research, science, and manufacturing capability. Starlab will have the capacity to continuously host up to four astronauts to conduct critical science and research.

## **NASA's James Webb Space Telescope Lifts Off with Advanced Camera from LM**

Webb's primary imager will help it see some of the oldest light in the universe.

KOUROU, French Guiana, Dec. 25, 2021 /PRNewswire/ -- With the liftoff of NASA's James Webb Space Telescope from French Guiana today, humankind is one step closer to seeing the universe in a whole new light, with help from a camera built by LM [NYSE: LMT]. The instrument will be key in giving the telescope its first glimpse of celestial light.

The Near Infrared Camera (NIRCam) is Webb's primary imager and one of the most sensitive infrared cameras ever built. As the telescope sets itself up in space, NIRCam will help align Webb's intricate array of mirrors. It will then take science images throughout the entire mission.



**Lockheed-Martin-NIRCam**

"NIRCam's journey is over two decades in the making, and seeing it lift off into space on Webb was the culmination of many years of hard work with Marcia Rieke and our University of Arizona partners," said Alison Nordt, LM's space science and instrumentation director, who led development of NIRCam. "Webb will rewrite the science books of how we understand our universe, and to have LM-built technology help advance the future of space imaging is an honor."

### **How to Look at the Universe's Oldest Light**

Webb is designed to peer at the universe's oldest light, which scientists believe occurred around 13.5 billion years ago. As the universe expands, those light waves that were once visible have now shifted into the infrared spectrum.

This light is incredibly far away and extremely dim, which is why Webb requires large mirrors – along with NIRCam's ultra-precise optics – to see it.

Before that can happen, NIRCam's first job is to sense incoming infrared light and take images that will help the telescope's systems properly align its 18 primary mirror segments. This is critical to ensuring Webb provides crystal clear images once it enters science mode.

### **The Technology Behind NIRCam**

For Webb's mirror alignment in early 2022, NIRCam senses what's called a "wavefront," or an ideally perfect sphere of light particles emitted from any luminescent object. When those particles encounter another object – in this case, the telescope's optics – they become distorted. NIRCam measures those distortions with nanometric accuracy, and that data is then used to advise how Webb's mirrors must adjust. This iterative process is done until the telescope's mirrors are properly aligned.

With Webb traveling more than 1 million miles from Earth into space, NIRCam must function with extreme precision and stability in temperatures as cold as -400°F. In fact, the telescope needs frigid temperatures to ensure infrared radiating off the observatory doesn't overwhelm the images.

To enable operations in such extreme conditions, LM developed a new technique for bonding NIRCam's optical lenses to their mounts. The innovative method ensures the cold and launch vibrations don't cause shifts in alignment of NIRCam's lenses. After more than a decade of meticulous engineering and rigorous testing, the team delivered one of the most capable infrared instruments ever created, and NIRCam was fully integrated onto Webb in 2014.

SOURCE LM

---

---

## **United Launch Alliance (ULA) News**

### **ULA Successfully Launches Exploration Mission for NASA** 1 SEP

**Cape Canaveral Space Force Station, Fla., (Oct. 16, 2021)** – A United Launch Alliance (ULA) Atlas V rocket carrying the Lucy mission for NASA lifted off on Oct. 16 at 5:34 a.m. EDT from Space Launch Complex-41 at Cape Canaveral Space Force Station. To date ULA has launched 146 times with 100 percent mission success.

The Atlas V delivered the Lucy spacecraft into an interplanetary trajectory. The mission launched on an Atlas V 401 configuration rocket that included a 14-ft (4-m) large payload fairing (LPF). The Atlas booster was powered by the RD AMROSS RD-180 engine. Aerojet Rocketdyne provided the RL10C-1 engine for the Centaur upper stage.



This was the 89th launch of an Atlas V rocket and 21st mission launched on an Atlas V in partnership with NASA's Launch Services Program (LSP), following the launch of Landsat 9 from Vandenberg Space Force Base last month. ULA's next launch is STP-3 for the U.S. Space Force, planned for Nov. 22, 2021, from Cape Canaveral Space Force Station, Florida.

## **ULA Successfully Launches Critical National Security Mission direct to GEO**

**Cape Canaveral Space Force Station, Fla., (Dec. 7, 2021)** – A ULA Atlas V rocket carrying the Space Test Program (STP)-3 mission for the U.S. Space Force's Space Systems Command lifted off on Dec. 7 at 5:19 a.m. EST from Space Launch Complex-41 at Cape Canaveral Space Force Station. To date ULA has launched 147 times with 100 percent mission success. STP-3 marked ULA's longest duration mission at seven hours and 10 minutes until spacecraft separation.

Producing more than two and a half million pounds of thrust at liftoff, the Atlas V 551 rocket is the most powerful in the Atlas V fleet. This mission debuted several unique capabilities including the first Out of Autoclave (OOA) Payload Fairing, In-Flight power system and GPS

Enhanced Navigation. OOA manufacturing allows for a more efficient production process, lower cost and lower system mass while maintaining the same level of reliability and quality. The In-Flight power system ensures the Space Test Program Satellite-6 (STPSat-6) and Long Duration Propulsive Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA)-1, (LDPE-1) spacecraft had fully charged batteries when deployed into geosynchronous orbit. The GPS Enhanced Navigation Development Project provides increased spacecraft insertion accuracies, a critical addition to this long-duration mission. The booster rate gyro (BoRG) unit is a low-cost alternative rate gyroscope package. The design utilizes simplified processing and commercial inertial measurement units built into a triple-channel architecture to significantly reduce unit cost and weight.

The mission launched on an Atlas V 551 configuration rocket, that included a 5.4 meter payload fairing. The Atlas booster for this mission was powered by the RD AMROSS RD-180 engine. Aerojet Rocketdyne provided the RL10C-1 engine for the Centaur upper stage and Northrop Grumman provided the five Graphite Epoxy Motors (GEM) 63 solid rocket boosters.

## IN THE NEWS

Compiled by Pete Harrigan

*The following news headlines are drawn from open-source publications, as noted parenthetically. Click on the hyperlink to access the full article. Please note that some links may not work for all readers. Some sites may require a paid subscription or a login for free access. Other paywall sites may limit the number of free articles you are able to access each month.*

### CORPORATE NEWS

Lockheed Martin [lowers sales forecast, stock tumbles](#) (Reuters)

Projected [Aerojet acquisition closing slips](#) into 2022 (Defense News)

Pentagon stops implementing [vaccine mandate for contractors](#) (Breaking Defense)

[Supply chain woes](#) weigh on Lockheed Martin, other defense firms (Defense News)

U.S. [defense industry facing change](#) amid new challenges, new procurement practices (Aviation Week & Space Technology)

Company seeks to [outsource firefighting jobs at Marietta plant](#) (Marietta Daily Journal)

For Lockheed Martin, [investing in an inclusive workforce](#) is a national readiness imperative (Chief Learning Officer)

Former CEO [Hewson receives Lifetime Achievement Award](#) (Aviation Week & Space Technology)

Former CEO [Stevens sells home for DC-area record price](#) (Washington Business Journal)

### 5G.MIL NEWS

[Lockheed Martin, Verizon partner](#) to develop 5G tech for the military (DefenseOne)

### HYPERSONICS NEWS

U.S. Air Force [hypersonic weapon runs into trouble](#) after third failed test; missile returned to Lockheed Martin factory for analysis (Breaking Defense)

Lockheed Martin, Northrop, Raytheon to develop [concepts for hypersonic interceptor](#) (Defense Daily)

[U.S. in hypersonics "arms race"](#) with China, U.S. Air Force secretary says (Reuters)

Contractors vying to capitalize on [contracts for hypersonic weapons](#) (Bloomberg News)

### SPACE SYSTEMS NEWS

NASA veteran Robert [Lightfoot named executive vice president](#) of Lockheed Martin's Space business (Space News)

Lockheed Martin awarded [\\$737 million for three additional GPS satellites](#) (Space News)

Company completes [system-level critical design review](#) for Next-Generation Overhead Persistent Infrared Geosynchronous Earth Orbit program (Air Force Magazine)

Designs for [next-gen missile defense interceptors pass key review](#) ahead of schedule (Defense News)

Here's what it takes to [transport a NOAA weather satellite](#) from Colorado to Florida (Florida Today)

[Terran Orbital to go public](#) with Lockheed Martin's assistance (Space News)

Three [teams, one including Lockheed Martin, receive NASA funding](#) for commercial space station development (Space News)

Blue Origin [loses lunar lander lawsuit](#); Lockheed Martin was a team member (The Washington Post)

Step inside the clean room where a [revolutionary satellite is taking shape](#) (CNET)

NASA says Artemis 1 mission with Orion capsule will [launch no earlier than February](#) (Space News)

[Northrop Grumman unveils team to develop NASA lunar rover](#), joining Lockheed Martin in prospective competition (Space News)

Webb Space Telescope's primary imaging [camera developed by Lockheed Martin](#) (KPIX News)

The [Hubble Telescope checks in](#) with the most distant planets (The New York Times)

A look back at the [Hubble's interstellar success](#) (Smithsonian Magazine)

New [glitch takes Hubble Space Telescope offline](#) (Space News)

Space Development Authority to release [new solicitation for constellation ground segment](#) (Space News)

United Launch Alliance [Atlas 5 launches STP-3 mission](#) with national security, NASA payloads (Space News)

United Launch Alliance chief Tory Bruno says [BE-4 engine delivery again delayed](#) (Space News)

[United Launch Alliance loses some employees](#) due to vaccine mandate (Reuters)

[Lockheed Martin expands footprint](#) at Highlands Ranch (The Denver Gazette)

## **AERONAUTICS NEWS**

Lockheed Martin gets pact worth [up to \\$10.9 billion to upgrade F-22](#) fleet (Defense News)

Pentagon can't say when F-35 will [finish combat testing](#) (Bloomberg)

[F-35 helmets that fix "green glow"](#) are on the way, but not to the Air Force (Air Force Times)

Lockheed Martin developing [smaller, less expensive F-35 mission rehearsal simulator](#) (Aviation Week & Space Technology)

F-35 Joint Program Office aims to step up [fielding of new logistics system](#) in 2022 (Aerospace Daily & Defense Report)

U.S. Navy sends salvage ship, crew to help recover [British F-35B that crashed](#) in the Mediterranean (U.S. Naval Institute News); leaked [video shows aircraft dropping](#) off carrier ramp (Defense News)

[Finland orders 64 F-35s](#) for \$9.4 billion (Reuters)

[UAE suspends talks on F-35 buy](#) over concerns about U.S. security restrictions; [U.S. says it is ready to move forward](#) (Reuters)

Pentagon funds Lockheed Martin to develop [F-35 variant for unnamed foreign customer](#) (United Press International)

Canada eliminates Boeing from \$15 billion fighter competition; [Lockheed Martin F-35](#) and Saab Gripen remain (Reuters)

Three [European nations eyeing F-35](#) (Aerospace Daily & Defense Report)

Lockheed Martin says [Spain is interested in F-35, despite Madrid's denial](#) (Aerospace Daily & Defense Report)

[Turkey hopeful on F-16 buy](#) after its president meets with Biden (The Associated Press)

[Taiwan fields first upgraded F-16s](#) amid growing tensions with China (Reuters)

[Supplier, transition issues delay delivery](#) of first new-model F-16 (Aerospace Daily & Defense Report)

Lockheed Martin says it will offer "competitive pricing" for T-[50-derived Advanced Fighter Trainer](#) (Air Force Magazine)

NASA, Lockheed Martin [collaborating on Quiet SuperSonic Technology](#) (ASME News)

Lockheed Martin completes final assembly of [NASA's supersonic X-59](#) (Aerospace Daily & Defense Report)

U.S. Navy's uncrewed [refueling drone completes first operation on an aircraft carrier](#); Lockheed Martin provides ground control system (Breaking Defense)

Historic Lockheed [JetStar returns home after 55 years](#) (Marietta Daily Journal)

### **MISSILES AND FIRE CONTROL NEWS**

U.S. Air Force awards funding for additional [JASSM cruise missile production](#) (Military & Aerospace Electronics)

U.S. approves [sale of Javelin missiles to Lithuania](#) as Russian tensions build (Reuters)

[Precision Strike Missile set distance record](#) in recent test (Breaking Defense)

Company [delivers 1,000<sup>th</sup> Patriot Advanced Capability-3 \(PAC-3\) Missile Segment Enhancement \(MSE\) missile](#) (Magnolia Reporter)

Lockheed Martin facing [new competition in Army laser weapon market](#) (Defense News)

Rafael, Lockheed Martin to develop [SPICE 250 weapon system for U.S. military](#) (The Defense Post)

### **ROTARY AND MISSION SYSTEMS NEWS**

Pentagon's testing office says [Lockheed Martin-built presidential helicopter isn't reliable](#) in a crisis (Stars & Stripes)

Australia seeks to ditch European helicopters, buy [40 Sikorsky Black Hawks](#) (Defense News)

Marine Corps [CH-53K carries 12-ton vehicle over water](#) in a testing first (Marine Corps Times)

[Israel OKs CH-53K helicopter buy](#) from Lockheed Martin (Breaking Defense)

Sikorsky pitches [Polish-built Black Hawks](#) as UK Puma replacement (FlightGlobal)

U.S. Missile Defense Agency declares initial [delivery of Long-Range Discrimination Radar](#) in Alaska (Defense News)

U.S. Navy says [gear problem on Lockheed Martin-built littoral combat ships has been fixed](#) (U.S. Naval Institute News)

Navy christens [newest Freedom-class littoral combat ship](#) (United Press International)

Lockheed Martin, U.S. Navy offer [solution for Greek frigate](#) needs; other offers also on the table (Defense News)

**MARS ASSOCIATES GOLF**  
**LET'S TEE IT UP AT**  
**ENGLEWOOD'S BROKEN TEE GOLF COURSE**  
**League play every Thursday April thru October**  
**weather permitting**

- ✓ Weekly Prize Money
  - Closest To The Pin
  - Low Net Winners per Flight(s)
  - Certified USGA Handicap System
  - CGA Membership
  - Annual Golf Registration, Club and User Fees - \$75.00
  - End of Season Most Improved Player
  - Pay As You Play (Regular Weekly Green Fees +\$5 Prize Money)
  - Annual Championship Tournament
  - Pays Low Net Winners
  - Medalist Trophy to Low Gross Player



**Kick Off Meeting On 1<sup>st</sup> Thursday in March**

**ENGLEWOOD'S BROKEN TEE GOLF COURSE**  
**2101 West Oxford Ave.**  
**Englewood, Colorado**



**To learn more go to**  
**[www.marsretirees.org](http://www.marsretirees.org)**  
**and click on Golf"**  
**in the clubs listing section**





## MARS ASSOCIATES

### 2022 MEMBERSHIP RENEWAL (DUES) NOTICE

It is time for **all** regular and senior members to renew your membership for the year March 1, 2022 — February 28, 2023, regardless of which month you joined MARS Associates.

Please complete the **Membership Renewal Form** below, cut at the dashed line and mail it to:

**MARS ASSOCIATES, PO Box 1128, Littleton, CO 80160-1128**

with a check or money order made out to "**MARS ASSOCIATES**" in the amount shown below, to be received not later than March 31, 2022.

Members whose dues are not paid as of March 31, 2022, will be notified and will be dropped from membership if dues remain unpaid. Membership expiration is determined by Membership Database records. Members who have been dropped will not be eligible for MARS clubs or member discounts for activities or benefits after March 31.

Retain your current membership card—cards are not reissued annually. Your membership number is included on the address label of your MARS STAR mailing. More information about MARS is on the back of this page. If you have questions, contact the Membership Vice President, Carl Kaminski, at **CARLCOLO@CENTURYLINK.NET** or 303-726-1546.

**Please complete all the blanks** — The treasurer separates checks from forms upon receipt!

----- CUT AT DASHED LINE -----

#### Membership Renewal Form

Mail to: **MARS ASSOCIATES, PO Box 1128, Littleton, CO 80160-1128**

(New members must complete and submit the New Members MARS Membership Application form found on the website ([MARSRETIRES.ORG](http://MARSRETIRES.ORG) → [MEMBERSHIP](#)) or contact Carl at [CARLCOLO@CENTURYLINK.NET](mailto:CARLCOLO@CENTURYLINK.NET))

#### Membership dues for FY2022 are as follows:

**(Please check appropriate box.)**

- Current Regular Member residing in Colorado **all or part** of the year. \$15.00 ☐
- Current Regular Member residing full-time outside Colorado. \$10.00 ☐
- Current Senior Member (or surviving spouse) whether residing in Colorado or out of state, whose retiree-member birthdate is earlier than March 1, 1947. \$10.00 ☐

Check # \_\_\_\_\_ Check Date \_\_\_\_\_

Please confirm your membership information — remember to enclose your check!

Name(s) \_\_\_\_\_  
First MI Last Nickname

Spouse (or significant other) \_\_\_\_\_  
First MI Last Nickname

Address \_\_\_\_\_ Apt/Unit \_\_\_\_\_

City/State \_\_\_\_\_ Zip \_\_\_\_\_ Zip ext. \_\_\_\_\_

Phone \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Email Address \_\_\_\_\_

Do you want your email address listed on the MARS website? YES ☐ NO ☐

Do you want to receive special notices from MARS by email? YES ☐ NO ☐

Are you interested in volunteering in support of MARS? YES ☐ NO ☐

If you volunteer with any organization, please tell us who it is: \_\_\_\_\_

## Snowbirds:

Please notify the Membership Vice President by telephone, email or “snail mail” when you know your travel dates to your alternate address AND what that address is.

MARS STARs are mailed by Standard (Bulk) Mail to keep the cost of mailing low—every rejected or forwarded MARS STAR incurs an additional postage cost to MARS Associates.

## Membership

- **Low annual membership dues** - \$15.00 in-Colorado, \$10.00 out-of-Colorado and seniors ( $\geq 75$  years of age); includes you and your spouse or significant other
- **Dental, Vision** at very reasonable rates
- **Vendor Discounts** – visit our website (<http://www.marsretirees.org>)
- **Social Events** – annual picnic, happy hours, luncheons, Rockies games, etc.
- **MARS STAR Quarterly Newsletter** – information on past and current events relating to the organization as well as Corporate, LMSSC and ULA happenings
- **Informational & Educational Presentations** – periodic seminars on topics of interest (e.g. Medicare 101)
- **Connectivity with other retirement associations throughout the corporation**

## Volunteer Opportunities

- **Community Service & Event Support** – help your community and/or the companies with the MARS team, for example, the Fun Run, Health Fair, Community Support Programs
- **MARS Support** – Web Committee, In Memoriam, Event Photographer
- **MARS Leadership** – Board of Directors and Officer positions of leadership, maximum of two 2-year terms (see the Bylaws and Policy Manual posted on the MARS website)

## Current Club Activities

- **Bridge Club** – lively party bridge, singles welcome
- **Car Club** - Invites all car enthusiasts to become members, meet other like-minded people, and enjoy and share our love for the automobile.
- **Dinner Club** – private lunches, brunches and dinners at attractive and reasonably priced local restaurants in the *Denver Metro* area
- **Golf League** – a handicap league open to men and women that plays weekly games throughout the summer with a tournament in September and a banquet in the Fall
- **Hiking Club** – planned hikes for various levels of ability
- **Photography Club** – monthly meetings at Littleton Bemis Library (*except June, July, August*), photo-related presentations and programs – including travelogues, photo contests, help with equipment and photography; open to everyone.
- **Special Interests** – You are encouraged to start a club for your special interest

There is something for everyone to enjoy and all activities are open to all members. Come check us out on our website at <http://www.marsretirees.org> for more information. MARS ASSOCIATES IS A REGISTERED 501(c) (7) SOCIAL AND RECREATION CLUB



# MARS ANNUAL MEETING & LUNCHEON

The Officers and Board of Directors of MARS Associates are pleased to invite you, your spouse/companion and guests to the Annual Meeting and Luncheon on **Wednesday, March 9, 2022, at the Denver Marriott South at Park Meadows**, located at 10345 Park Meadows Drive, Lone Tree, Colorado 80124. Directions to the hotel are on the reverse of this flyer.

Doors to the event will open at **11:00 a.m.** and the luncheon will be served at **12:00 noon**. This year the event will include the Annual Meeting Agenda and a presentation by Dr. Vanessa Aponte Williams. Dr. Williams is currently the Human Spaceflight Exploration Senior Manager of Advanced Programs, Commercial Civil Space, at Lockheed Martin. Her current role is in the development of Lockheed Martin's strategy for deep space exploration as well as invest in the advancement of technologies that support the vision for a thriving lunar and deep space economy.

Menu choices are Ale Marinated Barrel Cut New York Strip Steak with Green Peppercorn Sauce, Garlic and Herb Whipped Potatoes, Haricot Verts and Heirloom Peppers; and, Chipotle Glazed Salmon, Sweet Potato Farro Risotto and Spring Vegetables. House salad, dessert, coffee, and tea will be included. There will be a cash bar prior to the luncheon. If you have special dietary needs, please contact Linda Duby at 303-249-1665 or [lindaduby@comcast.net](mailto:lindaduby@comcast.net) with the details.

The cost for members and one guest is \$45.00 per person. The cost for additional guests or non-members is \$65.00 per person. These prices include taxes and gratuities. Please specify your choice of entrée(s) on the reservation form below and mail it with your check (made payable to **MARS Associates**) to the address on the form below by **February 28, 2022**. Or, you can make your reservation by using the STRIPE link below:

**STRIPE (ctrl+click):** <https://form.jotform.com/213634540089052> (If you need to edit your order, click the "Edit This Submission" link on the receipt.)

**MARS Associates, P.O. Box 1128, Littleton, CO 80160-1128**

All reservations and cancellations must be received by **February 28, 2022**. If you make a reservation and later find you cannot attend, please notify, Linda Duby at 303-249-1665 or [lindaduby@comcast.net](mailto:lindaduby@comcast.net), or Charlie Haupt at 303-725-7595 or [gcrfccoach@gmail.com](mailto:gcrfccoach@gmail.com) or Carl Kaminski at 303-726-1546 or [carlcolo@centurylink.net](mailto:carlcolo@centurylink.net) no later than **February 28, 2022** to receive a refund. Admission is by reservation only.

-----Detach Here-----

## 2022 MARS Annual Meeting & Luncheon Reservation Form Please Print Clearly.

Mail to: **MARS Associates, PO Box 1128, Littleton, CO 80160-1128**

Member: \_\_\_\_\_ Beef \_\_\_\_\_ Salmon \_\_\_\_\_  
One Spouse/Companion/Guest: \_\_\_\_\_ Beef \_\_\_\_\_ Salmon \_\_\_\_\_  
Other Guests: \_\_\_\_\_ Beef \_\_\_\_\_ Salmon \_\_\_\_\_  
(Add sheet for additional guest names) Member Phone No. \_\_\_\_\_  
Member e-mail address \_\_\_\_\_  
Member/Spouse/Companion/Guest \_\_\_\_ @ \$45.00/person = \$ \_\_\_\_\_  
Other Guest \_\_\_\_ @ \$65.00/person = \$ \_\_\_\_\_  
TOTAL ENCLOSED \$ \_\_\_\_\_ Check # \_\_\_\_\_

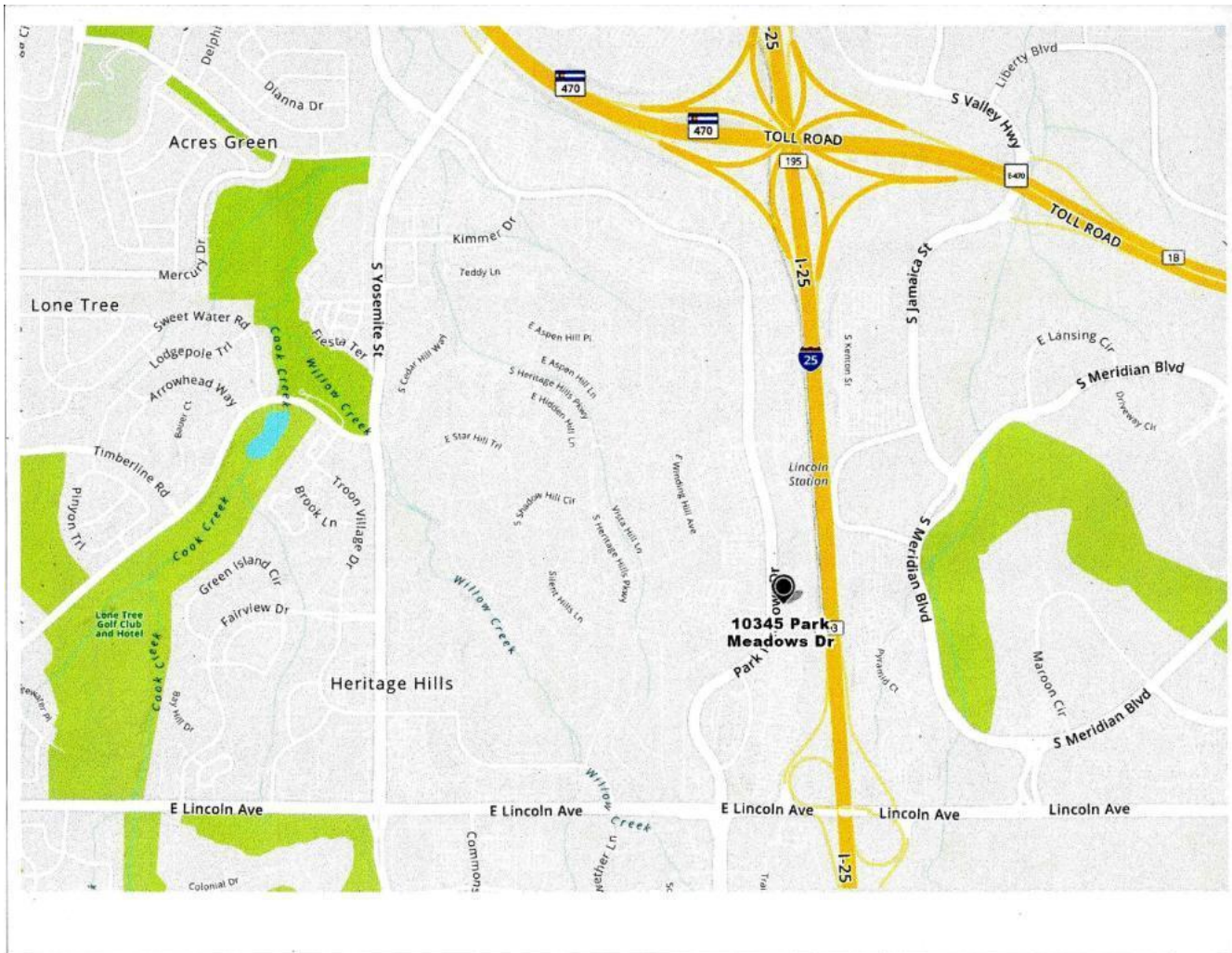


## Directions to Denver Marriott South at Park Meadows, 10345 Park Meadows Drive, Lone Tree

From I25 take exit 193 onto Lincoln Avenue. Keep right onto Lincoln Avenue toward Park Meadows Drive North, Park Meadows Boulevard South. Turn right onto Park Meadows Drive. Turn right into the parking lot (.5 miles from turn at Lincoln).

From University Boulevard. Take University South (turns into Lincoln Avenue after Quebec) to Park Meadows Drive. Turn left onto Park Meadows Drive. Turn right into the parking lot (.5 miles from turn).

From C470. Take C470 to either University Boulevard or to I25 and follow the above directions.





# Holiday Celebration

December 1, 2021



Reception Table with Dick Sosnay,  
Linda Duby, Carl Kaminski,  
Sgt. Johnathan Brown and Sgt. Amy Paz



Dick Sosnay's Welcome Speech



Reese Reynolds, Director, HR  
Lockheed Martin



Steve Taylor, Dean of Music,  
Colorado Christian University  
directs the quartet



Toys for Tots Representatives  
Sgt. Johnathan Brown, Sgt. Amy Paz, USMC





Luncheon Entertainment  
Sarah Bergman, Kallie Kay, Jonathan Pine,  
Joe Bernard, Colorado Christian University



Debbie Mues, Vicky Ellis, Barby Costley-Adams,  
Lori Boxler, Mollie Christensen, Laurie Makloski



George Dameron, Charyl Rose, Tammy Kinney



Gloria and Dave Schwiesow, John Grace



Lucy Ellerhorst, Carl Kaminski, Larry Major



Carol Lovelace, Terry Lilly, Karen Paulson





Mary Jean Stephens, Kathy Tullio, Colleen Murphy



Patricia Park, Cecile and Ernie Berliner,  
Loman Park



Rene and Mike Watson, Steve Marxer



Anne and Tom Henning



Bart and Diane Wright



Beverly and Gary Warren





Bill and Donna O'Neill



Bill and Lois Heppler



Bill Wise and Linda Stearns



Bob Thibault and Laurie Nelson



Carolyn and Jack Kimpton



Carolyn Malaby and Jack Thompson





Cecile and Ernie Berliner



Clare and Linda Haag



Curt and Phyllis Brudos



Daniel and Shari Crumb



Fred and David Luhman



Janice and Tom Redfield





Larry and Linda Stearns



Laurie and Mike O'Shea



Lucy and Dan Ellerhorst



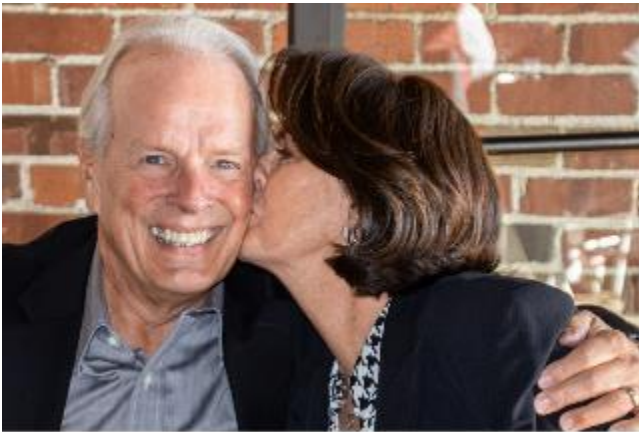
Lynae and Don Foley



Judy Sullivan and Ralph Pacheco



Maureen and Ron Gedeon



Rick and Jill Hjelm



Sharon and Gerry Boisvert

If you currently receive a printed copy you will continue to receive a printed copy. If you wish to receive hard (printed) copies in the future, contact Carl Kaminski at 303-726-1546 or via email at [carlcolo@centurylink.net](mailto:carlcolo@centurylink.net).

Schedule Addendum (See last page)

NOTES:

1. BOD meets as required
  2. Officers/Directors meet 1st Wednesday of every month at 09:30 am.
  3. Bridge Club meets 3rd Friday of every month at 10:00 am at Buck Recreation Center.
  4. Car Club meets as noted on their website and periodic newsletter.
  5. Dinner Club (All events are lunch unless otherwise noted): Check website for details
  6. Golf club meets every Thursday from April through Oct of each year.
  7. Hiking Club: Outings on 3rd Wednesday of the month. Check website for Point of Contact for each hike.
  8. Photo Club meets 2nd Thursday every month (except Jun, Jul & Aug) at 1:00 pm on Zoom
  9. Web Committee normally meets on last Tuesday of month, prior to BOD/Officer mtg, at a designated restaurant or by email.
  10. Marketing Committee meets on a monthly basis as determined by members with guests invited (Typically last Thursday)
  - \*11. 2022 Happy Hour Dates and Locations are tentative; MARS website will have details when available**
  - 12. 2022 Annual Meeting - Mar 9 at Marriott South Park Meadows; 10345 Park Meadows Dr, Lone Tree,**
  13. 2022 Senior Recognition Luncheon - July 13, 2022 TBD Location
  14. 2022 Rockies Game; July 27, 2022
  15. 2022 Annual Picnic - Sep 14, 2022 at Clement Park
  16. 2021 Holiday Celebration - Dec 7, 2022 at Wellshire Events Center
  17. See MARS website (<https://marsretirees.org>) for additional information on these events.
- Please review dates and times and notify Ken Marts ([martshouse2@aol.com](mailto:martshouse2@aol.com)) if you have any changes or additions.



**ASSOCIATES**  
P.O. Box 1128  
LITTLETON, CO

**ADDRESS SERVICE REQUESTED**

PRESORTED STANDARD  
US POSTAGE  
PAID  
LITTLETON, CO  
PERMIT NO. 245



**DATE: Jan 2022**

EVENT/MONTH	2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Officers/Directors	5	2	2	6	4	1	6	3	7	5	2	6
Bridge Club	21	18	18	22	20	17	15	26	16	21	16	15
Car Club												
Dinner Club	-	-	-	-	TBD	TBD	TBD	TBD	TBD	TBD	-	-
Golf Club	-	-	-	Thur	Thur	Thur	Thur	Thur	Thur	Thur	-	-
Hiking Club	19	16	16	18	20	15	20	17	21	18	16	21
Photo Club	13	10	10	12	14	-	-	-	14	13	10	8
Web Committee	25	22	29	26	31	28	26	30	27	25	29	27
Marketing Committee	4	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
<b>MARS Events</b>												
<b>Happy Hour</b>	<b>26*</b>			27*			27*			19*		
<b>Annual Meeting</b>			<b>9</b>									
Senior Recognition Luncheon							<b>13</b>					
Annual Rockies Game							<b>27</b>					
Annual Picnic									14			
Holiday Celebration												7
<b>MARS STAR Schedule</b>												
Items due for MARS STAR												
STAR Input to Editor	4			5			5			4		
STAR Repro. Deadline	17			18			18			17		
STAR Mailing	26			27			27			26		