



2012 HUNTSVILLE ALABAMA L5 SOCIETY (HAL5) ANNUAL REPORT TO THE MEMBERSHIP

Founded in 1983, the Huntsville Alabama L5 Society (HAL5) is a not-for-profit 501(c)(3) organization. We are the Huntsville chapter of the National Space Society (NSS), a grassroots, educational organization that advocates for the exploration and settlement of space. We are a mix of enthusiasts and professionals who share the belief that space development can improve our world with immeasurable benefits in the areas of education, energy, environment, industry, resources, and ultimately room for humanity to grow. We believe that by educating and working with the public, government, and industry, we can speed up the day when routine, safe, and affordable space travel is a reality.

In 2012, we continued our long running monthly public lectures, participated in the annual Von Braun Astronomy Society (VBAS) Astronomy Day, performed an education outreach at Columbia Elementary School in Madison, introduced a new space-theme game, continued with our High Altitude Lift-Off (HALO) educational amateur rocketry project, and held great 'members only' fall and Christmas parties. To top it off, at ISDC 2012, HAL5 was awarded the NSS Chapter Excellence Award for Education Outreach for 2011! You can find a listing of awards and recognitions received by HAL5 on our website.

Administrative Activities

The HAL5 Executive Committee met at 6 p.m. on the second Thursday of every month. The HAL5 website is used to announce HAL5 and key NSS news. HAL5 has a presence on Facebook as well as in selected local media and event calendars outlets. Email announcements are sent to current and former members as well as guests who sign up at our monthly programs. Event flyers are posted in key areas around town, and sent to current members whom do not have email. The annual membership dues are \$16 with reduced rates for students, seniors and the unemployed of \$8. New member rates are prorated based on the month of joining. We ended 2012 with 59 members – best since 1997!

Monthly Programs, Outreach, and Special Events

HAL5 holds public lectures or membership meetings on the first Thursday of every month at the Huntsville–Madison County Main Public Library Auditorium. Socials are typically held after each monthly program. As a thank you to our speakers, the speaker and his or her guest's meals at the post-program social are paid for by HAL5.

We started off 2012 with our annual membership meeting. This was a great opportunity for the HAL5 leadership to talk with our members and interested general public about the state of HAL5 and NSS, upcoming events, and solicit feedback on 2012 programming topics and activities.

In February, a full-scale NASA Orion Pathfinder vehicle was in Huntsville on its way to Kennedy Space Center. To celebrate this special event, the U.S. Space and Rocket Center (USSRC) hosted a special *Pass the Torch* lecture on February 2nd at the



HAL5 2012 Monthly Program Flyers. Please Visit Our Website at www.HAL5.org for Larger Sizes and Past Flyers.

USSRC Davidson Center for Space Exploration. The event featured presentations by Todd May, NASA's Space Launch System (SLS) program manager, Mark Kirasich, NASA's Orion deputy project manager, and Dan Dumbacher, NASA Deputy Associate Administrator for Exploration Systems. HAL5 had a table in the lobby with outreach materials, upcoming HAL5 programs and ISDC 2012 flyers. HAL5 officers and fellow HAL5 member and NSS Middle Tennessee Chapter President, Chuck Schlemm, were present to answer questions about HAL5 and NSS. Invitations went out to HAL5's members and guests, and nearby NSS members to the event. Over 370 people attended the event, including over 100 Space Campers. Dr. Deborah Barnhart, CEO and Executive Director of USSRC thanked HAL5 and our members for supporting the event. Our special thanks to Dr. Barnhart for this great opportunity.

In March, Dr. Linda H. Krause, of Solar-Terrestrial Physicist at NASA Marshall Space Flight Center (MSFC) gave a talk on *How to Predict Solar Impacts on GPS and Satellite TV*. To celebrate Wernher von Braun's 100th birthday on March 23, HAL5 members were among the many hundreds of people gathered underneath the mighty Saturn V rocket designed by Von Braun and his team. NSS executive director, Paul Dampousse, was also in attendance.

In April, HAL5 welcomed back Richard Hoover to present stimulating talk on *Microfossils, Biomolecules and Biomarkers in Carbonaceous Meteorites: Evidence for the Existence of "Extraterrestrial Life"*. As part of the Columbia Elementary School's Space Week, Yohon Lo worked with Ms. Foreman's 6th grader science classes in making and launching paper air rockets. There were also some younger students cheering on and helping with the launch countdowns. The HAL5 suitcase hybrid rocket was demonstrated for each class. Burned acrylic fuel grains (rods) were awarded to one student per class according to the highest paper air rocket altitude achieved as voted by their classmates. We thank the Ms. Foreman for the outreach opportunity. HAL5 members also attended Yuri's Night Huntsville 2012 at the USSRC Davidson Center.

In a follow-up to our March program on Solar Weather, Dr. Qiang Hu of the University of Alabama Huntsville Physics Department gave a talk on *Solar Effects on Space and Terrestrial Systems* at our May meeting. At the 2012 ISDC in Washington, D.C., HAL5 members played key roles in making the conference a success. Yohon was responsible for maintaining the ISDC 2012 website with real-time updates, onsite IT support and part of the conference volunteer team. Yohon received the NSS Award for Excellence for his volunteering support to HAL5 and NSS. Ronnie Lajoie was responsible for badging and real-time registration as well as meals database support. Both Yohon and Ronnie attended various NSS board and committee meetings. HAL5 member Tim Pickens gave an inspiring plenary talk on *Sub-orbital Spaceships: A DIY Flight Path for Success*; and *From Hobby to the Moon* to the NSS-NASA Space Settlement Students Contest participants from around the world.

In June, following the annual election of HAL5 officers, David Smitherman, NASA MSFC Advance Concepts Office, presented on the design of *Space Transportation Infrastructure Supported by Propellant Depots*. In August, Billy Gonterman, former test conductor at NASA Stennis Test Facility, gave an overview of the *Most Powerful Reusable Rocket Engine, the Space Shuttle Main Engines*, including insights into key test stand failures and corrective actions. In September, our own Ed Kiker spoke to us on behalf of Superturbine Inc. about innovative alternative energy wind turbines called *Superturbine*.

We had a busy month in October. Dr. Barbara Cohen, Planetary Scientist at NASA MSFC, kicked off the month with a presentation about *Roving Mars*, a brief history of NASA's Mars rovers, and status about the latest rover, *Curiosity*, that just landed on Mars in August. Next, our annual pot-luck gathering was held at the home of our members Steve and Carrie Mustaikis. In addition to good fellowship and conversations, we also did a couple of launches of a simple nitrous-alcohol soda bottle rocket that was a real blast.

Finally, on October 20, we once again participated in the annual VBAS Astronomy Day. This annual event is a highlight of HAL5 annual education outreach. The event was well attended and Yohon demonstrated the suitcase hybrid rocket, and launched paper rockets powered by compressed CO2 gas. We also introduced a new game developed by our membership chair Robin Scott called *Pin the Payload on the International Space Station (ISS)*. The purposed of the game is to educate the players on the ISS, and its major international partners, payloads, and locations. Our thanks to Chick-Fil-A on Whitesburg Drive, Huntsville, for donating free kids meal coupons for use as prizes for the children that played the game. Finally, our thanks to our members Robert Bijvoet, Peter Turek, Ronnie, Tracie Prater and Dave Vermilion for help staffing the HAL5 table and with the paper air rocket launching.

In November, Eric Becnel, President of the Univ. Alabama Huntsville Space Hardware Club gave us an overview of their club and provided a status on their various projects, including ChargerSat1 cubesat which just underwent microgravity testing at NASA. In December, Todd May, NASA SLS Program Manager updated us on the status of the nation's new heavy-lift launch vehicle, the SLS. We wrapped up 2012 with our fun-filled annual Christmas party at Tim Pickens' "Man Cave."

Robert Bijvoet kept the festive mood going with his awesome keyboard skills. Yohon demonstrated the HAL5 suitcase hybrid, including burning wood fuel grains. We ended the night by awarding HAL5 provided door prizes to the lucky attendees, and the group partook in the "Dirty Santa" gift exchange game. Our sincere thanks to the Tim and Mel Pickens for their kind hospitality and continued support.

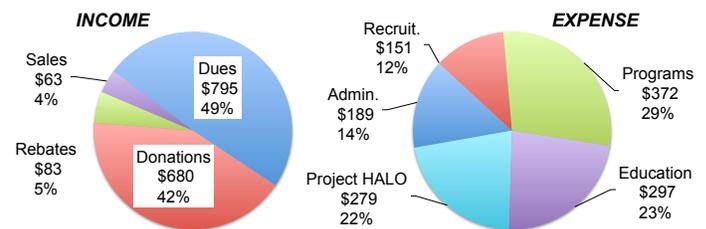


Project HALO

Project HALO is open to current HAL5 members and meets every Wednesday night. We had a relatively slow year in 2012. We designed and build a small fun nitrous-alcohol soda bottle rocket inspired by a famous TV show, received and installed a milling machine donated to us, and made an initial design for an updated tube-launch (TL-1) multi-stage rocket. We also started initial work on manufacturing and testing a small-diameter carbon fiber motor case and had good results. Balloon tests with the payload stage are planned for 2013 to gather performance data to support the next design analysis cycle.

Financial

The HAL5 bank accounts had a net increase of \$330 in 2012, though we are still waiting on a \$425 expense reimbursement. Total income was \$1620 (mostly dues & donations), while total expenses were \$1290. Project HALO activity comprises just \$280 of that (slow year). Educational outreach was higher at \$300 due to our new "Pin the Payload" board investment. Other programming and social activities resulted in \$370 in expenses.



2012 HAL5 Officers (July 2012 to June 2013)

President: Yohon Lo	Vice President: Robert Bijvoet
Treasurer: Ronnie Lajoie	Secretary: Peter Turek
Membership: Robin Scott	Educ. Outreach: David Hewitt
Publicity: Debbie Cohen	

In closing, we thank you for your continued support to educate the public and to promote a spacefaring civilization. We could not have accomplished all we have done without your support, time, and dedication. We welcome your inputs and suggestions on how to better serve you and our community. See you at our next gathering! *Ad Astra Per Ardua!*