Nā Huakaʻi
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The Voyages

Hawaiʻi Space Flight Laboratory: "The Launch" of 2015

By: Dr. Luke Flynn, Director -Hawaiʻi Space Grant Consortium & Hawaiʻi Space Flight Laboratory

The launch of the ORS-4 Super-Strypi rocket.

On November 3, 2015 at 5:45 PM, the Hawai'i Space Flight Laboratory's (HSFL) HiakaSat sat atop the thundering 29,000 kg Super-Strypi rocket that accelerated up it's launch rail and into the evening sky. Within 2 seconds, the rocket left the rail in its intended trajectory, and HSFL had demonstrated a successful launch from the largest rail launcher system ever built. Unfortunately, approximately 40 seconds into flight, the spin-stabilized rocket started to act erratically due to an unexpected problem with the rocket, and the first stage motor broke apart at about 60 seconds into flight. HiakaSat and 11 other small satellites were lost to the ocean depths.

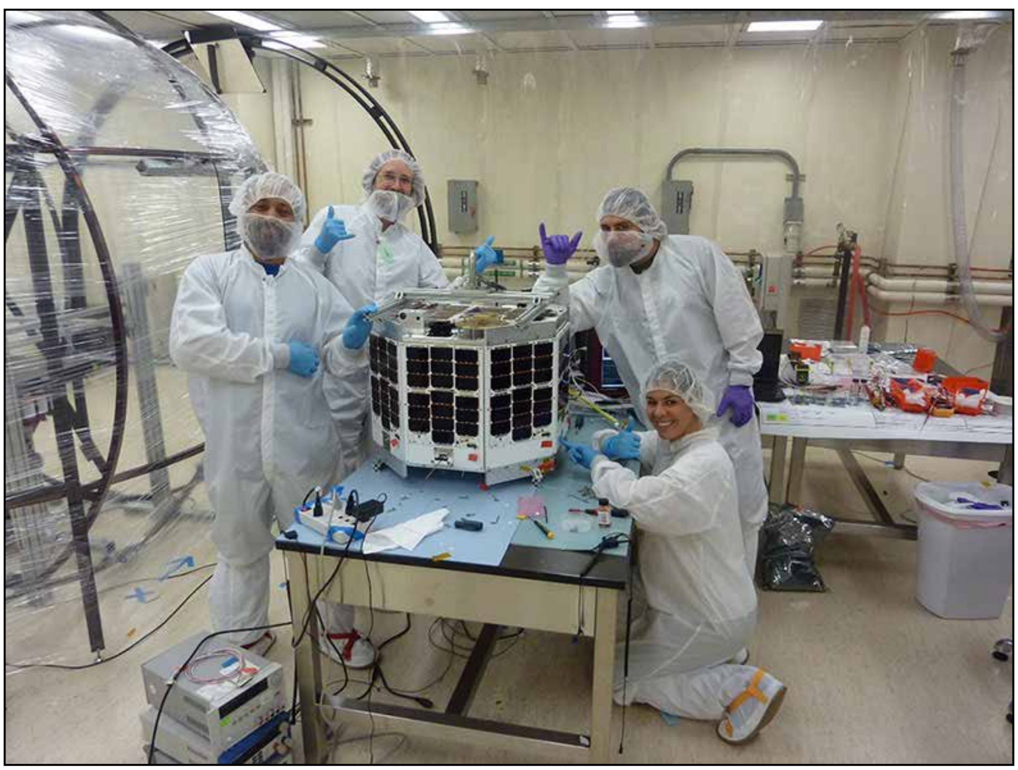
The Operationally Responsive Space-4 (ORS-4) Mission actually started in 2007 with the concept to design, build, test, launch, and operate small spacecraft from the Hawaiian Islands. Strong and consistent support from the Hawai'i Congressional Delegation, the University of Hawai'i System, and NASA allowed HSFL to create partnerships with the Operationally Responsive Space Office (US Air Force), Pacific Missile Range Facility, Sandia National Laboratories, Aerojet-Rocketdyne Inc., and many others.

Contents

While the ORS-4 launch was unsuccessful, there were many positive outcomes from the ORS-4 Mission. The 55-kg HiakaSat remote sensing satellite was successfully designed, integrated, and tested according to Air Force and NASA standards, and was accepted for flight in September 2014 by the ORS Office. One hundred and thirty engineering undergraduate students received guidance from HSFL engineers and participated in the design and fabrication of HiakaSat and the HSFL Small Satellite Integration and Test Facility. HiakaSat integrated the low-cost Space Ultra-Compact Hyperspectral Imager (SUCHI), which was built, tested, and integrated with support from Dr. Robert Wright's NASA EPSCoR award. The ORS-4 Mission successfully demonstrated the largest rail launcher in the world with HSFL's Tim Williams and Lance Yoneshige operating the launcher from the Kaua'i Test Facility Launch Operations Building.

Space launch can be a difficult undertaking where launch failure can be highly probable on early flights. Nevertheless, lessons learned from ORS-4 are being incorporated into Super-Strypi improvements. X-Bow Launch Services, a small business based in Alabama, is already working towards a second launch attempt in 2018 with HSFL ready to assist!

Super-Strypi Rocket prepared for launch.



HSFL team members and the HiakaSat near ADS testbed.

HIGHER EDUCATION

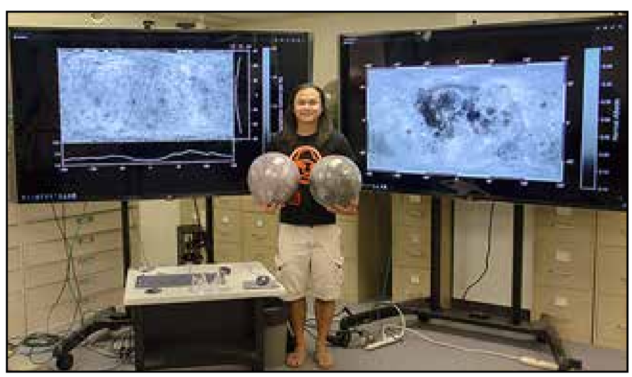
The View from the Pipeline: Making Maps of the Final Frontier

By: David Trang

I always knew I wanted to work in the planetary science field. I was always interested in looking at maps of exotic worlds, but never would I have thought I would be the one making them. I started my education at the University of Hawai'i at Hilo majoring in Astronomy and Geology. In the Spring semester of my third year, I registered for a class called, "Advanced Stellar Astronomy" from a phenomenal instructor, Dr. Bo Reipurth, at the Institute of Astronomy in Hilo. The class focused on nebulas to the birth of stars followed by the formation of solar systems and exoplanets. I soon learned that of all subjects in astronomy, star formation is my favorite. Because I previously had internships in geology and physics, I wanted to do an internship involving star formation. I discovered HSGC and found an opportunity to get some experience working in astronomy before I moved on to the planetary sciences. So I contacted Dr. Reipurth to see if we could work together on a project involving star formation. During my two-semester HSGC fellowship, I worked on the VYSOS (Variable Young Stellar Objects Survey) project. My tasks were focused on looking for regions of interest within the Milky Way for the VYSOS survey telescopes and calibrating one of the cameras. I enjoyed working with Dr. Reipurth and his Post-doctoral fellow at the time, Dr. Josh Walawender. From here, I learned a popular program within the astronomy community called IDL (Interactive Data Language), which I used to make the necessary camera characterization and calibrations required for the VYSOS telescopes. During this fellowship, I learned how much I enjoyed programming and writing scripts. At the time, I did not realize how far my maturing programming skill that I gained from the HSGC fellowship would take me.

After obtaining my B.S. in Astronomy and Geology, I attended the University of Hawai'i at Mānoa to use satellite images of the Moon to study impact craters and volcanoes under the advisement of Dr. Jeffrey Gillis-Davis and with help from Dr. B. Ray Hawke and Dr. Paul Lucey. During the majority of my Ph.D., I found myself using IDL almost everyday. I took my skills to the next level by writing scripts that would model visible to near-infrared spectra of two common minerals, olivine and pyroxene. I used my knowledge of IDL to build a program that would model how the spectra of olivine and pyroxene change with respect to the abundance of iron in the crystal structures of these minerals. The work would supplement current existing models that derive mineral abundances of the lunar surface from instruments onboard orbiting spacecrafts. In addition, my work could help produce models that could determine the iron contents of olivine and pyroxene on the Moon using these instruments, which are important to understanding the interior of the Moon. Aside from projects that depended on modeling, just writing small scripts to do repetitive, mundane tasks helped me perform my other tasks much faster.

After completing my Ph.D., I continued working at the University of Hawai'i at Mānoa as a Post-doctoral fellow with Dr. Paul Lucey. My latest project involves more programming and script writing with IDL to model the abundance of nano-sized iron and carbon particles on the planet Mercury. The result of this project is to produce four new maps of Mercury representing the distribution of these tiny particles. In addition, writing code in IDL prepared me to learn to write code in another language, GMT (Generic Mapping Tools). During my Post-doctoral fellowship, I have also helped another student to produce brand new mineral maps and albedo maps of the Moon. After about one year working as a Post-doctoral fellow, the time for me to write grants to fund my new ideas is coming up. Once again, the experiences I gained from HSGC reappear, where I had to write the proposal and the progress report for HSGC. Of course, my new ideas continue what I enjoy, writing programs to make new maps that will benefit me and other planetary scientists working to understand the formation of planetary surfaces. And here I am, in part to HSGC, continuing to do the thing I always wanted to do since I was 8 years old.



Dr. David Trang in the planetary data center.

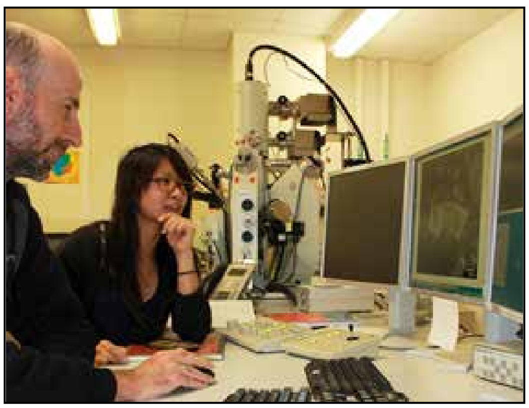
Research Paved my Path

By: Kimberly Teehara

As many other students first entering college, I was not sure what I wanted to study. I easily gravitated towards science—but I could not figure out which science I liked best. I never really had real experience in science aside from taking high school science courses. My friend, who was a former Fellow participating in a Space Grant project, suggested that I try looking for a research Traineeship. Soon I started working with my mentor, Dr. Norbert Schörghofer, on his project, "Lava Tube Microclimates on Mauna Loa." The goal of the project was to document and explore the caves in various aspects, as they were largely unstudied. The two ice caves on Mauna Loa, Mauna Loa Ice Cave and Arsia Ice Cave, are interesting for their freezing microclimates and serve well as analogs to similar lava tubes found on Mars. The focus was the study of the disappeared ice in the cave, as evidenced by the continuous white, secondary mineral deposits along the cave wall.

Teehara in the lab.

At first, as a HSGC Trainee, the tasks were simple: stitching together panoramas of collected cave images, calculating the area and volume of the ice, and predicting the minerals that might be found in the cave. The creation of the panoramas required some understanding of map projections, and was intended to display that the boundary of the mineral deposits was indeed uninterrupted, with as little distortion as possible. I also learned how to use some fundamental MATLAB. While these tasks were basic, this was my first experience (semi-)independently solving problems outside of coursework.



Hellebrand (l) and Teehara (r) in the lab.

Then, two semesters later, I began my HSGC Fellowship with Dr. Schörghofer. Since I narrowed down my major to either Chemistry or Biochemistry, the project focus shifted to geochemical identification of the secondary minerals, and later, to microbial life related to those minerals. After my mentor and his team were finally granted sampling permits, they collected mineral and water samples from the cave. I analyzed the samples using various methods, and also sent the samples to other universities for more analysis.

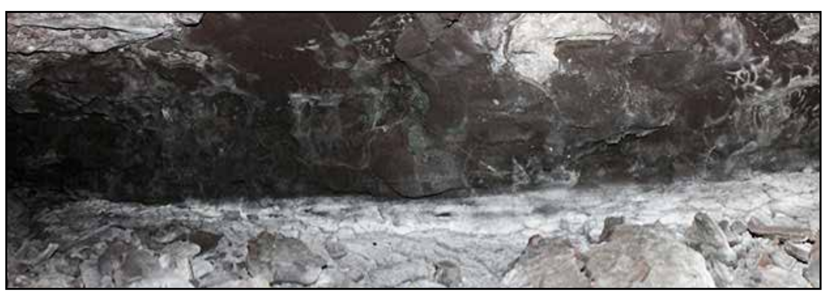


Image of the ice cave.

A significant portion of my HSGC Fellowship time was spent using the Micro-Raman spectrometer to determine their mineral identities. Dr. Eric Hellebrand also helped me use the scanning electron microscope to examine the morphology of the secondary minerals to further characterize them. I also collected the white veneer off the samples and sent them to Dr. Bogdan Onac at the University of South Florida for carbon and oxygen isotope analysis. The water samples were subjected to oxygen isotope and ion analyses. Furthermore, Dr. Sean Jungbluth helped me extract any DNA out of the water samples and amplified that DNA. We then aligned them to determine the taxonomy of those microbes. For me, it was exciting to be able to perform so many different types of analyses on the samples to draw out as much information from them as possible, and to paint a holistic picture that tells the story of the cave.

I developed a liking for geochemistry, but I still wanted to do more research and expose myself to other kinds of research. My experiences during the Space Grant project encouraged me to seek other research opportunities. In the summer of 2015, I was lucky to land a summer research fellowship at the California Institute of Technology, where I did biochemical research on a macromolecule that can be altered to help patients recover from spinal cord injuries. Although vastly different from the research I was doing under Space Grant, I realized that this was the type of research that I enjoyed, and matched my interests more: it was tangible and had potential to directly benefit others. Now I am certain that getting my degree in Biochemistry is the right path for me, and that I want a career where I can combine my passion for science and helping people as a physician.

One of the most invaluable experiences I have had in life so far is research. Research teaches one many things, apart from just more science. Doing research as an undergraduate has taught me to connect ideas from different disciplines and to think outside of the box that is the classroom. It also promotes inquisitiveness in students; it fuels a desire to unravel more and more each day—to never quite be satisfied; there always seems to be more to discover. I thank NASA and Hawai'i Space Grant Consortium for providing this opportunity for students to participate in research. I believe that every science student should participate in research at least once in his or her undergraduate career because it offers so much growth, as it did for me.

Fellows in UH Hilo News

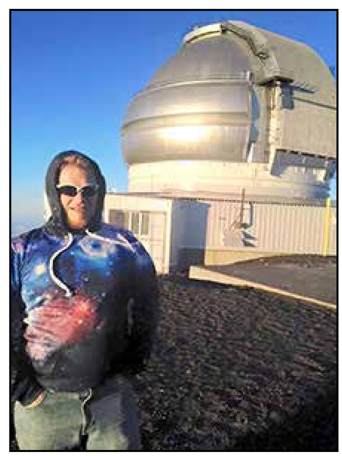
By: Lara Hughes

UNIVERSITY of HAWAI'I® HILO

UH Hilo undergraduate Derek Hand conducting astronomy research on merging galaxies

based on http://hilo.hawaii.edu/news/stories/2016/04/11/undergraduate-derek-hand-conducts-astronomy-research/

Derek Hand, who hails from Bemidji, Minnesota, and graduated from Mount Ayr Community High School, Iowa, in 2012, says, "I came to Hawai'i because the (UH Hilo) Astronomy and Physics Department does have its own observatory. I wanted to work with real data, with real people, working on real research, that's where I learn the best. "



Hand on Maunakea.

Hand feels that it helps to apply the tools acquired in the classroom and believes that the application emphasizes their importance. He says that one of the most valuable lessons he learned, thanks to his internship and subsequent HSGC Fellowship working with Dr. Andreea Petric of the Gemini Observatory, is the independent research process. In the past people had told him what to do, but Hand is grateful for Petric's approach. "Andreea more-or-less says 'this is what needs to happen, you should figure out how to do it,'" explains Hand.

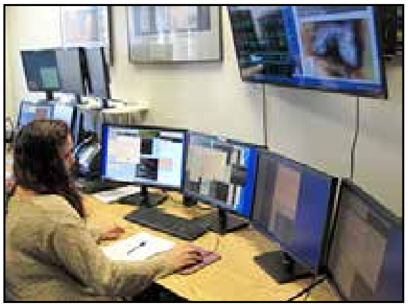
The team will continue their research this semester on molecular gas in merging galaxies. They plan to write and publish a paper discussing their findings. Hand will graduate in May, completing his double major in Astronomy and Physics. He has applied to graduate school.

UH Hilo undergraduate Jasmin Silva conducting astronomy research on structure of galaxies

based on http://hilo.hawaii.edu/news/stories/2016/03/14/jasmin-silva/

Jasmin Silva has been working on her project, "Understanding Galactic Evolution through Absorption," under the guidance of Dr. Kathy Cooksey, a highly accomplished astronomer who arrived at UH Hilo in 2014. Cooksey researches the large-scale gaseous structure in the universe to understand how various elements cycle in and out of galaxies over cosmic time. Her specific area of expertise is the intergalactic medium, the gas surrounding and between galaxies. Silva says, "Kathy asked me to do research with her, but before that it was definitely in my head that sometime in my career I would do research. I figured I would want to get that kind of experience, then Kathy gave me a good opportunity."

Silva (l) and Cooksey (r) at Keck headquarters, after a night of remote observing with the 10-m Keck II Telescope.



Silva working with the Echellette Spectrograph and Imager (ESI) at the Keck Observatory headquarters in Waimea, Hawai'i, Feb. 2015.

Silva also feels that the applied learning experience encourages students and allows them to see what they are capable of— "It helps me be more confident that I can do graduate school in the future." Silva just finished her final semester of research on her HSGC Fellowship but has continued to work independently with Cooksey. She is also applying to other internship opportunities and grants, including a summer internship with Gemini Observatories. Silva feels that her undergraduate education has been supplemented by her HSGC Fellowship. She believes that the experience has helped prepare her to educate the public about science (she serves as an astronomy educator in the Hilo-Waiākea Complex Area) and she encourages other university students to apply for similar opportunities. She plans to continue on to graduate school.

UH Hilo undergraduate Nicolette Thomas researching island lava as analog for Mars

based on http://hilo.hawaii.edu/news/stories/2016/05/02/uh-hilo-astrobiologist-student/

Nicolette Thomas (Photo Courtesy of Claudia Hagan.)

Intrigued by the quest to discover life on Mars, University of Hawai'i at Hilo student Nicolette Thomas has come up with a way to set parameters when looking for signs of microbial populations. For her HSGC Fellowship, she is testing lava from different areas of Hawai'i Island for DNA. When Thomas was a child, her mother gave her a microscope and a telescope. It wasn't long before the future scientist's curiosity began moving her in the direction of astrobiology.

Thomas is interested in the Red Planet and says, "I want to look at places on Earth that are similar to Mars, and Hawai'i is the place that I work with because it's chemically identical to Mars. Because of this similarity, Hawai'i is considered a top analog site for Mars research. Thomas explains that the Hawaiian lava is made up of the same components as the Mars regolith (layer of rocky material), and it is in the regolith that researchers can look for biosignatures and environmental alterations. The existence of either of those things could signal the past existence of life. Thomas' future projects include attending a Biosignature Preservation and Detection Conference in May at Lake Tahoe, Nevada. Thomas plans to continue on to graduate school.

Thomas working in the lab. (Photo Courtesy of Claudia Hagan.)

Hawai‘i Space Flight Laboratory Summer Experience

By: NMSR Team

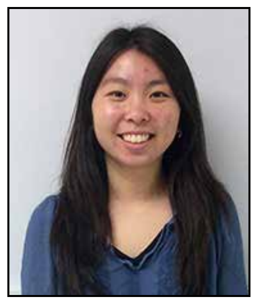
The New Mexico Sounding Rocket (NMSR) Team at the Hawai'i Space Flight Laboratory consists of six undergraduate students who are working to design, construct, test, and launch a suborbital payload from White Sands, New Mexico. The objective of the New Mexico-Hawai'i Grant was to encourage workforce development with students in their first two years of education at the University of Hawai'i at Mānoa, or any of the UH Community Colleges. Each student interviewed for a position on one of the subteams—Mechanical, Electrical Hardware, and Software. Tina Li and Andrew Nguyen make up the mechanical subteam and have designed and fabricated the housing. Chase Yasunaga and Adrianna Saymo make up the electrical hardware team and have developed a breakout board for the Gumstix controller to serve as a flight computer called the Ninja Board. Christianne Izumigawa worked on developing the embedded software for the ATMega version of the Integrated Spacecraft Controller. Glenn Galvizo was in charge of learning COSMOS, the Comprehensive Open-architecture Solution for Mission Operations Systems, and developing agents to run the functions needed for the mission.

Glenn Galvizo

"This project is what initially got me interested in space in the first place. I actually had different aspirations after college going into this project, but everything I've learned has directed me to another path: software engineering. I've made many lasting connections, and I'm glad I was gifted this opportunity."

Christianne Izumigawa

"The NMSR project offered me an opportunity to advance my knowledge and understanding, and I am honored to have worked with patient and supportive mentors and team members."



Tina Li

“My participation with HGSC and the Hawai'i Space Flight Laboratory for the past year has been a great learning experience. I have met and worked with many great people and I have learned so much, such as using a mill, conducting a vibration test, designing, and much more. This experience has helped me to grow academically, and as a person and future engineer.”

Chase Yasunaga

"Working on the NMSR project has been a very complete experience. To take students from different engineering disciplines and to start from scratch and produce a finished, functioning payload was a big accomplishment. This project has challenged me to quickly pick up on new skills and techniques to complete my part of the finished product."

UNDERGRADUATE FELLOWSHIPS & TRAINEESHIPS

Fellowships ***are awarded to U.S. citizens who are full-time students at the University of Hawai'i campuses at Mānoa and Hilo. Awards are given for space-related research with a mentor and provide a stipend of up to $4,000 per semester to the student. Fellows are also eligible for travel and supply funds. In previous semesters, these funds have been used for activities including observing runs at Mauna Kea telescopes, fieldwork to collect ground-truth information for interpreting satellite data of the Hawaiian Islands and other locations, and travel to meetings to present project results.***

UH Mānoa Fellows - Fall 2015

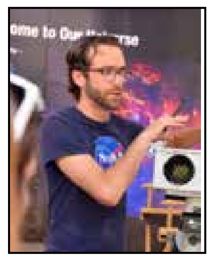
Logan Magad-Weiss, a senior in Geology and Geophysics, researched "The Effects of Laser Space Weathering on Olivine and Pyroxene of Known Iron Values" with mentor Dr. Jeffrey Gillis-Davis of the Hawai'i Institute of Geophysics and Planetology. Logan's lab project simulated the effects of space weathering on two common planet-forming minerals; relevant to the interpretation of remote sensing data of airless planetary bodies whose surface properties are changed by space weathering.

Kimberly Teehera, a junior in Biochemistry worked with mentor Dr. Norbert Schörghofer of the Institute for Astronomy on a project titled "Secondary Minerals in Lava Tubes on Mauna Loa." Kimberly used a variety of analysis techniques to identify minerals and chemical processes from a collection of water and rock samples. Studies of terrestrial ice-filled lava tubes are relevant to the fields of astrobiology and climate of Mars.

UH Hilo Fellows - Fall 2015

Amy Brittain, a senior in Astronomy and Physics worked with mentor Dr. Bo Reipurth of the Institute for Astronomy on a project about star formation using optical data and new infrared spectroscopic data she collected with NASA's Infrared Telescope Facility. The project involved a comparison of star masses and ages to evolutionary models and time scales for the formation of the Horsehead Nebula. The title of Amy's project is "Spectral Analysis of Newborn Stars in the Horsehead Nebula."

Kyla Defore, a senior in Geology, researched the "Formation Processes of Martian Gully Systems" with mentor Dr. Jene Michaud of the Department of Geology. Kyla used NASA's Mars Reconnaissance Orbiter/HiRISE images to study the location, orientation, size, and morphology of gullies. She compared these data with seasonal variations in Sun exposure and local environmental conditions to learn more about gully formation processes.



Wilfred Gee, a senior in Astronomy, worked with mentor Dr. Joshua Walawender of the Subaru Telescope-National Astronomical Observatory of Japan on the photometric detection of planets orbiting other stars using robotic observatories. In his project "Demonstrating Exoplanet Discovery with the PANOPTES Citizen-Science Project," Wilfred generated light-curves and assessed photometric capabilities of the PANOPTES imaging unit in preparation for an automated data pipeline.

Derek Hand, a senior in Astronomy and Physics researched "The Care and Growth of Merging Galaxies and Their Central Black Holes" with mentor Dr. Andreea Petric of the Gemini Observatory. Derek used multiple data sets to study the properties of the molecular gas in Luminous Infrared Galaxies. This work tested theoretical predictions of changes in the molecular gas due to merging galaxies and to activity related to super massive black holes.

Jasmin Silva, a junior in Astronomy and Physics, continued her project, "Understanding Galactic Evolution through Absorption," with mentor Dr. Kathy Cooksey of the Department of Astronomy and Physics. Jasmin used data from the Sloan Digital Sky Survey to construct and analyze composite absorption-line spectra of the cosmic web. This work contributes to the understanding of the gaseous structure surrounding galaxies and its evolution with time.

Nicolette Thomas, a sophomore in Astronomy and Biology, studied the "Biologic Analog Science Associated with Lava Terrains" with mentor Dr. John Hamilton of the Department of Physics and Astronomy. Nicolette collected rock samples for laboratory analysis of the microbial populations. This Hawai'i-based field project is an analog astrobiology investigation applicable to studies of the volcanic plains and past habitable environments on Mars.

UH Mānoa Fellows - Spring 2016

Aleca Borsuk, a senior in Mechanical Engineering, worked with mentor Dr. Kent Kobayashi of the Department of Tropical Plant and Soil Sciences on a project titled "Spatial Optimization of Artificial Lighting for Space Grown Amaranthus Caudatus." Aleca researched the effects of different artificial lighting schemes on crop yield in a controlled laboratory setting as it relates to optimal horticultural practices for growing food for astronauts during long duration missions.

Ryan Hendrix, a senior in Geology and Geophysics, worked on an operational prototype of a planetary rover-mounted X-ray diffraction (XRD) instrument with mentor Dr. Przemyslaw Dera of the Hawai'i Institute of Geophysics and Planetology. In his project, "Development of Terra-Hybrid: A New Generation of X-ray Diffraction Instrument for Mineralogy Research in Planetary Exploration," Ryan helped to optimize the instrument and sample platforms, and collect XRD data from meteorites.

Kaimi Kahihikolo, a freshman in Astrophysics and Mathematics, worked with mentor Dr. Hsin-Yi Shis of the Gemini Observatory on a project titled "Impacts of Radio-jet-driven Outflows on Host Galaxy Evolution." Kaimi analyzed astronomical data collected on Maunakea of three young radio galaxies in an effort to determine how the local gas clouds interact with radio jets, the mass outflow rate from the host galaxy, and the heavy element abundance of the outflowing gas.

Lauren Mathews, a senior in Global Environmental Science, worked with mentor Dr. Craig Nelson of the Department of Oceanography on laboratory experiments to study the interacting effects of changes in water temperature and food nutrient-quality on zooplankton growth, survival, grazing rate, and stoichiometry over a life cycle. Lauren's project "Tropical Zooplankton Nutrition and Stoichiometry in Response to Temperature" is relevant to future modelling of oceanic carbon storage and carbon exchange among the ocean, atmosphere, and biosphere.

Application Deadlines

Application deadlines for undergraduate fellowships and traineeships are December 1 for Spring semester and June 15 for Fall semester. Download fillable application forms and get additional information from the HSGC website at: www.spacegrant.hawaii.edu/fellowships.html.

UH Mānoa Fellows - Spring 2016

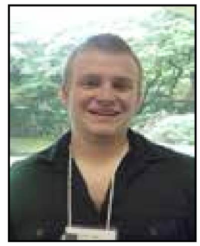
Warren McKenzie, a senior in Geology and Geophysics, worked on a project titled, "Lava Flow Behavior on the Southeastern Flank of Elysium Mons via a Graben Cross-section" with mentor Dr. Scott Rowland of the Department of Geology and Geophysics. Using high-resolution images, topographic data, and thermal emission data of Mars obtained from orbiting NASA spacecraft, Warren mapped lava flows in an effort to better understand shield volcanism on Mars.

Kimberly Teehera, a junior in Biochemistry with previous fellowship experience in 2015 studying the geochemistry of lava tubes on Mauna Loa, worked with mentor Dr. Norbert Schörghofer of the Institute for Astronomy on a project titled "Microbial Habitats in High-Altitude Lava Tubes." Kimberly used a variety of analysis techniques to identify microbes or biominerals from a collection of water and rock samples. Studies of terrestrial ice-filled lava tubes are relevant to the fields of astrobiology and climate of Mars.

Matthew Yee, a senior in Computer Engineering, worked with mentor Mr. Jeremy Chan of the Hawai'i Space Flight Laboratory on a project titled "Designing an ECU for Radiation Evironment." Matthew designed and tested an electronic control unit and field-programmable gate array-based CPU suitable for use on planetary rovers exposed to high or variable radiation environments.

UH Hilo Fellows - Spring 2016

Kyla Defore, a senior in Geology, studied the "Formation Processes of Martian Gully Systems" with mentor Dr. Jene Michaud of the Department of Geology, using NASA's MRO HiRISE images and CRISM visible & near infrared spectral data to study the location, orientation, size, and morphology of gullies. She compared these data with seasonal variations in Sun exposure and local environmental conditions to learn more about gully formation processes.



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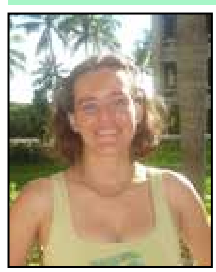
***Traineeships** are awarded to U.S. citizens who are full-time students at University of Hawaiʻi Mānoa and Hilo campuses, Community Colleges, and the University of Guam. Awards provide lab training and practical experience with a mentor in any space-related field of science, technology, engineering or math. Trainees receive a stipend of up to $1,500 per semester and may be eligible for supply funds.*

UH Mānoa Trainee - Fall 2015



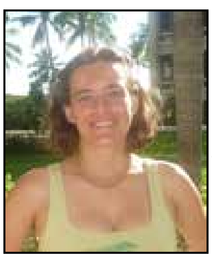
Amber Mokelke, a junior in Electrical Engineering, worked with mentor Dr. Jeffrey Gillis-Davis of the Hawai'i Institute of Geophysics and Planetology in the laser space weathering laboratory. In her project, "Modeling Micrometeorite Impacts," Amber helped set up a new spectrometer to collect data in the mid-infrared spectral range from samples subjected to simulated micrometeorite bombardment and space weathering.

UH Hilo Trainees - Fall 2015

Jamison Domingsil, a senior in Environmental Science & Geography, pursued his interests in remote sensing using unmanned aerial vehicles to map invasive plants. Working with mentor Dr. Ryan Perroy of the Department of Geography and Environmental Science, Jamison assited with data collection in the field and image processing and analysis in his project, "Use of Unmanned Aerial Vehicles for Detecting Miconia calvescens in Hawai'i Island."

Alexander Hedglen, a junior in Astronomy and Physics, worked with mentor Dr. Kathy Cooksey of the Department of Physics and Astronomy on astronomical data reduction. Using his IDL and C programming skills, Alexander processed raw images and calibration files of galaxies in optical and ultraviolet spectroscopic data in his project, "Learning Data Reduction of Astronomical Spectra."

UH Mānoa Trainees - Spring 2016



Amber Mokelke, a junior in Electrical Engineering, worked with mentor Dr. Jeffrey Gillis-Davis of the Hawai‘' Institute of Geophysics and Planetology on her project, "Modeling Micrometeorite Impacts." Amber used a spectrometer to collect data from samples under vacuum conditions that are subjected to simulated micrometeorite bombardment and space weathering.

Tayler Pave, a junior in Computer Engineering, studied "Real-time Measurements using a Graphical User Interface in Correspondince to Wirelessly Transmitted Data" with mentor Dr. Trevor Sorensen of the Hawai'i Space Flight Laboratory. Tayler wrote software for a ground control station to interpret incoming telemetry from a descending payload, in support of a current CanSat project.

UH Hilo Trainee - Spring 2016

Alexander Hedglen, a junior in Astronomy and Physics, continued working with mentor Dr. Kathy Cooksey of the Department of Physics and Astronomy on astronomical data reduction in his project, "Learning Data Reduction of Astronomical Spectra."

Kapi‘olani Community College Trainees - Spring 2016

KCC CanSat Team

(l to r) Teanu Aumua, Geena Wann-Kung, Dr. Hervé Collin, Maverick Jennings (Guest), Alexine Niro, Ying Kit Chui, Jessica Grazziotin, Isaac DeMello

Preston Tran, a sohpomore in Mechanical Engineering, worked on the "Exploration of Voids Distribution in the vicinity of the Biggest Super Massive Black Holes using Public Cosmic Void Catalog."

Kaua‘i Community College Trainee - Fall 2015

Darlyne McLeod, a senior in A.S. Electronics Technology, worked on mechanically modeling components of a thermal neutron detector that uses scintilalting lithium doped glass, appropriate supporting structures, and glass coupling structures.

HSFL Torque Rod Trainees- Fall 2015

(l to r) Aaron Nagamine amd Grant Takara.

HSFL New Mexico Sounding Rocket Trainees - Fall 2015

(l to r) Tina Li, Glenn Galvizo, Chase Yasunaga, Christianne Izumigawa, Adrianna Saymo, and Andrew Nguyen.

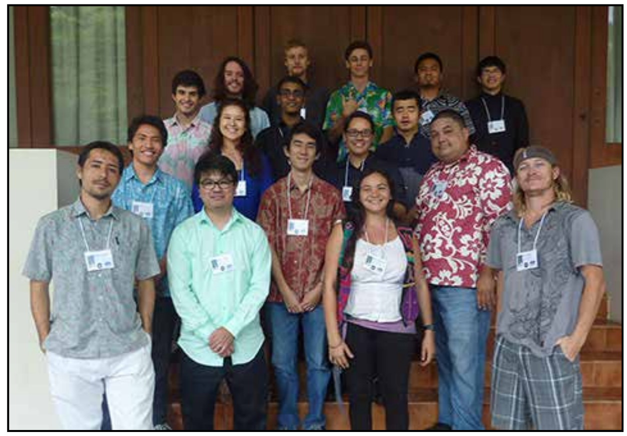
HSFL New Mexico Sounding Rocket Trainees - Spring 2016

(l to r) Christianne Izumigawa, Adrianna Saymo, Chase Yasunaga, Tina Li, Pei Sheng Xu, Glenn Galvizo, Joshua Lam and Andrew Nguyen.

Project IMUA RockSat-X Trainees

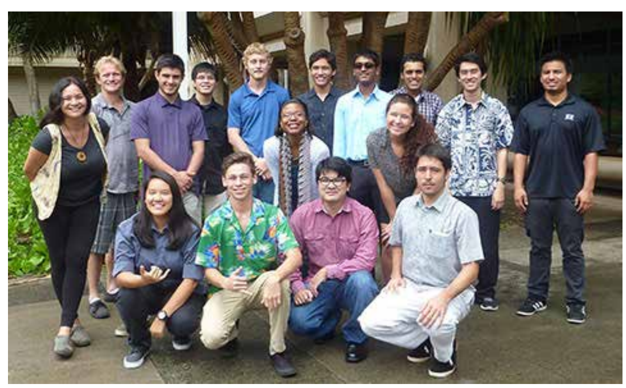
Undergraduate Rock-Sat Traineeship Program ***is open to undergraduates at Honolulu, Kapi'olani, Kaua'i, and Windward Community Colleges. The traineeships are part of Project Imua, a joint faculty-student enterprise for fabricating and testing CubeSat satellite payloads.***

Fall 2015



(Bottom to Top, Left to Right) Marcus Yamaguchi, Ryan Uyesono, Madori Rumpungworn, Cale Mechler, Richard Kahakui, Keith Nakamatsu, Matthew Mau, Elena Barbour, Kala`imoana Garcia, Brennen Sprenger, Suraj Mehta, Yu Gong, Kalanikapu Copp, Nicholas Herrmann, Kaina Allard-Mahoney, Cody Shinsato, Jarren Endrina.

Spring 2016



(Bottom to Top, Left to Right) Kala`imoana Garcia, Kaina Allard-Mahoney, Ryan Uyesono, Marcus Yamaguchi, Madori Rumpungworn, Darlyne McLeod, Elena Barbour, Cale Mechler, Brennen Sprenger, Jarren Endrina, Nicholas Herrmann, Richard Kahakui, Suraj Mehta, Onkar Nerurkar, Keith Nakamatsu, Cody Shinsato.

K-12 EDUCATION

"A variety of K-12 education projects bring hands-on experiments, tools, and the excitement of space exploration to thousands of participants."

- Arthur Kimura, HSGC Education Specialist

Astronaut Ellison Onizuka Day of Discovery

http://www.spacegrant.hawaii.edu/OnizukaDay

The 16th annual Astronaut Ellison Onizuka Science Day held on January 30, 2016 at the UH-Hilo, featured keynote speaker, NASA Astronaut Mike Fincke and special guest NASA Astronaut Loren Shriver who served with NASA Astronaut Ellison Onizuka on his first space flight, STS-51C. In paying tribute to the 30th anniversary of the tragic last flight of the space shuttle, Challenger, the day offered an opening Taiko Japanese drum performance dedicated to Ellison, a song written by Kona students and their teacher on the day of the accident 30 years ago called Challenger, 20 workshops, 20 displays, the TMT VEX IQ Robotics tournament, and the closing 3D chromodepth activity. Sponsored by the Onizuka family, the Astronaut Onizuka Space Center, the University of Hawai'i-Hilo, American Savings Bank, and the Hawai'i Space Grant Consortium, 600 participants and 250 volunteers joined together in honoring the legacy of Ellison Onizuka and the Challenger crew. Workshops included a flight simulator, reef fish dissection and fish printing, forensic science, the science of cooking, cow eye dissection, squishy circuits, hardware science, cosmic distances and time travel, Earth views using satellites, and Polynesian wayfinding.

Astronaut Lacy Veach Day of Discovery

The 14th annual Astronaut Lacy Veach Day of Discovery, held on October 31, 2015 at Punahou School, featured keynote speakers, Riley Kishaba, Lee Danielle Young, Liana Michelle Young, Aaron Segawa, and Camelia Lai, members of the Hawai'i student team that participated in the Japan Super Science Fair in November 2014 with their Mars Curiosity project. The day also featured an 18-team VEX IQ robotics tournament and industry sponsored displays. Workshops to inspire the next generation of explorers included the World of Electricity, Fossils, Cow Eye Dissection, Squid Dissection, Fun with Kinetic Energy, Bristlebot Racers, Marine Microbes, Gelatin Volcanoes, Water Powered Rockets, Building a Video Game, Dash and Dots Robots, Renewable Energy, and the Incredible Carbon Journey.

The event is co-sponsored by the Hawaiian Electric Companies, Punahou School, the family of Lacy Veach and HSGC. Two hundred volunteers supported the registration, workshops, and displays for the 600 registered students, parents, and teachers. The concluding afternoon assembly included the final VEX IQ matches, and a closing Chromodepth 3D program.

VEX VRC and VEX IQ Scholastic Robotics

http://www.vexrobotics.com
http://www.vexrobotics.com/vexiq

HSGC has been instrumental in the introduction, expansion, and sustainability of VEX robotics in Hawai'i. VEX Robotics is the fastest growing scholastic robotics program in the State and around the world with over 16,000 teams including 240 VEX VRC and VEX IQ teams in Hawai'i. VEX IQ, introduced just three years ago, had a 300 percent growth in the number of teams in Hawai'i over the past two years, including a +50 team growth in one year, one of only 10 states to do so.

Twenty-one qualifying tournaments were held on O'ahu, Maui and the Big Island, with 140 teams advancing to the middle school and high school Hawai'i VRC Championships and the elementary and middle school Hawai'i IQ Championships. From the state championships, 31 Hawai'i teams qualified for the World VEX Championships, held in Louisville, Kentucky in April 2016. They were among the 1,100 teams from 40 countries that participated. Hawai'i sponsors include the Hawaiian Electric Companies, the aio Foundation, the Thirty Meter Telescope, the Hawai'i Council of Engineering Societies and the NASA Robotics Alliance.

Science FESTival

(FEST = Families Exploring Science Together)

Schools in Hawai'i are hosting Future Flight Hawai'i's Space FESTivals. These free programs offered by HSGC feature science demonstrations, information about NASA-supported educational opportunities, and selected hands-on activities for students and parents. These evening, family science programs encourage children and parents to work together, foster home/school partnerships, engage parents and students in thinking and working scientifically, assist parents to encourage an interest in science in their child, and help students to learn through active engagement in educational experiences.

“Thank you again for such an awesome evening! I've already seen a bunch of students this morning and they are all so happy about their experiences last night. You give our families such an awesome experience!”

- Darcie Kajioka, Mānoa Elementary School

“This workshop has always been the one we have "sell out" performances and wait lists. Students, parents and staff thoroughly enjoyed the evening. Excitement and inspiration were evident. Technology is changing so rapidly! Mahalo!” - Christina Small, Principal, Waikiki Elementary School

“Thank you for coming to Ho'okele and inspiring our students. Teachers were telling me how their students couldn't stop talking about their experience. It's always amazing no matter how many times I've seen the presentation.”

- Liane Tanigawa, Ho'okele Elementary School

Pacific Astronomy and Engineering Education Summit

http://www.paes.hawaii-conference.com

Through a grant from the Thirty Meter Telescope, HSGC assisted the 'Imiloa Astronomy Center and UH-Hilo Conference Center, in the 3rd Pan Pacific Astronomy and Engineering Summit in July 2015. Students and teachers from Japan, China, India, Canada and Hawai'i participated in the five-day experience to share science and technology. They took field trips to star gaze at Maunakea Recreation Park and Hawai'i Volcanoes National Park. Keynote and workshop presenters included Kalepa Baybayan (Master Navigator and Captain with the Polynesian Voyaging Society), Sandra Dawson (Thirty Meter Telescope), Dr. Jim Kauahikaua (Hawai'i Volcano Observatory), Dr. Heather Kaluna (Institute for Astronomy), Ahia Dye ('Imiloa Astronomy Center), Wilfred Tyler Gee (UH Astronomy), Kaiali'i Kahele (Hawaiian Airlines), Mary Beth Laycheck (Canada France Hawai'i Telescope), and Dr. Geoffrey Marcy (University of California, Berkeley). Student teams also gave science and cultural presentations.

2015 Japan Super Science Fair @ Ritsumeikan

http://www.fkc.ritsumei.ac.jp/fkc/jssf2015/

By: Linda Martel, HIGP Science Education Support, HSGC Communications

Creative educators know how to open doors to opportunities and creative learners seize those opportunities. I was privileged to watch all this creativity in action during five days in Kyoto, November 2-6, at the 2015 Japan Super Science Fair (JSSF). Forty-seven high schools from 21 countries on five continents were invited to share ideas and science inquiry at the Ritsumeikan High School and University campuses.

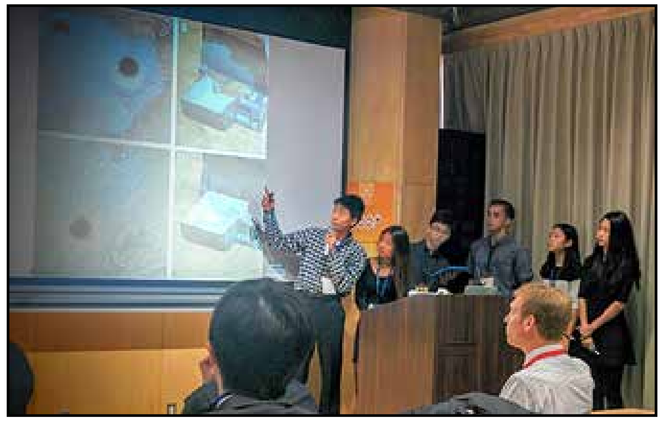
The high school students presented their own projects, and then collaborated on new projects during the week with peers from around the world. For all of the students gathered at JSSF, no matter where they came from, their journeys began at their home schools with STEM projects guided by teachers and mentors. With the support of HSGC, six high school students from O'ahu came to the University of Hawai'i for the opportunity to learn about planetary science and participate in the 2015 JSSF.

(l to r) Linda Martel and Leslie Hamasaki (Kalani HS) at 2015 JSSF.

My journey to Kyoto began in the summer of 2014 when Art and Rene Kimura (HSGC Educational Specialists) asked Jeff Taylor (HSGC Associate Director for Space Science) and me to mentor a group of students from Kalani and Roosevelt High Schools for the 2014 JSSF. Their Mars topography project (using data from NASA's Curiosity rover and Mars-orbiting satellites) is highlighted on page 17 of Na Huaka'i Newsletter, vol. 8.

High school students from Hawaiʻi and Japan at 2015 JSSF. (Photo courtesy of Tiffany Coke.)

Then, in the summer of 2015 Jeff and I began mentoring a new group of six high school students on a Mars project for the 2015 JSSF: Christly Yoshizawa, Darrell Huang, Moana Kimura, Peter Johnson (Kalani High School), Carter Nakamoto, and Nicole Jao (Punahou School). Over the course of three months, our group investigated clay minerals and the story of water on Mars. We used data from the CheMin instrument on the Mars Curiosity rover and X-ray diffraction data we collected in our University of Hawai'i lab.



Each team member spoke during their presentation at 2015 JSSF. (l to r) Darrell Huang, Moana Kimura, Carter Nakamoto, Peter Johnson, Christly Yoshizawa, Nicole Jao.

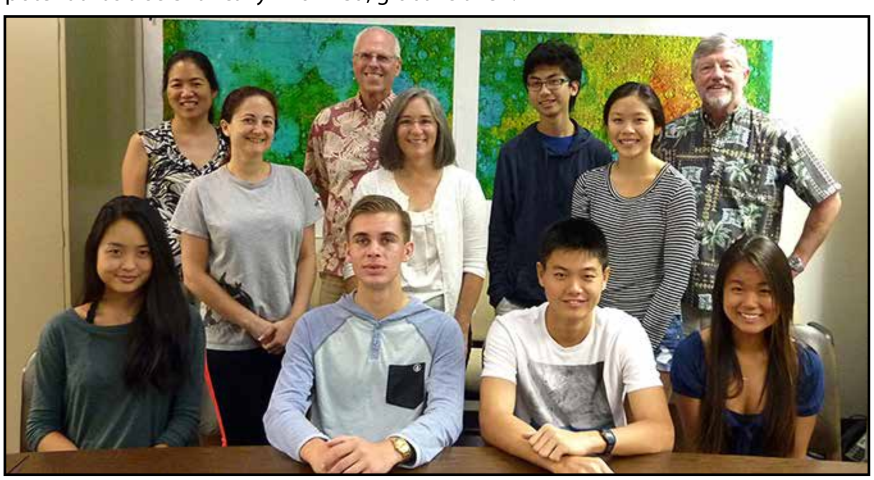
A highlight came when one of the inventors of CheMin, David Blake (NASA Ames Research Center), met with us in our lab. He not only answered technical questions, but also thrilled us with stories of making space hardware and what it's like being on a Mars mission team.

Working with the high school students was a wonderful experience. I was excited to travel to Japan with them, Art and Rene Kimura, and teachers Leslie Hamasaki (Kalani) and Tiffany Coke (Punahou) to hear their presentation and watch them at the poster session.

Our team and their Ritsumeikan High School ambassadors in front of our Mars poster.

JSSF was a wonderful science mash-up of students and educators from around the world. It was fascinating to share viewpoints with people from 20 other countries. Positive feedback happens when creative people from different backgrounds unite to share their love of science and their visions of a better future world. What a great opportunity for high schools students!

The people responsible for JSSF are brilliant; they combine STEM and cultural activities to build a worldwide community to help every student develop to his or her full potential as a scientifically informed, global citizen.



During our project, we met with the CheMin instrument co-inventor Dr. David Blake.

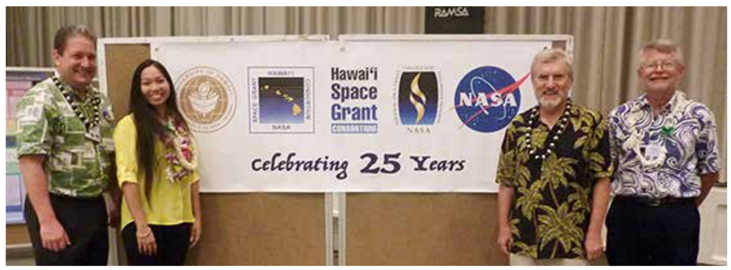
Back (l to r): Leslie Hamasaki, Jeff Taylor, Carter Nakamoto, David Blake.

Center (l to r): Tiffany Coke, Linda Martel, Christly Yoshizawa.

Front (l to r): Nicole Jao, Peter Johnson, Darrell Huang, Moana Kimura.

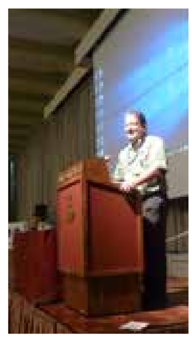
CELEBRATING 25 YEARS OF HSGC

By: Ed Scott, Assoc. Director, Fellowships



(l to r) Luke Flynn (Director), Marcia Rei Nii (Exec. Dir.), Peter Mouginis-Mark (Former Dir.), and Ed Scott (Fellowships Assoc. Dir.)

Last Fall (2015), we celebrated the 25th anniversary of the Hawai'i Space Grant Consortium with a special Fellowship and Traineeship Symposium in the Imin International Conference Center at the East-West Center. In addition to talks and posters by students at UH Mānoa, UH Hilo, and Honolulu, Kapi'olani, Kaua'i, and Windward Community Colleges, we enjoyed speeches and reminiscences from Dr. Vassilis Syrmos, UH System Vice President for Research & Innovation and past HSGC Director, Dr. Peter Mouginis-Mark. Director, Luke Flynn read a proclamation from Governor David Ige declaring Nov. 21, 2015 as Hawai'i Space Grant Consortium Day. Michelle Bradley, a former Fellow who now teaches at Island Pacific Academy, and four members of the Hawai'i Space Flight Lab, Lance Yoneshige, Jeremy Chan, Isaac Rodrigues, and Amber Imai-Hong, gave inspiring talks about their experiences with the program. Many thanks to the speakers, our hardworking staff and especially to Executive Dir., Marcia Rei Nii, who made the event such a success.



Director Flynn

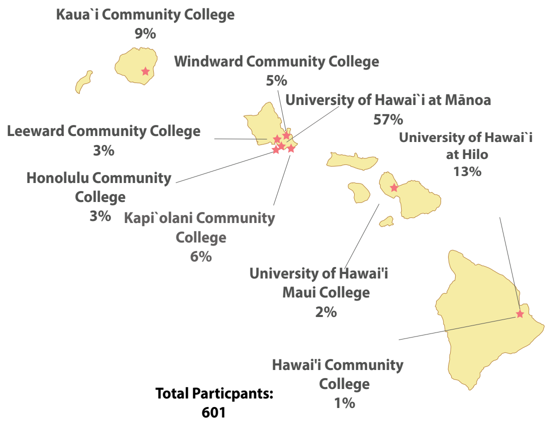
Fall 2015 Fellows & Trainees

Since the program began in 1990, over 1200 Fellowships and Traineeships have been awarded to students at the University of Hawai'i to work on space-related projects under the guidance of over 110 faculty and staff mentors. Initially, both fall and spring symposium meetings were held at Mānoa, but now that many more community college students participate in national rocket competitions, we hold the fall meeting at one of the four community colleges on O'ahu. At Mānoa, the Fellowship program has expanded to help support students working on the University of Hawai'i CubeSat program in the College of Engineering and the Hawai'i Space Flight Lab. At Hilo, there are increasing numbers of Space Grant Fellows and Trainees working chiefly on astronomy and geology projects.

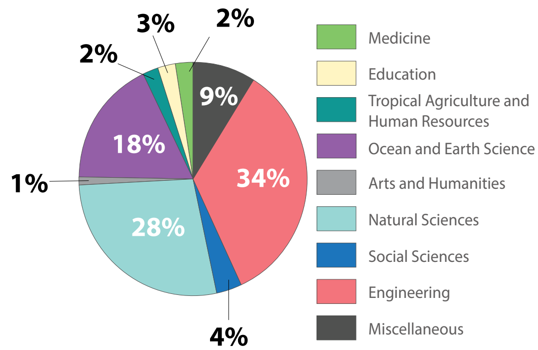
Former Fellow Michelle Bradley

I've been honored to help run the Fellowship and Traineeship program since 1994 and have greatly enjoyed working with such wonderful colleagues, efficient staff, awesome students, and able mentors. What a thrill to see how space-related undergraduate research projects can help inspire so many students!

Participants by Campuses 1990 - 2015



Participants by Majors 1990 - 2015



Spring 2015

Fall 2010

Fall 2005

Spring 2000

Fall 1995

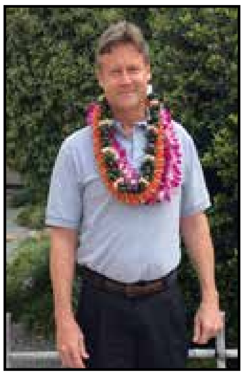
Fall 1991

1990: Hawai`i Space Grant Consortium chartered

HSGC and HSFL Faculty Awards

Dr. Ed Scott, Emeritus Professor

Dr. Ed Scott, HSGC Associate Director for the Fellowship and Traineeship Program, has been a major part of the Hawai'i Institute for Geophysics and Planetology (HIGP) department for the past 26 years. Following his retirement during the Fall 2015 term, Dr. Scott has continued to pour his energies into the community with his support and work within HIGP and HSGC. In May, 2016, Dr. Scott was named an Emeritus Professor, a title of honor for professors with distinguished service recognized by the University of Hawai'i President, Board of Regents, and UH Mānoa Chancellor. As a well-published professor, mentor, past-President of the International Meteoritical Society, 2008 Leonard Medal award winner, and more, Emeritus Professor Scott's leadership and dedication play a large part in HIGP's success. HSGC is also honored to have Dr. Scott as acting Associate Director for HSGC.



Tim Williams

Tim Williams was named the 2016 RCUH Outstanding Employee of the Year. Nominated for his significant contributions to the Leonidas Program, Williams was acknowledged for his work in engineering the largest rail launcher system in the world. The system was used in November 2015 for HSFL's launch. As an outstanding Project Manager, Williams has shown excellence in his hard work and dedication. Congratulations!

(l to r) Tim Williams and Luke Flynn

Awarded by University of Hawai'i at Mānoa Chancellor Robert Bley-Vroman in May, Dr. Luke Flynn received the 2016 UH Mānoa Chancellor's Award for Outstanding Service by a Faculty Specialist. This award honors Mānoa personnel with proven work performance, service, and leadership skills of exceptional quality. As the Director of the Hawai'i Space Flight Laboratory, Director of the Hawai'i Space Consortium, and HIGP Faculty Specialist, Dr. Flynn was recognized for his "commitment to higher education through his outstanding service to students interested in aerospace careers." He has been a part of HIGP and SOEST for 29 years and Director of HSFL and HSGC since 2005. Congratulations!

Luke Flynn

(l to r) from UH Mānoa, Linda Martel, Jeff Taylor, Peter Mouginis-Mark, Luke Flynn, Eric Pilger, Will Smith (Honolulu CC), Marcia Rei S. Nii (UH Mānoa), and Helen Rapozo (Honolulu CC) attending the awards ceremony.

(center) Luke Flynn and (right) UH Mānoa Chancellor Robert Bley-Vroman

Governor Ige Recognizes Project Imua Team

Hawai'i Governor David Ige presented commemorative plaques to Project Imua team members from UH campuses across the state during a ceremony at the State Capitol on October 23, 2015. Project Imua is a group of students and faculty that works on designing, fabricating, and testing small satellite payloads. Kaua'i CC, Honolulu CC, Kapi'olani CC, and Windward CC are all represented in Project Imua. Congratulations on a job well done!

Governor Ige (center) surrounded by Project Imua students and faculty.

Windward's CAE: Celebrates 30 Years of Aerospace Educational Services

By: Joseph Ciotti, Director of Aerospace Education

Windward Community College's Center for Aerospace Education (CAE) celebrated its 30th Anniversary in the Fall, 2015. During its three decades of operation, over 300,000 visitors have engaged in its multiple hands-on, STEM-based venues. The CAE supports both WCC's credit programs and educational outreach services for K-12 students and the general public.

Established in 1985 by its Director Joseph Ciotti through his role as a NASA Space Ambassador and one of Hawai'i's Teacher-in-Space finalists, the CAE's mission is to inspire students to actively engage in science activities through informal experience and formal education, to explore career options in aerospace science and industry, and to become informed, contributing citizens by becoming science-literate.

The CAE, which is supported in part by HSGC, manages four educational resource facilities on the Windward campus:

- Hōkūlani Imaginarium: a full-dome, interactive 84-seat planetarium that specializes in scientific visualization. Shows offered at this 40-foot theater are listed online at http://aerospace.wcc.hawaii.edu/imaginarium.html
- Aerospace Exploration Laboratory: a low-tech science exploratorium designed primarily for K-6 students, with engaging hands-on activities for all ages.
- Lanihuli Observatory: an astronomical/meteorological facility that includes a 16-inch optical telescope, a radio telescope operated in partnership with NASA Goddard Space Flight Center's Radio Jove Project, a 5-inch solar heliostat, a cosmic ray telescope operated in partnership with Quark-Net, a NOAA satellite tracking station, and an interactive visitor's gallery.
- NASA Flight Training Aerospace Education Laboratory (AEL): an aerospace simulation training center that includes a zero-g drop tower, flight simulator and wind tunnel. This facility, which is operated in partnership with NASA Glenn Research Center, also serves as WCC's high-powered rocket lab, supporting such HSGC rocketry efforts as Project Imua and ARLISS.

PLANETARY SCIENCE RESEARCH
PSRD Discoveries

Sharing Discoveries in Planetary Science

www.psrd.hawaii.edu

By : Jeff Taylor and Linda Martel

Hawai'i Space Grant has co-sponsored the popular online science magazine Planetary Science Research Discoveries (PSRD), since 1996. From our first article detailing the controversial evidence for fossil life in a meteorite from Mars we have been communicating discoveries in planetary science to a growing audience. The site receives 45,000 page views per month. We think it deserves 45 million views per month.

The model is simple: we translate peer-reviewed published journal articles into clear English from the original nerdspeak. Topics range widely, from primitive solar system dust to planet compositions and construction, from dating the oldest to the youngest solar system materials, from lava flows to impact melts. Useful supplemental materials are included with each article, such as links to pertinent articles and websites and printable pdf versions. We use shorter-format CosmoSparks reports to draw attention to current topics and results, further showing the interdisciplinary scope of planetary research. We maintain an easily search-able site and have an archive organized by topic of all articles and reports we've published. Engaging graphics, sometimes animated, help explain the results described in the articles. To further assist educators in using our materials in the classroom and planetary scientists when they make presentations, we provide annotated slide sets. PSRD also contains an ever-expanding glossary. There's something for everyone, explaining why we think PSRD should be visited by 45 million people a month!

The interdisciplinary nature of cosmochemistry, geochemistry, geology, astronomy, astrophysics, and geophysics allows articles to examine the building blocks of the cosmos and the geological origins and evolution of the planets, moons, and small bodies. Planetary science is especially suited for raising the scientific literacy of the public. PSRD articles dealing with the timing of events in the early Solar System, for example, include physics, mineralogy, and chemistry. Our articles about pre-solar grains in meteorites discuss mineralogy, isotopic compositions, and astrophysics. Our articles about Mars highlight geology, water, climate, and habitability. Both general readers and science specialists tell us that PSRD articles present this information in a creative and compelling way. Here are two examples of voluntary emails we've received to highlight what PSRD has meant to our readers and why there should be 45 million of them every month:

(l to r) ThinkTech Hawai'i Host Jay Fidell, Linda Martel, and Jeff Taylor

"I've been reading the material on your website for quite a few years now. I just wanted to compliment you both on the knack that you have for translating what are often quite complex scientific concepts into a form suitable for a lay audience. Not only do you get the text right, but the images and diagrams are always well chosen. You also manage to convey the excitement of the science. I don't know of another site quite like yours but I can say that I've yet to see one that matches the quality of yours, year in, year out."

"If planetary science and space exploration are to compete successfully with other demands on the public purse, it will do so because sites like yours make the results of research accessible to laymen of all ages and levels of involvement. I was especially happy to see that links were made available to users who need a more detailed coverage of the research.”

Since 2015, we have been recurring guests on host Jay Fidell's (President and CEO of ThinkTech Hawai'i, Inc.) live-streaming talk show about science at thinktechhawaii.com and available on demand on YouTube; see our picture on p. 22. As a Hawai'i non-profit corporation, ThinkTech Hawai'i provides a platform for civic engagement to raise public awareness about the importance of technology, energy, diversification, and globalism to the future of Hawai'i. In our appearances, we discuss the exciting discoveries in space sciences, spreading the word about science and technology, and enticing 45 million people to visit our PSRD site.

Mike Fincke

Hawaiʻi Space Grant Consortium
Hawaiʻi Institute of Geophysics and Planetology
School of Ocean and Earth Science and Technology
University of Hawaiʻi at Mānoa
1680 East-West Road, POST 501
Honolulu, HI 96822

Hawaiʻi Space Grant Consortium

Chartered under the National Space Grant College and Fellowship Program in 1990, the Hawai ʻi Space Grant Consortium develops and runs interdisciplinary education, research, and public service programs related to space science, earth science, remote sensing, human exploration and development of space, small satellites, and aerospace technology. We accomplish this through a variety of projects: Undergraduate research fellowships and traineeships, innovative college courses, workshops for educators, educational web sites, public exhibitions, lectures, tours, primary school programs, space-themed evening programs, and much more.

HSGC AFFILIATES

UH Mānoa,
- Dr. Luke Flynn, Director
- Ms. Marcia Rei Nii, Program Coordinator
- Mr. Arthur Kimura, Education Specialist
- Ms. Rene Kimura, Education Specialist
- Dr. Edward Scott, Associate Director, Fellowships
- Dr. G. Jeffrey Taylor, Associate Director, Space Science
- Ms. Linda Martel, Webmaster/Communications
- Ms. Dora Nakafuki, Industry Affiliate (HECO)

UH Hilo
- Dr. Kenneth Hon, Associate Director

UH Maui College
- Dr. Jung Park, Associate Director

Hawaiʻi Community College
- Dr. Joseph Wilcox, Associate Director

Honolulu Community College
- Dr. Michael Ferguson, Interim Associate Director
- Mr. William Smith, Coordinator

Kapiʻolani Community College
- Dr. Hervé Collin, Associate Director

Kauaʻi Community College
- Dr. Georgeanne Purvinis, Associate Director
- Mr. Stewart Burley, Liaison/Industry Affi. (STU,LLC)

Leeward Community College
- Dr. Bryson Padasdao, Associate Director

Windward Community College
- Dr. Joseph Ciotti, Associate Director
- Dr. Jacob Hudson, Rocketry Coordinator

University of Guam
- Dr. John Petersen, Associate Director
- Dr. Romina King, Coordinator