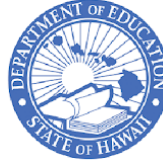
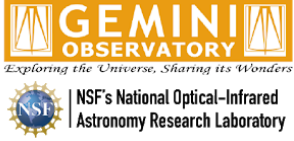




2020

Program Highlights



TO OUR JOURNEY 'Ohana

The 16th year of Journey Through the Universe (*Journey*), Hawai'i Island's flagship astronomy education and outreach program, brought astronomy professionals from Maunakea and across the nation into Hawai'i island classrooms, visiting thousands of students—one classroom at a time. Our diverse group of astronomers, scientists, engineers and informal educators provided an authentic and personal window into the process of scientific discovery and the wonders of our Universe.

During *Journey* "Week," 74 astronomy educators visited over 8,000 students in the Hilo-Waiākea, Pa'āuilo, Honoka'a and Waimea area schools and for the first time classroom visits have expanded to the island of Maui with the support of the National Solar Observatory. Career panels engaged students at Hilo, Waiākea and Honoka'a High Schools and a public lecture, *Exploring the Moon and Mars*, attracted over 50 attendees at the University of Hawai'i at Hilo. *Journey* as a year-round program supports StarLab Portable Planetarium programs for Kindergarteners and a two-day teacher workshop focusing on the Next Generation Science Standards (NGSS) is slated for the fall of 2020 building upon the hugely successful Journey NGSS workshop held in September of 2019.

After participating in Journey programs, Hawai'i State Department of Education Deputy Superintendent, Phyllis Unebasami, commented, "Two of the scientists I saw today in classrooms commented that they knew they wanted to be scientists when they were eight years old! When I heard that I thought '...and here they are now sharing their love and knowledge with our 8 year olds.' That is truly impactful."

The *Journey* Team would like to thank everyone involved for their continued support of this STEM initiative. A program of this magnitude could not happen without the dedication of our community partners and your ongoing support. As we enter into our seventeenth year of the Journey Through the Universe program, we will continue to evolve the program and change our student's lives as we advance science literacy through astronomy and encourage all students to reach for the stars!

To keep up to date on what *Journey* is accomplishing in the community, please visit:
<http://www.gemini.edu/journey>

Much Aloha and our sincerest Mahalo,

Janice Harvey
Journey Team Leader





Proclamation

WHEREAS, the Journey through the Universe program, developed by the National Center for Earth and Space Science Education, inspires and prepares the next generation of scientists and engineers to compete in global markets in the age of high technology; and

WHEREAS, Hilo, Hawai'i is currently one of ten communities around the nation that are designated Journey through the Universe sites; and

WHEREAS, the 16th Annual Journey through the Universe program on Hawai'i Island strengthens the community by partnering with the Gemini Observatory on Maunakea, University of Hawai'i at Hilo, Department of Education's Hilo-Waiākea and Ka'u-Kea'au-Paho Complex Areas, Waimea and Honoka'a Schools, 'Imiloa Astronomy Center of Hawai'i, Japanese Chamber of Commerce & Industry of Hawai'i, Hawai'i Island Chamber of Commerce, as well as many other sponsors, organizations and businesses; and

WHEREAS, this fun-filled educational program has engaged tens of thousands of students in Hawai'i, giving them forefront access to the entire sky and allowing them to gain 21st century skills that helps to ensure science literacy; and

WHEREAS, over 70 observatory professionals and educators will pass on their experiences and knowledge of science, technology, engineering, and math (STEM) to Hawai'i's students; and

WHEREAS, members of the local community are provided with an intensive week of programs that include teacher workshops, classroom visits by astronomers and scientists, public lectures and family science nights;

THEREFORE I, DAVID Y. IGE, Governor, and I, JOSHUA B. GREEN, Lieutenant Governor of the State of Hawai'i, do hereby proclaim March 2-6, 2020 as

"JOURNEY THROUGH THE UNIVERSE WEEK"

in Hawai'i and ask the people of the Aloha State to join us in recognizing the national importance of science education and encourage our keiki to pursue the explorers within them.

Done at the State Capitol, in Executive Chambers, Honolulu, State of Hawai'i, this tenth day of January 2020.

JOSHUA B. GREEN
Lieutenant Governor, State of Hawai'i

DAVID Y. IGE
Governor, State of Hawai'i

COUNTY OF HAWAI'I

Proclamation

WHEREAS, Journey through the Universe promotes sustained education in the critical areas of science, technology, engineering and mathematics (STEM), and is a celebration of exploration and the joys of learning science. In 2020, the program celebrates its 16th anniversary on Hawai'i Island, where it has engaged over 60,000 students in the past decade in STEM education in local schools; and

WHEREAS, developed by the National Center for Earth and Space Science Education (NCESSSE), Journey through the Universe is a national science education initiative that engages entire communities - students, teachers, families, and the public - using educational programs in the earth and space sciences, and space exploration to inspire and educate; and

WHEREAS, the Department of Education Hilo/Waiākea Complex and Gemini Observatory began the partnership in 2004, agreeing to work together and share Mauna Kea astronomy with students. Over the past decade students, teachers and the community-at-large have benefited from Journey Through the Universe, which has grown to include dozens of local and national research and education institutions, as well as local businesses, government agencies, and individuals; and

WHEREAS, the County of Hawai'i fully encourages and supports the educators who perpetuate learning and exploration of our universe in order to excite our youth about the future, and the astronomers and engineers who instill excitement and understanding about the diverse careers available at the telescopes,

NOW, THEREFORE, I, HARRY KIM, Mayor of the County of Hawai'i, do hereby proclaim March 1-8, 2020, as

JOURNEY THROUGH THE UNIVERSE WEEK

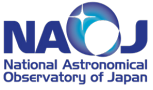
in the County of Hawai'i, and urge all citizens to be mindful of the great contributions that astronomy makes to the educational and economic betterment of our island's people.

IN WITNESS WHEREOF, I have hereunto set my hand and caused The Seal of the County of Hawai'i to be affixed. Done this 2nd of March, 2020, in Hilo, Hawai'i.



A handwritten signature in black ink that reads "Harry Kim".

Harry Kim
MAYOR



Journey Through the Universe Hawai'i Island

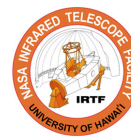
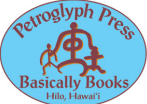


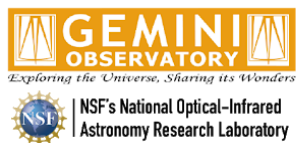
Astronomy Educators in the Community 2020

- | | |
|------------------------|--|
| Alexis Ann Acohidio | EAO/CMCT |
| Virginia Aragon-Barnes | Thirty Meter Telescope |
| Christoph Baranc | UH Institute for Astronomy |
| Tishanna Ben | National Solar Observatory/DKIST |
| Vanshree Bhalotia | UH-Manoa Physics & Astronomy |
| Cathy Blough | Gemini Observatory/NSF's OIR Lab |
| Jerry Brower | Gemini Observatory/NSF's OIR Lab |
| André-Nicolas Chené | Gemini Observatory/NSF's OIR Lab |
| Devin Chu | UCLA |
| Christophe Clergeon | Subaru Telescope |
| Kathy Cooksey | UH-Hilo Physics & Astronomy |
| Christine Copes | Gemini Observatory/NSF's OIR Lab |
| Iain Coulson | EAO/CMCT |
| Callie Crowder | Canada-France-Hawaii Telescope |
| Sandra Dawson | Thirty Meter Telescope |
| Brian Day | NASA SSERVI |
| Jessica Dempsey | EAO/CMCT |
| Aaron Do | UH Institute for Astronomy |
| Jerry Dobeck | Northwestern Michigan College |
| Jeff Donahue | Gemini Observatory/NSF's OIR Lab |
| Xinnan Du | TMT International Observatory/UC Riverside |
| Trent Dupuy | Gemini Observatory/NSF's OIR Lab |
| Ahia Dye | Imiloa Astronomy Center |
| Angelic Ehbbers | Gemini Observatory/NSF's OIR Lab |
| Kyla Edison | PISCES |
| Jocelyn Ferrara | Gemini Observatory/NSF's OIR Lab |
| Scott Fisher | University of Oregon |
| Mimi Fuchs | EAO/CMCT |
| Tom Geballe | Gemini Observatory/NSF's OIR Lab |
| Jeff Goldstein | NCSSES |
| Alyssa Grace | Gemini Observatory/NSF's OIR Lab |
| Richard Griffiths | UH-Hilo Physics & Astronomy |
| Oliver Guyon | Subaru Telescope |
| John Hamilton | UH-Hilo Physics & Astronomy |
| Janice Harvey | Gemini Observatory/NSF's OIR Lab |
| Saeko S. Hayashi | TMT Japan Project & Subaru Telescope |
| Stephanie Henry | NASA Marshall Space Flight Center |
| Russell Kackley | Subaru Telescope |
| Carolyn Kaichi | UH Institute for Astronomy |
| Yuko Kakazu | TMT Japan Project & Subaru Telescope |
| Jason Kalawe | Gemini Observatory/NSF's OIR Lab |
| Scott Kleinman | Gemini Observatory/NSF's OIR Lab |
| Shintaro Koshida | Subaru Telescope |
| Preethi Krishnamoorthy | Subaru Telescope |
| Samuel Lai | Gemini Observatory/NSF's OIR Lab |
| Mary Beth Laychak | Canada-France-Hawaii Telescope |
| Lars L. Christensen | Gemini Observatory/NSF's OIR Lab |
| Julien Lozi | Subaru Telescope |
| Nadine Manset | Canada-France-Hawaii Telescope |
| Jameeka Marshall | Gemini Observatory/NSF's OIR Lab |
| Callie Matulonis | EAO/CMCT |
| Peter Michaud | Gemini Observatory/NSF's OIR Lab |
| Joseph Minafra | NASA SSERVI |
| Brian Mitchell | NASA Marshall Space Flight Center |
| Junichi Noumaru | Subaru Telescope |
| Harriet Parsons | EAO/CMCT |
| Emily Peavy | Imiloa Astronomy Center |
| Shelly Pelfrey | W.M. Keck Observatory |
| Andreea Petric | IJA/CFHT |
| Joy Pollard | Gemini Observatory/NSF's OIR Lab |
| Tae-Soo Pyo | Subaru Telescope |
| Odysseus Quarles | Gemini Observatory/NSF's OIR Lab |
| Bo Reipurth | UH Institute for Astronomy |
| Rodrigo Romo | PISCES |
| Laurie Rousseau-Nepton | Canada-France-Hawaii Telescope |
| Julien Rousseau | Subaru Telescope |
| Ananya Sahoo | Subaru Telescope |
| Doug Simons | Canada-France-Hawaii Telescope |
| Chance Spencer | Gemini Observatory/NSF's OIR Lab |
| Gordon Squires | Thirty Meter Telescope |
| Hyewon Suh | Subaru Telescope |
| Marianne Takamiya | UH-Hilo Physics & Astronomy |
| Ichi Tanaka | Subaru Telescope |
| Alex Tetarenko | EAO/CMCT |
| Tomo Usuda | TMT Japan Project |
| John Vierra | Gemini Observatory/NSF's OIR Lab |
| Sebastien Vievard | Subaru Telescope |
| Andrea Walters | UH-Hilo Physics & Astronomy |
| Thomas Winegar | Subaru Telescope |
| Siyi Xu | Gemini Observatory/NSF's OIR Lab |
| Michitoshi Yoshida | Subaru Telescope |

For more information contact Janice Harvey at: jharvey@gemini.edu

www.gemini.edu/journey





For Immediate Release: February 22, 2020
Press Release Media Contacts:

Janice Harvey
Gemini Observatory of NSF's Optical-Infrared Astronomy Research Laboratory
jharvey@gemini.edu, (808) 974-2603

Gemini Observatory Celebrates 16th Year of Journey Through the Universe

Local Students Engage with Scientists and Staff from the Maunakea Observatories and from Around the World!

Hilo, Hawai'i - Journey Through the Universe is celebrating 16 years of astronomy education in Hawaii! With the support of over 74 local and national astronomy professionals, community businesses, Gemini Observatory/NSF's National Optical Infrared Astronomy Research Laboratory's flagship outreach program, Journey Through the Universe (Journey), continues to encourage our students to reach for the stars. This year Journey 2020 educators will visit 330 classrooms and hold StarLab sessions in every Journey kindergarten classroom. In addition ten career panels at Hawaii Island high schools and a presentation for the public on the future decade of astronomical discoveries will take place on March 4. A two-day teacher workshop with focus on the Next Generation Science Standards (NGSS) will once again be held in the fall of 2020.

Journey Through the Universe has flourished on Hawaii Island for the last sixteen years thanks to the commitment of our Hawaii Department of Education and the support of the local business community. "I'm often asked how we are able to sustain a program of this size and quality. The answer is our many partnerships. It truly takes an entire community to bring these opportunities to our students! We are so grateful to have the support of the Department of Education, our local business community and our many volunteer astronomy educators and ambassadors," said Janice Harvey, Journey team leader.

Over the years Journey has expanded from one week of classroom visits to a year-long program. Although the majority of the classroom visits are still consolidated to one week, astronomy educators continue to visit classrooms throughout the year.

During Journey week, March 2-6, 2020, our astronomy educators will share their passions with over 8,000 local students of all ages. Thirteen schools of the Hilo-Waiākea complex area, four schools in North Hawai'i Island and for the first time classrooms in Maui will be part of the Journey through the Universe program. To prepare for these visits, astronomy educators will attend an educational workshop with example presentations and special guest appearance of our District Superintendent. "Journey has been around for 15 years so we are able to speak of its success. As our astronomy educators continue to partner with us, Journey Through the Universe has become the inspiration and template for growing many of our STEM/NGSS programs. NGSS Framework will act as the foundation for science education standards while describing a vision of what it means to be proficient in science. It emphasizes the importance of the practices of science where the content becomes a vehicle for teaching the process of science", the Superintendent stated.

For more information on the Journey Through the Universe program, visit: www.gemini.edu/journey



Improving science instruction

Workshop helps educators prepare for new state standards

By **STEPHANIE SALMONS**
Hawaii Tribune-Herald

A light bulb burned brightly in the center of an inflatable dome Friday morning at 'Imiloa Astronomy Center.

There was no lamp shade, and the looming light fixture representing the sun illuminated the 10 Big Island educators and Alyssa Grace, an education outreach specialist at Gemini Observatory, who gathered around it.

Each person represented Earth, and in their hands, they each held the moon — or rather a Styrofoam ball on a stick that represented the moon — as they learned about eclipses and ways to teach the subject to their students.

Journey Through the Universe, a science education and outreach program organized by Gemini Observatory to promote science education and literacy in Hawaii Island schools, in collaboration with the state Department of Education and others in the astronomy community, last week held a two-day workshop for teachers, where educators were taught about the Next Generation Science Standards and ways to incorporate those standards into their classrooms.

During Journey to the Universe, “our whole entire goal is to bring astronomy and science into the classrooms,” said Janice Harvey, community outreach and education programs leader for Gemini. And when the state adopted the Next Generation Science Standards, “we, through our Journey Through the Universe Program, reached out and said, ‘Let’s help you.’”

The Next Generation Science Standards were adopted by the state Board of Education in February 2016 and will be fully implemented in schools during the current academic school year.

According to the DOE, the new standards encourage more hands-on student engagement and discussions, as opposed to teachers

providing information to the whole class or posing questions with just one right answer, among other changes.

For teachers, the new standards are about “how do we encourage kids to ask the questions about their natural environment,” Hilo-Waiakea Complex Area Superintendent Esther Kanehailua said. “And when we think about Hawaii, there’s so much around, so how do we make sure we kind of let go and let kids discover and guide that to what other questions you have.”

Kanehailua said the workshop is “all about exploration and giving them that experience themselves as teachers, so we (can) replicate those experiences for our students.”

Teachers of all grade levels were invited to the workshop and over two days were introduced to the new science standards, Harvey said, “and then we’re actually giving them resources to take back to their classroom, so they can immediately move forward.”

“I think for me, what I’m thrilled about is just the fact that we were able to immerse our teachers in the science that they’re doing, science they’re getting excited about ... and really reframing their thinking about how to teach science,” said Darrell Nekoba, school renewal specialist for the Hilo-Waiakea Complex Area. “... You see sort of this shift in thinking towards science. It should be such a more active rather than passive experience for kids, and I think we’re giving (teachers) that experience and, hopefully, they’ll take back to their classroom.”

Astronomer Connie Walker, with the National Optical Astronomy Observatory, led a session regarding light pollution and its effect on animals, where teachers played a game in small groups.

That exercise and others “fit exactly into the Next Generation Science Standards,” she said.

Educators are “just learning at this point how to implement



MIGUEL



DEMELLO

the Next Generation Science Standards,” Walker said. “It is a totally different approach to teaching. It’s not definitive steps, it’s just sort of a process and a way of getting the students to explore on their own and really relate to whatever topic is at hand.”

The new standards allow students to “really relate to what they’re learning and experience what they’re learning and do the critical thinking that’s necessary to come up with solutions,” she said. “And then when they do that on their own and make that discover on their own, they’re going to embed that knowledge forever. It’s not going to be something that’s a one-day thing and it goes away.”

Coty Miguel, a fifth-grade teacher at E.B. de Silva Elementary, has been teaching for 11 years. She said the workshop helped teachers know science from different perspectives.

“It really helps, as a teacher, to get different ideas ...”

“It’s kind of nice, because I haven’t really had too many opportunities to participate in an NGSS workshop, and I know that with the adoption of it, for myself personally as well as other teachers, we always want to try and implement something with fidelity,” said Adrian DeMello, a chemistry and physics teacher at Waiakea High School.

“We don’t want to just say that we’re doing something and not be effective and be doing it appropriately to the benefit of students.”

He said it’s good to have a chance to listen to and talk with other professionals.

It’s also “really nice being in a place where we’re surrounded by a bunch of professionals that all have the same goal of trying to better their practice and their art of teaching,” DeMello said. “So we’re lucky enough that we have people here that are spreading and sharing their lessons ... and we’re actually able to go through while they implement their lessons so that we can learn firsthand how, (for) lack of a better word, how it should be done.”

Email Stephanie Salmons at ssalmons@hawaiitribune-herald.com.



JOURNEY THROUGH THE UNIVERSE NGSS TEACHER WORKSHOP

"How do we encourage students to ask questions about our natural environment?"

We sought to answer this question and more during the Journey Through the Universe Next Generation Science Standards (NGSS) workshop held at 'Imiloa Astronomy Center on September 5 & 6, 2019.

Gemini Observatory, in partnership with the Hawai'i State Department of Education (HIDOE), Maunakea Observatories and Hawai'i Island business community have a long history of hosting the Journey Through the Universe (Journey) program over the past 16 years.

During this year's two-day workshop, over 60 K-12 teachers engaged in NGSS-aligned and astronomy-centered activities. Teachers were provided with the resources needed to take these activities back to their classrooms to use with their students.

Esther Kanehailua, Complex Area Superintendent of Hilo-Waiakea, Darrell Nekoba, School Renewal Specialist, and Janice Harvey, Journey Program Leader opened the workshop with a brief history of the Journey program, highlighting the collaboration between Journey and the HIDOE. Doug Simons, Director of the Canada-France-Hawaii Telescope closed out the opening remarks by talking about astronomy and education in our Hawai'i Island community.

Lauren Kaupp, HIDOE Science Specialist started both days by focusing on the overarching themes of NGSS and how to truly integrate them into classrooms with diverse cultural and socio-economic perspectives.

After lunch on both days, teachers engaged in NGSS-based activities presented by Dr. Connie Walker and Rob Sparks from the National Optical Astronomy Observatory (NOAO) in Tucson and Alyssa Grace from Gemini Observatory.



Rob Sparks leads teachers through an investigation on fortune telling fish. Photo credit: Joy Pollard.



Dr. Connie Walker begins instruction on creating a constellation box. Photo credit: Joy Pollard.

Dr. Walker's sessions for grade level 6 – 12 teachers covered the topic of light pollution using hands-on Quality Light Teaching Kits (QLTK), custom made by NOAO. Dr. Walker and the Journey team adapted two different activities in the QLTK to focus on Hawai'i-based natural phenomena. One activity featured *honu* (Hawaiian green sea turtles) in a board game that teaches how light pollution affects the migration patterns of *honu* and the survival of their young. The second activity adapted for Hawai'i featured a photo taken from space of Honolulu at night which dramatically shed light (pun intended) on how significantly our dark skies are affected by light pollution. The image was part of an end-of-unit project leading teachers and students through a real-life investigation of various street lights, their energy consumption, and the effects they have on light pollution in Hawai'i. Every school represented in the workshop took home enough kits for one classroom.



Alyssa Grace helps teachers stabilize their slinkies in preparation for a slow motion video. Photo credit: Joy Pollard.



K – 2 teachers explore the Moonbear's Shadow kit as a lesson on shadows for students.
Photo credit: Joy Pollard.

Rob Sparks and Alyssa Grace shared a wide variety of activities meant to inspire K – 5 teachers and flip the structure of teaching science on its head. NGSS focuses on inquiry-based, student-led discussions and investigations designed to engineer solutions, as opposed to step-by-step processes that solely teach content knowledge. Teachers became students again as they went through their own investigations and experienced the wonder of being a scientist. In addition to hands-on student-led investigations centered around the electromagnetic spectrum and the refraction of light, Sparks and Grace also taught lessons using the Gemini portable planetarium. They ended the workshop with cultural astronomy stories from around the world.

At the end of the workshop, teachers participated in a survey and anonymously shared comments which included:

"The most valuable part about this workshop was the way presenters delivered instruction with a question versus going straight into the content."

"I will implement the idea of environmental issues and how it can affect living things (light pollution and its effects on health) into my classroom."

"I will try out all of the lessons presented in this workshop. Especially enjoyed and will use the wheel lenses, moon phases, and shadow activity."

Keiki take a 'journey through the universe'

Scientists, engineers visit classrooms during outreach program

By **STEPHANIE SALMONS**
Hawaii Tribune-Herald

Little hands pounded on their desks, a drum roll for lift off last Wednesday in Traci Urasaki's first-grade class at E.B. de Silva Elementary School.

The keiki waited with excited anticipation, and with a quiet "POP," the rocket — a film canister that had been filled with water and part of an Alka-Seltzer tablet — launched high into the air.

Celebratory yells and cheers echoed in the classroom.

This experiment, simulating how humans get into outer space, was a success. Other attempts fizzled, with the homemade rocket barely making it off the desk.

The students were scientists and budding astronomers learning about space as part of Journey Through the Universe program, a science education and outreach program organized by Gemini Observatory to promote science education and literacy, now in its 16th year.

Janice Harvey, education and engagement lead for Gemini, said



Mimi Fuchs leads an experiment with first-grade students Calliope Miura, left, and Zoie Nakano.

Journey Through the Universe was set to bring about 74 astronomy educators into 300 Big Island classrooms throughout the week.

Journey has expanded from one week of classroom visits to a year-long program. Although most classroom visits are consolidated to one week, astronomy educators visit classes throughout the year.

And this year, for the first time, the program expanded to Maui.

Now that the Daniel K. Inouye Solar Telescope is there, Harvey said, "They have outreach people

and they were able to go into classrooms over in Maui. We hope to continue to expand it."

The ongoing coronavirus outbreak this year did cause a hiccup "because we had some who were unable to come in at the last minute, but we've been able to make up the classes," she said.

The class session was led by an energetic and engaging Mimi Fuchs, a telescope system specialist at East Asian Observatory/James Clerk Maxwell Telescope.

See **JOURNEY** Page A6

JOURNEY From the front page

She started the session asking the students to name something in outer space — planets, moon rocks, black holes and aliens — before turning talk to how someone would get to space.

When it was time for the rocket experiment, students paired off and could determine how much water and how much "fuel" their rockets would have.

Urasaki said Journey Through the Universe is great — it's interactive and students love it, "you couldn't ask for a better program."

"We want to have our next generation to be scientifically literate, and I can't imagine a more important moral obligation that we can go in and teach in our schools the importance of science and information," Harvey said. "So it's not just about astronomy, it's about teaching basic science skills to the kids. ..."

After the session, Fuchs said Journey Through the Universe is "the best week of the year."

Throughout the year, she and colleagues and friends are "pretty

active in astronomy and community engagement," but Journey is the best week because the number of scientists and engineers that get into the classroom is unparalleled.

As a child growing up in North Carolina, Fuchs said she dreamed of working on Maunakea.

"Once I knew that the best space science and the best astronomy happened there, I knew I had to get there," she said. "... It feels really special that I can then come into schools, especially in Hilo, where I live and where I work and I have my community, and help plant this idea that maybe these kids, too, could also grow up ... (and with) whatever they're interested in, they can also make their dreams come true. Because you know, maybe it's not going to be engineering, but they get a chance to see someone who made that happen, and it feels really special that I get to show them the opportunities that they can have on island."

Email *Stephanie Salmons* at ssalmons@hawaiitribune-herald.com.



Photos: **STEPHANIE SALMONS/Tribune-Herald**

Mimi Fuchs, a telescope system specialist at East Asian Observatory/James Clerk Maxwell Telescope, talks to students in Traci Urasaki's first-grade class at E.B. de Silva Elementary School as part of Gemini Observatory's Journey Through the Universe program.



Journey Through the Universe 2020 – 16 years of astronomy education in Hawai'i

Posted on [March 11, 2020](#) by [Javier Enciso](#)

Journey Through the Universe (Journey) just celebrated 16 years of astronomy education on Hawai'i Island! With the support of over 70 Maunakea observatory staff and astronomy professionals from around the world, the Department of Education and more than 40 local businesses, Journey completed another record-breaking year during the week of 2–6 March. Through Journey, the [international Gemini Observatory](#), a program of [NSF's National Optical-Infrared Astronomy Research Laboratory](#), encourages students in Hawai'i to reach for the stars and join us in the exploration of our Universe.

During the 2020 *Journey* STEM educators visited over 300 classrooms, hosted ten career panels and presented more than 20 StarLab portable planetarium shows, collectively reaching over 8,000 students. For the first time classroom visits have expanded to the island of Maui with the support of the [National Solar Observatory](#) and staff at the Daniel K. Inouye Solar Telescope. For teachers, a two-day teacher workshop focusing on the Next Generation Science Standards (NGSS) is slated for the fall of 2020 and builds upon the hugely successful *Journey* NGSS workshop held in September of 2019.

Journey Through the Universe has flourished on Hawai'i Island for the last 16 years thanks to the commitment of the Hawai'i Department of Education and the support of Hawai'i Island's business community. "I'm often asked how we are able to sustain a program of this size and quality. The answer is our many partnerships!" said Janice Harvey, Journey team leader.

To learn more about the program and its partners, visit the [Journey Through the Universe](#) webpage.

Contacts

Janice Harvey

Email: jharvey@gemini.edu



Exoplanets in the Classroom!

Scot Kleinman, Gemini's Associate Director of Development, explains how a coronagraph helps scientists discover exoplanets to second-grade students from Hilo's E. B. De Silva elementary school during the 2020 Journey Through the Universe program in Hawai'i.

Credit: International Gemini Observatory/NSF's National Optical-Infrared Astronomy Research Laboratory/AURA/J. Pollard



Gemini Observatory

Published by Hootsuite [?] · September 3, 2019 · 🌐

...

Gemini Observatory is excited to partner with the Hawai'i Department of Education and bring an interactive two-day workshop (September 5 & 6) to teachers on Hawai'i Island! The workshop is part of Gemini's Journey Through the Universe program, and will introduce the Next Generation Science Standards (NGSS), research-based science content standards for students K-12, to Hawai'i Island teachers. #astronomyoutreach #hawaiiastromy



Gemini Observatory

Published by Hootsuite [?] · September 4, 2019 · 🌐

...

Tomorrow, Gemini Observatory in partnership with the Hawai'i Department of Education will host a Journey Through the Universe workshop, introducing the Next Generation Science Standards (NGSS) to Hawai'i Island teachers. NGSS focuses on inquiry-based learning through natural phenomena. In one of tomorrow's activities, teachers will explore light pollution and its effects on the nesting and migration habits of honu (Hawaiian for green sea turtles). #astronomyoutreach #hawaiiastromy

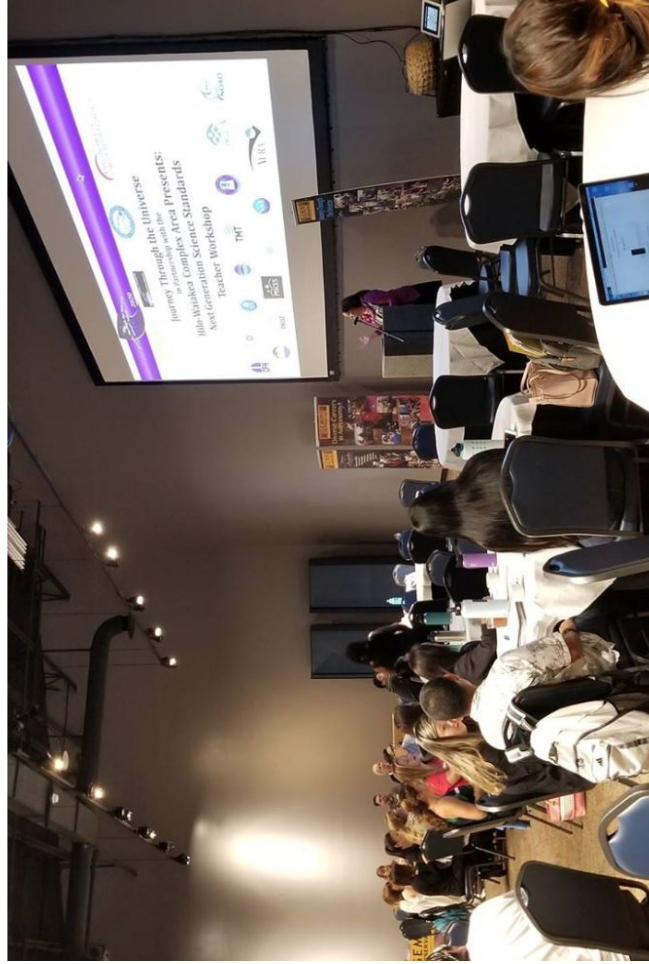




Gemini Observatory

Published by Hootsuite [?] · September 5, 2019 · 🌐

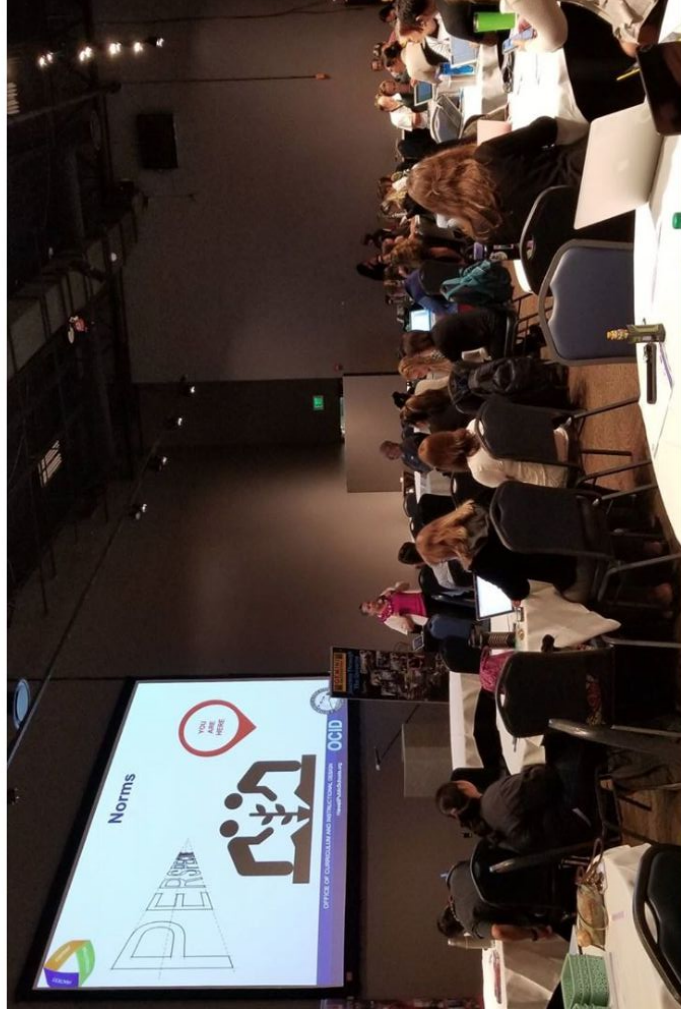
We're excited to kick off our Next Generation Science Standard Workshop (NGSS) with a few words from Hilo-Waikeke Complex Area Superintendent, Esther Kanehailua, Director of the Canada-France-Hawaii Telescope, Doug Simons, Journey Through the Universe Program Leader, Janice Harvey, and School Renewal Specialist, Darrell Nekoba. Our partnership with the Hawaii Department of Education will help us forge and strengthen connections with Hawaii Island teachers involved in the workshop, ultimately bringing the incredible science done in Hawaii to the classrooms! #hawaiiastrometry #astronomyoutreach



Gemini Observatory

Published by Hootsuite [?] · September 5, 2019 · 🌐

In today's workshop, Hawaii State Department of Education Science Specialist, Lauren Kaupp helped demystify the Next Generation Science Standards and presenters from NOAA and Gemini led activities to highlight these new standards. Hawaii Island has a plethora of natural phenomena to teach from and resources like Maunakea Observatories! #hawaiiastrometry #astronomyoutreach





Gemini Observatory

Published by Hootsuite [?] · February 7 at 10:10 AM · 🌐

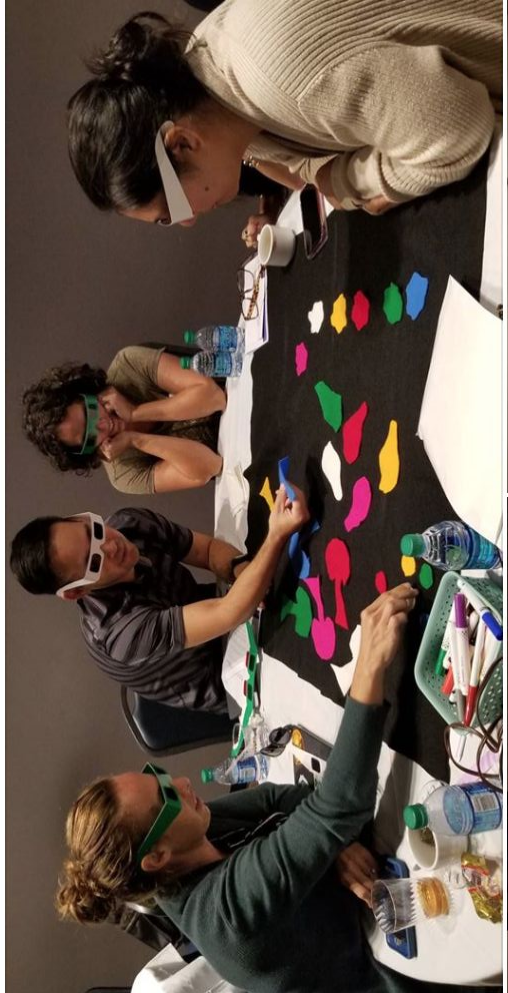
Our #JourneyThroughTheUniverse Astronomy Educators are preparing for their classroom visits in March! On Monday, Feb. 3rd, the Journey team hosted a workshop at #GeminiObs featuring the Next Generation Science Standards #NGSS. Our local Department of Education, and three volunteer astronomy professionals presented helpful tips and activities for implementing NGSS into Journey's one hour classroom visits. We're excited to see what everyone will come up with! #NSFOIRLab #discovertogether #NSFAstronomy For more information on the Journey program visit: <http://ow.ly/gSLc50ygJLJ>



Gemini Observatory

Published by Hootsuite [?] · September 6, 2019 · 🌐

Mahalo to the Hawai'i Department of Education for partnering with us to bring the Next Generation Science Standards to Hawai'i Island teachers! The past two days were filled with fun science exploration that our teachers will bring back to their classes this school year. #hawaiiastronomy #astronomyoutreach





Gemini Observatory

Published by Hootsuite [?] · March 2 at 12:30 PM · 🌐

#JourneyThroughTheUniverse is off to a great start with classroom visits across Hawai'i Island. Astronomy is such a vast topic. Here we see three different astronomy educators with lessons covering gravitational waves, the solar system and visible light. Use the hashtag #JourneyThroughTheUniverse and #discovertogether to show what you're learning from this year's program. <https://www.gemini.edu/journey/>



Gemini Observatory

Published by Hootsuite [?] · February 18 at 3:35 PM · 🌐

In two weeks over 300 classrooms in Hilo, Hawai'i will be visited by astronomy professionals as part of the #JourneyThroughTheUniverse program! Community ambassadors (pictured) met today at #GeminiObs of #NSFOIRLab to prepare for this program. For more information visit: <http://ow.ly/9Qbl50ypYnX> #discovertogether





Gemini Observatory

Published by Hootsuite [?] · March 2 at 6:12 PM · 🌐

Over 100 people from the local business, education, and astronomy communities came together to celebrate #JourneyThroughTheUniverse tonight! We are so grateful for all of the partnerships that make this program possible. Also feeling very inspired for our remaining classroom visits! #discovertogether



Gemini Observatory

Published by Hootsuite [?] · Yesterday at 3:15 PM · 🌐

What's something teaching and doing science have in common? Both require a lot of creativity! Our #JourneyThroughTheUniverse astronomy educators often design their classroom activities themselves. Here are three different demos covering the revolution of our earth around the sun (what really makes a year), how to build a pingpong zipline and astronomical spectra. #discovertogether Visit <http://ow.ly/o4Bw50yCcmV> for more info.



cftelescope



Liked by hawaiostargazer and 32 others

cftelescope We're visiting so many classes this month as part of Journey Through the Universe that we've decided to play "Name that School". First up, these four teachers sharing lunch with our stuffed planets. The first person to name their school wins a 2020 CFHT calendar!



PISCES @PISCES_Hawaii · Mar 3

Today we visited classrooms at Waiakea Waena and Keaukaha Elementary School for #JourneyThroughTheUniverse week! Our geologist Kyla Edison presented a lunar sensory activity to the 1st & 3rd graders, letting them touch, taste and smell like an astronaut. #DiscoverTogether





Gemini Observatory

Published by Hootsuite [?] · 11 mins · 🌐

...

Tomorrow is the last day for #JourneyThroughTheUniverse classroom visits! We've had so much fun teaching and visiting classes. We wish it never had to end! These two photos feature astronomy educators modeling the distances between planets, and coronagraphs used to search for exoplanets, or planets around other stars. For more information on the Journey program visit: <http://ow.ly/lcOr50yEjJP> #discovertogether #Journey2020



Subaru Coronagraphic Extreme Adaptive Optics

16 hrs · 🌐

...

This week, the whole Hawaii team of SCEAO (including our new postdoc Vincent who started on Monday!) visited a total of 18 classrooms in the Hilo area. This was part of the #JourneyThroughTheUniverse program organized by Gemini Observatory. We had a lot of fun talking about science and astronomy! We also participated in a job fair for more than 1200 middle school students! Outreach is an essential part of our job here in Hawaii. One of them may walk on Mars one day!





Esther Kanehailua @eskaneha · Mar 6

A full week of discovery with @GeminiObs Journey Through the Universe...wonder, observe, question, problem solve, explore 🌍
★ #JourneyThroughTheUniverse #Journey2020 #H14PublicEd @HIDOE808_DRK @HIDOE808



ms. yvonne. @YVOdoubleNE · Mar 7

Pt. 1

It was First grade's turn for Journey Through The Universe!

🌍👩🏫👧 Ms. Callie taught us about telescopes and the sky. Students enjoyed making their own constellations 🌠

@hilounionschool
#HUSRainbows #HUS1stGrade #JourneyThroughTheUniverse



Gemini Observatory @GeminiObs · Mar 6

Mahalo to everyone who has helped to make this year's #JourneyThroughTheUniverse a success! This program would not be possible without our community partnerships, astronomy educators & ambassadors. We hope to see you all again next year! #Journey2020 ow.ly/fopy50yFrVb

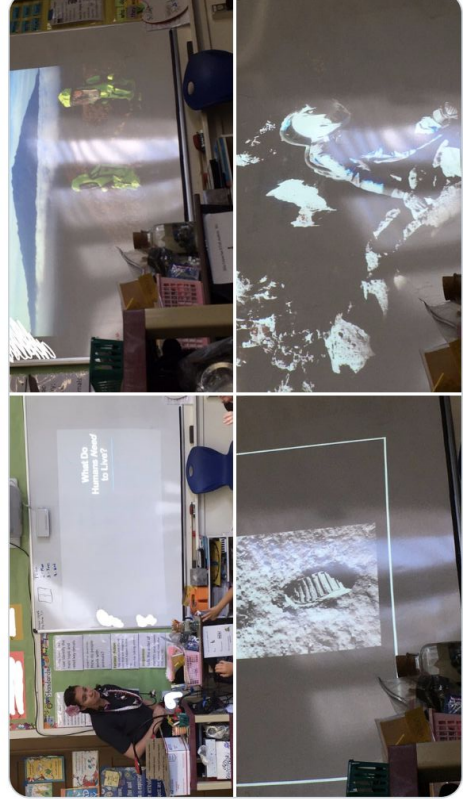


ms. yvonne. @YVOdoubleNE · Mar 7

Pt. 3

Ms. Kyla showed us her experiences as an astronaut and creating tiles for future housing on possible habitable planets! The students got to eat astronaut ice cream!

Mahalo nui to First Grade's JTTU scientists Ms. Callie and Ms. Kyla ✨
#HUSRainbows #HUS1stGrade





Journey Through the Universe Week

February 28 – March 6, 2020

ASTRONOMY EDUCATOR'S RECEPTION, MARCH 2

Journey Through the Universe is possible due to our many community partnerships! The Hawai'i Island Chamber of Commerce and the Japanese Chamber of Commerce and Industry of Hawai'i kicked off the celebration of Journey's 16th year with an astronomy educator's reception at the Hilo Yacht Club. Over 100 people attended including the astronomy community, the Department of Education and the Hawai'i Island business community.



Community Sponsors



Sixteen years... the Journey Continues....

**Journey through the Universe
Hawai'i Island**

Astronomy Educators Reception

Welcome to Journey Week! Meet and greet National Science Team members plus the many astronomers and educators who are delivering this fantastic educational program to our K-12 schools.

Join the business community in thanking them for their commitment to the Journey Through The Universe program.

**Monday, March 2, 2020
5pm to 8pm
Hilo Yacht Club**

**Sponsored by the
Hawai'i Island Chamber of Commerce
and Japanese Chamber of Commerce and Industry of Hawaii**



Program
Master of Ceremonies
Newton Chu
Welcome Remarks



Toby Taniguchi, President-Elect
 Hawaii Island Chamber of Commerce

Donn Mende, President
 Japanese Chamber of Commerce & Industry of Hawaii

Introductions

Janice Harvey
Genie Observatory, Journey Through the Universe Team Leader

Mayor Harry Kim
 County of Hawaii'i

Phyllis Unebasami
 State Dept. of Education Deputy Superintendent

Esther Kanehailua
 Dept. of Education Hilo-Waiakea Complex Area Superintendent

Lars Christensen
 NSF OIR Lab

Jennifer Lotz
 Gemini Observatory, NSF OIR Lab



Mahalo to our
2020 Astronomy Educators

Alexis Ann Acohido	Scot Kleinman	Joy Pollard
Virginia Aragon-Barnes	Shintaro Koshida	Tae-Soo Pyo
Christoph Baranec	Preethi Krishnamoorthy	Odyseus Quarles
Tishanna Ben	Samuel Lai	Kathy Roth Guyon
Vanshree Bhalotia	Mary Beth Laychak	Lourie Rousseau-
André-Nicolas Chené	Lars Lindberg Christensen	Nepton
Christophe Clergeon	sen	Julien Rousselle
Kathy Cooksey		Ananya Sahoo
Iain Coulson		Doug Simons
Callie Crowder		Teague Soderman
Brian Day		Chance Spencer
Jessica Dempsey		Hyewon Suh
Aaron Do		Marianne Takamiya
Jeff Donahue		Ichi Tanaka
Xinnan Du		Alex Tetarenko
'Āhia Dye		Tomo Usuda
Kyla Edison		John Vierra
Jocelyn Ferrara		Sebastien Vievard
Scott Fisher		Matt Wahl
Mimi Fuchs		Andrea Waiters
Tom Geballe		Thomas Winegar
Alyssa Grace		Siyi Xu
Richard Griffiths		Michitoshi Yoshida
Olivier Guyon		
Janice Harvey		
Saeko S. Hayashi		
Stephanie Henry		
Russell Kackley		
Carolyn Kaichi		
Yuko Kakazu		
Jason Kalawe		



Jennifer Lotz	
Julien Lozi	
Nadine Manset	
Jameeka Marshall	
Callie Matulonis	
Peter Michaud	
Joseph Minafra	
Brian Mitchell	
Andrew Neugarten	
Junichi Noumaru	
Harriet Parsons	
Emily Peavy	
Shelly Pelfrey	
Andrea Petric	
Christopher Phillips	



Journey Through the Universe Week

February 28 – March 6, 2020

EXPLORE THE MOON AND MARS, MARCH 4

NASA SSERVI's Brian Day gave a talk at the University of Hawai'i at Hilo about NASA's past, present and future missions to the Moon and Mars. Although a different talk had been scheduled for that night and changed due to last minute travel restrictions of some astronomy educators, Day did an outstanding job of filling his time with informational and funny space stories. At the end of his talk, the audience even touched Lunar and Martian rock samples at the same time!



JOURNEY THROUGH THE UNIVERSE

A NEW DECADE OF

DISCOVERIES IN THE 2020s

UHH STB 108 | 6:00PM – 7:30PM

MARCH
2020

WEDNESDAY

4



EXCITING REVOLUTION AHEAD FOR GROUND-BASED ASTRONOMY

LARS LINDBERG CHRISTENSEN

GEMINI OBSERVATORY/NSF'S OIR LAB
HEAD OF COMMUNICATIONS

NASA'S MOON TO MARS MISSION

BRIAN DAY

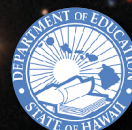
NASA'S SOLAR SYSTEM EXPLORATION RESEARCH VIRTUAL INSTITUTE (SSERVI)
LEAD FOR LUNAR AND PLANETARY MAPPING AND MODELING



NASA'S PLANETARY MISSIONS PROGRAM TO PREVIEW UPCOMING MISSIONS

BRIAN MITCHEL

NASA MARSHALL SPACE FLIGHT CENTER
EDUCATION AND PUBLIC OUTREACH MANAGER FOR NASA'S DISCOVERY/NEW FRONTIERS/LUNAR QUEST PROGRAM OFFICE





Journey Through the Universe Week

February 28 – March 6, 2020

CAREER PANELS AT HILO AND WĀIAKEA HIGH SCHOOLS, MARCH 2 - 4

Grades 9 - 12 at Hilo and Waiakea High Schools received career panels of four to six panelists who showcased the diversity of careers at the Maunakea Observatories. Panelists were astronomers, engineers, human resources, web architects, and more who shared how they got involved in working for the observatories and the path they took to get there (some very winding). Students learned that having a PhD in astronomy isn't a requirement to work at an observatory, and in fact, astronomers only make up around 20% of an observatory's staff.





Journey Through the Universe Week

February 28 – March 6, 2020

CLASSROOM VISITS, MARCH 2 - 6

In just one week, over 70 astronomy educators and 25 community ambassadors shared the wonders of the universe with 7,000 Hawai'i Island students. Students in grades 1 - 8 engaged in hands-on and NGSS based astronomy lessons covering topics like our solar system, black holes, exoplanets, infrared light and more.

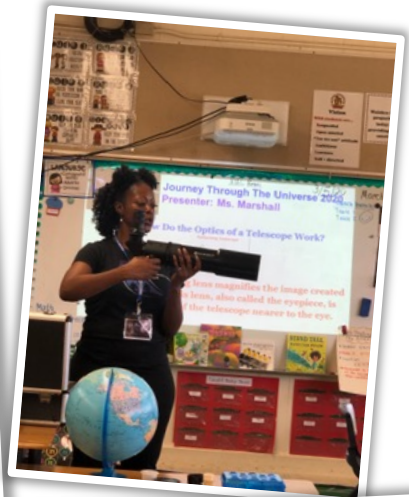


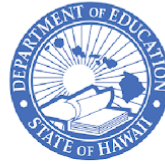


Journey Through the Universe Week

February 28 – March 6, 2020

CLASSROOM VISITS, MARCH 2 - 6





It Takes a Community!
Mahalo to All of Our Project Partners Involved!

Bank of Hawai'i
Basically Books
Big Island Candies
Big Island Toyota
California Institute of Technology
Caltech Submillimeter Observatory
Canada-France-Hawai'i Telescope
Daniel K. Inouye Solar Telescope
DeLuz Chevrolet
Gemini Observatory
Hawai'i Community College
Hawai'i Electric Light Company
Hawai'i Island Chamber of Commerce
Hawai'i Island Economic Development Board
Hawai'i State Department of Education
Hawai'i Science and Technology Museum
Hawai'i Tribune-Herald
'Imiloa Astronomy Center
James Clerk Maxwell Telescope/EAO
Japanese Chamber of Commerce & Industry
KTA Superstores
KWXX Radio Station/New West Broadcasting
Mauna Kea Astronomy Outreach Committee
Mauna Kea Observatories
Mauna Kea Support Services

Mauna Kea Visitor Information Station
NASA Infrared Telescope Facility
NASA Marshall Space Flight Center
National Astronomical Observatory of Japan
National Center for Earth & Space Science
National Optical Astronomy Observatory
National Radio Astronomy Observatory
National Solar Observatory
NSF's National Optical-Infrared Astronomy Research Laboratory
Pacific Science Center
Pacific International Space Center for Exploration Systems
Project Astro/Family Astro
Rotary Club of Hilo Bay
Smithsonian Submillimeter Array
Subaru Telescope
Thirty Meter Telescope
Thirty Meter Telescope - Japan
UH Hilo, College of Pharmacy
UH Hoku Ke'a and 2.2 Meter Telescopes
UH Institute for Astronomy
United Kingdom Infrared Telescope
University of California - Los Angeles
University of Hawai'i at Hilo
University of Hawai'i at Manoa
University of Oregon
Very Long Baseline Array
W.M. Keck Observatory

<http://www.gemini.edu/journey>

Astronomy Educator Profiles



Alexis Ann Acohido

EAO/JCMT

a.achido@eaobservatory.org

Alexis Ann Acohido is a Telescope Systems Specialist at the James Clerk Maxwell Telescope/East Asian Observatory. Prior to this, she was a Media Relations and Local Outreach Assistant at Gemini Observatory. She graduated from the University of Hawai'i at Mānoa in 2015, where she obtained a Bachelor's of Science in Mathematics. She was born and raised on O'ahu and moved to Honoka'a on the Big Island shortly after her college graduation. In 2013 she was part of the Akamai Workforce Initiative program and interned at the Institute for Astronomy on Maui where she worked on parallax ranging methods for point source objects. Her back catalog of video games to play and novels to read are extensive and ever growing.



Virginia Aragon-Barnes

CFHT

a-barnes@cfht.hawaii.edu

Virginia Aragon-Barnes had a passion for science and a natural curiosity about how and why things worked from a very early age. After a few earthquakes and a one-day lesson on volcanoes in a junior high physical science course she was hooked on Geology. She moved to Hawai'i to pursue and successfully obtain a Bachelor's in Geology at the University of Hawai'i at Hilo and is currently pursuing a Master's degree. Since graduation, her career has taken her to workplaces such as the active lava flows of Kilauea, the beautiful summits of Mauna kea and Mauna loa and the lush native forests cared for and protected by our state. Currently, Virginia is the Environmental, Health and Safety Manager for the Canada-France-Hawai'i Telescope. Virginia continues to pursue her personal commitment of inspiring Hawai'i's keiki to become future scientists through educational outreach.



Christoph Baranec
UH Institute for Astronomy
baranec@hawaii.edu

Christoph Baranec is an assistant astronomer at the Institute for Astronomy. He designs, builds and uses adaptive optics systems — instruments that overcome the blurring effects of the Earth's atmosphere. Baranec won an Alfred P. Sloan Research Fellowship in 2014 and the UH Board of Regents' Medal for Excellence in Research in 2017 for leading the development of the world's first automated adaptive optic system, Robo-AO. Observations from this system appear in nearly 40 scientific publications. These include several adaptive optics surveys with the most numerous observations ever performed, including all of the several thousands of Kepler candidate exoplanet hosts and all known stars within 80 light years, observable from the northern hemisphere. Baranec currently leads the effort to deploy an upgraded version of Robo-AO to the University of Hawai'i 2.2-meter telescope which will achieve resolutions approaching that of the Hubble Space Telescope.



Tishanna Ben
National Solar
Observatory/DKIST
tben@nso.edu

Tishanna Bailey Ben is the Hawai'i Community Outreach and Education Programs Leader for the National Solar Observatory (NSO). She graduated from the University of Hawai'i with a Bachelor of Arts (B.A.) in cell and molecular biology and a Master of Science (M.S.) in tropical conservation biology and environmental science. Prior to her position at NSO, she worked as a laboratory technician and graduate researcher with the Research Corporation of the University of Hawai'i (RCUH). She also taught middle and high school science courses at Ka'u High and Pahala Elementary School on the Big Island.



Vanshree Bhalotia
UH Mānoa Physics &
Astronomy
vanshree@hawaii.edu

Vanshree Bhalotia is a Ph.D. student studying "starquakes" at the University of Hawai'i at Mānoa. She is an American Physical Society Bridge fellow and an American Astronomical Society Astronomy Ambassador. Vanshree obtained her Bachelor's degree at UCLA and her Master's at DePaul, and is passionate about helping everyone feel connected to the sky that we share. Vanshree has over 6 years of experience in communicating astronomy to the public at schools, assisted living facilities, colleges, pubs and planetaria. Most recently, Vanshree has started a radio-show and podcast that combines astronomy with art and culture. She interviews artists on the details of their work and discusses its connections to astronomical phenomena. She broadcasts every Monday at 90.1FM in Honolulu, but also uploads recordings through her twitter @stardiscoshow. Along with the radio show, Vanshree uses her astrophysics skills in collaboration with the UH Mānoa Dance dept. and has been involved in the creation of various on-stage performances. When she's not looking for quakes on stars or helping spread wonder, Vanshree enjoys writing poetry and connecting to the 'aina.



Catherine Blough

Catherine Blough thought about becoming a teacher in third grade. Then life happened. After a Bachelor's degree in Criminal Justice, and a stint as a probation officer; a Master's degree in Social Work, a stint doing research with the mentally ill, Cathy graduated with a Master's degree in teaching. Those work experiences were incredible teaching and learning opportunities continuing to add to an eclectic background in non-profit management. Cathy worked in HIV-AIDS organizations as a community organizer and educator, and with the American Civil Liberties Union helping to found a local

**Gemini Observatory/NSF's
OIR Lab**
cblough@gemini.edu

marriage equality chapter doing education and outreach to the Delaware state legislature. Settling in Tucson in 2004, she began working for NOAO. In 2015 she began working in the Gemini Development department doing project support. In 2018, she became the Program Manager for the Gemini in the Era of Multi-Messenger Astronomy (GEMMA) program at Gemini. She enjoys island life, hiking, swimming, gardening, and cruising the farmers markets.



Jerry Brower
**Gemini Observatory/NSF's
OIR Lab**
jbrower@gemini.edu

Jerry Brower is the self proclaimed "Information Systems guy to the stars!" (literally the stars) He has over 30 years in the information technology field, including designing data centers, cyber security, and many industry certifications from Microsoft, Cisco, Comp TIA, SANS, and others. As a security consultant, he performed audits/penetration testing on financial institutions and performed independent security research. When not on the computer at work, he can often be found in such cyber places as Tatoonie, Azeroth, or Jita in The Forge.

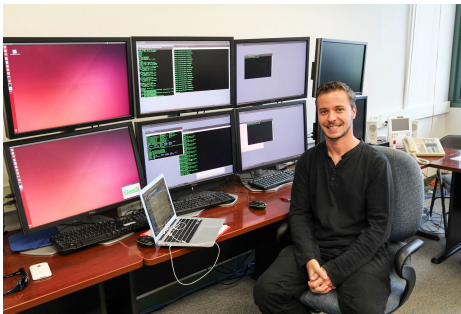


André-Nicholas Chené

André-Nicholas Chené is an assistant scientist at the Gemini North Observatory since early 2013. He obtained his Ph.D. in astrophysics from the Université de Montréal in 2007. He then moved across his home country ("A Mari Usque Ad Mare") to become a research associate for the National Research Council Canada at the Herzberg Institute of Astrophysics from 2007 to 2010. From 2010 to 2013, he held a joint postdoctoral position between the Universidad de Concepcion and the Universidad de Valparaiso, in Chile, and joined the science team of the VISTA Variable in Via Lactea survey.

**Gemini Observatory/NSF's
OIR Lab**
achene@gemini.edu

His main scientific interests are massive stars and young stellar open clusters. His expertise covers optical and near infrared imaging and spectroscopy. Two things he enjoys a lot since he moved to Hawai'i are long observing runs at Mauna Kea, and his daily bike ride to work up and down Puainako St.



Christophe Clergeon
Subaru Telescope
christophe@naoj.org



Devin Chu
University of California Los
Angeles
dchu@astro.ucla.edu

Devin Chu was raised in Hilo, Hawaii and graduated from Hilo High School in 2010. He received his Bachelor's degree from Dartmouth College in Physics and Astronomy in 2014 and Masters of Science in Astronomy from UCLA in 2016. He is currently a graduate student at UCLA working with Professor Andrea Ghez. His research involves studying the orbits of stars around the supermassive black hole at the center of the Milky Way. Devin was a frequent participant in Journey Through the Universe while growing up.

Kathy Cooksey
UHH Physics & Astronomy
kcooksey@hawaii.edu

Kathy Cooksey is an associate professor in astronomy at the University of Hawaii at Hilo. She is passionate about teaching and incorporates the best practices from science-education research in her classroom. She cares deeply about diversity and inclusion in the sciences and does what she can to increase both. She researches the large-scale gaseous structure in the universe to understand how various elements cycle in and out of galaxies, over cosmic time. As for hobbies, she enjoys running and hiking (and crocheting and watching anime, on the sedentary side).



Christine Copes
Gemini Observatory/NSF's
OIR Lab
ccopes@gemini.edu

Christine Copes has been an educator in Hawai'i for over 30 years. She has taught field courses for UCSC, taught on a Navajo reservation, been a math/science resource teacher, and now works part time at Gemini Observatory. She was selected by Gemini as one of the original StarTeachers, who travelled to Chile to participate in a teacher exchange. Many educational and cultural lessons were developed to share with the students from Hawai'i and Chile! She now helps out with the Journey program, bringing Astronomy Educators and Ambassadors to the students in East Hawai'i, to share the wonders of the Universe. When enjoying her semi-retirement, she loves to hike, travel and spend time with family!



Iain Coulson
iain.m.coulson@gmail.com

Until retiring in 2017, **Iain Coulson** had worked for 30 years as a support astronomer at the James Clerk Maxwell Telescope on Mauna Kea. He obtained a PhD from the University of Edinburgh in 1980 working on the cosmic distance scale, and spent 8 years at the South African Astronomical Observatory observing Cepheid variable stars, amongst other things, before relocating to Hawaii. For the past 10 years or so, he has been part of an international collaboration using JCMT and other telescopes studying the chemistry of comets.



Lars L. Christensen
NSF's OIR Lab
lchristensen@aura-astronomy.org

Lars L. Christensen is the Head of Communications, Education & Engagement (CEE) at NSF's National Optical-Infrared Astronomy Research Laboratory. He received a Master's degree in physics and astronomy from the University of Copenhagen, and is an award-winning astronomer and science communicator. He has 200 publications to his credit, most of them in popular science communication and its theory, and has authored and co-authored a dozen popular books. Lars directed more than ten documentaries and planetarium movies that have received critical acclaim around the world. He is a press officer for the International Astronomical Union and received the Tycho Brahe Medal for his achievements in science communication.



Callie Crowder
Canada-France-Hawaii
Telescope
crowder@cfht.hawaii.edu

Callie Crowder is a Remote Observer at the Canada-France-Hawaii Telescope where she controls the observatory on the summit of Maunakea while taking data from Waimea. She moved to Hawaii from Ohio in 2013 to study at the University of Hawaii at Hilo . She graduated in 2017 with her Bachelor's of Science in Astronomy, Bachelor's of Arts in Physics, and a Mathematics minor. While taking classes at UH Hilo she worked on the commissioning of the new UH Hilo 0.7m telescope, Hoku Kea, to be used by the undergraduate students. Her future goal is to become an astronaut.



Sandra Dawson
TMT International
Observatory
sdawson@tmt.org

Sandra Dawson is Manager, Hawai'i Community Relations, for the Thirty Meter Telescope Project. Dawson has a Bachelor of Arts degree in Political Science and a Master's Degree in International Studies from Claremont Graduate University. For 20 years as an employee of the California Institute of Technology (Caltech) she worked at Caltech's Jet Propulsion Laboratory on some of JPL's largest projects for NASA, including the Galileo, Cassini and Mars missions, and received numerous group and individual awards. With her husband, Dwayne, she moved to Hilo six years ago to work on the Thirty Meter Telescope project and has been engaged in many civic, nonprofit, and educational programs.



Brian Day
NASA/SSERVI
brian.h.day@nasa.gov

Brian Day is the Lead for Lunar and Planetary Mapping and Modeling at NASA's Solar System Exploration Research Virtual Institute (SSERVI). He is SSERVI's project manager for NASA's Solar System Treks Project (<http://trek.nasa.gov>), a set of online data visualization and analysis portals designed for mission planning, lunar science, and public outreach. From 2010-2014, Brian served as the Education/Public Outreach Lead for NASA's Lunar Atmosphere and Dust Environment Explorer (LADEE) mission to the Moon, which flew through and studied the Moon's tenuous atmosphere. From 2007-2010 he served as the E/PO Lead for NASA's LCROSS lunar impactor mission which discovered deposits of water ice at the Moon's South Pole. In 2007 he flew on NASA's Aurigid MAC mission to study fragments of Comet Kiess burning up in Earth's upper atmosphere.



Jessica Dempsey
EAO/JCMT

Jessica Dempsey is a proud member of the Breakthrough Prize winning Event Horizon Telescope team which brought the world Powehi, the first image of a black hole, in 2019. Dempsey has a passionate commitment to creating greater diversity and gender equity at all levels of astronomy and to enhancing opportunities for girls to become future leaders in science and technology careers.

Aaron Do

Univ. of Hawaii at Mānoa

ado@hawaii.edu



Jerry Dobek

Northwestern Michigan
College

jdobek@nmc.edu

Jerry Dobek is Professor of Astronomy and Head of the Sciences Department at Northwestern Michigan College. He has been involved in E/PO for more than 30 years and is the Site Co-ordinator for Project ASTRO and Project Family ASTRO in Michigan. Jerry's research interests are in small amplitude red variable stars and dark nebulous material in the Milky Way. In 2011 he republished Edward Emerson Barnard's treatise "A Photographic Atlas of Selected Regions of the Milky Way". Jerry has been a Solar System Ambassador with NASA/JPL since 2002 and is a founding member of the International Dark-Sky Association.



Jeff Donahue

Gemini Observatory/NSF's
OIR Lab

jdonahue@gemini.edu

Jeff Donahue is Senior Laser Technician at Gemini Observatory. He supports the laser guide star, preparing the laser for each laser run. Jeff and his wife came from Oregon, where he spent 17 years at Hewlett Packard. Jeff also worked in Corvallis, Oregon as an electronic and laser maintenance technician supporting Inkjet Manufacturing. Jeff has a B.S. degree in Industrial Technology from Central Washington University and an A.S. degree in Electronic Engineering Technology from Linn Benton Community College. In addition to his laser activities, Jeff enjoys snorkeling and exploring the Big Island.



Xinnan Du
TMT International
Observatory/UC Riverside
xinnan.du@ucr.edu

Xinnan Du is the manager and the outreach director of the NASA MIRO FIELDS (Fellowships and Internships in Extremely Large Data Sets) program at UC Riverside. She got her PhD in astronomy in 2018 from UCLA, and her research focuses on the physical properties of the interstellar and circumgalactic gas in distant star-forming galaxies. Xinnan is very enthusiastic about K-12 STEM outreach and inquiry-based teaching, and she has a long-term career goal in informal science education. Having led multiple departmental and campus-wide outreach programs and developed numerous K-12 and college-level curricula, Xinnan hopes to inspire the younger generation in STEM through authentic, hands-on experience.



Trent Dupuy
Gemini Observatory/NSF's
OIR Lab
tdupuy@gemini.edu

Trent Dupuy is an assistant astronomer at Gemini Observatory in Hilo. He received his PhD in 2010 from the University of Hawai'i at Mānoa. Before moving back to Hawai'i in 2017, he was a research fellow at the Smithsonian Astrophysical Observatory in Boston and at the University of Texas in Austin. Among his main research interests are understanding the formation and evolution of the lowest mass, coldest objects, from brown dwarfs to gas-giant planets. Most of his observations are done from Maunakea, using infrared cameras and laser guide star adaptive optics to study objects that emit almost no visible light. When he's not working on his own projects or helping other astronomers around the world use the Gemini Telescope, he's often enjoying the spectacular array of fresh fish, produce, and beer that can be found on Big Island.



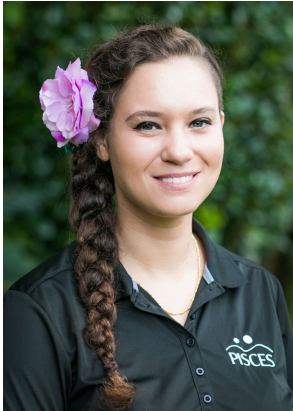
'Āhia Gay Dye
'Imiloa Astronomy Center
adye@hawaii.edu

'Āhia Gay Dye, born and raised in Kailua, O'ahu, who graduated from ASSETS School, Honolulu, holds a Bachelors of Science degree in Astronomy from the University of Hawai'i at Hilo. She currently works full-time as a programmer, technician and operator at the 'Imiloa Astronomy Center of Hawai'i's planetarium.



Angelic Ebbers
Gemini Observatory/NSF's
OIR Lab
aebbers@gemini.edu

Angelic Ebbers is a Senior Software Engineer for Gemini Observatory. She is part of the Software Operations group as well as a Telescope Technical Manager. Angelic specializes in motion control systems, EPICS real-time development, and troubleshooting. Angelic earned a B.Sc. from York University in the Space and Communications Sciences stream, with Honors in Computer Science and Physics, plus a minor in Astronomy. Prior to joining Gemini, Angelic worked for The Herzberg Institute of Astrophysics as well as the University of Toronto Southern Observatory in Chile. Outside of work, Angelic can be found training/competing in Dog Agility, scuba diving, or reading a good science fiction book.



Kyla Edison
Pacific International Space
Center for Exploration
Systems (PISCES)
deforeky@hawaii.edu

Kyla Edison is a 2016 graduate of the University of Hawaii at Hilo Bachelors in Geology program. After graduation and many internships Kyla became the Geology and Material Science Technician for the Pacific International Space Center for Exploration Systems (PISCES), a state funded aerospace company located in Hilo HI. Kyla's current research investigates how to manufacture basaltic rock into construction materials that have Earth bound applications as well as In-Situ Resource Utilization (ISRU) applications that may one day support future colonies on the Moon and Mars.



Jocelyn Ferrara
Gemini Observatory/NSF's
OIR Lab
jferrara@gemini.edu

Jocelyn Ferrara recently joined the Gemini Observatory as a Science Operations Specialist. This native Californian moved to New York City to earn her B.A. in Physics & Astronomy at Barnard College of Columbia University, which she completed in 2014. An observing run at the NASA IRTF during undergraduate studies sparked her interest in working for telescope operations. She then worked at the Space Telescope Science Institute in Baltimore as an operations specialist for the Hubble Space Telescope and as both a test & systems engineer for the upcoming James Webb Space Telescope. As part of the Johns Hopkins Whiting School of Engineering for Professionals, Jocelyn is also working on a masters in space systems engineering, one course at a time. A driving force that keeps her sane and inspired in the field is working to improve diversity and inclusion in the workforce and enabling women & minorities to pursue and thrive in careers in STEM.



Scott Fisher
University of Oregon
rsf@uoregon.edu

Scott Fisher is a faculty member in the University of Oregon Department of Physics where he teaches introductory-level astronomy courses, runs an astronomical observatory, and serves as the Director for Undergraduate Studies. Scott previously worked at the National Science Foundation in Washington, DC where he was responsible for selecting and funding astronomy programs across the United States. Before his time in Washington, Scott was based in Hilo, Hawaii where he worked as a staff scientist of the Gemini Observatory. At Gemini, he worked as an instrument scientist and as a member of the Gemini Outreach team. Scott's main areas of research are searching for and studying planet-forming disks around young stars and more recently, the evolution of galaxy clusters at high redshift. In addition to his love of astronomy, Scott is an amateur photographer and a Geocacher. When he is not observing, he can often be found in Las Vegas, Atlantic City, or anywhere with a nightlife full of bright neon lights, poker cards, and casino chips.



Miriam Fuchs
EAO/JCMT
m.fuchs@eaobservatory.org

Miriam (Mimi) Fuchs is a Telescope Systems Specialist for East Asian Observatory's James Clerk Maxwell Telescope on the Big Island of Hawai'i. She received her B.S. in Astrophysics from Haverford College in 2013. Mimi has worked in both telescope operations and public outreach for the Smithsonian Astrophysical Observatory's Submillimeter Array, as well as in informal science education at The Franklin Institute in Philadelphia and the North Carolina Museum of Science. When she's not on the summit of Mauna Kea, she likes to spend her time singing karaoke with friends and weaving palm frond.



Tom Geballe
Gemini Observatory/NSF's
OIR Lab
tgeballe@gemini.edu

Tom Geballe obtained a PhD in physics in 1974 under Prof. Charles Townes at U.C. Berkeley. Following postdoctoral fellowships at Berkeley and Leiden, and a Carnegie Fellowship at Hale Observatories in Pasadena, he became a staff astronomer at the United Kingdom Infrared Telescope in 1981. He was Astronomer-in-charge, Associate Director, and Head of Operations at UKIRT from 1987 until 1998, when he joined Gemini. Among his research interests are the Galactic center, the late stages of stellar evolution, H3+ as a probe of interstellar gas, the composition of interstellar dust, the surfaces, atmospheres, and aurorae of planets and moons, and brown dwarfs.



Jeff Goldstein
National Center for Earth and
Space Science Education
jeffgoldstein@ncesse.org

Jeff Goldstein is a nationally recognized science educator and planetary scientist who has dedicated his career to the public understanding of science and the joys of learning. As Center Director for the National Center for Earth and Space Science Education, Jeff oversees the creation and delivery of programs that engage entire communities, train 3,000 teachers annually, and emphasize family learning. He led the inter-organization team that permanently installed the Voyage model Solar System on the National Mall in Washington, D.C., in front of the Smithsonian. The Voyage National Program is permanently installing low-cost replicas in 100 communities world-wide. Jeff also oversees the Student Spacelight Experiments Program (SSEP) that provides real research opportunities for pre-college students on the Space Shuttle and International Space Station. Jeff was the Keynote Speaker for the NSTA National Conference in San Francisco, California, in March 2011. Jeff was at the National Air and Space Museum for 8 years, departing in

1996 as acting Chair of the Lab for Astrophysics. He was on the senior staff at Challenger Center from 1996-2005. In 2005 he created the National Center for Earth and Space Science Education. Visit Jeff's website at <http://blogontheuniverse.org>.



Alyssa Grace
Gemini Observatory/NSF's
OIR Lab
agrace@gemini.edu

Alyssa Grace is an Outreach Assistant at Gemini Observatory and graduate of the University of Hawai'i at Hilo (UHH). She has had many different outreach-based roles at Gemini since 2015. Her role now primarily consists of facilitating educational programs (ie. Journey Through the Universe), organizing Gemini's participation in community events (ie. Astro Day), and further engaging all ages of audiences via Gemini press releases, social media, classroom visits, and Starlab planetarium shows. Grace has also worked in astronomy outreach at the 'Imiloa Astronomy Center of Hawai'i, the Maunakea Visitor Information Station and assisted teaching at the Astronomy and Physics Department of UHH. When she isn't learning more about Astronomy, Hawaiian culture or various languages, she's teaching yoga, writing novels, or playing with her cats.



Richard Griffiths

Richard Griffiths has been interested in astronomy since he was about 10 years old, and saved to buy his first telescope a few years later. He obtained his B.Sc. in Physics from Imperial College of Science and Technology, University of London, and his Ph.D. in experimental space astrophysics (X-ray astronomy) from the University of Leicester, UK. He came to the USA in 1976, when he worked as an astrophysicist at the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA, before moving to the Space Telescope Science Institute and Johns Hopkins University in Baltimore. He was Instrument Scientist for the Wide

**UH Hilo Physics and
Astronomy Dept.**
griff2@hawaii.edu

Field and Planetary Cameras on the Hubble, and was also Mission Scientist for the European X-ray Observatory XMM-Newton. He was a Co-Investigator for the charge-coupled device camera on the Chandra X-ray Observatory. Prof. Griffiths became a full professor at Carnegie Mellon University in Pittsburgh where he taught introductory and postgraduate courses in astronomy and astrophysics. He served for five years at NASA Headquarters in Washington DC before retiring from CMU and becoming Emeritus Professor there. Prof. Griffiths is an affiliate professor in the UH Hilo Physics and Astronomy Dept. His research is in deep surveys, specialising in the cosmic evolution of massive black holes and galaxies. He enjoys running, swimming and he speaks French and some Welsh.



Olivier Guyon
Subaru Telescope
oliv.guyon@gmail.com

Olivier Guyon is an astronomer at the Subaru Telescope. He started looking at stars from the age of 10, and he is now both an avid amateur astronomer and a professional astronomer. Olivier graduated from University of Paris 6 in 2002 (Ph.D. research topic: wide field interferometry), and now works with other scientists to directly observe exoplanets. Olivier has been developing new techniques for imaging exoplanets (planets around other stars) from telescopes on Earth and also future telescopes in space. With these new techniques, astronomers will soon be able to observe planets like ours and start to find out if there is life elsewhere in the Universe. In 2007, Olivier received a Presidential Early Career for Scientists and Engineers award from President Bush at the White House. Olivier received in 2012 the MacArthur fellowship (nicknamed the "Genius grant") for his innovative work in astronomical optics. In his spare

time, he builds telescopes which he then uses to observe from the clear skies of Mauna Kea and Mauna Loa.



John Hamilton
UHH Physics & Astronomy
jch@hawaii.edu

John Hamilton is currently based at the University of Hawai'i at Hilo. An astronomer by trade, he has been associated with space exploration since 1972 with the Skylab missions, spent most of his career supporting astronomical observations at multiple observatories in Hawai'i on Haleakala and Mauna Kea and also in Chile. He has most recently managed the first two International ISRU analog field tests in Hawai'i in 2008 and 2010 and the 2012 deployment. John teaches undergraduates in Physics and Astronomy courses at UH Hilo. He also serves as co-founder and chief scientist for a local high-tech R&D company Akeakamai Enterprises LLC.



Janice Harvey
Gemini Observatory/NSF's
OIR Lab
jharvey@gemini.edu

Janice Harvey is the Community Outreach and Education Programs Leader at Gemini Observatory and serves as the director of the nationally recognized Journey through the Universe Program on the Big Island. Janice is also the National Team Site Leader for the Family Astro/Project Astro program in Hawaii and serves as the StarLab Portable Planetarium instructor and trainer. In 2010 she was awarded the *Outstanding Individual in Business* award by the Rotary Club of Hilo. She is a member of the Astronomical Society of the Pacific, the International Planetarium Society, and the National Science Teachers Association. Janice has a BS in mathematics and went back for her associate degree in astronomy in 2000 at UHH. She has lived on the Big Island for 46 years and has worked as the Mayor's Executive Assistant, owned and operated Sylvan Learning Centers and three travel agencies in Hawaii.

Janice's passion is bringing science and astronomy into the local classrooms.



Saeko Hayashi
TMT Japan Project/Subaru
Telescope
saeko@naoj.org

Saeko S. Hayashi grew up in Tohoku, a northeastern rural part of Japan, where she spent part of her childhood in Fukushima. After graduating from a local high school, she boldly went on to attend the University of Tokyo as one of the few women undergraduates in STEM majors. She obtained Ph. D. in astronomy by studying mm-wave emission lines from the star forming regions using the 45-m radio telescope in Nobeyama, Japan. After receiving her doctorate, she worked at the 15-m James Clerk Maxwell Telescope in Hawai'i and then joined the 8.3-m Subaru Telescope project. She moved back to Hawai'i to wait for the primary mirror's arrival, then ensured good coating of the telescope optics, started and managed the day crew group work and later the Public Information and Outreach Office. She hopes to take part in search of the Earth-like exoplanets that have ocean and vegetation. She says, "Subaru Telescope is blessed with the people from the local community as well as from all over the world working together [as ancient Japanese word "Subaru" stands for, that is "come together" or "gather"]." After being in Hilo for almost two decades, Saeko joined yet another telescope project and currently based in Pasadena, California.



Stephanie W. Henry
NASA Marshall Space Flight
Center
stephanie.w.henry@nasa.gov

Stephanie W. Henry serves as a Communications Strategist with Arctic Slope Regional Corporation, Inc. in Huntsville, AL. Stephanie's duties include external communications for the Planetary Missions Program at NASA's Marshall Space Flight Center. Stephanie assists in developing communication products and materials for the programs. She visits schools, museums, and community organizations to excite students and teachers about NASA's mission and encourages the students to study science, technology, engineering, and math. Stephanie is a graduate of the University of North Alabama where she received a Bachelor of Arts degree in Spanish/Political Science and a Master of Arts in Community Counseling. Stephanie also attended Belmont University in Nashville, TN where she earned her teacher certification for kindergarten through eighth grade. Before joining ASRC, Stephanie's experience includes work in a variety of educational arenas. Stephanie spent seven years working in Student Affairs at different universities and seven years teaching in the classroom, formal and informal instruction. Stephanie is a native of Tupelo, MS and has lived in the Huntsville, AL area for the past 13 years. She is married and has a 20-year-old stepson. Stephanie enjoys traveling, shopping, and spending time with her family in her spare time.



Russell Kackley
Subaru Telescope
rkackley@naoj.org

Russell Kackley holds a Bachelor of Science in Mechanical Engineering from Wayne State University and a Master of Science in Mechanical Engineering from Stanford University. He worked for 16 years on spacecraft design and analysis at Lockheed-Martin before moving to Hawai'i. Here in Hilo, he worked for 11 years at the Joint Astronomy Centre and was responsible for the Telescope Control System software. Since April 2011, he has been working at the Subaru Telescope in the Observation Control Software group. He has mentored several school robotics teams and serves as a judge at robotics competitions.



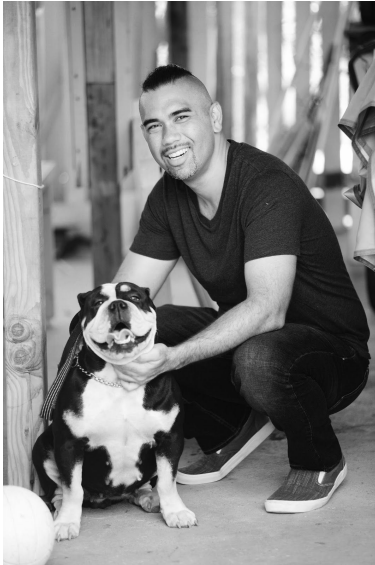
Carolyn Kaichi
UH Institute for Astronomy
kaichic@ifa.hawaii.edu

Carolyn Kaichi is the Education/Outreach Specialist for IfA-Hilo. She has always been fascinated by astronomy, and with a background in news media, it was a perfect fit for her to pursue a career in communicating her love of astronomy and space science. Carolyn was born and educated in Hawai'i and enjoys working with students and the public. "It is incredibly exciting to see peoples' eyes light up with wonder when you share the excitement of the Universe with them", she says. Prior positions include: Imaginarium Manager for the Center for Aerospace Studies at Windward Community College, Hawaii State Science Fair Director and Planetarium Manager for Bishop Museum. Carolyn enjoys astronomical observing, travel and has practiced yoga for many years.



Yuko Kakazu
TMT Japan Project/Subaru
Telescope
kakazu@naoj.org

Yuko Kakazu joined the Subaru Telescope as an outreach specialist in 2013. A native Okinawan, she began her journey into astronomy when she attended the NASA U.S. Space Camp program at age 13. Yuko graduated from Tohoku University in Japan and then obtained her Ph.D. at the Institute for Astronomy, University of Hawai'i at Manoa. Since then she has worked as a researcher in Paris, France (Institut d'Astrophysique de Paris), California (California Institute of Technology), and Chicago (University of Chicago). Her research focuses on metal poor galaxies and distant galaxies with the aim of improving our understanding of galaxy formation and chemical enrichment history of the Universe. At Subaru, Yuko arranges and conducts public outreach events and lectures for the local and the international communities, including Japanese audiences. She is hoping to help fill the gap between scientists and the public and wants to encourage young people, especially women and minorities, to engage in science and technology. When Yuko is not talking about astronomy or playing with her baby galaxies, she enjoys dancing Argentine tango, cooking (as well as eating), listening to piano jazz and classical music, and taking yoga or Zumba class at the gym. She is a certified Zumba fitness instructor.



Jason Kalawe
Gemini Observatory/ NSF's
OIR Lab
jkalawe@gemini.edu



Scot Kleinman
Gemini Observatory/ NSF's
OIR Lab
skleinman@gemini.edu

Scot (there was a shortage of "t"s when he was born) **Kleinman** is the Associate Director of Development at Gemini North. He helps developing and bringing to fruition the next generation of Gemini instruments. He joined Gemini from the Subaru Telescope where he served as the Instrument Division Chief. Prior, he served as the Site Science Manager/Deputy Head of Survey Operations for the Sloan Digital Sky Survey. He has been the Associate Director of the Whole Earth Telescope and still sits on its board. Scot received his Ph.D. from the University of Texas in 1995. He studies various aspects of white dwarf stars, the longest lived (and final) stage of most stars in the Universe. Scot also works with data from large astronomical surveys which are ushering in a new era of observational astronomy. When not working (when is that?), Scot likes surfing, live music, and maintaining/modifying his car.



Shintaro Koshida
Subaru Telescope
koshida@naoj.org

Shintaro Koshida is a support astronomer at Subaru telescope since September 2014 and working on supports for observations using a wide field-of-view camera for taking images in visible light, "Hyper Suprime Cam (HSC)". He is originally from Japan and have been interested in looking up night skies and watching the celestial objects since his childhood, which led to his Master's degree and PhD in astronomy at the University of Tokyo. Meanwhile studying about structures around super massive black holes at centers of galaxies, he has been interested in actual operations of telescopes and instruments for astronomy. He has worked for the telescopes at Maui (MAGNUM telescope), Chile (miniTAO telescope at Atacama Desert, Santa Martina observatory of Pontificia Universidad de Catolica de Chile), and the Big Island (Subaru). He is enjoying very much not only a great quality of HSC data, but also great people, natures and cultures in the islands of Hawaii.



Preethi Krishnamoorthy
Subaru Telescope
preethi524@gmail.com

Preethi completed her PhD in Astrophysics from India and had worked on the topic 'Interstellar Medium' for her thesis. She is now employed as a postdoctoral scholar at the Subaru Telescope. Her current research is in Project PANOPTES, which is a citizen science project to build and operate robotic telescopes to find transiting exoplanets.



Samuel Lai

**Gemini Observatory / NSF's
OIR Lab**

samuel.lai.18@alumni.ucl.ac.uk

Samuel Lai recently joined the white dwarf group at Gemini Observatory as a short-term research scholar. He grew up in Hong Kong, then traveled to the United States to study astrophysics. Samuel received his bachelor's degree in astrophysics from University of California, Los Angeles (UCLA) and his master's degree in astrophysics from University College London (UCL). His research revolves around accreting compact objects, such as contaminated white dwarfs and synchrotron emission from the vicinity of supermassive black holes. Outside of astronomy, Samuel enjoys playing tennis, biking, and hiking.



Mary Beth Laychak

**Canada-France-Hawaii
Telescope**

mary@cfht.hawaii.edu

Mary Beth Laychak is the outreach program manager at the Canada-France-Hawaii Telescope, her second time working at CFHT. Previously, Mary Beth was one of CFHT's service observers and outreach coordinator before moving to Oahu. On Oahu, she worked as the manager at the Imaginarium planetarium and astronomy lecturer at Windward Community College. Mary Beth has a BA in astronomy and astrophysics from Penn State University as well as a MA in Education from San Diego State.



Jennifer Lotz
Gemini Observatory/ NSF's
OIR Lab

Dr. Lotz received her PhD in astrophysics from Johns Hopkins University in 2003. Prior to her appointment at Gemini, she held a tenured associate astronomer position at STScI and a joint appointment as a research scientist at Johns Hopkins University. Previously, she was a Leo Goldberg Fellow at the National Optical Astronomy Observatory, and a postdoctoral fellow at U.C. Santa Cruz. She is a leading expert in the field of galaxy mergers, and makes use of both ground-based and space telescopes to track the growth of galaxies over cosmic time.



Julien Lozi
Subaru Telescope
lozi@naoj.org

Julien Lozi is a senior optical scientist at Subaru Telescope, National Astronomical Observatory of Japan. Born in France in 1985, he was introduced to astronomy at the age of 10 and has been avidly pursuing this subject ever since. A 6-month internship at Subaru Telescope in 2008 first introduced him to Hawai'i, before he went back to France to study for his PhD in instrumentation for Astronomy. After earning his doctorate from Université Paris-Sud XI in 2012, Lozi worked in Silicon Valley for two years at the NASA Ames Research Center, to work on space telescopes that can look at extrasolar environments. In 2014, he returned to Hilo to accept his "dream job" at Subaru Telescope, where he is currently working on SCEXAO, a first generation high contrast imaging instrument dedicated to the direct observation and characterization of exoplanets.



Nadine Manset
Canada-France-Hawaii
Telescope
manset@cfht.hawaii.edu

Nadine Manset has been a resident astronomer at CFHT since 1999, right after finishing her PhD thesis at Universite de Montreal. Over the years, she has helped astronomers observe in classical mode at CFHT, with spectrographs and imagers. Now in charge of the Queued Service Observing mode, she prepares observations for CFHT's spectropolarimeter and oversees the nightly observations taken with the various instruments. In addition to chairing the Maunakea Astronomy Outreach Committee, Nadine participates to public outreach events a few times every year.



Jameeka Marshall
Gemini Observatory/NSF's
OIR Lab
jmarshall@gemini.edu



Callie Matulonis

EAO/JCMT

c.matulonis@eaobservatory.org

Callie Matulonis is currently a Telescope System Specialist at the James Clerk Maxwell Telescope. Callie graduated from the University of Hawai'i at Manoa in the Spring of 2012 with a Master's degree in Educational Technology. Callie has worked for several Mauna Kea observatories over the past ten years fulfilling a variety of positions including public outreach, laser operations, and telescope operations.



Peter Michaud

Gemini Observatory/NSF's
OIR Lab

pmichaud@gemini.edu

Peter D. Michaud, Gemini's Public Information and Outreach Manager, has pursued a career that has provided a broad set of experiences in education, media relations and photography. These have ranged from the initiation and management of many informal science education programs to the authoring of a monthly newspaper column on astronomy. Prior to moving to Honolulu in 1989 to manage the Bishop Museum Planetarium, Peter obtained his Bachelor's Degree in Atmospheric Physics and certification in Physical Science Education in 1985. This led to his selection for the highly competitive annual planetarium education internship at the Strasenburg Planetarium in Rochester N.Y. in 1985 - 86. During almost a decade at the Bishop Museum Planetarium, Peter worked closely with local educators as well as the Mauna Kea astronomical community and initiated many new projects that included a NASA-funded project to produce a nationally distributed planetarium program about Mauna Kea. In June 1998, Peter accepted his current position at the Gemini

Observatory in Hilo. Since arriving here, Peter has been involved in a variety of projects that have included the management of multiple outreach, education and media relations initiatives. An example of the innovative products produced by his office is the Gemini Observatory Virtual Tour CD-ROM/Kiosk which is currently being translated into multiple languages and has been installed in a variety of public facilities around the world.



Joseph Minafra
NASA/SSERVI
joseph.minafra@nasa.gov

At the NASA Ames Research Center, **Joseph Minafra** serves as Lead of Technical Systems and Collaborative Technology Specialist for the NASA Solar System Exploration Research Virtual Institute (SSERVI). Joe has an extremely diverse background that ranges from Meteoritic studies, biology, project management, software development including web design, collaborative technology development to Scientific Illustration and graphic design, even a few years as a professional Chef. With his varied background, Joe has been responsible for a broad set of technical tasks for the NASA Ames Center Director as well as the Space and BioSciences Divisions, Astro and Synthetic Biology workshops just to name a few. Currently, his work is to oversee technology innovation and Robotics education initiatives in order to enable collaboration and communication between competitively selected science and research teams across not only the United States but internationally as well. Joe has a long history of integrating government work with commercial enterprises and bringing that message to the public through the education and public outreach sectors. He is excited to share his NASA experiences with the Journey through the Universe communities! Ad Astra!



Brian Mitchell
NASA Marshall Space Flight
Center
brian.k.mitchell-1@nasa.gov

Brian Mitchell is the Education and Public Outreach manager for NASA's Discovery/New Frontiers/Lunar Quest Program Office. He has more than 25 years at the Marshall Space Flight Center located in Huntsville, Alabama and has worked on various Space Shuttle payload missions including ASTRO, ATLAS, and Spacelab, as well as several experiments for the International Space Station. He has been the Program Office Education and Outreach lead during the LRO, LCROSS, LADEE, JUNO, GRAIL, and IML missions to our Moon, Jupiter and Mars. Future missions in his Office include the asteroid sample return mission OSIRIS-REx, INSIGHT seismic mission to Mars, and the New Horizon spacecraft nearing Pluto now. Brian is tasked with communicating Planetary Missions Program Office (Discovery, New Frontiers, and Solar System Exploration programs) science goals and objectives to the public in order to promote STEM participation and inspire the general public by using new and existing opportunities. He spends much of his time speaking in classrooms and public venues, as well as designing innovative interactive exhibits that travel the country. When not talking about space, Brian keeps his 1965 Ford tractor alive, competes in shooting events, and occasionally gets to swing a golf club with his two teenagers.



Junichi Noumaru
Subaru Telescope
noumaru@naoj.org

Junichi Noumaru is the Associate Professor, Subaru Telescope, National Astronomical Observatory of Japan. He was born in Japan, graduated from Kyoto University, Japan and earned Ph.D in Astronomy. Junichi studied optical property of young stellar object such as emission nebulae and Herbig-Haro objects. He also joined instrumentation such as prototyping fiber-fed multi-object spectrograph and control system of the telescope. At National Astronomical Observatory of Japan in Tokyo, he joined the team to design control system and instrument interface of Subaru Telescope. He moved to Hilo in 1996 for Subaru Telescope Project and oversaw progress of construction of Subaru Telescope. After the first light of the telescope, he was in charge of operator's group and Instrument Division. Currently he is the division chief of Computer and Data Management Division and the Safety Officer of Subaru Telescope.



Harriet Parsons
EAO/JCMT
h.parsons@eaobservatory.org

Harriet Parsons is the Senior Support Astronomer for the James Clerk Maxwell Telescope (JCMT). Her day-to-day job varies widely. She assists visiting astronomers obtain high quality astronomical data. She assists in monitoring instrument performance, and is the acting head of operations. When she has time, her research focuses on cold dense clouds (made of gas and dust) within our own Milky Way galaxy looking at where massive stars may be forming. These stars are more than eight times the mass of our sun and end violently in supernovae; however the way they form is shrouded in mystery (well, OK, dust!). Using the JCMT astronomers can “see” through the dust helping to unlock the secrets of these clouds. Away from astronomy she enjoys

paddling with Puna Canoe Club, hiking and spending time with her hanai nieces and nephews.



Emily Peavy
‘Imiloa Astronomy Center
Emily.Peavy@hawaii.edu

Emily Peavy is a graduate of UH Hilo’s Astronomy program and a full time Planetarium Support Facilitator and Technician at ‘Imiloa Astronomy center; where she worked as a student employee since January 2012. Emily also enjoys volunteering at the Maunakea Visitor Information center whenever she gets some free time. Emily plans on going into the outreach and education side of astronomy but is still intrigued and excited by much of the research that is occurring in the field.



Shelly Pelfrey
W.M. Keck Observatory



Andreea Petric

Andreea Petric is the Institute for Astronomy's, UH resident astronomer at CFHT. She has received her PhD from Columbia University with a thesis on X-ray scattering halos and was a postdoctoral fellow at Caltech working on IR and millimeter observations of interacting galaxies and galaxies hosting growing supermassive black holes. Her current research focuses on optical and near-IR observations of the impact growing black holes

IfA/Canada-France-Hawaii
Telescope
petric@cfht.hawaii.edu

have on the interstellar medium of their host galaxies and the fate of molecular gas in merging galaxies. She has been a mentor for the Maunakea scholars program since its inception. A. Petric taught Galaxies and Cosmology, Quantum Mechanics at UH Hilo, and is currently teaching a seminar on the Co-evolution of Supermassive Black Holes and Host Galaxies at UH Manoa. She also makes regular classroom visits both on the Big Island and Oahu.



Joy Pollard
Gemini Observatory/ NSF's
OIR Lab



Tae-Soo Pyo
Subaru Telescope
pyo@naoj.org

Tae-Soo Pyo is an Assistant Professor at the Subaru Telescope. His research focuses on star and planet formation, especially outflows and jets from young stellar objects. He has been working at Subaru Telescope since 2000 December. He was a Support Astronomer engaging in management and night support of InfraRed Camera and Spectrograph (IRCS) and Adaptive optics system (AO188) and other instruments. He got Bachelor and Master degrees in Astronomy from Seoul National University at Seoul in South Korea in 1992 and a PhD in Astronomy from the University of Tokyo at

Tokyo in Japan in 2003. Tae-Soo loves Ukulele and various music including heavy metal and reading books.



Odysseus Quarles
Gemini Observatory/NSF's
OIR Lab
oquarles@gemini.edu

Odysseus Quarles is a science communication intern interested in bringing the excitement and importance of astronomy to the broadest possible audience. He has a degree in astronomy from the University of Colorado, Boulder, with a minor in philosophy, and brings extensive experience sharing his enthusiasm for space science with all ages of astronomy fans.

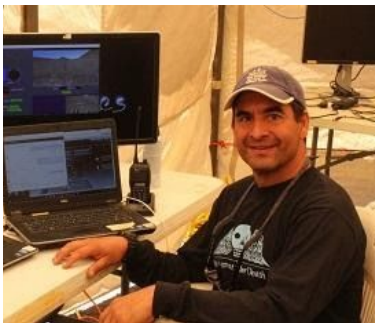
Lucio Ramos
Subaru Telescope
lucio@naoj.org

Bo Reipurth graduated from the University of Copenhagen in Denmark. After spending some years as a postdoc there, he took up a position as staff astronomer with the European Southern Observatory in Chile for 11 years. Subsequently, he worked at CASA in Colorado as a Research Professor, and later joined the Institute for Astronomy at the University of Hawaii in Manoa in order to pursue studies of star and planet formation. "One of my first astronomical experiences as a small kid was to see the craters of the Moon and the rings of Saturn through the telescope at the public observatory on top of the Round Tower in Copenhagen. After that I was never in doubt that I had to become an astronomer.

Bo Reipurth

UH Institute for Astronomy
reipurth@ifa.hawaii.edu

Conditions in Copenhagen were already in those days not ideal for looking at the night sky, but instead I spent innumerable hours with my small telescope drawing sunspots as they crossed the Sun. I took out a subscription to Sky and Telescope, which I then painstakingly read through with the help of a dictionary. One day I read an article about small mysterious blobs called Herbig-Haro objects which might be signposts of stars in the making. I was completely captivated by the possibility that we might actually be able to see stars in the process of being born, and I have spent most of my professional career trying to learn about how stars are formed."



Rodrigo Romo
**Pacific International Space
Center for Exploration
Systems (PISCES)**
rfvromo@gmail.com

Rodrigo Romo is the Director at the Pacific International Space Center for Exploration Systems (PISCES). Besides overseeing PISCES' operations, he has been directly involved with the development of PISCES' planetary exploration rover. Other areas in which he has been involved includes robotic construction and utilization of Hawaiian Basalt as a source for ISRU manufacturing. Romo began his career near Tucson, Arizona at Biosphere II - the largest fully enclosed facility dedicated to researching climate change, ecosystem interactions, and space colonization during its time. From 1992 through 1997, he held several key positions including being a crewmember of the second manned mission overseeing instrumentation and air monitoring systems, as well as working in research and engineering departments. He is originally from Guadalajara, Mexico and earned his undergraduate degree in Chemical Engineering from ITESO University in 1992. He later obtained his Master's degree in Business Administration from the University of Arizona.



Laurie Rousseau-Nepton
Canada-France-Hawaii
Telescope
r-nepton@cfht.hawaii.edu

Laurie Rousseau-Nepton obtained her PhD in Astronomy in 2017. She received the FRQNT fellowship the same year to conduct research at the University of Hawaii in Hilo. Originally from Quebec, she is the first Woman from the First Nation of Canada to get a PhD in Astronomy. She is currently working as a support Astronomer at the Canada-France-Hawaii Telescope. Her research focus is on resolved star-formation in nearby galaxies, massive stars and ionized gas properties. Aside from work, she likes hunting, paddling, hiking, and running!



Julien Rousselle
Subaru Telescope
jpr@naoj.org

Julien Rousselle is an instrument engineer at the Subaru Telescope, National Astronomical Observatory of Japan. He earned a Master degree in Astrophysics and space sciences and later a Ph.D in Astrophysics and instrumentation from the University of Toulouse, France. He went on to work for 6 years in the Very-High Energy Astrophysics lab at UCLA in California to develop a new kind of Cherenkov telescope, and build a first prototype at the Fred Lawrence Whipple Observatory in Arizona. In 2017 Julien Rousselle moved to Hawaii with his family to work on Subaru's new major instrument; the Prime Focus Spectrograph, which is currently being installed on the telescope.



Ananya Sahoo
Subaru Telescope
jpr@naoj.org



Doug Simons
Canada-France-Hawaii
Telescope
simons@cfht.hawaii.edu

Doug Simons received his Bachelor of Science degree in Astronomy at the California Institute of Technology in 1985, and his Ph.D. in Astronomy at the University of Hawai'i in 1990, before working as a staff astronomer at the Canada-France-Hawai'i Telescope (CFHT) for 4 years. Doug joined the Gemini 8 m. Telescope Project in 1994 as the Systems Scientist, then as the Associate Director for Development managed Gemini's instrumentation program for many years before becoming Gemini Observatory's Director from 2006-2011. Doug returned to CFHT in 2012 where he has been serving as Executive Director. Doug serves on the Maunakea Management Board, as well as the Boards of the Hawai'i Island Chamber of Commerce, Kona Kohala Chamber of Commerce and the Pacific Center for Advanced Technology Training. He is an avid supporter of education and community outreach and has helped develop a number of programs including EnVision

Maunakea, Maunakea Fund, Maunakea Scholars, and A Hua He Inoa.



Chance Spencer
Gemini Observatory/NSF's
OIR Lab
cspencer@gemini.edu

Chance Spencer is currently an intern for the GEMMA project at Gemini Observatory in Hawai'i. He graduated in June 2019 from California Polytechnic State University in San Luis Obispo with a B.S. in Physics and a minor in Astronomy. In January 2016, he became a certified remote observer for Lick Observatory's 1m Nickel Telescope. Chance then helped lead Cal Poly's remote observing team for the Seoul AGN Monitoring Project (SAMP) which contributed data towards a reverberation mapping campaign. He also spent three years working at the Cal Poly Observatory both delivering weekly star talks as well as being the telescope tech for observational research. Chance is now working at Gemini Observatory North helping to define and popularize Multi Messenger and Time Domain Astronomy to both the science community and the public while enjoying the amazing opportunities and networking that the internship offers in science communication. After his internship, he hopes to continue down a path of communicating astronomy to the public and is planning on attending grad school in the Fall of 2020.



Gordon Squires
Thirty Meter Telescope
squires@tmt.org

Gordon K. Squires is an astronomer at the California Institute of Technology, working with the Thirty Meter Telescopes as well as NASA's Spitzer Space Telescope, the Herschel Space Observatory, the Galaxy Evolution Explorer and other space telescopes with Caltech involvement. His research explores the old, cold and distant universe, understanding how galaxies formed billions of years ago, and the nature of the dark matter and dark energy that fills space.



Hyewon Suh
Subaru Telescope
suh@naoj.org

Hyewon Suh is a Subaru fellow at the Subaru Telescope. She completed her Ph.D from the Institute for Astronomy at University of Hawai'i at Manoa. Her research mainly focuses on, but not limited to, the most energetic and obscured phase of accreting black holes to prove the crucial observational constraints on a missing-link phase in the early universe.



Marianne Takamiya
UHH Physics & Astronomy
takamiya@hawaii.edu

Marianne Takamiya is associate professor of Astronomy at UH Hilo where she teaches General Physics, General Astronomy, and Stellar Astronomy. Dr. Takamiya obtained her B.Sc. in Physics and M.Sc. in Astronomy from the Universidad de Chile and her M.Sc. and Ph.D. in Astronomy and Astrophysics from the University of Chicago.



Ichi Tanaka
Subaru Telescope
ichi@naoj.org

Ichi Tanaka is a Japanese astronomer working at Subaru Telescope. He was born and raised in Niigata Prefecture, Japan. The beautiful night sky in his hometown has made him a big fan of stars and constellations since his elementary school days. But the TV series "COSMOS" by Carl Sagan, as well as the astronomy books by Akira Fujii, has fixed Ichi's strong interest in Science and Astronomy. After getting his Bachelor's degree from the Niigata University, Ichi enjoyed teaching at a public high school as a full-time Science teacher. Then his passion for astronomy led him to move to the graduate school of science, Tohoku University, where he got his PhD in Astronomy in 2000. He moved to Hawaii in 2005 as a support astronomer. Ichi's scientific interest is in the beauty of galaxies in the universe. His current field of study is in how galaxies grow in their surrounding environments, such as groups and clusters of galaxies, in the young universe. In Hawaii, Ichi lives in Hilo with his wife and 3 kids. In his off-time he enjoys classical music as well as the great nature of Hawaii.



Alex Tetarenko
EAO/JCMT

Alex Tetarenko is currently an EAO postdoctoral fellow at the East Asian Observatory. She completed her MSc and PhD at the University of Alberta in Edmonton, Alberta, Canada. Her research focuses on studying relativistic jets launched from black hole systems in our Galaxy. When she is not doing science, Alex is an avid runner and like all good Canadians loves hockey.

a.tetarenko@eaobservatory.org



Tomonori Usuda
TMT Japan Project
usuda@naoj.org

Tomo Usuda earned his PhD in Astronomy at the University of Tokyo in 1997. He is an Optical-Infrared astronomer at NAOJ (National Astronomical Observatory of Japan) currently leading TMT (Thirty Meter Telescope) project as the director of TMT-Japan project. Previously, he was the associate director of Subaru Telescope from 2006 to 2013. His research interests are telescope & science instruments and spectroscopic studies of interstellar medium and star/planet formations.



John Vierra
Gemini Observatory/NSF's
OIR Lab
jvierra@gemini.edu

John Vierra was born and raised in Hilo and graduated from Hilo High School. He joined the United States Air Force after graduation and spent the next 10 years in the US Air Force as a firefighter, earning a degree in Fire Science. He left the Airforce in 1992 to move back home and be close to his family. Upon returning to Hilo he was hired as a firefighter at Pohakuloa Federal Fire Department. He spent 22 years with the Federal Fire Department retiring as an Assistant Fire Chief. During his time at the Fire Department he also worked as a Flight Medic/Rescue Specialist with Priority 1 Air Rescue simultaneously teaching Emergency Medical Responder classes around the island. He has been a CPR instructor since 1989. Since 2008 he has worked with Gemini as a Safety Trainer. In November 2014 he starting working full-time as Gemini's Safety Manager and ensures the Safety of all Gemini employees at the telescope and base facilities in Hawaii and Chile.



Sebastien Vievard
Subaru Telescope
vievard@naoj.org

Matt Wahl
Subaru Telescope
wahl@naoj.org



Andrea Waiters
UH-HiloPhysics & Astronomy
awaiters@hawaii.edu

Andrea Waiters is a senior at the University of Hawaii at Hilo pursuing her BA in Physics and BS in Astronomy, and is also the current President of the University Astrophysics Club. She is passionate about planetary science, and hopes to pursue solar system research in graduate school. Andrea enjoys volunteering with younger students, and believes it is important to talk to students about STEM careers and expose them to the possibilities they could pursue in the future.



Tom Winegar
Subaru Telescope
winegar@naoj.org

Tom Winegar works as the archive administrator for the pictures of the Subaru Telescope in Hilo, Hawaii. After graduating from UC Berkeley in 1982, Tom has worked as a database programmer and administrator for 30 years - the last 17 at the Subaru developing web-based query and archive software used by astronomers to retrieve observation data from an international-mirrored 100TB archive. In his spare time, he submerges himself in the ocean and mows.



Siyi Xu
Gemini Observatory/NSF's
OIR Lab
sxu@gemini.edu

Siyi Xu joined Gemini Observatory in 2017 as an assistant astronomer. She is mostly interested in the end stage of planetary systems. Siyi grew up in Kunshan, a beautiful town of one million people in the east coast of China. She received a bachelor's degree in Astronomy from Nanjing University before moving across the pond to pursue a PhD in astronomy at the University of California, Los Angeles (UCLA). After that, she worked for the European Southern Observatory (ESO) in Germany for three years, before joining the Gemini family. Siyi enjoys all kinds of outdoor activities when she is not looking at the stars.



Michitoshi Yoshida
Subaru Telescope

Michitoshi Yoshida, Director of the Subaru Telescope, received his PhD from Kyoto University. His career as a professional astronomer started at Okayama Astrophysical Observatory (OAO), which is a branch of the National Astronomical Observatory of Japan (NAOJ). In 1995, Dr. Yoshida stayed in Hilo to support initial construction of Subaru Telescope. He also joined the development team of one of the spectrographs of Subaru, FOCAS, at the headquarters of NAOJ from 1998 to 2000. After completion of Subaru construction, he moved back to OAO and became its director. Dr. Yoshida worked for Hiroshima Astrophysical Science Center, Hiroshima University as the director from 2010 to 2017. He was then appointed as the director of Subaru from April 2017. Dr. Yoshida's main research field is optical-infrared observational astronomy of galaxies and high energy transient objects. Recently, he is interested in gravitational wave and its related astronomical/physical phenomena.
