

Summer 2019

Bear Facts

The Official Magazine of California Wing Civil Air Patrol



WHY
DO WE
EXPLORE?

Bear Facts

The Official Magazine of California Wing Civil Air Patrol

Bear Facts is an authorized publication serving the interests of the California Wing of the United States Air Force Auxiliary Civil Air Patrol. It is published by a private firm in no way connected with the Department of the Air Force or with the Civil Air Patrol Corporation. The appearance of advertisements in this publication, including supplements and inserts, does not constitute an endorsement by the U.S. Air Force or CAP of the products and services advertised herein.

Bear Facts encourages contributions from all CAP members, military personnel, and related agencies. Material must be original, free of copyright constraint, unpublished, and submitted only to *Bear Facts* magazine, which reserves the right to approve, reject, edit, abridge, or expand any submission. Ideas for feature articles should be discussed in advance with the Editor, Lt. Col. David Oberhettinger.

Submission guidelines: As a thrice-yearly publication, the magazine is not suitable for dated material on routine Squadron or Wing activities. PAOs and other correspondents should generally avoid subjects and styles typical of newsletters. Use the *Associated Press Stylebook* or read the latest magazine for style points. Never imbed photographs within documents. Send photographs as separate email attachments with complete captions. Always include contact information at the top of copy. Email articles, along with .jpg-extension photographs of a minimum one Mbyte resolution or higher, to: david.oberhettinger@cawgcap.org.

Other material should be sent to California Wing Civil Air Patrol, Attn: Bear Facts, P.O. Box 7688, Van Nuys, CA 91409.

For information on advertising rates and space availability, please call 1-800-635-6036.

Col. Alan Ferguson
California Wing Commander

Lt. Col. David Oberhettinger
Asst. Director of Public Affairs
Editor, *Bear Facts* Magazine

Commander's Corner

By Col. Alan Ferguson, CAP
Commander, California Wing



On the evening of 21 September I will hand over the wing to the new Wing Commander Col. Ross Veta. Col. Veta is a really smart, nice guy that will do a great job as Wing Commander—and he comes with a bonus, his wife Suzanne, who is even smarter and nicer. Col. Veta has done a great job as the Group 8



Commander, and he and Suzanne have been part of the CAWG legislative team going to Washington to help CAP make an impact with our legislators.

My thanks and appreciation goes out to the four CAWG Airmen that applied to be the Wing Commander through the Region selection process. It shows the depth of our bench and the willingness of our members, that four highly qualified Airmen applied to be Wing Commander. You see this willingness to take on significant and time-consuming jobs throughout our wing and at all levels—squadron, group, and wing. I wish I had room in this column to mention all of you by name but that is just not possible. This wing would be impossible to lead without all these Airmen stepping up to perform a duty (most often multiple duties) to help accomplish the many missions for America that take place in CAWG.

I do want to acknowledge a few groups and their

Continued on page 11 . . .

Mars rover "Curiosity" takes a selfie using the camera at the end of its robotic arm at "Rock Hall" on Sol 2291 (January 15, 2019), after climbing Mt. Sharp on Mars. This was Curiosity's 19th drill site. JPL designed, built, and operates the Mars Science Laboratory project's Curiosity rover, and it is currently building the Mars 2020 rover due to launch in July 2020. Photo credit: NASA

Why Do We Explore? Four ‘Business Cases’ for Space Exploration

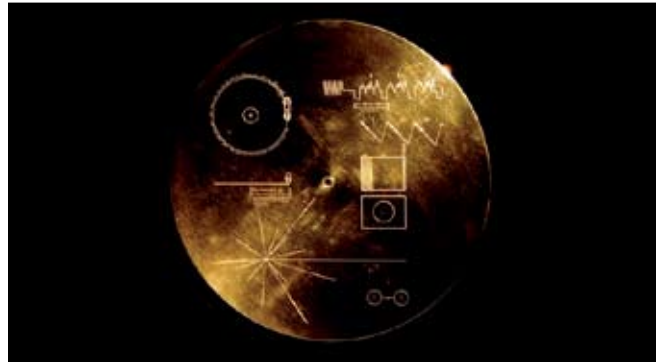
Lt. Col. David Oberhettinger, Wing Asst. PAO

Editor’s Note: In his spare time, the Bear Facts editor serves as the Chief Knowledge Officer (CKO) of the NASA/Caltech Jet Propulsion Laboratory (JPL) in Pasadena, California. His additional responsibilities within the JPL Office of the Chief Engineer include assuring engineering excellence in the design, test, and operation of robotic interplanetary spacecraft and planetary probes. JPL is this world’s leading spacecraft design and operations center for the robotic exploration of deep space.

So why do we explore? Unlike the explorers of old and their royal sponsors, who sought mainly commercial or political advancement, NASA has a benevolent mission to advance science for the benefit of all humanity. At JPL, our product is not the instrument-laden spacecraft I help to build and send into deep space, but rather the science data that they return. We seek to learn if Mars once had conditions conducive to life (JPL’s Mars Exploration Rover), if Mars presently has life (JPL’s Mars 2020 rover), what lies in the oceans beneath the ice that sheaths the moons Europa (JPL’s Europa Clipper) and Enceladus (JPL’s Cassini), if Earth-like “exoplanets” around distant stars are common (JPL’s Kepler Space Observatory), what’s to be encountered as we depart our solar system and venture into interstellar space (JPL’s Voyager 1 and 2), and so on.



Its fuel spent after 20 years of exploration, the Cassini spacecraft was commanded to burn up in Saturn’s atmosphere so there would be no risk of contaminating a possibly life-bearing world like Europa or Enceladus. Image credit: NASA



Aboard each Voyager spacecraft is a Golden Record containing sounds and images selected to portray the diversity of life and culture on Earth. They are intended for any intelligent extraterrestrial life form, or for future humans, who may find them. Photo credit: NASA

If cadets with an interest in aerospace education wish to pursue a career like mine as an aeronautical engineer and scientist, I can forecast with fair certainty that humanity will not be running out of cosmos to explore! For example, our Kepler spacecraft has discovered 26 Earth-like exoplanets (i.e., in the habitable zone, the right distance from their sun for water to exist as a liquid), and if you extrapolate that narrow strip of sky to the entire Milky Way galaxy, you get 8.8 billion potential Earth analogues! I believe we are in the *golden age of space exploration*, and there will be plenty of opportunities for you and your descendants to work on (and in) space. Five hundred years from now, will people remember what a laptop computer was? Probably not. But schoolchildren may learn then that my bosses, JPL Chief Engineers Brian Muirhead and Rob Manning, working together in the early 1990s, designed Mars Pathfinder’s “Sojourner” rover—the first vehicle to rove Mars.

But let's get back to the interesting question of why we as a species choose to explore. One aspect of the desire to "Go where no one has gone before" is *fear* and *pride*. Fear—no one in our village has ever gone over the hill, and there may be something on the other side that could harm us! Pride—I'm the first in my village to ever go over the hill! But that element alone doesn't entirely explain the motivations behind someone like Neil Armstrong, Roald Amundsen, or the great mariners of Earth's oceans. Humanity is an inquisitive species, and we are motivated to explore even where there is great risk and no clear prospect of significant gain. As he prepared to scale this world's highest peak, George Leigh Mallory rationalized, "Because it is there."

Four Business Cases for Space Exploration

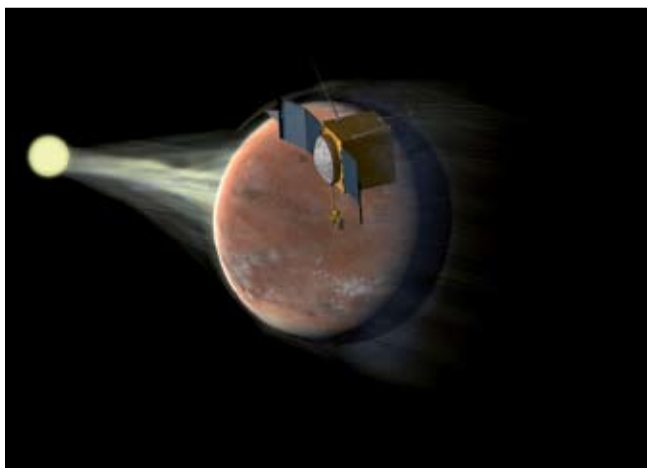
The following business cases are posed as examples of the potentially high stakes involved in space exploration:

High Stakes Business Case #1: **Goodbye Earth's Atmosphere**

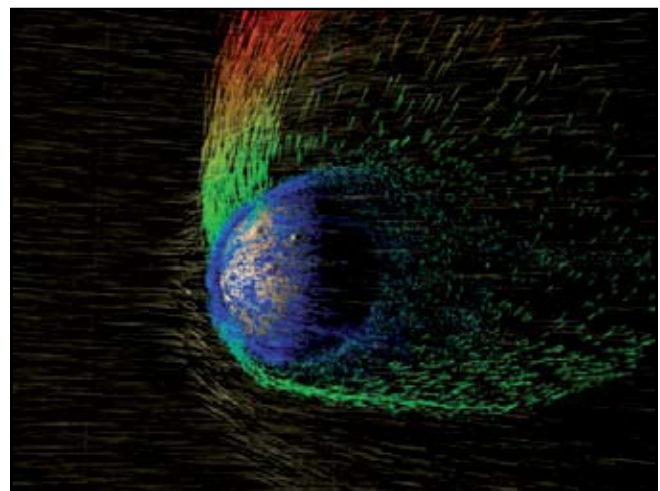


Scientists think that Mars like Earth may have been a warmer, wetter, planet billions of years ago until something catastrophic happened to its atmosphere. Where Mars may once have had an oxygen-rich atmosphere, the oxygen component now measures only about a tenth of one percent. Also, Mars' atmosphere is very thin—less than one percent the density of Earth's at sea level. Walking into a 300 mph wind on Mars, the force exerted upon you would be equivalent to a 2 mph wind on Earth. Could the processes that robbed Mars of its atmosphere one day threaten Earth?

NASA launched the Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft in 2013 to determine how Mars' atmosphere and water were lost over time. MAVEN found that the solar ejection of plasmas and particles through the Sun's corona and into outer space strips off gas ions from Mars' atmosphere. In other words, Mars' atmosphere may have been blown away by coronal mass ejections from the Sun. The illustration on the left below reflects data from a March 2015 solar mass ejection, showing loss of Mars' atmosphere continuing even today. The image on the right simulates the effects of a particularly large ejection of the sun's coronal mass upon the Earth's atmosphere. To me, that puts "science return" in perspective: let's not forget that Mars once had oceans like Earth!



MAVEN at Mars: the solar wind causes deterioration of the Martian atmosphere. Image credit: NASA



Depiction of the solar wind's impact on Earth's magnetic field and atmosphere. Image credit: NASA

High Stakes Business Case #2: **Planetary Defense**

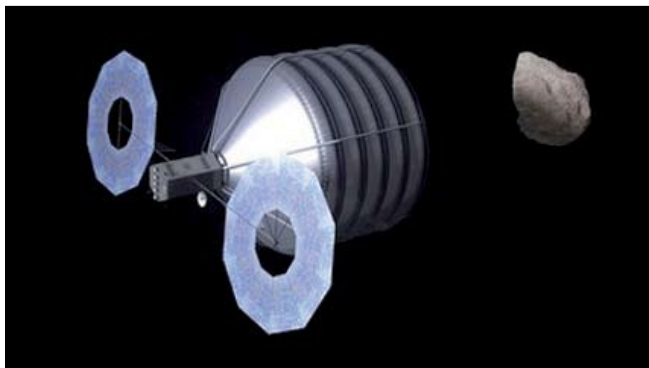
Astronomers have discovered more than 8,500 orbiting near Earth objects at least 140 meters in diameter, enough to cause regional-scale devastation in the event of an impact, but



they estimate that is only about one-third of the total population. In contrast, the largest discovered impact crater on Earth is the 185-mile diameter Vredefort crater in South Africa. But a much smaller asteroid or comet no more than 9 miles wide is now generally thought to have devastated the global environment and caused the extinction of the dinosaurs 66 million years ago. A strike on Earth by another dinosaur-killer is inevitable: it is merely the time frame that is uncertain.

In an effort to learn more about near Earth objects, JPL proposed the Asteroid Redirect Robotic Mission (ARRM). JPL's plan to snag an asteroid and tow it into near-Earth orbit included a planetary defense demonstration, providing the first in-space test of an "enhanced gravity tractor." A gravity tractor is where you position a relatively small object, like a spacecraft, close enough to an asteroid for gravity to exert pull on the asteroid and gradually change its trajectory. If you start far enough away from Earth, you can possibly deflect an asteroid that represents something like the dinosaur killing event.

In 1908, a relatively small impact event (as compared to the history of asteroid impacts on Earth) in



ARRM would demonstrate a gravity tractor effect
Image credit: NASA



The Kepler data suggests that exoplanets—even habitable ones—may be quite common.
Image credit: NASA



The impact of a large asteroid will vaporize it and a large amount of the Earth's crust, ejecting debris at such that it will fly right out of the atmosphere and go into orbit around the Earth. Image credit: NASA

Tunguska, Siberia leveled 80 million trees with a force a thousand times more powerful than the Hiroshima atomic bomb. Such strikes illustrate the possible stakes in demonstrating gravity tractor capabilities. I would argue that such a capability to avert looming planetary disaster might be a high stakes business case of interest beyond scientists and engineers.

High Stakes Business Case #3: Other Earths

JPL's Kepler spacefaring observatory has detected 26 validated Earth-size planets orbiting distant stars that are located in the "habitable zone," meaning it is the right distance from the sun and the right atmospheric pressure to have liquid water on the surface. And we have seen in some very hostile Earth environments like the deepest ocean depths that where you have water and energy you have life. The first Earth-analogue found by Kepler, named Kepler-186f, resides about 500 light-years from Earth in the constellation Cygnus. The Kepler spacecraft has found another 2200 "exoplanets" that are not Earthlike or in the habitable zone, but extrapolation from the 26 Earth analogues suggests that the Milky Way has at least 8.8 billion Earth-size planets in a solar habitable zone and capable of life.



So in addition to the dangers of Earth's atmosphere boiling away (Business Case #1) or Earth being struck in a cataclysmic impact event (Business Case

#2), space exploration in Business Case #3 is giving us an opportunity to find Earth-like environments hundreds of light years from us. The question of “Are we alone?” has high stakes-- not likely in terms of a threat, but rather in a more positive and philosophical sense. The question is as old as humankind itself. For millennia, people have looked to the stars and wondered if there are others like us out there. Does life, be it similar to us or not, exist elsewhere in our solar system? In our galaxy? Until 1992, when the first exoplanet was confirmed, it was unknown whether there were even any planets outside those in our own solar system.



Exoplanet in the “Goldilocks” zone. Image credit: NASA

High Stakes Business Case #4:
Return on Investment



The standard definition of a *business case* is “a justification for a proposed project or undertaking on the basis of its expected commercial benefit” [*Google Dictionary, emphasis added*]. Space exploration has historically been the exclusive province of governments (see “Fear” and “Pride” above). Today, commercial space services providers have emerged, and Space Exploration Technologies Corp. (SpaceX) has even proposed independent efforts at space exploration—a crewed mission to Mars. And deep space mining may one day be viable. But these companies have yet to demonstrate that space ventures beyond Earth orbit can be profitable unless they are supported by government contracting.

So do we have any established examples of commercial benefit from exploration of terra incognita? Something that would let us ignore the emotional arguments and coldly consider the potential return on investment (ROI)? Queen Isabella rejected Christopher Columbus’ proposal three times, until her personal treasurer pointed out to her that the entire budget for the first (i.e., first European) voyage of discovery to the New World was less than the cost of entertaining a visiting noble at the Court of Castile for one week! (Also, Spanish aristocrats had value to her, but common seamen and an Italian skipper were wholly expendable.) Black pepper was a valuable trade commodity at the time, and a shorter/cheaper route to India heading west instead of east might very well have allowed her to corner the market on black pepper for Spain. Cheaper pepper! Dramatically reducing the cost of transportation is typically considered a legitimate contributor to ROI. “Cheaper pepper”— sorry, I just like to say that.



Columbus is received by Queen Isabella and King Ferdinand.

Now, JPL spacecraft launched into deep space are crewed by robots instead of humans. If Queen Isabella had launched robotic ships, the Spanish could have achieved a decent coastal survey. And if the robotic Nina, Pinta, and Santa Maria had included camera drones on deck, they would likely have been able to map a few miles inland. But would the Spanish have established a presence in the New World with only robotic ships? Or did they need the 15th Century’s equivalent of astronauts?

But what was the actual return on her investment? Perhaps infinite, because she not only discovered a “New World,” but the inhabitants of the New World (i.e., the ones on our Pasadena, California campus) are now discovering new worlds.

Continued on page 11 . . .


Explore Continued . . .

For Those Interested in Exploring Deep Space

For college students studying engineering or science, JPL has been hosting over 600 summer internships for the past few years at its Pasadena, California campus. Completing their internships, these students have a leg up on applying for permanent positions at JPL. More information on JPL space missions is available at <https://www.jpl.nasa.gov/>: for example, Mars Helicopter (see below) is now in its final testing stage. Information about the jobs available at JPL, including for students, new grads, post-doctoral candidates, and experienced professionals, can be found at <https://jpl.jobs/>.



The author holds a carbon (foam core) rotor blade from the 4-lb. Mars Helicopter “Scout” that will fly from the instrument deck of the Mars 2020 rover. The Scout design features two sets of counter-rotating blades because it lacks a tail rotor. The author is presently organizing a panel presentation on how Scout met its technical challenges, starting as a hare-brained idea. The author has the best job on this planet. Photo credit: Lt. Col. David Oberhettinger

You can also contact the JPL CKO, Lt. Col. David Oberhettinger, at the JPL Office of the Chief Knowledge Officer (OCKO)—davido@nasa.gov. For more information on the topic of this article, there is also a video of his talk at a 2015 CAWG Group 1 banquet, entitled “Why Do We Explore”—<https://youtu.be/xrFaQfYz9z0>. His 2016 keynote speech in Australia was entitled, “What is at Stake in Space Exploration: Had Queen Isabella Launched Robotic Ships”—<https://youtu.be/epx6nVqDnNo>. His 2018 TED talk is available at <https://youtu.be/dQt3BCziULg>. 

Commander’s Comments


Continued from page 1 . . .

contributions to the wing, during my time as Wing Commander.

The wing command staff and the Chief of Staff, Lt. Col. Tammy Sturgill, who has done her best to keep me on track and out of trouble, along with guiding the staff. My admiration and thanks to the Vice Commanders, Lt. Col. Greg Chase, Lt. Col. Brett Dolnick, and Lt. Col. Mike Prusak who have tackled many number of issues for me and worked with the group commanders, to resolve their issues.

My thanks for their leadership goes out to the 8 group commanders and to all the squadron commanders who work to fulfill our national and state mandates and lead our Airmen toward a more fulfilling and successful CAP experience.

The other big group of Airmen I need to thank are the wing staff officers/program directors and their staffs. Aerospace Education, led by Lt. Col. Roger Dunn and his dedicated team that reaches out to our Airmen, public educators, and the general public to introduce the CAP STEM program and make it interesting. The Cadet Program is led by Lt. Col. George Ishikata and his large team of dedicated seniors and cadets responsible for making CAWG’s Cadet Program the best in the nation. Operations and Emergency Services, led by Lt. Col. Joe Brickman and his team, cover all the jobs for base operations, ground operations, and air operations—performing the many missions requested by the Air Force and CalOES. I am eternally grateful for all the help that has been provided to me and the friendships that have grown with all the wing staff: the chaplain who I don’t talk to enough, the wing safety officer who I must talk to too often, IT doing their best to keep us near the leading edge of technology, the Inspector General and Logistics keeping the wing out of the National doghouse, and the CAWG HQ staff Terrie and Cathy—my thanks to all of you.

It has been my honor and privilege to serve with you as the CAWG commander!! 

Commander's Corner [continued]

Col. Ross E. Veta, CAP

Fellow California Wing Members:

By now, many of you will have already seen a summary of my vision for California Wing for the next four short years and beyond. For those of you who have not seen it, here is a brief summary. Up until now, the Wing Commanders and their staffs have worked tirelessly to provide a foundation from which we can grow this wing and do amazing things. Now it is up to us to build on this foundation. My vision for California Wing is one of growth through innovation in all we do. My vision for California Wing is an organization that is as rewarding and fun to participate in as it is valuable to the country. My vision for California Wing is equal opportunity for everyone to participate, develop, grow, and promote in everything we do, always.

My philosophy of leadership is comprised of eight elements. These elements are: integrity, advocacy, positivity, innovation, enthusiasm, inclusion, diversification, and empowerment. It is through these elements that we will be able to grow our wing in a way that will keep pace with our evolving society, diverse customer base, and national needs.

Over the next four years, we will engage in many new initiatives, as well as the rekindling of old ones in ways that bring them into the present. We have worked diligently to ensure that the new wing staff are among the finest and most capable people in Civil Air Patrol. California Wing headquarters will focus on energetically supporting, encouraging, and promoting all of our members at all times. The phrases “the problem with that is”, or “we can’t do that because” are no longer part of the vocabulary of California Wing. Rather than focusing on roadblocks that inhibit or slow progress, we will focus our energies on overcoming any obstacles that otherwise would impede our innovation and growth.

There is no doubt that the membership is our most valued and most valuable resource, and it is through the membership that we are able to accomplish the missions that are so vital to our entire country. You have my personal guarantee that the entire wing staff, myself included, understand this and are dedicated to making the experience of every single member as contributors to this great organization as rewarding and fun as possible.

Keep your eyes open for e-mails that have already been circulating and will continue to circulate, and look for opportunities for everyone to be involved in all of the great and innovative new initiatives that we will pursue. We need your dedication, your ideas, and your enthusiasm to drive these initiatives and to identify new ones so that we can continue to grow as the greatest wing in Civil Air Patrol.

It is truly my honor to serve others with people as dedicated and talented as you. I look forward to working together to grow California Wing.

Very Respectfully,
Col. Ross E Veta, CAP
California Wing Commander



The California Wing's 2019 Aerospace Education STEM Academy

Maj. Gailmary Harper, CAP

The California Wing's 2019 Aerospace Education STEM Academy (AESA) was another great success, with forty-eight eager cadet students from across the state in attendance. This was the fourth annual iteration of this state-wide event, and the third to be held at Edwards Air Force Base-- the second largest base in the U.S. Air Force and the home of the 412th Test Wing. This week-long aerospace education (AE) and Science, Technology, Engineering, and Math (STEM)-focused activity provided once-in-a-lifetime experiences, a focus on STEM-related education and careers, leadership opportunities for cadets, and an unparalleled chance for cadets to interact with the Air Force test pilot community at the home of "The Right Stuff."



AESA group photo. Photo credit: Gianna Carlo Casem, 412th/TW/PA, and Maj. Gailmary Harper

On Sunday June 16, Maj. Paula Urbom-Shope, the AESA administration officer, was on hand at the Edwards visitor center to welcome and register the cadets and parents. Along with the transportation team—Edwards is a 481 square mile installation—I was on hand to take photos. The week of activities began on Monday with special guests, U. S. Air Force retirees Lt. Cols. William "Flaps" Flanagan and Toni Flanagan. The duo recounted their enthralling military career experience to over sixty CAP cadets and senior members at the Edwards Flight Test Museum. Naturally, Flap told stories about his experience with the variety of military aircraft flown during the Vietnam war and post-war era, including the B-52, the B-2 stealth fighter, and the SR-71 Blackbird spy plane. It was a thrill to see his visual presentation on these airplanes, including breaking the speed of sound when he traveled to Canada and back to Palmdale, California in 42 minutes.



USAF Ret. Lt. Col. William "Flaps" Flanagan addresses the class. Photo credit: Gianna Carlo Casem, 412th/TW/PA, and Maj. Gailmary Harper

Toni shared her military career in the intelligence field and her duty stations. She also emphasized the scarcity of duty positions and other limitations on female service members during this period, and she highlighted her post military educator career. As a Vietnam veteran, I wanted to give the Flanagans a special “Welcome Home.” I presented them with a special Vietnam War 50-year anniversary commemorative pin, and with a signed declaration by the President. Col. Alan Ferguson presented them with a CAWG patch and CAP challenge coins. The room was then called to order for a long overdue Welcome Home Salute, lasting for five minutes.



USAF Ret. Lt. Col. Toni Flanagan. Photo credit: Gianna Carlo Casem, 412th/TW/PA, and Maj. Gailmary Harper



Col. Alan Ferguson, CAWG CC, presentation of CAWG patch CAP challenge coins. Photo credit: Gianna Carlo Casem, 412th/TW/PA



Vietnam War Welcome Home Salute. Photo credit: Gianna Carlo Casem, 412th/TW/PA

Over the course of the weeklong STEM activities, cadets learned from a variety of well-qualified aerospace educators how to build and operate CAP STEM kits. For instance, 1st Lt. John Anderson taught Design, Build, Fly. Even, the simplicity of paper airplanes was a huge success, just like the Wright Brothers. Then there was “Rocket-dog,” Maj. Tom Sabatino, with his wide variety of ominous rockets. And let’s not forget the drones that were deemed the “pit bulls” of small flying objects. 1st Lt. Chris Devine held an amazing indoors drone class and competition for the cadets. But where would we be in the world of aviation, without the ability of learning how to fly? The flight simulators were the highlight of the STEM academy classes, taught by Capt. Bob Nadeau, an experienced commercial pilot, and Maj. Cathy Collom, a private pilot. The weekend rocket launches and the flying of paper and model airplanes culminated the cadets hard work in the classroom.

The AESA would not have been complete without the 412th TW/CC/LL/PA (i.e., Public Affairs) and Lt. Col. Radvanyi arranging flight line asset tours of the F-22 and F-35 fighter jets. During a briefing on bomb disposal, the cadets dressed in bomb disposal gear and watched a small explosive detonation. They met a specially



AESA STEM class. Photo credit: Maj. Harper



Maj. Tom Sabatino, "Rocket-dog". Photo credit: 1st Lt. Craig Peddie

trained bomb dog, named Luna, and her handler. Other cadets learned how to operate one of the robots used in the location and detonation of bomb devices.

It was amazing to see what takes place at the Air Force Research Laboratory facilities, as well. The photos speak volumes. Another thrill for the cadets was having their first ever airplane flight onboard one of the CAP



AESA group photo with Ret. USAF Lt. Cols. Toni & Flaps Flanagan. Photo credit: Gianna Carlo Casem, 412th/TW/PA, and Maj. Gailmary Harper

Cessna aircrafts, flying into beautiful blue skies with billowy white clouds to Apple Valley, Mojave Air and Space Port, Tehachapi, and the William J. Fox Field airports. As CAP members, cadets and senior members were then given a once-in-a-lifetime opportunity to fly onboard the Air Force C-17 cargo airplane and experience inflight maneuvers featuring weightlessness and negative and positive G-forces (i.e., tactical descent). Certainly, there is no amusement park that can offer this thrill ride!

The STEM academy activities culminated with a special Legislative Member Open House on Friday, June 21 to provide local government and Edwards AFB officials an opportunity to visit with CAP AESA



Back seat for Mojave Air & Space Port O-ride. Photo credit: Maj. Gailmary Harper



Cadets back seat for Tehachapi O-ride. Photo credit: Maj. Gailmary Harper



Cadet in EOD gear. Photo credit: 1st Lt. Craig Peddie



B-52 group photo. Right to left: Ms. Shannon Herrador for Rep. Katie Hill; Mr. Gary Medina for Rep. Kevin McCarthy; Ms. Lily Agbalog for Sen. Shannon Grove; Lt. Col. Kenneth Endrizzi, AESA superintendent; Maj. Gailmary Harper, AESA PAO; Ms. Liz Mojica for Sen. Shannon Grove; Mr. Brandon Rogue for Asm. Tom Lackey; and Mr. William Gaddis, 412th/Deputy Plans and Programs Officer. Photo credit: Gianna Carlo Casem, 412th/TW/PA

leadership, meet aerospace education member instructors (AEMs) showcasing an interactive STEM kit, and enjoy lunch with cadet cadre. The following field representatives were on hand-- Mr. Brandon Rogue for Asm. Tom Lackey, Ms. Samantha Herrador for Sen. Katie Hill, Ms. Lily Agbalog and Ms. Liz Mojica for Sen. Shannon

Grove, Mr. Gary Medina for Rep. Kevin McCarthy, and Mr. William Gaddis for the 412th TW/DC/LL. The distinguished guests were impressed by the effect of CAP on the education, maturity, and focus of the cadets. Also, their interest in the program raised optimism for future funding of the CAP STEM AESA programs.

I asked Cadet Senior Airman Elijah Prietos of Fresno Composite Squadron 112 about his impressions of the 2019 AESA:

- What were your expectations in attending the AESA? That the cadets and I would build rockets and learn about the flying them. We ended up doing a lot besides rockets, such as robotics and engineering.
- What was your best experience at AESA? My best experience at the AESA was the C-17 cargo airplane flight-- mainly the "tactical descent." But besides that, my favorite part in general, was the tours, specifically the Test Pilot School.
- What are your future goals? My future goals are to go through the Air Force and become a commercial pilot. I attended AESA to learn about flight and get a better understanding of rockets and their flight.

The CAWG AESA team would like to express their appreciation to the 412th Test Wing team and to all of the CAP volunteers who made this AESA 2019 an outstanding success. For more information on the CAWG AE STEM Academy, you may contact Lt. Col. Endrizzi at (707) 673-7891, or email kenneth.endrizzi@cawgcap.org.



Cadet rocketry. Photo credit: 1st Lt. Craig Peddie



AESA briefing. Photo credit: Maj. Gailmary Harper

San Diego Cadet Squadron Competes at Pacific Region

Lt. Col. Jessica Black, CAP

Competing for the first time, San Diego Cadet Squadron 144 wins at the group competition and then at the wing level. Representing CAWG at the Pacific Region competition, can this newcomer cadet competition team win again?

The 2019 CAP Pacific Region Cadet Competition was conducted at the Army National Guard armory in Riverside, CA on the last weekend in March. Six cadets and two senior members from San Diego Cadet Squadron 144 arrived on Friday afternoon. The streets seemed deserted and the air was still and warm. Outside, there were no sounds, only an occasional car driving by. We were ushered inside and escorted quietly through several hallways while being reminded in hushed tones that we were in a working office environment until close of business later that day. One more turn and then a set of double doors took us into the huge armory bay.

Once inside, the din of dozens of cadets and senior members filled the room. Seniors milled about, greeting CAP acquaintances from other units, introducing themselves to the seniors from other teams, all the while sizing up the competition. Cadets were staking out territory and setting up cots. The mess crew was carrying in boxes of food and equipment. Uniforms hung wherever a hanger could be placed—a box edge, a doorknob, various protrusions on the walls. A couple of the squadrons had come prepared with portable clothes racks, ironing boards, and even steamers to remove those pesky wrinkles. The Oregon team seemed very young. The Alaska team all had matching tracksuits with catchy nicknames for each member embroidered across their backs. Were the Washington cadets all redheads or was that our imagination?

I found the large carton of cot bundles and grabbed one for me and one for 2nd Lt. Ratayczak, the other senior member supporting our team. I opened up one of the bundles and tried to make heads or tails out of the pieces that were supposed to somehow become a usable bed. Fortunately, a nearby cadet recognized my plight and came over to help. Perhaps it was the fact that my right arm was in a cast and sling; nevertheless, I welcomed the help. In less than 60 seconds, the cadet had my cot assembled and was off to find other members to assist. Thank goodness for cadets! I did pay attention, however, to the assembly process so that when Lt. Ratayczak came over to assemble her cot, I passed my new knowledge and instructed her on its assembly using my sage lieutenant colonel voice.

A light meal was served and the six squadron teams all huddled into their respective territories, for the one-thousandth time checking uniforms and reviewing the material on which they would be tested. We were advised that lights out would be at 2100. Five minutes prior, the first set of lights went out, and promptly at 2100 everything went black. Then the flashlights came on as several people, mostly seniors, finished getting ready to tuck into their bunks.

The lights came back on at 0600, but most of us were already awake to the smell of coffee and bacon. The mess team was led by the Group 2 Commander, Lt. Col. Dave Goude, and his wife, Maj. Liz Goude. When the Goudes are cooking, we know we will be well-fed!

The first event started right after breakfast. Physical fitness tests—pushups, sit-ups, etc.—were conducted simultaneously with six judges each watching the members from an assigned team. Throughout the day, cadets



Cadets from all six wings in Pacific Region setting up camp at the Army National Guard Armory in Riverside. Photo credit: Lt. Col. Jessica Black

were tested in events ranging from aerospace knowledge, to a leadership challenge problem using a robotics theme. The uniform build challenge required two cadets from each team to correctly assemble a uniform, complete with a set of badges, insignia, and ribbons in the correct order of precedence. Day One was not without some controversy; whispers of inconsistency between the judges and complaints that the competition criteria being applied was inconsistent with the guidance communicated weeks earlier. In spite of the concerns, the cadets showed extreme professionalism and courtesy by properly using the established event protocol to bring the concerns to the judges in writing via the team captains. The concerns were evaluated and discussed with the team captains to everyone's satisfaction.

The evening meal was a noisy occasion as cadets now mingled with newfound friends from other wings. Lt. Col. Goude delighted everyone with his famous Mother's Pies and plenty of ice-cream for dessert. Lights-out went a bit smoother with fewer needing flashlights this time!

After Sunday morning breakfast, the teams were bused over to the March Air Reserve Base running track for the mile run. Our own then Cadet Maj. Jurkoic earned recognition for the fastest time amongst all cadets! It was heartwarming watching everyone cheer the cadets on regardless of which team they represented.

Back to the armory for more events—uniform inspection, and outdoor and indoor flag posting. The inspection was grueling as cadets stood in formation for over an hour as two judges scrutinized every detail of their uniforms. Rulers checked insignia placement to 1/8 of an inch. Cadets were grilled on uniform protocol questions as the inspectors looked for even the most minute discrepancies. The flag postings brought more glitches. The outdoor pole had an “inside rope” system that none of the cadets had seen before, so each team was trained earlier in the day on the unique function and method of handling that rope system. At least all teams were on equal footing with this challenge! The other glitch was with the indoor posting. The ceiling was too low to use the flags our team brought with the attachments: (what are those pointy things at the top called?). We were offered a set to use from one of the other teams.



Mile run on the base's running track. Photo credit: Lt. Col. Jessica Black

While the judges sequestered themselves to tabulate the scores and determine the team rankings, the cadets participated in an unscored aerospace jeopardy-type competition. This was very informal and loads of fun. The CAWG team took first place in this event.

The moment of truth: the judges arrived with the final results. While each team scored best on one or more categories, the overall first place went to the Columbia Composite Squadron from Oregon Wing and second place to the Renton Composite Squadron from Washington Wing. A big congratulations to them!

Were we disappointed? Maybe a little, but not much. We had ridden an amazing wave. San Diego



Cadets Benjamin Fish, Jacob Jurkoic, Tyler Tennant, and Michaela Kovalsky standing tall for the Indoor Flag Posting event. Photo credit: Lt. Col. Jessica Black

Cadet Squadron 144 Cadet Competition Team was a brand new team. We had never competed before this year. To be one of two teams winning at Group surprised us, but we went to the Wing competition at Camp Pendleton with high hopes knowing we were competing with a team that had won several years in a row and gone on to Region and National more than once. When we learned that we won at the Wing competition we were not just surprised, we were astounded! It turned out the point spread was only a miniscule two points between us and the team everyone had expected to win. The lesson here was that it isn't always the fastest, or strongest, or smartest, or most perfect at flag posting. It's a combination of all those things and it's a team effort. No one individual wins; the scores for all the team members are compiled for a composite score. The whole weekend at the Pacific Region event was a win. We got to represent one of the largest wings in Civil Air Patrol, meet and make friends with lots of cool cadets from other wings, and have a lot of fun in the process. And we got pie! We are already practicing for next year. ✈️

Sullivan Propeller



510-782-0920
Hartzell / McCauley
Sensenich / Woodward
FAA CRS S5UR963J

**We are proud to salute and support the
volunteers of the Civil Air Patrol!**

2156 American Ave. • Hayward



The 2019 CAWG Color Guard team. San Diego Cadet Squadron 144 members from left, Cadet 2nd Lt. Benjamin Jurkoic, Cadet Chief Master Sgt. Michaela Kovalsky, Cadet Airman Tyler Tennant, Cadet Maj. Jacob Jurkoic (team captain), Cadet Chief Master Sgt. Benjamin Fish, and Cadet Staff Sgt. Brianna Lee. Not pictured are senior members 2nd Lt. Cassidy Ratayczak and Lt. Col. Jessica Black (substituting for SM Alex Davenport). Davenport and Ratayczak were the mentors for this team guiding them to their wins at group and wing. Photo credit: Audrey DiGiantomasso

Group 2 SLS and CLC

Maj. Lindsay Edwards, CAP

“Great class! Very engaging instructors and very well presented! Definitely NOT “death by PowerPoint” – excellent class!”

These comments were typical of those made by students at the Group 2 Squadron Leadership School (SLS) and the Corporate Learning Course (CLC) held over the weekend of 4-5 May, 2019 at Livermore Airport. “I guess one of best complements an instructor can get these days is the comment *Definitely NOT Death by PowerPoint*, said Maj. Lindsay Edwards, one of the SLS instructors. “It takes knowledge of the subject as well as a lot of preparation and rehearsal to avoid simply reading the bullet points off the slides”, he added. “I must say that the instructor’s package provided by National Headquarters was quite good and really made the preparation easier than it might have been,” he said.



The SLS class in action. Photo Credit: Maj. Lindsay Edwards

Both courses were offered to students by Group 2, with Maj. Matthew Gregory the organizer. “Its great



The combined SLS and CLC classes outside at Livermore Airport. Photo Credit: Capt. Joe Spears

to see so many newer members taking these classes,” said Maj. Gregory after the course graduation. “We had 23 students in the SLS class alone and 8 in the CLC class.”

The SLS class is designed to prepare a squadron member for a position within the squadron. “It covers such important areas as where the squadron fits into the overall CAP organization, stressing that it is really the heart of the CAP”, said Maj. Edwards, adding “Squadrons could probably function without the higher echelons

of CAP, albeit not very well, but without the CAP squadron, there would be no CAP.” “That is one of the main points we want to impress upon the students,” he said, continuing “We want them to realize that the squadron is the customer of the higher echelons-- that they are there to make sure the squadron is successful in its operations.” The SLS class also covers subjects such as Leadership, Problem Solving, and Professional Development Progression. Capt. Joe Spears, one of the organizers of the event and one of the instructors, remarked “Probably the one student comment that summed up the SLS class was: ‘Excellent course. I feel that our Senior members should take this very quickly after joining. Course (sic) addressed many of the questions I had lingering from Level 1.’”

The CLC discusses the relationship the CAP squadron has with the next major echelon of command - the wing. Specifically, CLC discusses how wing-level operations help to accomplish CAP’s three missions of aerospace education, emergency services, and cadet programs. It describes the working relationships wing staff officers have with each other, and with their squadron-level counterparts.

There were 8 students enrolled in the CLC class. Instructors were Maj. Matthew Gregory, Capt. John




1st Lt. Cary Cruz of Fresno Composite Squadron 112, receives his course certificate from Lt. Col. Peters while Capt. Joe Spears, one of the instructors, from Tri Valley Composite Squadron 156, Livermore looks on. Photo Credit: Maj. Matthew Gregory



Maj. Lindsay Edwards, from Shasta Composite Squadron 126, Redding, about to start the SLS class on Creating Thinking. Photo Credit: Capt. Joe Spears

Stevulak and Capt. Joe Spears, all from Tri Valley Composite Squadron 156, Livermore. As with the SLS class, the CLC class was well received by its participants.

A very welcome presentation given to both classes was delivered by Lt. Col. Andrew Peters, Deputy Director (North) of Professional Development, who outlined some of the changes to the Learning Management System (LMS) and the Professional Development Program. Col. Peters also officiated at the graduation ceremony conducted on the Sunday afternoon.

The Group 2 Commander, Lt. Col. Noel Luneau addressed the students at the end of the graduation ceremony, giving some very wise advice for all CAP members, saying, “It is always so important to put your family first whenever considering any involvement with the Civil Air Patrol.” 

2018 CAWG Distress/Non-Distress Finds

<u>Group #</u>	<u>Mission #</u>	<u>Date</u>	<u>Grade</u>	<u>Name</u>	<u>Unit</u>	<u>Duty</u>
HQ	18-M-0656(2)	2-Sep-18	Lt Col	John MacKenzie	CA-001	Aircrew
1	18-M-0049	28-Jan-18	Lt Col	Mark Beutel	CA-080	UDF
1	18-M-0279	7-May-18	Capt	Robert W. Obreiter, Jr.	CA-080	MP Mentor
1	18-M-0487	14-Jul-18	Lt Col	Sarabjeet Lohara	CA-379	MO
1	18-M-0662	3-Sep-18	Capt	Michael Olson	CA-080	Aircrew
1	18-M-0858	15-Nov-18	Maj	Arthur Milberger	CA-410	Aircrew
2	18-M-0127	27-Feb-18	Maj	George Michelogiannakis	CA-452	Aircrew
2	18-M-0203	1-Apr-18	Maj	Peter McCutchen	CA-214	Aircrew
2	18-M-0463	7-Jul-18	Lt Col	Donald Jones	CA-452	Aircrew
3	18-M-0021	13-Jan-18	Lt Col	Benjamin Edwards	CA-205	UDF
3	18-M-0042	25-Jan-18	1 Lt	Randy Birckelbaw	CA-151	UDF
3	18-M-0361	5-Jun-18	Lt Col	Michael Swift	CA-387	UDF
3	18-M-0383	10-Jun-18	Lt Col	David Goude	CA-205	UDF
3	18-M-0616	22-Aug-18	Maj	Terry Pratt	CA-387	Aircrew
4	18-M-0820	29-Oct-18	Lt Col	Clifford L. Chabot	CA-213	UDF
4	18-M-0855	15-Nov-18	Lt Col	John Thurman	CA-204	Aircrew
5	18-M-0095	17-Feb-18	Maj	Paul Vance	CA-273	MP
5	18-M-0123	26-Feb-18	Maj	Ramsey Sharif	CA-034	Aircrew
5	18-M-0312	21-May-18	Lt Col	Kenneth Endrizzi	CA-138	UDF
5	18-M-0479	12-Jul-18	Lt Col	James Kapphahn	CA-151	UDF-SET
5	18-M-0813	27-Oct-18	Maj	Ramsey Sharif	CA-034	UDF
6	18-M-0007	5-Jan-18	Maj	Gregory Boggs	CA-802	UDF
6	18-M-0016	10-Jan-18	1 Lt	Richard Markwell	CA-151	UDF
6	18-M-0549	1-Aug-18	1 Lt	Gene Roberts	CA-394	UDF
7	18-M-0066	3-Feb-18	Lt Col	Stephen Handrop	CA-384	UDF
7	18-M-0351	3-Jun-18	1 Lt	Eric Buesing	CA-343	UDF
8	18-M-0295A	13-May-18	Lt Col	Ross Veta	CA-008	UDF
8	18-M-0358	5-Jun-18	1 Lt	Eric Ferdinandwalters	CA-144	UDF
8	18-M-0455	5-Jul-18	Lt Col	Ross Veta	CA-008	UDF

Southern California is Still TOPs for Thrill Rides!

Karen Vaughn, AEM

“November Two-Zero-Three-Seven-Tango cleared for launch on two-two-right. Break. Winch. Whiteline. Whiteline!” After a three-count, the mile-long cable goes taut, and I am forced back into my seat as the 340 horsepower turbo diesel revs us. Less than a second later, the Schweizer SGS 2-33 is airborne at 40 miles per hour. Maj. John Chapman slowly pulls back on the stick.



Glider at about four seconds after launch. Photo credit: Capt. Jeff Vaughn

“100 feet...”

“200 feet...”

“300 feet...”

We are now pulling G's at a 40-degree angle, but it feels like we are pointed straight up.

“400 feet...”

Less than a minute later, we release at 1400 feet over the other end of the runway. Wow. I have to catch my breath.

For Civil Air Patrol (CAP) cadets and senior members this happens about 400 times per year at Los Alamitos Army Airfield (KSLI) in Orange County, California, but I was the first CAP Aerospace Education

Member (AEM) to experience it as a Teacher Orientation Program (TOP) ride. CAP Los Alamitos Glider Training Squadron 41 is one of only a handful of units in the U.S. that uses a winch to launch gliders.

Squadron Commander Maj. John Chapman discussed the objective of CAP glider training. He explained that glider flying is the most cost-effective way for CAP to train pilots. The squadron's primary purpose is to provide orientation rides and initial flight instruction for cadets. To support that mission, the squadron needs senior members to instruct, operate equipment, and generally run the program. When the cadets have all flown, any remaining flight time is used to train seniors. Flight instruction is open to all CAP cadets and regular seniors for a small fee per flight. The instructors are all volunteers.

Squadron 41 personnel include seven glider flight instructors (CFI-G), three CAP check pilots, four orientation ride pilots, two ground school instructors, three tow plane pilots, four winch operators, and several trainees. Besides the glider and winch, CAP recently supplied the squadron with a flight simulator through the Aerospace Education STEM kit program. Plus, several members are building their own glider simulators.

Lt. Col. Stanley Clark informed me that a TOP ride was available, and I had the option of riding in a glider or a powered plane. I chose the glider. On Tuesday, April 16, I met with Sq. 41, at the CAP building at Los Alamitos Joints Forces Training Base. Due to severe winds, glider operations had to be canceled that day. Nonetheless, I stayed very busy on the simulators.

The squadron simulator is run by 2nd Lt. Yama Yaqubi, who explained that the average interested cadet is very tech-savvy and can significantly improve their glider skills using a simulator. Using the CAP STEM Kit Simulator, I was able to try both a winch launch and an aero-tow off of the simulated Los Alamitos Army Airfield and quickly learned how to land the glider.



Flying the tandem simulator with Maj. Allen.
Photo credit: Capt. Jeff Vaughn



Learning to fly on the CAP STEM Kit Simulator.
Photo credit: Capt. Jeff Vaughn

I also tried a two-place glider simulator being built by Maj. Ronald Allen. His plan is to make this simulator truck portable, allowing a cadet to virtually fly the O-ride or lesson in the simulator while waiting to fly in the glider. This is a dual-controlled, tandem-configured simulator that uses the Condor II simulation package. It's truly a sight to behold. My lesson was short, but very effective, since Maj. Allen was instructing from the back seat as is done in practice.

During my debrief, Maj. Chapman reiterated his goal that the simulators become a vital component to the success of glider instruction. "A glider cockpit is a poor classroom. In the simulator, you can practice and see what happens several times."

On Tuesday, April 30, I returned to Los Alamitos for the practical part of my TOP flight experience. After signing in, I was briefed by Maj. Chapman,

and then I went with Capt. Jeffrey Vaughn to preflight the Schweizer 2-33. From its general appearance, down to the cotter pins and bolts of the ailerons, we thoroughly inspected the workings of the glider. Lt. Col. James Welliver explained the winch operation. He, Capt. Robert Littlefield, and 2nd Lt. Richard Miller were in charge of transporting and operating the winch.

Another truck was responsible for transporting the pop-up tent, tables, chairs, and supplies (safety vests, radios, water, first aid, tool box, etc.) for the Glider Operations Desk (Glider Ops) and for towing the glider to the active runway. After our safety briefing, 2nd Lt. Thomas Rooney drove the truck towing the glider. Wing Runner Capt. Vaughn communicated and walked with the glider holding the nose, while CAP members took turns holding the wing as we walked the glider to the runway.

After walking about a mile, the glider was detached and turned around. Next, we set up Glider Ops. Capt. Ronald Hodge was Safety of Flight, and he logged the flight stats and ran the show. Meanwhile, 2nd

Lt. Rooney drove to the winch and brought the cable down the runway, while Maj. Donald Myhra remained at the CAP base monitoring the radio and flight operations.

My flight mission was slated first. Once we were secured in our seats, Maj. Chapman reviewed the pre-flight checklist, the various gauges, controls, early rope break procedures, and the basic flight maneuvers we would do. We both okayed the condition of the winch cable loop and tested the release mechanism. Maj. Chapman then obtained his launch clearance from Los Al tower. We were now ready to launch, “November Two-Zero-Three-Seven-Tango cleared for launch ...”

After the cable was released, we leveled the glider and checked our location, airspeed, and direction. Then I took it all in-- the landscape, the San Gabriel and Santa Ana Mountains, the Pacific Ocean, the clouds, the blue sky. It was simply beautiful. But I couldn't laze in the magnificence surrounding me. Maj. Chapman gave me the controls for a couple minutes and had me do the maneuvers I learned on the simulator. As we descended to 1000 feet, Maj. Chapman took over the controls. Communicate with the tower. Check air speed, altitude, and direction. Is



The winch operating crew (l to r) Capt. Robert Littlefield and 2nd Lt. Richard Miller. Photo credit: Karen Vaughn



2nd Lt. Han Lee of Sq. 150 holds the cable for inspection by Maj. Chapman as part of the pre-launch checklist. Photo credit: Capt. Jeff Vaughn



Glider at about six seconds after launch. Photo credit: Capt. Jeff Vaughn



Glider on short final for landing. Photo credit: Capt. Jeff Vaughn

the runway clear? Engage 25% brakes. Turn base leg. Square up with the runway. Engage 50% brakes. Turn final. Level the wings. Check altitude. Look at runway end. Apply full brakes. Let the bird sink. Release brakes some. Touch down. Roll out. Skid. Stop. Wow!



Glider on roll out after a perfect landing. Photo credit: Capt. Jeff Vaughn

Then we did it again! Once aloft, I did some turns while trying to maintain my airspeed.

After exiting the glider, I went to Glider Ops to get the next passenger, and three cadets were now waiting for O-rides. While waiting, they practiced on Maj. Allen's simulator nearby.

My full TOP glider experience was just amazing. The program is amazing. No fewer than 12 senior members were directly involved to make the glider operations run smoothly that day, and they operated like a well-oiled machine. Wow.

I encourage you to talk to your squadron leaders about taking a trip to SoCal and getting TOP-rides or O-rides in a glider with the incredible members of Squadron 41. Go ahead. Experience your own WOW! Contact them at <http://sq41.cawgcap.org/> 