The Eagle: Antarctic bound Beechcraft is seen warming up on the airstrip in front of the Beech factory. In this view it is obvious why classic Beech 17 is called the Staggerwing. During its sub zero, one year stint over the Antarctic, the Beech proved versatile and incredibly dependable.

Image from Wings Magazine—February, 1980
Our Mission:
To inspire and educate
To promote and preserve aviation and space history
To honor the patriotic service of our veterans

In Memoriam
DICK JOHNSON
TONY VERGARA

APRIL BIRTHDAYS

3- Gary Sohn
3- Timothy Guetz
8- Greg Macy (cad)
9- Allen Herkamp
10- Jim Mayo
11- James Cerar
14- Lynn Gelinhas
22- Ronald Grose
23- Ray Clevindence Jr
24- Dan Goodrich
24- Joel Krane
25- Jack Thede
26- Ken Rentmeester
28- Andrew Fitzgerald
30- Julias Folgate

If your Birthday is missing from the list, please send an email to Katha Lilley, tootiekat@live.com thanks..

BAND OF BROTHERS
Thursday, April 6, 11:30 a.m.
Theater Building
Speaker: Dan Goodrich, jet pilot; instructor, T-38; worked with Blue Angels
Contact Stan de Stwolinski at 503-474-0351 (McMinnville)
JUNO’S STATUS

On July 4, 2016, the Juno probe arrived at Jupiter. The original plan was to settle into an elliptical 14-day orbit and to orbit for 30 times before mission termination by flying into the planet. However, the telemetry indicated computer problems and problems with the Leros 1b-145 pound thrust hydrazine/nitrogen tetroxide rocket motor so it was decided to remain in the 53.5-day orbit it achieved on July 4. The longer orbit reduces the number of orbits from 36 to 20 over the expected lifetime of Juno and the current budget plan. Actually the 53-day orbit allows some research in the outer region, up to 5 million miles, of Jupiter’s magnetosphere and to spend less time in Jupiter’s strong radiation belts on each orbit. However, at around orbit 20 the spacecraft will experience an eclipse of about six hours. This will expose Juno to a sunless cold environment it was not designed for.

Juno has had four orbits since its arrival at Jupiter – August 27, October 19, and December 11, 2016, and February 2, 2017. Juno’s orbits have already revealed that Jupiter’s magnetic field and auroras are more powerful than scientists had thought, and that the bands and belts visible at the planet's cloud tops actually extend deep into the interior. Understanding magnetospheres and how they interact with the solar wind are key science goals of NASA’s Heliophysics Science Division. The next close approach took place on March 27, 2017.

One of the several instruments aboard JUNO is designed to make detailed measurements of Jupiter’s gravitational field. Data on the gravitational field is designed to reveal Jupiter’s internal structures such as the existence of a solid core hidden by dense clouds. The method uses high frequency radio ranging from ground stations on Earth to follow the spacecraft in its orbit around the planet and detect even minute changes in the motion of the spacecraft. Local variations in gravity can act on the spacecraft in orbit and cause it to speed up or slow down – those changes in spacecraft motion can be detected using the Doppler Shift in the high frequency transponders of the radio sub-system. Juno’s High Gain Antenna needs to be pointed directly at Earth so that high frequency ranging signals can be sent and received. The Deep Space Network has only one Station capable of providing the uplink which is Deep Space Station 25 at DSN Goldstone. Using this method, analysts can detect minute changes in the gravitational field which should reveal the internal structures of the planet.

Barring any radiation-induced upsets, Juno could be looking at a fairly long life in its elliptical Jovian orbit with plenty of fuel available to power the craft’s low-thrust engines used for attitude control and small orbital trims executed regularly to target the desired longitude of each science pass that takes the craft from north-to-south, skimming just 4,100 kilometers over Jupiter’s dense clouds.

John Jennings
VOLUNTEER APPRECIATION WEEK

April 23-29th

Volunteers from our region are offered free admission to the Museum and member pricing on theater tickets during this week. We are waiting for information from the organization that coordinates this so we can release a list of places our volunteers can visit for free during April and May!

Blue Star Museums Program
Memorial Day thru Labor Day:

https://www.arts.gov/national/blue-star-museums

Blue Star Museums is a collaboration among the National Endowment for the Arts, Blue Star Families, the Department of Defense, and museums across America. Each summer since 2010, Blue Star Museums have offered free admission to the nation’s active-duty military personnel and their families, including National Guard and Reserve, from Memorial Day through Labor Day. See the map below or select from the list of states for museums that participated in 2016.

Ongoing:
EASM has joined several programs that provide funds to the museum by encouraging our friends, family and supporters to shop with certain organizations.

Amazon Smile
Do your Amazon shopping through the smile program (follow link below) and .5% of each purchase made automatically goes to EASM. Please feel free to share this link (or people can search for Amazon Smile, go to their website, and then choose EASM as their charity). Amazon shopping must be done through this site and not through Amazon.com to credit to EASM. This can be used by Amazon Prime customer also.

http://smile.amazon.com/ch/93-1069203

Julia Cannell, Development Director
<table>
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<tr>
<th>DATE</th>
<th>LAUNCHER</th>
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<tr>
<td>4</td>
<td>GSLV Mk.2</td>
<td>-India’s Geosynchronous Satellite Launch Vehicle Mk. 2 (GSLV Mk.2), flying on the GSLV-F09 mission, will launch the GSAT 9 satellite to provide communications services over India and neighboring countries. <strong>Launch site:</strong> Satish Dhawan Space Center, Sriharikota, India</td>
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<td>4</td>
<td>Soyuz</td>
<td>-An Arianespace Soyuz rocket, designated VS17, will launch on a mission from the Guiana Space Center in South America. The Soyuz will carry the SES 15 communications satellite for SES of Luxembourg. Built by Boeing with an all-electric propulsion system, SES 15 will provide in-flight Internet connectivity for airline passengers, and support government, networking and maritime customers across North America. SES 15 also hosts a payload for the FAA's Wide-Area Augmentation System to enhance airline navigation and safety. <strong>Launch site:</strong> ELS, Sinnamary, French Guiana</td>
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<td>15</td>
<td>PSLV</td>
<td>-India’s Polar Satellite Launch Vehicle, flying on the PSLV-C38 mission, will launch India’s Cartosat 2E high-resolution Earth observation satellite and a collection of smaller secondary payloads from international customers. <strong>Launch site:</strong> Satish Dhawan Space Center, Sriharikota, India</td>
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<td>16</td>
<td>Falcon 9</td>
<td>-A SpaceX Falcon 9 rocket will launch a classified spacecraft payload for the U.S. National Reconnaissance Office. This will be SpaceX’s first launch for the NRO. <strong>Launch site:</strong> LC-39A, Kennedy Space Center</td>
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<td>20</td>
<td>Soyuz</td>
<td>-A Russian government Soyuz rocket will launch the crewed Soyuz spacecraft to the International Space Station with members of the next Expedition crew. The capsule will remain at the station for about six months, providing an escape pod for the residents. <strong>Launch site:</strong> Baikonur Cosmodrome, Kazakhstan</td>
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<td>25</td>
<td>Ariane 5</td>
<td>-Arianespace will use an Ariane 5 ECA rocket, designated VA237, to launch the ViaSat 2 and Eutelsat 172B communications satellites. The ViaSat 2 satellite will provide Ka-band services supporting high-speed Internet connectivity across North America, Central America, the Caribbean and northern South America on airplanes, ships and on land. Eutelsat 172B will provide multi-band communications services, including video broadcasts and data network support from the West Coast of North America to Southeast Asia, and in-flight Internet and television for travelers crossing the Pacific Ocean. <strong>Launch site:</strong> ELA-3, Kourou, French Guiana</td>
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<tr>
<td>30</td>
<td>Falcon 9</td>
<td>-A SpaceX Falcon 9 rocket will launch the Inmarsat 5 F4 communications satellite for Inmarsat of London. Inmarsat 5 F4 will be the fourth satellite in Inmarsat’s Global Xpress network. The spacecraft was originally supposed to launch on a Falcon Heavy rocket. <strong>Launch site:</strong> Cape Canaveral, Florida</td>
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John Jennings
mid-March Cam and Tracey Hawley from New Zealand arrived to spend the day with EASM’s D17A Staggerwing. Specifically they were examining the cowling of the aircraft for details on how that part of the plane was assembled. They are working on assembling the “Antarctic Beech Staggerwing”, a piece of American history from the late 1930s to early 1940s.

In 1938 with world tensions growing, Germany sent an expedition to Antarctica to possibly map a site of strategic importance for the Fatherland. Admiral Richard Byrd reported on this matter to the U.S. Congress, stating that the Antarctic continent would make excellent monitoring stations for weather in the South Pacific and South Atlantic. Also Roosevelt and Congress did not want the southern flank of the Americas dominated by foreign powers. As a result, the United States Antarctic Service was established, under Byrd’s command, to explore and claim areas of the Antarctic not already claimed by other American nations.

If you have not visited in a while, come view our Staggerwing.
The flagship of this expedition was the creation of the gigantic Snow Cruiser, a self-contained vehicle that carried a Staggerwing Beech scout plane, perched like an eagle and equipped with skis, on its back. It was chosen because of its large enclosed cabin but also small enough to fit on top of the Snow Cruiser. It had to be rugged and reliable in cold weather operation and for use far from factory or service centers. Over 300 Staggerwings had been built – a high production number for the 1930s depression era.

Created by Walter Beech and Ted Wells, vice-president and design chief of Beechcraft, it has been said that the Staggerwing was the most complex single engine airplane ever invented. Every plane was slightly different – hand built, crafted, and teased into shape. It was the Beech Aircraft Company’s first sale, a powerful expensive airplane built for wealthy business executives, not many left after the depression. It was considered an excellent arctic and bush plane, certified on skis and floats with standard retractable wheeled landing gear and in use all over the world in the frigid climates of Canada and humid jungles of South America.
This particular Staggerwing model was a Beech D17A with a 350-horsepower Wright R-760-E2 engine and was equipped with blind-flying instruments, radios, and aerial equipment for scientific research such as cosmic ray surveys. US Marine Corps Technical Sergeant Theodore A. Petras of Alabama was chosen as the pilot, spending several weeks at the Beech factory acquainting himself with every aspect of the plane.

Although the Snow Cruiser did not live up to its expectations because of its weight and inability to move through the snow, the Staggerwing was an incredibly reliable and versatile asset, flying over 198 hours on a variety of missions. Hours were spent exploring and mapping unknown areas and testing cosmic ray concentrations at high altitudes up to 21,000 feet, well above the D17A’s 15,500 service ceiling.

The European conflict brought the expedition back to the U.S. in 1941. After being refurbished at the Beechcraft factory, the Staggerwing was sold to Connellan Airways in Central Australia. Proving valuable to the war effort, the plane was pressed into military service by the Royal Australian Air Force. After the war, the plane was returned to Connellan until 1957 when it was sold to Tadgell Aviation, an agriculture business.

In 1963, during seeding operations, the plane crashed near Dingo, Queensland; the pilot was killed. The wreckage has remained at this site for 43 years. In 2007 the Hawleys, visitors to the Museum, discovered the existence of the frame and are in the process of restoring it to the same condition as the Antarctic expedition of 1939-41. Restoration work began in 2015.

Bob Ruck and Ann Trombley

For more information on the Staggerwing check the following website:
Wings Magazine - February, 1980
HISTORY CONTINUED SERIES
2017 PRESENTATION SCHEDULE

All Guests are welcome! Join us for an ongoing informational series presented by our own Museum Docents. Presentations are at 2PM every Tuesday and one Saturday per month at the Presentation Locations listed below; presentations are held in the Aviation building, the Space building at the Galaxy Theater, or at the Artifact/Display itself.

APRIL

Tue. 4/4: The F-100 Super Sabre: A Vietnam Veteran that Served Well
LOCATION: Space Museum Galaxy Theater @ 2pm. Hear how it served the USAF, and protected our forces on the ground from Presenter Chuck Gascoigne, a Vietnam US Air Force Veteran.

Tue. 4/11: Living for a Year in Space: What Does it do to Your Body?
LOCATION: Space Museum Galaxy Theater @ 2pm. Traveling long distances from Earth how will our bodies react without earth's comforting gravity, and at what cost? Come, and learn fascinating results from NASA's Twin Project, and how astronaut Scott Kelly went on nearly a yearlong mission onboard the ISS. Are you ready to go?

Sat. 4/15: The Mighty 8th USAAF in Europe WWII
LOCATION: Space Museum Galaxy Theater @ 2pm. The story of the United States Army Air Forces contribution in the defeat of Germany's Luftwaffe, and the dangerous business of day bombing of Germany from 1943 through 1945. Jim Green, our British Docent, is proud to continue the sagas of WWII from all perspectives.

Tue. 4/18: Guest Presenter Mark Stockton, Design Aircraft Engineer
SPECIAL TIME! 1:30-2:45pm
LOCATION: Space Museum Galaxy Theater
Mr. Stockton, a 1972 graduate of neighboring Aloha High School now living in Lancaster, CA, will bring to life his past engineering experiences. His work on the B-52, B-1, ISS, Virgin Galactic, Scaled Composites, F-35, SpaceX, robotics & drones as a Design Aircraft Engineer—are just a few of his projects. He will present by Powerpoint with highlighted slides of the projects, and talk about his projects that interest guests in attendance. He will be closing with highlights of companies offering great opportunities for aspiring engineering students.

Sat. 4/25: A-10 Warthog
LOCATION: Aviation Museum building, at the aircraft @ 2pm. Get completely up to date on our latest prized aircraft exhibit. Presented by retired USAF Docent Vic Caudillo, become enthused and familiar with this rugged aircraft built around its onboard 30mm General Electric GAU-8/A Avenger cannon.

FOR MORE INFORMATION, CONTACT:
EDUCATION@EVERGREENMUSEUM.ORG
EVERGREENMUSEUM.ORG 503-434-4185 @EvergreenMuseum
Staff Reports

Brandon Roben has the Volunteer Handbook for review and hopes to have it complete by the end of the week. Melissa Grace’s last day was March 24th. Her position will not be continued as we will not be doing as many events with the Falls Event Center (FEC) taking over most events. As EASM sponsored events are scheduled, the department responsible for coordinating the event will be noted on the weekly schedule. Rob Zeh will be taking over some of the remaining marketing efforts.

Brandon reported that members of the Model Club working in the Model Club area in the Aviation Museum will be provided vests to wear while in the Museum. The vests will be blue to identify them as Model Club members.

Background checks for new volunteers will be completed by Connie Holmes in HR. New volunteers should not start working until Captains are notified by Connie that the new volunteer has cleared the background check. It was also decided that if a volunteer has been gone for two or more years and wishes to return, a new background check will need to be done.

Brandon was notified that FEC has restricted access to the walkway on the south side of the Space Museum. Brandon stated that FEC is not permitted to restrict access to this area or the former wine bar. If this occurs Captains are to notify Brandon.

FEC weekly calendar of their events will be included with the Museum event schedule sent out by Jackie Saunders each week.

Terry Naig reminded Captains that fire doors, pull alarms and extinguishers should not be blocked at any time. Fire doors to the outside do not have handles on the outside. There must be a clear space of at least 3 feet in front of each fire door, fire extinguisher, and pull alarm box.

Terry has made changes to the south side doors in Space to better prevent leaks in rainy and windy weather. There was a discussion of inspection of the bi-plane ride in the Space Building. Besides the government-mandated inspections, Lonnie Prather does an inspection every Sunday.

Terry reminded Captains to enter in the maintenance logs any issues/needs related to electronics that need attention from Mike Videl.

The Aviation Wine bar doors are being found unlocked on some mornings. Terry suggested he could disable the lock on those doors so they remained in the locked position and could not be unlocked to allow access from the outside. It was agreed that this change would be made.

Cont’d..
Volunteer Items:

**Ann Trombley:** Kelsey Vaughn is now responsible for sending out the Volunteer Newsletter by email. Captains should let her know of any volunteers not receiving their Newsletter.

**Jim Lilley:** Recording of volunteer hours on the official time sheets at the Museum does not include travel time. Volunteers can take a tax deduction for distance traveled to and from the Museum but the official hours reported for time spent volunteering must not include travel time. The Museum uses the number of hours of service volunteers provide at the Museum in a variety of ways to show the level of community support the Museum receives each year.

Jackie Saunders is compiling the list of hours provided by volunteers to qualify for “Heart and Soul” awards. Captains will need to review the information she compiles and let her know whether a volunteer needs a patch.

Jim reported that the data base tracking hours of service has become unusable. He suggests that we research how other Museums record hours. He hopes to find an electronic recording system similar to what employees use. Cost of implementing this will be a factor. One of our Monday volunteers is a snow bird who volunteers at the Palms Spring Aviation Museum and Jim believes they have an electronic system and will contact him to get more information.

**Ray Clevidence:** Ray and Stefano Perer have been working on a proposal for a different emphasis for the Volunteer Christmas Dinner. Ray distributed written copies of their proposal. The program would include recognition of veterans, acknowledgement of volunteers who have passed and recognition of volunteer achievements in service to the Museums. There would also be presentations by the Museum CEO and Curator. Ray also indicated that he believes local merchants would be willing to make donations of gift certificates, gas cards and other items that could be given to volunteers for meritorious service to the Museum. Ray asked that Captains review their proposal and consider its implementation. Comments from Captains were very positive to these ideas.

**Stan Smith:** Stan shared information on the progress being made on completing the Volunteer Manual. His plan at this point is to have a single Volunteer Handbook in each building available for volunteer and staff use. Laurel Adams is working on the orientation and training piece while Stan is focusing on volunteer job duties and stations, general procedures, including check lists. The Tuesday Space crew is assisting Stan on the Space Museum portion of the Manuals. The Museums Safety Manual would also be included. Stan hopes to also include supporting documents such as forms and a catalogue of artifacts.

**Laurel Adams:** Distributed copies of the Mentor Training program and Tour Guide Handbook for Captains to review. These have not been updated in some time.

**Bob Ezell:** We still have problems being short staffed of volunteers on some days. In the past we have had a list of volunteers who were willing to come in on short notice to help out on a day when more volunteers are needed. The On Call List we have now is very out of date. Bob agreed to be responsible for developing a new on call list in consultation with the other Day Captains.

Malcolm Tabor  Next Meeting- April 3, 2017
March 9, 2017, marked both the launch of a round-the-world tour for Swiss watchmaker Breitling’s historic DC-3A and the aircraft’s 77th birthday. The historic world tour will last six months.

“After the Balkans, the Breitling DC-3 will head for the Middle East and India, followed by South East Asia, China, and Japan, where it has received a special invitation to take part in the Iwakuni “Friendship Day Air Show,” according to the company’s publicists. “It will then cross the ocean to begin a grand tour of the United States, prior to returning to Europe via Greenland and Iceland and completing its journey in September at the Breitling Sion Airshow 2017.”

One of the aircraft’s stops in the USA will be at nearby Aurora State Airport. It is scheduled to arrive on June 14th.

Breitling’s DC-3 first flew on March 9, 1940, and was delivered to American Airlines. Flying as the “Flagship Cleveland”. It was leased to the US Army Air Forces from 1942 to 1945 and flew for two Texas airlines and one in Massachusetts until 1987. It has undergone two complete restorations: one in 1969, and another in 1995. It has flown over 77,000 hours.

“At 77 years old, the Breitling DC-3 is the oldest airplane to undertake a round-the-world tour, and this new claim to fame will be one more to add to the already long list of achievements,” the company added.  

Bud Varty