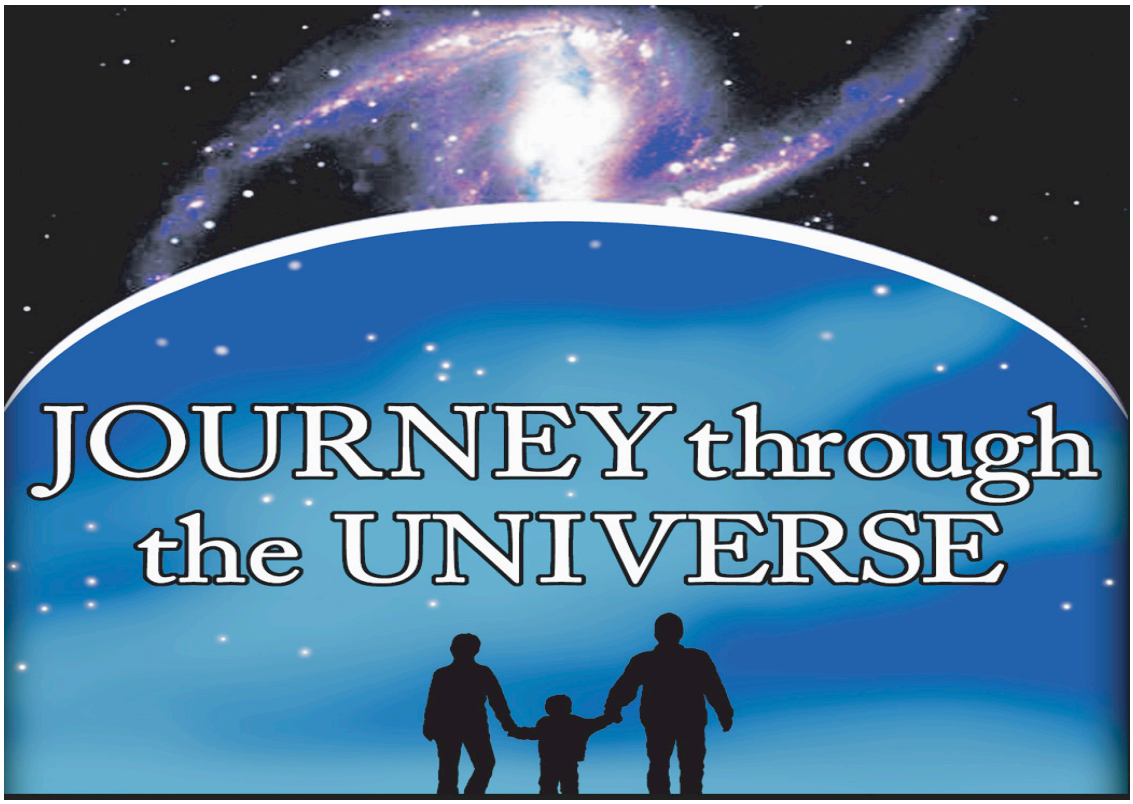


HILO - LAUPAHOEHOE - WAIAKEA COMPLEX AREA

GEMINI OBSERVATORY
Exploring the Universe, Sharing its Wonders

MAUNA KEA OBSERVATORIES
CLEARLY THE BEST

February 10 - 18, 2011

Hilo, Hawaii

TMT
THIRTY METER TELESCOPE

NASA LUNAR SCIENCE INSTITUTE

CAPER Team
Center for Astronomy & Physics Education Research
University of Wyoming

UNIVERSITY OF HAWAI'I HILO

Journey through the Universe 2011 took place February 10-18 and once again left a profound impact on the students, teachers, astronomy educators, ambassadors and the community of participants.

Journey week 2011 visited over 6,490 students at nineteen schools. Fifty-one participating (58 in total) astronomy educators representing astronomers from Mauna Kea Observatories, other national observatories across the country, and NASA visited over 310 classrooms over a five-day period. Two entertaining family science events were held for over 2,600 at both the 'Imiloa Astronomy Center and the UHH Theatre. Master Teacher and Teacher Educator workshops were held featuring lessons on Journey's 2011 Theme, "Are There Other Planets Like Our Own?" These workshops provided the necessary tools and training to conduct lessons that are deeply relevant to Science and Technology education.

Our business community continued their ongoing support of our nationally recognized Journey through the Universe program by providing funding and a thank you celebration hosted by both the Hawai'i Island Chamber of Commerce and the Japanese Chamber of Commerce. Hawai'i's State Superintendent attended a Journey day at our local high school and assured the Journey community of the Department of Education's continued support of our nationally recognized flagship program.

Much interest has been shown in recreating our Journey program not only in other states across the U.S., but also in other countries around the world. For more information on our Journey through the Universe program, please visit our website at www.gemini.edu/journey.

Janice Harvey
Journey Team Leader
Gemini Observatory
jharvey@gemini.edu
(808) 974-2603

JOURNEY THROUGH THE UNIVERSE COMMUNITY PARTNERS
ALONG WITH GEMINI OBSERVATORY

- DEPARTMENT OF EDUCATION HILO/LAUPAHOEHOE/WAIAKEA DISTRICT
- UNIVERSITY OF HAWAI'I AT HILO
- GOVERNOR'S OFFICE
- HAWAI'I STATE SENATE
- STATE HOUSE OF REPRESENTATIVES
- MAYOR'S OFFICE
- BUSINESS-EDUCATION PARTNERSHIP
- 'IMILOA ASTRONOMY CENTER
- MAUNA KEA OBSERVATORIES OUTREACH COMMITTEE
- HILO BAY ROTARY CLUB
- JAPANESE CHAMBER OF COMMERCE
- HAWAI'I ISLAND CHAMBER OF COMMERCE
- BANK OF HAWAI'I
- KTA SUPERSTORES
- HAWAI'I TRIBUNE-HERALD
- NEW WEST BROADCASTING CORPORATION
- HAWAI'I ISLAND ECONOMIC DEVELOPMENT BOARD
- BIG ISLAND TOYOTA
- TMT (THIRTY METER TELESCOPE)
- NASA LUNAR SCIENCE INSTITUTE
- CAPER (CENTER FOR ASTRONOMY & PHYSICS EDUCATION RESEARCH)
- UHH ASTROPHYSICS CLUB
- CALTECH SUBMILLIMETER OBSERVATORY
- CANADA FRANCE HAWAI'I TELESCOPE
- JAMES CLERK MAXWELL TELESCOPE
- JOINT ASTRONOMY CENTRE
- NASA INFRARED TELESCOPE FACILITY
- SMITHSONIAN SUBMILLIMETER ARRAY
- SUBARU TELESCOPE
- UH HOKU KEA AND 2.2 METER TELESCOPES
- UH INSTITUTE FOR ASTRONOMY
- UNITED KINGDOM INFRARED TELESCOPE
- W.M. KECK OBSERVATORY

The House of Representatives
State of Hawaii

hereby presents this certificate to

THE JOURNEY THROUGH THE UNIVERSE PROGRAM

WHEREAS, the State of Hawaii is pleased to recognize the efforts of organizations who facilitate teachers' training and students' education in their community; and

WHEREAS, THE JOURNEY THROUGH THE UNIVERSE PROGRAM was developed by the National Center for Earth and Space Science Education and provides a window on the true nature of science and the lives of modern-day explorers, and Hilo is currently one of ten communities around the nation that are designated as **JOURNEY THROUGH THE UNIVERSE** sites; and

WHEREAS, the North Hilo/Laupahoehoe/Waiakea Complex area joined **THE JOURNEY THROUGH THE UNIVERSE** program in June 2004 and local scientists and astronomy professionals have a genuine desire to participate with Hilo schools; and

WHEREAS, this joint partnership will heighten the awareness of science in classrooms, tap into the rich resources that are available in the Hilo community, and help students meet the Hawaii Content and Performance Standards and National standards; and

WHEREAS, this initiative includes local programming for thousands of students and families, grade K-12 lessons and curriculum support materials, grade K-12 educator training, and ongoing support from scientists and educators nationally in both science content and pedagogy for the classroom; and

WHEREAS, programming provided to each community includes a weeklong celebration of learning "Journey through the Universe Week" conducted by a National Team of researchers and engineers reflecting organizations from across the NASA; now, therefore,

BE IT RESOLVED by the House of Representatives of the Twenty-Sixth Legislature of the State of Hawai'i, Regular Session of 2011, that this body commends and applauds **THE JOURNEY THROUGH THE UNIVERSE** program for their contributions and dedicated service to science education and expresses its warmest *Aloha* and best wishes in its future endeavors.

The 26th Legislature, 2011

Calvin K.Y. Say, Speaker of the House

Patricia Mau-Shimizu, Chief Clerk

Representative Clift Tsuji

Proclamation

Presented

In Recognition of Journey through the Universe Week

WHEREAS, Journey Through the Universe is a national science education initiative developed by the National Center for Earth and Space Science Education that engages students, teachers, families, and the public through programs relating to space exploration and Earth science; and

WHEREAS, this initiative 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; and

WHEREAS, these programs provide teachers the tools and training to conduct exciting lessons in the classroom relevant to Hawai'i Content and Performance Standards in addition to providing venues for family learning where parents and their children learn together; and

WHEREAS, Hawai'i is fortunate in that the North Hilo / Laupahoehoe / Waiakea Complex is one of only ten communities in the United States designated as a Journey Through the Universe site; and

WHEREAS, the 7th Annual Journey Through the Universe program will take place from February 10 – 18, 2011 on the Big Island of Hawaii.

THEREFORE, I, NEIL ABERCROMBIE, Governor, and **I, BRIAN SCHATZ,** Lieutenant Governor of the State of Hawai'i, do hereby proclaim February 10 – 18, 2011, as

JOURNEY THROUGH THE UNIVERSE WEEK

in Hawai'i, to recognize astronomers and science educators for providing Hawai'i's students with a greater understanding and appreciation of the cosmos through their research and exploration efforts.

DONE at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai'i, this first day of February 2011.

Neil Abercrombie

NEIL ABERCROMBIE
Governor, State of Hawai'i

BRIAN SCHATZ
Lt. Governor, State of Hawai'i

COUNTY OF HAWAI'I

Proclamation

WHEREAS, *the National Center for Earth and Space Science Education's (NCESSE) central objective is to continue America's legacy as a leader on the frontiers of science and technology well into the 21st century by ensuring a scientifically literate public and a next generation of scientists and engineers; and*

WHEREAS, *NCESSE is joined by the local scientific community beginning with- Gemini Observatory, Joint Astronomy Centre, Subaru Telescope, Thirty Meter Telescope, Submillimeter Array, National Radio Observatory Telescope, Hoku Ke'a Telescope, James Clerk Maxwell Telescope, Nasa Infrared Telescope, United Kingdom Infrared Telescope, UH Institute for Astronomy, Caltech Submillimeter Observatory, W. M. Keck Observatory, 'Imiloa Astronomy Center of Hawai'i, UH-Hilo Physics & Astronomy, Onizuka Visitor Information Station, Mauna Kea Support Services, Mauna Kea Observatories Outreach Committee, University of Wyoming and the Jet Propulsion Laboratory; and*

WHEREAS, *partnered with the Dept. of Education Hilo/Laupahoehoe/Waiakea Complex Area, "Journey Through the Universe" continues for a 7th year on February 10-18, 2011, and features a full week of whirlwind cosmic exploration and 'star-studded' space and science education for students, teachers, and parents as a national team of astronomer researchers and engineer, working on the frontier of space, visit more than 8,000 students in 380 classrooms at 21 schools; 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*

WHEREAS, *there are only ten sites across the country and the Hilo site has been recognized as the flagship "Journey" program in the nation,*

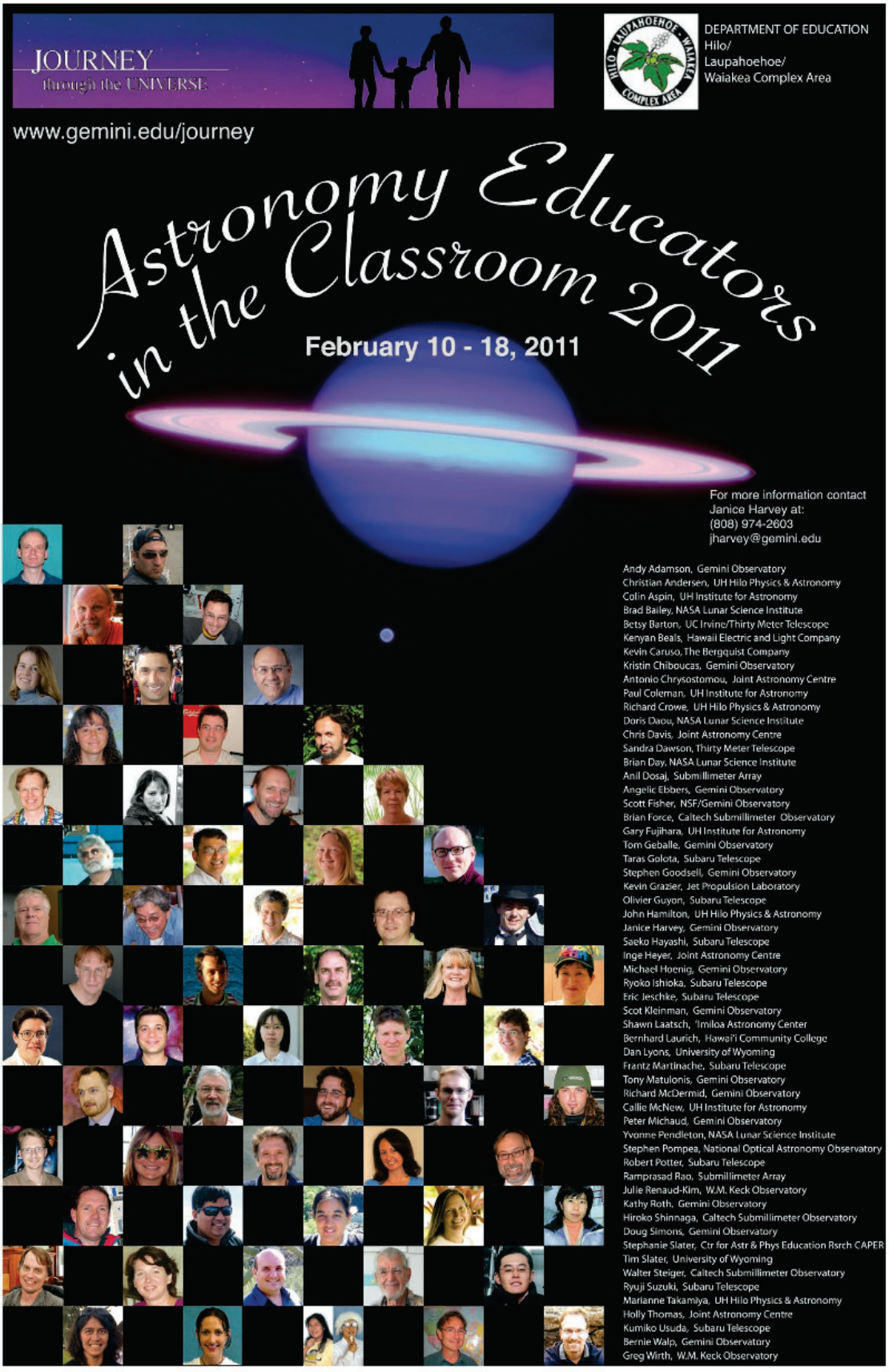
NOW, THEREFORE, I, BILLY KENOI, Mayor of the County of Hawai'i, do hereby proclaim February 10-18, 2011, as

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 3rd day of January, 2011, in Hilo, Hawai'i.

Billy Kenoi
MAYOR



Please review Astronomy Educators Bios @
http://hubble.uhh.hawaii.edu/JTTU_2011/Journey_Bios_2011.pdf\\\

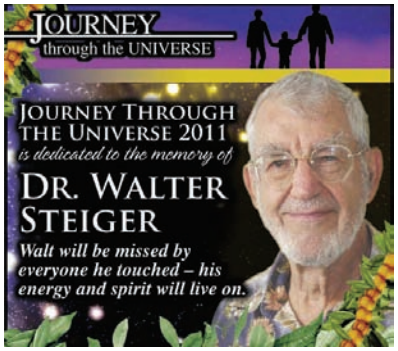
JOURNEY through the UNIVERSE

Journey Home
Family Science Events
Educator Workshops
Classroom Visits
Contact Us
Community Involvement
Ambassadors
PD Courses

Primary Sponsors

Participating Institutions

Journey through the Universe



Journey through the Universe is a national science education initiative that engages *entire* communities-students, teachers, families, and the public-using education programs in the Earth and space sciences and space exploration to inspire and educate. The initiative engages communities in sustained science, math, and technology education, and is a celebration of exploration and the joys of learning.

What the human race knows about our world and the greater Universe is used to inspire *the next generation* of scientists and engineers through interactions with *the current generation*; give teachers the tools and training to conduct powerful lessons in the classroom that are deeply relevant to the science curriculum; and provide venues for family learning where parents and their children learn together. More ...

Journey Astronomy & Engineering Educators Workshop:

Thursday, September 30, 2010: 10am - 12:30pm in Gemini Observatory Main Conference Room

February 10 - 18, 2011

Journey Week: February 10 - 18, 2011

Thursday, February 10, 2011:
Master Teacher Training: 8am - 2pm at `Imiloa Astronomy Education Center
Friday, February 11, 2011:
Astronomer Workshop: 10am - 12pm at `Imiloa Astronomy Education Center
Teacher Workshop: 4pm – 7:30pm at `Imiloa Astronomy Education Center
Sunday, February 13, 2011:
Family Science Day: 9am - 4pm at `Imiloa Astronomy Education Center
Tuesday, February 15, 2011:
Hawai'i Chambers of Commerce Appreciation Event: 5-8pm at Hilo Yacht Club
Wednesday, February 16, 2011:
Family Science Night: 6pm - 9pm at University of Hawai'i at Hilo Theatre

The Local Science Team

Andy Adamson, Gemini Observatory
Christian Andersen, UH Hilo Physics & Astronomy
Colin Aspin, UH Institute for Astronomy
Brad Bailey, NASA Lunar Science Institute
Kenyan Beals, Hawai'i Electric and Light Company
Dan Birchall, Subaru Telescope
Kimberly Brenton, UH Hilo Physics & Astronomy Student
Kevin Caruso, Bergquist Company
Kristin Chiboucas, Gemini Observatory
Antonio Chrysostomou, Joint Astronomy Centre
Paul Coleman, UH Institute for Astronomy
Richard Crowe, UH Hilo Physics & Astronomy
Doris Daou, NASA Lunar Science Institute
Sandra Dawson, Thirty Meter Telescope
Brian Day, NASA Lunar Science Institute
Jeff Donahue, Gemini Observatory
Anil Dosaj, Submillimeter Array
Angelic Ebbers, Gemini Observatory
Patty Elison, Mauna Kea Visitor Center
Kimberly Emig, UH Hilo Physics & Astronomy student
Scott Fisher, NSF/Gemini Observatory
Brian Force, Caltech Submillimeter Observatory
Gary Fujihara, UH Institute for Astronomy
Tom Geballe, Gemini Observatory
Jesse Goldman, UH Hilo Physics & Astronomy
Taras Golota, Subaru Telescope
Stephen Goodsell, Gemini Observatory
Kevin Grazier, Jet Propulsion Laboratory
Olivier Guyon, Subaru Telescope
John Hamilton, UH Hilo Physics & Astronomy
Janice Harvey, Gemini Observatory
Saeko Hayashi, Subaru Telescope
Michael Hoenig, Gemini Observatory
Ryoko Ishioka, Subaru Telescope
Eric Jeschke, Subaru Telescope
Ka'iu Kimura, 'Imiloa Astronomy Education Center
Scot Kleinman, Gemini Observatory
Shawn Laatsch, 'Imiloa Astronomy Education Center
Bernhard Laurich, Hawai'i Community College
Dan Lyons, University of Wyoming
Frantz Martinache, Subaru Telescope
Tony Matulonis, Gemini Observatory
Richard McDermid, Gemini Observatory
Callie McNew, Onizuka Center Visitor Information Station
Peter Michaud, Gemini Observatory
Yvonne Pendleton, NASA Lunar Science Institute

The Senate

RECOGNIZES AND COMMENDS
THE JOURNEY THROUGH THE UNIVERSE PROGRAM

The House of Representatives
State of Hawaii

THE JOURNEY THROUGH THE UNIVERSE PROGRAM

Richard Oram, Gemini Observatory
Stephen Pompea, NOAO
Robert Potter, Subaru Telescope
Ramprasad Rao, Submillimeter Array
Julie Renaud-Kim, W.M. Keck Observatory
Kathy Roth, Gemini Observatory
Hiroko Shinnaga, Caltech Submillimeter Observatory
Doug Simons, Gemini Observatory
Stephanie Slater, University of Wyoming
Tim Slater, University of Wyoming
Sunny Stewart, Mauna Kea Visitor Center
Ryuji Suzuki, Subaru Telescope
Marianne Takamiya, UH Hilo Physics & Astronomy
Kumiko Usuda, Subaru Telescope
Bernie Walp, Gemini Observatory
Greg Wirth, W.M. Keck Observatory

Proclamation
Presented
In Recognition of Journey through the Universe Week

WHEREAS, Journey Through the Universe is a national science education initiative developed by the National Center for Earth and Space Science Education that engages students, teachers, families, and the public through programs relating to space exploration and Earth science; and

WHEREAS, this initiative 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; and

WHEREAS, these programs provide teachers the tools and training to conduct exciting lessons in the classroom relevant to Hawai'i Content and Performance Standards in addition to providing venues for family learning where parents and their children learn together; and

WHEREAS, Hawai'i is fortunate in that the North Hilo / Laupahoehoe / Waiakea Complex is one of only ten communities in the United States designated as a Journey Through the Universe site; and

WHEREAS, the 7th Annual Journey Through the Universe program will take place from February 10 – 18, 2011 on the Big Island of Hawaii.

THEREFORE, I, NEIL ABERCROMBIE, Governor, and I, BRIAN SCHATZ, Lieutenant Governor of the State of Hawai'i, do hereby proclaim February 10 – 18, 2011, as

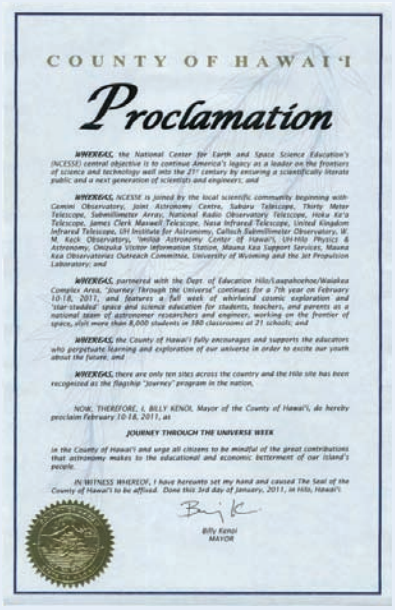
JOURNEY THROUGH THE UNIVERSE WEEK

in Hawai'i, to recognize astronomers and science educators for providing Hawai'i's students with a greater understanding and appreciation of the cosmos through their research and exploration efforts.

DONE at the State Capitol, in the Executive Chambers, Honolulu, State of Hawai'i, this first day of February 2011.

NEIL ABERCROMBIE
Governor, State of Hawai'i

BRIAN SCHATZ
Lt. Governor, State of Hawai'i



COUNTY OF HAWAI'I

Proclamation

WHEREAS, the National Center for Earth and Space Science Education's (NCESSE) central objective is to continue America's legacy as a leader on the frontiers of science and technology well into the 21st century by ensuring a scientifically literate public and a next generation of scientists and engineers; and

WHEREAS, NCESSE is joined by the local scientific community beginning with Gemini Observatory, Joint Astronomy Centre, Subaru Telescope, Thirty Meter Telescope, Submillimeter Array, National Radio Observatory Telescope, Hoku Ka'a Telescope, James Clerk Maxwell Telescope, Nasa Infrared Telescope, United Kingdom Infrared Telescope, UH Institute for Astronomy, Caltech Submillimeter Observatory, W. M. Keck Observatory, 'Imiloa Astronomy Center of Hawai'i, UH-Hilo Physics & Astronomy, Onizuka Visitor Information Station, Mauna Kea Support Services, Mauna Kea Observatories Outreach Committee, University of Wyoming and the Jet Propulsion Laboratory; and

WHEREAS, partnered with the Dept. of Education Hilo/Laupahoehoe/Waiakea Complex Area, "Journey Through the Universe" continues for a 7th year on February 10-18, 2011, and features a full week of whirlwind cosmic exploration and 'star-studded' space and science education for students, teachers, and parents as a national team of astronomer researchers and engineer, working on the frontier of space, visit more than 8,000 students in 380 classrooms at 21 schools; 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

WHEREAS, there are only ten sites across the country and the Hilo site has been recognized as the flagship "journey" program in the nation,

NOW, THEREFORE, I, BILLY KENOI, Mayor of the County of Hawai'i, do hereby proclaim February 10-18, 2011, as

JOURNEY THROUGH THE UNIVERSE WEEK

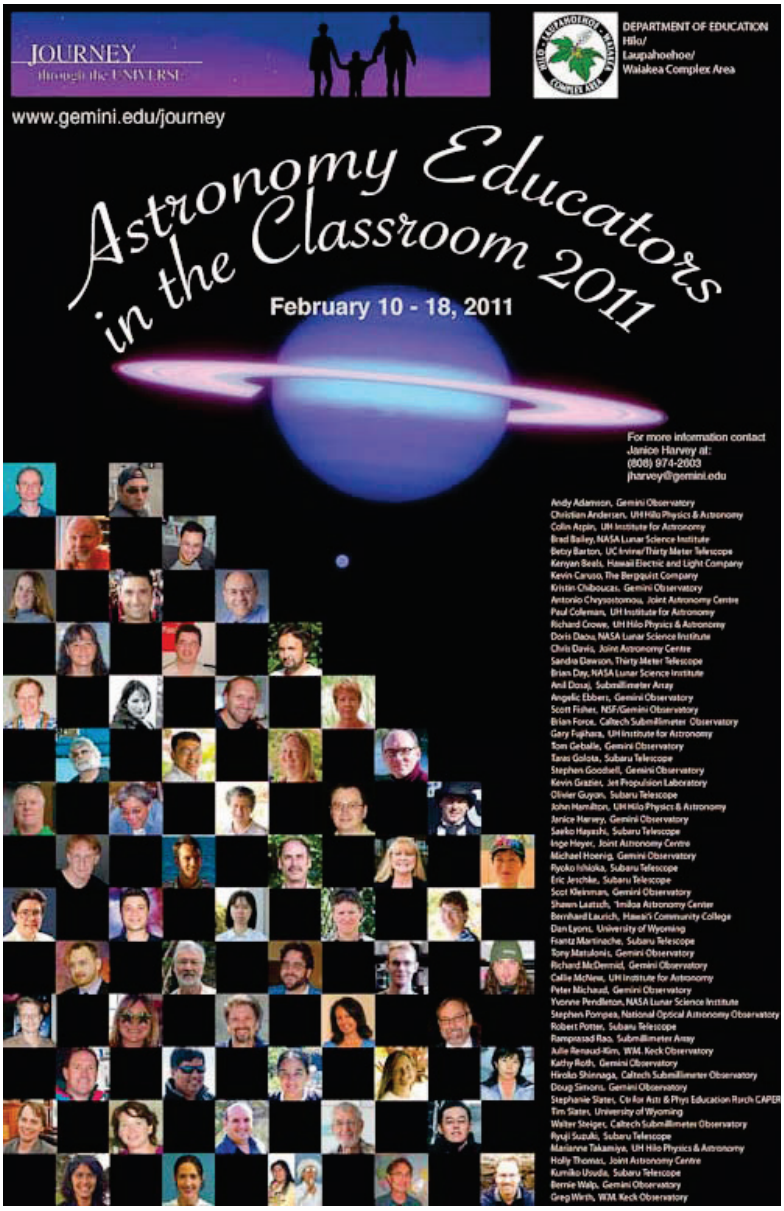
in the County of Hawai'i and urge all citizens to be mindful of the great contributions that astronomy makes to the educational and economic betterment of our island's people.

IN WITNESS WHEREOF, I have hereunto set my hand and caused The Seal of the County of Hawai'i to be affixed. Done this 3rd day of January, 2011, in Hilo, Hawai'i.

Billy Kenoi
MAYOR

Lead Local Team

Janice Harvey, Gemini Observatory
Valerie Takata, Department of Education
Richard Crowe, University of Hawai'i at Hilo
Andolie Marten, Gemini Observatory
Bess Jennings, Department of Education
Ka'iu Kimura, `Imiloa Astronomy Education Center
Peter Michaud, Gemini Observatory
Darrell Nekoba, Department of Education



Download Poster PDF 684KB

Bios of Astronomy Educators

The Program

Developed by the National Center for Earth and Space Science Education (NCESSE), *Journey through the Universe* provides a window on the true nature of science and the lives of modern-day explorers, with special emphasis on not just *what* is known about our world and the universe but *how* it has come to be known. It is an approach that reveals the very personal means by which researchers ask questions of the world and empower themselves to create a pathway to an answer.

The initiative includes local programming for thousands of students and families, grade K-12 lessons and curriculum support materials, grade K-12 educator training, and ongoing support from scientists and educators nationally in both science content and pedagogy for the classroom. The communities integrate these resources into their existing science, mathematics, and technology education programming in both formal and informal science education venues. The result of this partnership is programming that reflects the strengths and capabilities of the community, and provides access to resources that would otherwise be unavailable.

Hilo, Hawai'i is currently one of 10 communities around the nation that are designated Journey through the Universe sites.

The North Hilo/Laupahoehoe/Waiakea Complex area located on the island of Hawai'i joined the Journey through the Universe program in June 2004. There is a genuine desire among the scientists and professionals associated with astronomy to participate with Hilo schools. Local educators and students desire to share in the excitement of astronomy. Journey through the Universe Week can bring the two together. The joint partnership will:

- Heighten awareness of science in classrooms.
- Help students meet the Hawai'i Content and Performance Standards and national standards.
- Provide rigor, relevance and relationships in curriculum, instruction and assessment.
- Tap into the rich resources that are the Hilo community.
- Improve teaching staff in content fields. Professional development, in-service training sessions, networking and articulation amongst educators, scientists, and community people will help improve teaching.
- Educate parents and the community in the space science enterprise.

Programming provided to each community includes a weeklong celebration of learning "Journey through the Universe Week" conducted by a National Team of researchers and engineers reflecting organizations from across the NASA communities. During Journey Week:

Family Science Events

A family science night will be held at the `Imiloa Astronomy Center, including planetarium shows, four guest lecturers, and free access to the exhibit area.

Classroom Visits

A National Team of researchers and engineers working on the frontier conduct Classroom Visits for 8,000 K-12 students. The researchers are gifted at communicating their passion for research and science to audience of all ages, providing students a personal interaction with explorers working on the space frontier, and providing a window on the lives of researchers and the process of science.

Educator Workshops

Training is provided for K-12 educators on Education Modules that are mapped to the National Science Education Standards. Each Module includes an Educational Unit at three (K-4, 5-8, 9-12) or four (K-2, 3-4, 5-8, 9-12) grade levels, and includes content overviews; inquiry-based, hands-on activities; assessment rubrics; and resource listings.

Contact Us

For disability accommodation, please contact Janice Harvey at 974-2603 no later than two weeks prior to the event.

- **E-Mail** Journey through the Universe Program
- **Phone** Janice Harvey (808) 974-2603
- **Mail** Journey through the Universe, Janice Harvey, Gemini Observatory, 670 N. A'ohoku Place, Hilo, Hawai'i
- **Press Inquiries** Janice Harvey, Gemini Observatory, (808) 974-2603, jharvey"at"gemini.edu

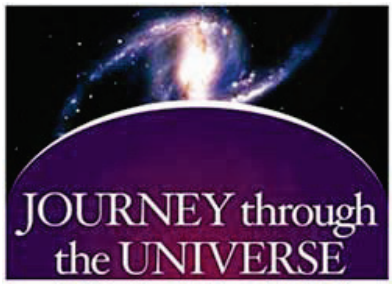
Previous Events

Journey 2010

Journey 2009

Journey 2008

Journey 2007



Journey Home
Family Science Events
Educator Workshops
Classroom Visits
Contact Us
Community Involvement
Ambassadors
PD Courses

Primary Sponsors

Participating Institutions

Family Science Events

The Family Science Events are meant to provide a cross-generational learning experience for parents and their children, in subjects that are part of the science curriculum.

Take a journey to the space frontier with your family.
Family Science Events provide a family learning experience in exciting human space flight, Earth and space science subjects that are connected to the curriculum. The hallmark of these performances is audience participation. You will leave with a sense of wonderment about our world, and the experience will spark discussions between family members for weeks afterwards.

Family Science Events provides parents a window on the education of their children, schools a way to build bridges to the familiar, and researchers an opportunity to share what it's like to work on the great frontier of space.The Family Science Events will be held at the `Imiloa Astronomy Center and will include ongoing planetarium shows, featured speakers, along with exhibit hall, dining room and gift shop open.

For disability accommodation, please contact Janice Harvey at 974-2603 no later than two weeks prior to the event.

Journey through the Universe with `Imiloa and KTA

Journey Though the Universe Family Science Day Presentations
Sunday February 13, 2011
In 'Imiloa Astronomy Center's Moanahōkū Hall

9:30 -10:15 am
Doris Daou: "The Moon at Home and in the Classroom!"
The past year has seen a plethora of new Lunar Education and Public Outreach programs and resources. From public outreach projects such as the 'International Observe the Moon Night' and 'MyMoon', citizen science projects such as 'MoonZoo', formal programs such as a suite of lunar teacher professional development workshops and the revitalized Lunar Sample Education Disk Program, the lunar community has been providing education and outreach opportunities for a diverse group of audiences across various platforms. We would like to show you some of the fun and exciting Lunar Education and Public Outreach creations and invite you to join us in learning about and exploring "Our Moon!".

10:30 - 11:15 am
Scott Fisher: "What's up? - a Talk Story Hour about Recent Discoveries in Astronomy"
In this presentation Dr. Fisher will talk about some of the exciting recent discoveries made at observatories on the Big Island and from around the world. There will also be time for a game of "Stump the Astronomer" where the speaker will (attempt to) answer questions from the audience.

11:30 - 12:15 pm
Kevin Grazier: "Earthlings Invading Mars"
NASA currently has two orbiters and two landers operational at Mars, and will be adding to that number this year by launching a rover named Curiosity. Kevin Grazier discusses some of the recent results from Mars, and what we might expect from the next Earthly visitor to the Red Planet.

12:15 - 1:15pm
Exhibitor viewing in Hall
Exhibits offered by the Observatories on Mauna Kea, NASA Lunar Space Institute, UHH Astrophysics Club, Visitor Information Station and many others will be open for viewing!

1:15 - 2:00pm
Brian Day: "The New Moon"
Our understanding of the Moon has changed dramatically due to results from a series of recent robotic lunar missions. Our old view of the Moon as an arid, static, and empty place has been replaced. Our new view of the Moon includes rich deposits of water ice, a wide variety of exotic compounds, a thin though potentially active atmosphere, and perhaps even a water cycle. This new understanding of our nearest neighbor in space has profound implications for understanding of our own origins and humanity's future on the Moon.

2:15 - 3:00pm
Sandra Dawson: "TMT - Thirty Meter Telescope"
The Exciting Journey of TMT, Past, Present and Future

3:15 - 4:00pm
Drs. Tim and Stephanie Slater: "Seeing the Universe with Different Eyes"
Recent technology allows astronomers to see the dynamic Universe from many different viewpoints. This interactive and entertaining session demonstrates novel tools and techniques astronomers use to observe the Universe by looking at seemingly common everyday objects through modern eyes.

'IMILOA Astronomy Center of Hawai'i JOURNEY KTA

Download workshop flier 373 KB PDF Half-page flyer. Download 'Imiloa flier 459 KB PDF

Family Science Day

Sunday, February 13, 2011
9am - 4pm at `Imiloa Astronomy Education Center Moanahoku Hall

9:30 - 10:15 am
Doris Daou
"The Moon at Home and in the Classroom!"

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The Exciting Journey of TMT, Past, Present and Future

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Download flier 4.5 MB PDF

Download workshop flier 229 KB PDF

Family Science Night

Wednesday, February 16, 2011

Andy Adamson
Gemini Observatory
Contact: aadamson@gemini.edu

Andy Adamson is currently Associate Director of Science Operations for Gemini North Observatory. British by birth, before arriving on the Big Island in 1998, Andy was for some ten years a lecturer and computer systems manager at the University of Central Lancashire in the northwest of the United Kingdom. His research focuses on interstellar dust particles – the microscopic motes of silicate and (hydro)carbons which pervade the space between the stars and obscure much of the local Universe from our sight. These grains also take a leading role in the life cycle of the stars themselves, assisting the formation process and re-forming and driving the "winds" from stars near the end of their lifespans.

Christian Andersen
UH Hilo Physics & Astronomy
Contact: canderse@hawaii.edu

Christian Andersen grew up in Hawai'i and got his B.S. in Physics from San Jose State University, and went on to get his M.S. in Engineering-Applied Science at the University of California, Davis. He also spent four years working at Lawrence Livermore National Laboratory in the field of inertial confinement fusion. Presently, Christian works for PISCES (Pacific International Space Center for Exploration Systems), coordinating analog lunar tests with international space agencies. He has been a lecturer in the UH Hilo Physics & Astronomy and Mathematics Departments since 2005.

Colin Aspin
UH Institute for Astronomy
Contact: caa@IfA.Hawaii.Edu

Colin Aspin is currently the Director of the University of Hawai'i 2.2-m telescope on Mauna Kea. He is English but has lived and worked on the Big Island for over 20 years. Prior to working for UH, Colin was employed at the Gemini Observatory and the United Kingdom Infrared Telescope. He graduated from Glasgow University in Scotland with a Ph.D. in Astrophysics in 1981. Colin's main scientific interest is in the formation and early evolution of stars and particularly those periods when a young star erupts and brightens by over a hundred fold. He is also working on outflows and jets from young stars, and how young binary systems affect young stars' early lives. Colin and his wife Maggi live in South Hilo and he enjoys home construction and improvements, watching football, and gardening. He and his wife are cat people and have five cats. Colin taught an astronomy course at UH Hilo during the fall semester of 2008.

Brad Bailey
NASA Lunar Science Institute
Contact: brad.bailey@nasa.gov

Brad Bailey received his B.S. in Physics with minors in optics, chemistry and Japanese from the Rose-Hulman Institute of Technology. In 1998, Brad was accepted into the NASA Ames Astrobiology Academy where he worked on the spectroscopic determination of polycyclic aromatic hydrocarbons in the interstellar medium. From there, he received his M.S. in Astrophysics from New Mexico Tech where he used the Very Large Array (VLA) to qualitatively analyze spectra from pulsars. After working

for two years at NASA Ames as a hardware engineer for the International Space Station, Brad went back to graduate school at Scripps Institution of Oceanography in San Diego where completed his Ph.D. in marine microbiology and geochemistry. His Ph.D. work included diving into submarine volcanoes in Hawai‘i and Samoa via small submersibles to study the interaction between biology, hydrothermal vent water chemistry and rock surfaces. Brad is now the NASA Lunar Science Institute Staff Scientist at NASA Ames and also directs the NASA Ames Academy, a summer student research and leadership development program.

Betsy Barton
University of California, Irvine/Thirty Meter Telescope
Contact: ebarton@uci.edu

Betsy Barton is an Assistant Professor in the Department of Physics and Astronomy at the University of California, Irvine. Betsy grew up in Ohio and New Jersey, and has worked and attended school in California, Massachusetts, and Canada. She feels privileged to visit the Big Island several times per year to conduct her research on how big galaxies like the Milky Way have formed and evolved over time. Betsy is a member of the Science Advisory Committee that is making plans to use the Thirty Meter Telescope in the coming decade.

Kenyan Beals
Hawaii Electric Light Company
Contact: kenyan.beals@helcohi.com

Kenyan Beals is the Educational Services Coordinator for Hawaii Electric Light Company (HELCO). He grew up in Hilo and was most recently working for the University of Hawai‘i Institute for Astronomy before taking a position at HELCO. His passion for the environment and for educating people has continued while at HELCO, as he strives to promote the wise and safe use of electricity and teach people about the diverse and unique types of renewable energy that HELCO uses.

Dan Birchall
Subaru Telescope
Contact: djb@naoj.org

Dan Birchall is an Operator at the Subaru Telescope. He grew up in New Jersey and moved to Hawai‘i in 1999 as a computer programmer, then came to Mauna Kea as a volunteer in 2004. He worked as a telescope operator at the UH 2.2-meter and aircraft spotter at the W.M. Keck Observatory and Gemini Observatory, then joined Subaru in 2009 while completing his Graduate Certificate of Science in Astronomy from Swinburne University of Technology in Australia. In his spare time, Dan studies supernovae for a dark-energy project at Lawrence Berkeley Labs.

Kevin Caruso
The Bergquist Company
Contact: KevinC@bergquistcompany.com

Kevin Caruso is an electrical engineer, private pilot, and space author. He also sells control panels and keypads for electronic equipment. Kevin received his BSEE from the University of Illinois, and did graduate work in patent law at the Illinois Institute of Technology. In 1991, Kevin created a Young Pilot Program for 11-16 year old students who were eager to learn about flying. He has been sharing his passion for space exploration with students and teachers since 1994. At that time, NASA's field center in Cleveland Ohio selected him to share space science and Apollo Moon rocks with schools across Illinois. He was selected in 1999 to serve as a NASA JPL Solar System Ambassador in Illinois and has been a guest presenter at Space Center Houston's Educator Conference for 5 consecutive years. After four years of research, his middle school book entitled "Back To The Moon" was published in 2001. Kevin enjoys sharing his passion for space with students, educators, and parents. He lives in Illinois and is the proud father of 2 wonderful teenage children.

Kristin Chiboucas
Gemini Observatory
Contact: kchiboucas@gemini.edu

Kristin Chiboucas is a science fellow at Gemini North. She obtained her Ph.D. in 2003 from the University of Michigan. Before rejoining Gemini in 2009, she held post-doctoral positions at Gemini and the University of Hawai'i at Manoa. Her main research interests are galaxy formation and evolution, investigated through a range of projects including the star formation and assembly histories of cluster galaxies as a function of redshift, the galaxy luminosity function as a function of environment, and the search for extreme dwarf galaxies including very low surface brightness and ultra compact dwarfs.

Antonio Chrysostomou
Joint Astronomy Centre
Contact: a.chrysostomou@jach.hawaii.edu

Antonio Chrysostomou, Associate Director of the James Clerk Maxwell Telescope (JCMT), graduated from Queen Mary College of the University of London (England) in 1989. He then moved to the University of Edinburgh to study for his Ph.D. in Astrophysics, graduating in 1992. He has been a regular visitor to Mauna Kea since that time and was first employed by the JAC from 1996-1999 as a staff astronomer for UKIRT. It was during this time that his daughter was born in Hilo. He moved back to England as a lecturer at the University of Hertfordshire, only to return again in 2006, on a leave of absence, to take up his present position with the JCMT. Antonio's research interests are in trying to understand the process of star formation as well as the mysteries and intricacies of the minds of 11-year old girls. Thus far, he thinks he has been more successful with the former!

Paul Coleman
UH Institute for Astronomy
Contact: gruff@IfA.Hawaii.Edu

In the early seventies, **Paul Henry Ikaika Coleman** left his birthplace in Hawai‘i to attend the University of Notre Dame. There he obtained a B.S. in physics and began an almost 30-year journey throughout the world before returning to Hawai‘i to live in 2002. He obtained a Ph.D. in 1985 from the University of Pittsburgh and has held positions with the National Radio Astronomy Observatory, Virginia Tech, The Kapteyn Astronomical Institute in The Netherlands, The Sterrewacht (Observatory) in Leiden, New Mexico Tech, The Very Large Array in New Mexico, Yale University, The University of Puerto Rico, and The Arecibo Observatory. Paul came full circle and was hired as an associate astronomer at the UH Institute for Astronomy where he does research and teaches astronomy. He is also the project scientist on the Faulkes Telescope North, the world's largest telescope dedicated to K-12 students in England and Hawai‘i. He is a member of the University's Kuali‘i Council, a body of Native Hawaiian professors, instructors, and graduate students at the Manoa campus. Since returning home, Paul has become more involved in Native issues and cultural concerns. As a Native Hawaiian, he is a natural role model for kids in Hawai‘i. Paul is a member of several advisory councils aimed at increasing the number of children in science and technology fields. Paul hopes to increase Native Hawaiian involvement at all levels in the excellent astronomy effort in Hawai‘i. In what little spare time he has, he enjoys spending it with his two beautiful daughters, Hali‘a and Nohea.

Richard Crowe
UH Hilo Physics & Astronomy
Contact: rcrowe@hubble.uhh.hawaii.edu

Richard Crowe, Professor of Astronomy at UH Hilo since 1992, and Astronomer-in-Residence at the ‘Imiloa Astronomy Center of Hawai‘i since 2006, was born in Canada. He obtained his Honors B.Sc. and M.Sc. in astronomy from the University of Western Ontario and his Ph.D. from the University of Toronto in 1984. Between 1977-79, he was the Resident Observer for the University of Toronto Southern Observatory at Las Campanas, Chile. He was the Canadian Resident Astronomer for the Canada-France- Hawai‘i Telescope (CFHT) Corporation from 1984-87. Since coming to UHH in 1987, his teaching responsibilities have ranged from introductory physics and astronomy to senior level astrophysics and quantum mechanics. Richard’s main research interests are in the areas of pulsating stars, stellar evolution and spectroscopy. He has also published a dozen scholarly articles in science education and criticism of pseudoscience. In 1991, Richard was selected as a Fujio Matsuda Fellow of the University of Hawai‘i for his scholarly work. He was Chair of UHH Physics and Astronomy from 1992-2002, and was Principal Investigator on the ***New Opportunities through Minority Initiatives in Space Science (NOMISS)*** grant funded by NASA (2001-2004), a program designed to encourage local and Hawaiian students from K-16 to enter careers in space science by integrating astronomy with Polynesian skylore, voyaging, and Hawaiian culture. He and Alice Kawakami won City Bank's 2001 ***TIGR Award*** for astronomy outreach efforts, and in 2005, he and Pascale Pinner won Astro Day Excellence in Teaching Awards. In 2010, Richard and Shawn Laatsch each won the ***Taniguchi Excellence and Innovation in Teaching Award*** for their teamwork teaching introductory astronomy in the ‘Imiloa planetarium. Richard has given over 50 StarLab and other presentations in public and private schools in the last 7 years, and had the privilege of receiving voyaging canoe (the Wa‘a Makali‘i) training. Richard has also trained many students using the UH 24-inch telescope atop Mauna Kea. In 2002, he completed a new revised version of the popular book **Stars Over Hawai‘i**. Richard is Past President of the ***Rotary Club of Hilo Bay***, and has played clarinet with the Hawai‘i County Band for 24 years. He also sings in Kanilehua Chorale with his wife of 25 years, Deby, whom he met while in the Waimea Chorus, and performed together in musicals in Waimea/Kona from 1985-87. Younger daughter Jasmine (20) sings, dances, plays violin, and is recording a CD of her own songs, while older daughter Ginger (23) is a talented dancer, who is an art major in Albuquerque.

Doris Daou

NASA Lunar Science Institute

Contact: Doris.Daou-1@nasa.gov

Doris Daou received her M.Sc. in Astronomy in 1989 from the University of Montreal in Canada. She has significant teaching experience at the undergraduate level, having lectured both at the University of Montreal and Notre Dame University in Lebanon where she taught astronomy, physics, and mathematics courses. After her schooling, she spent nine years at the Space Telescope Science Institute as a member of different instrument teams of the Hubble Space Telescope. During this time she also did research in astronometry, AGNs, and novae. In 1999 Doris moved to the Infrared Processing and Analysis Center at Caltech in Pasadena and became the deputy manager of the Cool Cosmos Education and Public Outreach (EPO) team. Doris led the team in designing and creating educational products and resources that would engage students as well as the public to learn more infrared astronomy and space science. Doris is a co-author of the internationally praised tactile astronomy book ***Touch the Invisible Sky***, which enables the visually impaired to learn about the Multiwavelength Universe. She was also the creator, producer and lead writer for the multi-award-winning ***Ask an Astronomer*** video series. In 2006 Doris moved to NASA Headquarters to work as a Program Officer for EPO in the Science Mission Directorate (SMD). She worked on strategic planning and implementation of policy for the organization, management, oversight, and evaluation of an integrated SMD-EPO Program. She also reviewed and analyzed EPO plans and programs for various space missions in development. In 2008 Doris became the Director of Communication and Outreach for the NASA Lunar Science Institute (NLSI) at the Ames Research Center. The NLSI is a virtual institute that is composed of seven US Teams and many foreign partners. During the past 20 years of working with NASA missions, Doris has also been active in various education committees, including the council to evaluate the American Astronomical Society education program in 2009; the Astronomical Society of the Pacific Program Committee, the EPO Advisory Group for the Large Synoptic Survey Telescope, the International Year of Astronomy US and IAU Program Committee, and the Women in Astronomy 2009 Conference Program Committee.

Chris Davis

Joint Astronomy Centre

Contact: c.davis@jach.hawaii.edu

Chris Davis is a Staff Astronomer at the United Kingdom Infrared Telescope (UKIRT) in Hawai‘i. Brought up in Yorkshire, England, Chris graduated from the University of Edinburgh in Scotland and worked as a research scientist in Germany and Ireland before moving to the Big Island with his wife, Caroline, and two kids, Tom and Emma, in 1997. He spends much of his time helping UKIRT's visiting astronomers develop and execute their observing projects, though he also conducts his own research, having authored or co-authored over a hundred science articles since he graduated in 1992. Using UKIRT and other telescopes in Hawai‘i and elsewhere around the world, he studies the physics and chemistry of spectacular jets of gas produced by very young, but also very old, stars. These jets can travel at millions of miles an hour, and reach a light year or more in length. When not studying the stars, Chris is usually not far from a soccer field. He plays regularly in Hilo's over-35s Makule Soccer League, and has coached his daughter's American Youth Soccer Organisation (AYSO) team in Hilo. He also enjoys reading, gardening and playing the odd video game - Chris and his family have a Wii.

Sandra Dawson
Thirty Meter Telescope
Contact: sdawson@tmt.org

Sandra Dawson is the Task Leader for TMT Site Master Planning and the project representative in Hawai‘i for the proposed 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. She retired from Caltech in December and is now on the staff of the TMT Observatory Corporation. She lives in Hilo with her husband Dwayne and hanai son Aber, who is a student at Hilo High.

Brian Day
NASA Lunar Science Institute
Contact: brian.h.day@nasa.gov

Brian Day is a NASA contractor at Ames Research Center. His duties there have included serving as Education and Public Outreach Lead for NASA's LCROSS lunar impactor mission and for the upcoming Lunar Atmosphere and Dust Environment Explorer mission. His hobbies and professional life focus on astronomy. For 16 years, he was chairman of the Foothill College Observatory. Brian and his wife Pam are avid solar eclipse chasers, having traveled around the world to see eight total, five annular, and numerous partial eclipses from such exotic locations as the wilds of Africa, the heights of the Andes, the jungles of Central America, the Australian Outback, the frozen wastes of Northern Mongolia, the base of the Great Wall of China, and the beer gardens of Germany.

Anil Dosaj
Submillimeter Array
Contact: adosaj@cfa.harvard.edu

Anil Dosaj is an Observing Assistant at the Smithsonian Submillimeter Array in Hilo, Hawai‘i. He graduated from the University of Texas in 1993 with a B.A. in Astronomy and from San Diego State University in 1997 with an M.S. in Astronomy. Previously, Anil worked at Gemini Observatory as a Data Analysis Specialist and at the Chandra X-ray Observatory in Science Mission Planning and Chandra Director's Office groups.

Angelic Ebbers
Gemini Observatory
Contact: 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.

Scott Fisher
National Science Foundation/Gemini Observatory
Contact: rfisher@nsf.gov

Scott Fisher is an assistant scientist at the Gemini Observatory where he splits his time between instrument support, scientific research, and outreach to the public and the scientific community. Scott is currently on assignment at the National Science Foundation in Washington, D.C. While on this assignment, Scott will be involved with deciding how to fund different astronomy programs across the United States. Scott obtained his Ph.D. from the University of Florida in 2001 after working his way through the Florida state school system, including a stint at Lake Sumter Community College. Scott's main area of research is searching for and studying planet-forming disks around young stars. We believe that our own planetary system formed out of such a disk approximately 4.6 billion years ago. Scott is also involved with the design, construction, and use of thermal-infrared camera systems that are used on the biggest telescopes in the world. Scott moved to Hilo directly after graduation in early 2001 and has been working at Gemini ever since. He has spent approximately 300 nights observing from the summit of Mauna Kea since his first trip to Hawai'i in 1996. In addition to his love of astronomy, Scott is an amateur photographer and an avid Geocacher. When he is not on-island, Scott can often be found in Las Vegas, Atlantic City, or anywhere with a nightlife full of bright neon lights, poker cards, and casino chips!

Brian Force
Caltech Submillimeter Observatory
Contact: blf@phobos.caltech.edu

Brian Force is a radio frequency and microwave engineer who works for the Caltech Sub-millimeter Observatory. He has also worked for the James Clerk Maxwell Telescope. He designs the microwave systems that process the signals coming from the sub-millimeter band receivers. He also designs the local oscillator systems for the receivers. His background is in design and research and development of integrated microwave circuitry used in electronic warfare, the only other field besides astrophysics, which operates in entire frequency bands. Brian has been working in this field for over 40 years. He has lived in Hilo since 1989 except for a few years (2004-2008) when he designed and built microwave integrated circuits for Northrop Grumman as a consultant on the other "Big Island" (Long Island). He has raised his family in Hilo and he still likes to look out of the window at Mauna Kea, and feel glad to be home and lucky to live here, when he flies home after working on projects on the mainland.

Gary Fujihara
UH Institute for Astronomy
Contact: fujihara@IfA.Hawaii.Edu

Born in Honolulu, and a resident of Hilo since 1980, with a background in graphic arts, music and computer software engineering, Gary heads the Office of Science Education and Public Outreach at UH Institute for Astronomy. While he was a telescope operator at Subaru in 2002, Gary founded Astro Day, a nationally recognized and award-winning annual event that attracts over 15,000 people. Gary has been a NASA Jet Propulsion Laboratory Solar system Ambassador since 2004, and is a member of the Astronomical Society of the Pacific, the Astronomical League and the International Dark Sky Association.

Tom Geballe
Gemini Observatory
Contact: tgeballe@gemini.edu

Tom Geballe obtained a Ph.D. in physics in 1974 under Prof. Charles Townes at U.C. Berkeley. Following postdoctoral fellowships at Berkeley, Leiden, and a Carnegie Fellowship at Hale Observatories in Pasadena, he became a staff astronomer at the United Kingdom Infrared Telescope (UKIRT) in 1981. He was Astronomer-in-charge, Associate Director, and Head of Operations at UKIRT from 1987 until 1998. Among his research interests are the galactic center, the physics of quiescent and shocked molecular clouds, the late stages of stellar evolution, the composition of interstellar dust, the surfaces, atmospheres, and aurorae of planets and moons, and brown dwarfs. Recent significant papers include spectroscopy/classification of brown dwarfs, detection of H3+ in both dark and diffuse interstellar clouds, and infrared evolution of erupting stars V838 Monocerotis and Sakurai's Object.

Jesse Goldman
UH Hilo Physics & Astronomy
Contact: goldman2@hawaii.edu

Jesse Goldman received his B.A. in Physics from Columbia University in 1995 and his Ph.D., specializing in High Energy Physics, from Kansas State University in 2000. He subsequently completed his post-doctoral research, focusing on neutrino oscillations, at Tohoku University in Sendai, Japan, and Lawrence Berkeley National Laboratory. Following his post-doctoral work, he taught as a lecturer in the physics departments of the California Polytechnic State University at San Luis Obispo and the National University of Singapore before joining the faculty at the Department of Physics and Astronomy at UH Hilo. His research interests span the fields of particle physics, cosmology, and astrophysics, and his hobbies are linguistics, computer operating systems, volleyball, and ultimate frisbee.

Taras Golota
Subaru Telescope
Contact: taras@subaru.naoj.org

Taras Golota is a software engineer at the Subaru Telescope. He obtained his M.S. in Electrical Engineering at the New Jersey Institute of Technology (NJIT) and his Ph.D. in Microelectronics at the National Technical University of Ukraine in 1997. He held a teaching position at NJIT until 1999, then worked as a software engineer and a consultant before he moved to Hawai‘i in 2004. At Subaru he works on software elements of the Adaptive Optics system. His research interests include computational aspects of real-time data and image processing. He also has a general interest in image sensing.

Stephen Goodsell
Gemini Observatory
Contact: sgoodsell@gemini.edu

Stephen Goodsell is currently the Instrument Program Manager at the Gemini Observatory. This Brit graduated from Kings College London (UK) in 1997 with a B.Sc. in Physics and again in 1998 with a M.Sc. in Imaging and Digital Image Processing. He has since worked in the field of astronomical instrumentation at University College London (UK), the Isaac Newton Group of Telescopes (Spain) and Durham University (UK) before arriving in Hilo in 2009. Stephen completed his Ph.D. in the area of adaptive optics system optimization at Durham University in

2009. In addition, Stephen has a diploma in Management and certificates in PRINCE2 project management methodology. This combination of knowledge, research, on-the-job management experience and formal management training has enabled Stephen to successfully manage numerous instrumentation projects for many major observatories. For four years, Stephen was also the Resident Tutor of Durham University's John Snow College where he had pastoral/welfare responsibilities for 250 students each year. Guiding students, providing a safe environment for them to learn, encouraging their personal growth, and watching them mature was just as rewarding for him as successfully delivering an astronomical instrument to an observatory. He hopes to share his knowledge and experiences with the Hilo community.

Kevin Grazier
Jet Propulsion Laboratory
Contact: krg@anlashok.jpl.nasa.gov

Kevin Grazier is a Research Scientist at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California. He is presently an Investigation Scientist and Science Planning Engineer for the Cassini/Huygens Mission to Saturn and Titan, and is also working on the Constellation Program – sending humans back to the Moon. He earned B.S. degrees in computer science and geology from Purdue University, and a B.S. in physics from Oakland University. He earned his M.S. in physics from Purdue, and then went to UCLA for his doctoral research in planetary physics, performing long-term large-scale computer simulations of early Solar System evolution. While in graduate school, he worked at the RAND Corporation, processing Viking imagery in support of the Mars Observer Mission. At JPL, he has written mission planning and analysis software that won numerous JPL- and NASA-wide awards and a patent pending. Kevin still continues research involving computer simulations of Solar System dynamics, evolution, and chaos. In addition to his JPL duties, he is active in teaching the public about science and space. He teaches classes in stellar astronomy, planetary science, cosmology, the search for extraterrestrial life, and the science of science fiction at UCLA and Santa Monica College. He has also served on several NASA educational product review panels. Kevin is currently the Science Advisor for the animated educational TV series "The Zula Patrol", for the SyFy Channel series "Eureka" and "Battlestar Galactica", and for several projects in various stages of development. He recently served as contributing author and editor for the books "Science of Dune" and "Science of Michael Crichton" and co-authored the upcoming "Science of Battlestar Galactica".

Olivier Guyon
Subaru Telescope
Contact: guyon@subaru.naoj.org

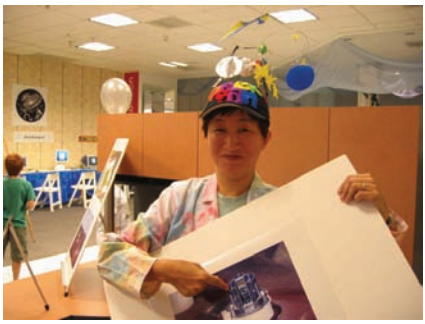
Olivier Guyon graduated from University of Paris 6 in 2002 (Ph.D. research topic: wide field interferometry), and then joined Subaru Telescope's Adaptive Optics group. His research interests include quasar host galaxies and Exoplanets. In the last few years, he has been developing new techniques for imaging exoplanets (planets around other stars) from telescopes on Earth and also future telescopes in space. With the new techniques developed by Olivier and other scientists around the world, astronomers will soon be able to observe planets like ours and start to find out if there is life elsewhere in the universe. Olivier is also an avid amateur astronomer. In his spare time, he builds telescopes which he then uses to observe from the clear skies of Mauna Kea and Mauna Loa. In 2007, Olivier received a Presidential Early Career for Scientists and Engineers award from President Bush at the White House. This award is the highest honor bestowed by the U.S. government on young professionals at the outset of their independent research careers, and recognizes Olivier's potential for leadership at the frontiers of scientific knowledge.

John Hamilton
UH Hilo Physics & Astronomy
Contact: jch@hawaii.edu

John Hamilton grew up in Hawai‘i, and was a graduate of Aiea High School on O‘ahu. He then went to the mainland and graduated from the University of Texas @ Austin with an Honors B.S. in Physics and an Honors B.A. in Astronomy. John returned to Hawai‘i and finished his graduate work at UH Manoa with an M.S. in Astronomy. For 26 years, John worked on Mauna Kea at several observatories: NASA IRTF 3.0-meter, Canada-France Hawai‘i 3.6-meter, and Gemini 8.0-meter. During the last four years, John is now teaching for the UH Hilo Physics and Astronomy Department, and was its Interim Chair during Spring 2007. His areas of interest are galaxies & cosmology, neutrino particle physics, and asteroids. John is the Research Operations Manager for PISCES (Pacific International Space Center for Exploration Systems) involved in site testing for future lunar and Martian robots and habitation modules.

Janice Harvey
Gemini Observatory
Contact: jharvey@gemini.edu

Janice Harvey is Administrator for Education, Outreach and Media at Gemini North. Janice is the local team coordinator and leader of the Journey through the Universe program. She is also the National Team Site leader for the Family Astro program in Hawai‘i and serves as a StarLab instructor and trainer. She is a member of the Astronomical Society of the Pacific, the International Planetarium Society, the National Science Teachers Association, and is coordinator for many of the local science outreach programs on the Big Island. Janice is a long time resident of Hilo and is dedicated to bringing science and astronomy into the local classrooms.



Saeko Hayashi
Subaru Telescope
Contact: saeko@subaru.naoj.org

Saeko Hayashi received her Doctor of Science from the University of Tokyo. Her current position is Associate Professor, Subaru Telescope, National Astronomical Observatory of Japan. Saeko used to coordinate the day crew work shifts for the telescope. Currently, she manages public information and outreach efforts at Subaru Telescope, including the summit facility tours. Her main research pursuit is the formation process of stars and planets. She hopes to discover earth-like objects outside of the solar system.

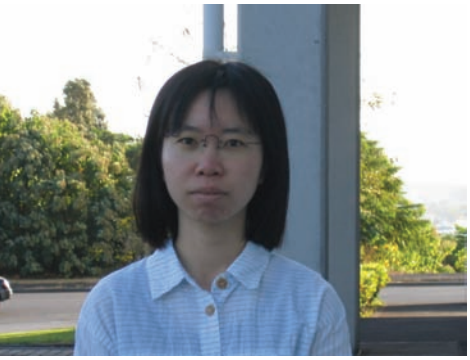
Inge Heyer
Joint Astronomy Centre
Contact: i.heyer@jach.hawaii.edu

Inge Heyer was born and raised in Berlin, Germany. She completed her secondary education there, after which she accepted a scholarship to attend Tenri University in Tenri, Japan. Following a life-long dream she studied martial arts and the Japanese language, and travelled extensively in that fascinating country. After this two-year academic "detour" she decided to follow her interest in astronomy (fuelled by watching way too much Star Trek in high school), and came to the U.S. to pursue an undergraduate degree at Smith College in Massachusetts. With a B.A. in physics and astronomy, Inge then attended the University of Hawai‘i at Manoa, where she obtained a master's degree in astronomy, and pursued many years of research, which often took her to the observatories atop beautiful Mauna Kea. From 1992 to 2005, Inge was a senior

data analyst at the Space Telescope Science Institute in Baltimore, working on images obtained by the Hubble Space Telescope's Wide-Field and Planetary Camera 2 (WFPC2) as well as the Advanced Camera for Surveys (ACS). Space Telescope has a very active educational and public outreach program, in which Inge participated as a volunteer. Still watching way too much Star Trek and also Babylon 5, Inge became involved in Baltimore-Washington Science Fiction activities. She gives presentations about astronomy and space science at conventions throughout the nation and Europe. She has also done this for schools of all levels, libraries, and community groups. In March of 2006, Inge moved back to Hawai‘i to lead the outreach efforts for the Joint Astronomy Centre in Hilo. She is looking forward to visiting all the Big Island schools and community groups to talk about the exciting astronomy work on Mauna Kea. And in case you were wondering how the Hubble Space Telescope images got into some episodes of Babylon-5 and Star Trek, you're looking at the trouble-maker who instigated this!

Michael Hoenig
Gemini Observatory
Contact: mhoenig@gemini.edu

Michael Hoenig is currently working as a Data Analysis Specialist at Gemini Observatory. He did his undergraduate degree in Astrophysics at the University of Sussex (England) in the mid-1990s, and then went on to do a Ph.D. at the University of Cambridge, which he completed in 2004. His thesis centered around the construction of a wide field infrared camera called CIRSI, which meant he ended up going on a number of observing trips to Mauna Kea and the Canary Islands. Once all the data from the instrument was properly reduced and calibrated, it was used to search for distant clusters of galaxies - and he is happy to report he actually found some, too. After his Ph.D. he worked in translation and publishing for a few years. He is thrilled to be back in astronomy and back in Hawai‘i. When he's not examining data from the telescope, he likes to go to the beach, read a good book or dance Argentine tango.



Ryoko Ishioka
Subaru Telescope
Contact: ishioka@subaru.naoj.org

Ryoko Ishioka is a research fellow at the Subaru Telescope. She grew up in Hiroshima, Japan, and started astronomical study at Kyoto. Ryoko moved to Hilo in 2005, just after finishing her Ph.D. Her research subject is about a special type of variable star called cataclysmic variables. These objects change their brightness on time scales from seconds to years and some of them become 100 times brighter than their normal brightness. Such changes can be detected by small telescopes or binoculars (or sometimes even by unaided eyes). So not only professional but also many amateur astronomers are observing cataclysmic variables. Their variation is interesting - Ryoko doesn't get tired of observing them!

Eric Jeschke
Subaru Telescope
Contact: eric@naoj.org

Eric Jeschke is a software engineer at Subaru Telescope, based in Hilo, Hawai‘i. He received a Ph.D. in Computer Science from Indiana University in 1995 and has worked since then in various capacities as a software engineer, technical consultant and educator before joining Subaru in 2004. At Subaru, he works on various software development projects, including a next-generation observation control system. His hobbies include photography, music, kayaking and Japanese language, in addition to a perpetual role headingthe Big Island Linux Users Group.

Ka‘iu Kimura
‘Imiloa Astronomy Center of Hawai‘i
Contact: kkimura@imiloahawaii.org

Ka‘iu Kimura is Executive Director of the ‘Imiloa Astronomy Center of Hawai‘i, effective August 1, 2010. “Heading a world class facility like ‘Imiloa is the opportunity of a lifetime,” she says. “I’ve watched with awe and amazement as the Center has inspired our youth and community-at-large to pursue the study of science and culture in a setting beyond anything I ever dreamed of while growing up.” Ka‘iu joined ‘Imiloa during its planning phase in 2001 as the Hawaiian content research specialist, and later served as the Center’s Experience Coordinator. Prior to becoming Interim Executive Director in November 2009, she held the position of Associate Director with responsibility for all visitor experiences in addition to planetarium, educational, exhibit, and cultural landscape programming. Born in Kamuela, Ka‘iu graduated from Kamehameha Schools’ Kapalama campus. She returned to the Big Island to attend UH Hilo, where she earned a Bachelor's degree in Hawaiian studies and a Master's in Hawaiian language and literature. While at UH-Hilo, she participated in the first UH-Hilo student exchange program with the University of Waikato in Hamilton, New Zealand, where she spent a semester studying Maori language and culture. She has also worked for ‘Aha Punana Leo in various positions, including as facilitator for Hale Kipa ‘Oiwi, an outreach program to other Native American communities and indigenous groups worldwide, working towards language and culture revitalization. Ka‘iu has also developed language curriculum for Hawaii’s business community. An avid canoe paddler, first with the Kawaihae Canoe Club and now with the Keaukaha Canoe Club in Hilo, she was selected to be a member of the 2007 Hokule‘a long-distance voyaging crew for the Okinawa-to-Japan leg of that voyage. Ka‘iu was also one of eight members selected to the inaugural First Nations Future Indigenous Leadership Program offered by Kamehameha Schools and Stanford University.

Scot Kleinman
Gemini Observatory
Contact: kleinman@gemini.edu

Scot (there was a shortage of "t"s when he was born) **Kleinman** is an astronomer at Gemini North. He works as the Instrument Program Scientist, helping develop and bring 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.

Shawn Laatsch
‘Imiloa Astronomy Center of Hawai‘i
Contact: slaatsch@imiloahawaii.org

Shawn Laatsch is Planetarium Manager for the ‘Imiloa Astronomy Center of Hawai‘i. He serves as an Executive Officer in the International Planetarium Society, the world’s largest organization of planetarium professionals. Over the past 24 years Shawn has been actively involved in planetarium program development and astronomy education in museum, university, and K-12 settings. He is also actively involved in astronomy outreach and education and is a NASA JPL Solar System

Ambassador. He has taught astronomy at the University of Louisville, East Carolina University, and Pitt Community College. In 2008 he received the International Planetarium Society's Service Award for dedication to the planetarium field, and in 2010, Shawn and Richard Crowe each won the ***Taniguchi Excellence and Innovation in Teaching Award*** for their teamwork teaching introductory astronomy in the 'Imiloa planetarium. He has a passion for cultural and historical astronomy and worked on a major program for the International Year of Astronomy in 2009. Prior to his position at 'Imiloa Astronomy Center of Hawai'i, he served as the Director of the Gheens Science Hall & Rauch Planetarium at the University of Louisville and the Arthur Storer Planetarium in Prince Frederick, Maryland.

Bernhard Laurich
Hawai'i Community College
Contact: laurich@hawaii.edu

Bernhard Laurich received his Ph.D. in Physics at the University of Stuttgart, Germany, where he studied the electronic properties of silicon. In 1986 he moved to the U.S. and spent 10 years at the Los Alamos National Laboratory doing research on layered inorganic and organic semiconductors and their structural, electric and electro-optic properties. In 1996 he followed his passion to create and foster interest in science, and since that time he has been teaching Physics, Chemistry and Astronomy at Hawai'i Community College. His most recent interests are astrobiology and sustainable energy systems.

David Law
University of California at Los Angeles
Contact: drlaw@astro.UCLA.edu

David Law is a NASA Hubble Postdoctoral Fellow at UCLA. He obtained his Ph.D. in Astrophysics from Caltech in 2009, having studied previously at the University of Virginia. David pursues a blend of observational and computational research encompassing galaxy structure and properties in a variety of environments. One part of his research concerns the formation of tidal debris streams in the Milky Way, using such streams to learn about the shape and structure of our home galaxy. A second major part of his research aims to understand the nature of galaxies in the young universe by using high angular resolution observations taken with the Hubble Space Telescope and Keck laser guide star adaptive optics system on Mauna Kea. David has previously served as science advisor to the Keck Next-Generation adaptive optics program, and is currently a science team member for the IRIS (InfraRed Imaging) spectrograph, designed as a first-light instrument for the Thirty Meter Telescope.

Dan Lyons
University of Wyoming
Contact: danjlyons@gmail.com

Dan Lyons is a senior doctoral student at the University of Wyoming where his scholarship focuses on teaching the scientific process in Introductory Astronomy courses for non-majors. This work includes restructuring the course in order to actively engage students in the lecture sections, and developing lab experiences that assist students to engage in authentic meaningful research experiences. Dan's Masters work involved molecular spectroscopy in highly compact star-forming regions, using observations made on the Very Large Array of the National Radio Astronomy Observatory. He has also worked on the development of a number of optics demonstration apparatus for use in informal education settings that feature components related to adaptive optics; for example, the Shack-Hartmann detector.

Frantz Martinache
Subaru Telescope
Contact: frantz@naoj.org

Frantz Martinache grew up in France and graduated from the University of Marseille in 2005 with a Ph.D. in astronomy, completed under the direction of optical interferometry pionneer Prof. Antoine Labeyrie. His Ph.D. work also included a 7-month internship at the Subaru Telescope in Hilo, during which time he fell for the Big Island. His research interests include low mass stars, brown dwarfs and extrasolar planets. However, instead of simply using telescopes and instruments the way they were designed (which is too boring), he likes to tinker and tweak, and have the instruments do new things. He came back to the Subaru Telescope in the fall of 2008 to assemble and test an extreme Adaptive Optics system that will take direct images of planetary systems around nearby stars. In his spare time, Frantz trains in the martial art of aikido, plays heavy metal with his guitar, hacks computers and electronics, as well as reads and draws.

Tony Matulonis
Gemini Observatory
Contact: matuloni@gemini.edu

Tony Matulonis is a System Support Associate at the Gemini North Observatory in Hilo Hawai‘i. He earned his Bachelor of Science in Astronomy from the University of Hawai‘i at Hilo in 2002. After working as an Interpretive Guide at the Ellison Onizuka Center for International Astronomy Visitor Information Station, Observatory Night Attendant at the NASA IRTF, and Telescope Operator at the UH 2.2-meter on Mauna Kea, he joined Gemini Observatory in 2003. His interests include adaptive optics and laser guide star systems.

Richard McDermid
Gemini Observatory
Contact: rmcdermi@gemini.edu

Richard McDermid is a Gemini Science Fellow at Gemini North, and currently the NIFS instrument scientist. Richard obtained an M.Sc. in 1999 from St. Andrews University in his native country of Scotland, and studied his Ph.D. at Durham University in the north-east of England. From 2002, following his Ph.D., he spent five years as a postdoctoral fellow at Leiden Observatory in the Netherlands, and joined Gemini in 2007. Richard's instrumentation expertise is focused on integral-field spectroscopy and adaptive optics, which also form the basis of his research interests. Richard currently works on investigating stellar populations and dynamics in early-type galaxies with a view to understanding how massive galaxies form and evolve. Richard also works on measuring the properties of super-massive black holes in nearby passive galaxies through the application of dynamical models.

Callie McNew
Institute for Astronomy / Gemini Observatory
Contact: mcnew@hawaii.edu

Callie McNew is currently a Telescope Operator for the University of Hawai‘i 2.2-meter Telescope and an Aircraft Spotter and Satellite Monitor for the Gemini North Observatory. Callie graduated from the University of Hawai‘i at Hilo in 2007 with a Bachelor of Arts in

Communications and Natural Science, and a Minor in Astronomy. Today she is pursuing a Master's degree in Educational Technology through the University of Hawai'i at Manoa. Callie's passion is video editing and astronomy outreach. She strives to inspire children and especially young women into taking an interest in the sciences.

Peter Michaud
Gemini Observatory
Contact: 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. His staff has grown from himself to seven employees since 1998 and he continues to expand the impact of Gemini's Public Information and Outreach programming locally, nationally and world-wide.

Yvonne Pendleton
NASA Lunar Science Institute
Contact: yvonne.pendleton@nasa.gov

Yvonne Pendleton is the Director of the NASA Lunar Science Institute. She joined NASA Ames Research Center in July 1979 having earned her Bachelor of Aerospace Engineering degree from the Georgia Institute of Technology. Under NASA-sponsored programs, she obtained a Master's Degree in Aeronautics and Astronautics from Stanford University (1981) and a Ph.D. in Astrophysics from the University of California at Santa Cruz (1987). As a research astrophysicist in the Space Science and Astrobiology Division from 1979-2005, Yvonne published 80 scientific papers and contributed significantly to our understanding of the origin and evolution of organic material in the universe. The goal of her ongoing research program is to understand the composition of the organic material found in the interstellar medium and to investigate the incorporation of the organic material from space into the early Earth environment. She is an elected fellow of the California Academy of Science and Asteroid 7165Pendleton was named in honor of her research contributions. Appointed Chief of the Space Science and Astrobiology Division at NASA Ames Research Center in 2005, she led a scientific and technical staff of 160 people. When asked to serve as the senior advisor for research and analysis programs for the Science Mission Directorate at NASA Headquarters, she moved to Washington, D.C. in 2007. There, she provided independent assessments and guidance to the Associate Administrator of the Science Mission Directorate concerning NASA's science research programs and increased scientific productivity across the nation as

the time required to evaluate and award research grants was significantly reduced. During that time she was also responsible for the Education and Public Outreach of NASA's Science Mission Directorate and led a team that managed the nearly 50 million dollar investment made in EPO activities, including those from NASA's science missions. Returning to NASA Ames in July of 2008, Yvonne became the deputy associate director where she provided guidance and direction to several collaborative scientific and technical efforts and served as an academic Dean of Students for the several hundred students on the Ames campus each summer. Yvonne has been very active in education and public outreach throughout her career. She served as the Director for Research for the NASA Ames Astrobiology Academy in 2004, developed the Voyages Through Time education curricula with the SETI Institute, served as an astronomer to local classrooms for over a decade with the Astronomical Society of the Pacific, and taught astronomy at the college level as an adjunct lecturer at Santa Clara University.

Stephen Pompea
National Optical Astronomy Observatory
Contact: spompea@noao.edu

Stephen Pompea is Head of the Education and Public Outreach Department at the National Optical Astronomy Observatory in Tucson, Arizona. He did his undergraduate work in physics, space physics, and astronomy at Rice University, his Master's work in physics teaching at Colorado State University, and his Ph.D. in astronomy at the University of Arizona. He worked on NASA space instrument projects at Martin Marietta in Denver, served as instrument scientist for both NICMOS on the Hubble Space Telescope, and the Gemini 8-meter telescopes. He says his hardest job was as a classroom teacher in Colorado! He is the author, coauthor, or editor of 15 books and over 100 papers, mainly on science education, and has given over 250 presentations at professional conferences. He is well known as an innovator in science education, and has been PI or Co-I on 8 major NSF national science education projects in instructional materials development, informal science education, teacher and student research, and teacher professional development. His latest project was the Galileoscope–a high-quality, low-cost telescope kit for kids. He is an adjunct faculty at the Universities of Arizona and Arkansas.

Robert Potter
Subaru Telescope
Contact: potterb@subaru.naoj.org

Bob Potter is an Operator for the Subaru Telescope. He works closely with support scientists and visiting observers to acquire the best possible data for observing runs. He also trains other operators and software engineers in the basics of the telescope's operation. His duties at Subaru also include some engineering for IRCS (InfraRed Camera and Spectrograph). In addition, he does mechanical engineering and some electrical and electronics engineering for the IRCS. He shares the following perspective: "I feel any observatory will hire someone who shows initiative, integrity, and an interest in astronomy or technology. An absolute essential is excellent communication and people skills and a desire to work with people from different backgrounds. A working knowledge of UNIX and networks is helpful. One should understand systems and how they interconnect. A BS in astronomy is not absolutely necessary for an operations position. Experience as a telescope operator is also a stepping stone into graduate work."

Ramprasad Rao
Submillimeter Array
Contact: rrao@hawaii.edu

Ramprasad Rao doubles as an astronomer and an engineer with the Submillimeter Array (SMA) on Mauna Kea, Hawai'i. After completing his undergraduate studies in electrical engineering at the Indian Institute of Technology, Madras, India, he came to the University of Illinois at Urbana-Champaign to attend graduate school in astronomy. He obtained his Ph.D. in 1999 and moved to the University of Chicago for post-doctoral studies before coming to Hawai'i in 2003. His primary research is conducted in the area of star formation in the galaxy. In particular, he focuses on making observations of the magnetic field through polarization measurements using instruments that he has designed and built.

Julie Renaud-Kim
W.M. Keck Observatory
Contact: julierk@keck.hawaii.edu

Julie Renaud-Kim was born the youngest of seven children in Alhambra, California. While at Alhambra High School she became involved in Biomed, a program promoting scientific research. By her senior year, she was studying comets Hale-Bopp and Hyakutake at California State University, Los Angeles. After graduation, she continued her studies in astronomy and garnered more telescope experience at Pomona College. The next stop in her personal astronomical journey was the W.M. Keck Observatory, where she is an Observing Assistant, a position which requires her to operate the Keck telescopes and aid researchers in obtaining scientific data. She has always been interested in sharing her knowledge with others, through tutoring, teaching or just talking story. Journey Through the Universe has given her a new way to reach out.

Kathy Roth
Gemini Observatory
Contact: kroth@gemini.edu

Kathy Roth is an Associate Scientist based at Gemini North. She is the instrument scientist for the Gemini Multi-Object Spectrograph (GMOS-N) and has been with Gemini since July 2000. She obtained her B.Sc. in Physics and Computer Science at Duke University in 1985 and her Ph.D. in Astrophysics from Northwestern University in 1992. She held a postdoctoral position at the Space Telescope Science Institute (STScI) in Baltimore from 1992 until 1995, followed by a Hubble Fellowship at the University of Hawai'i Institute for Astronomy from 1995 until 1998. In 1998 she joined the staff of the Far Ultraviolet Spectroscopic Explorer (FUSE) at Johns Hopkins University in Baltimore. Her research interests include the chemical enrichment of the interstellar medium in our galaxy and in the high-redshift universe via quasar absorption line spectroscopy, the study of distant young galaxies, and the use of gamma ray bursts to probe chemical enrichment of the early universe by the first stars.

Hiroko Shinnaga
Caltech Submillimeter Observatory
Contact: shinnaga@submm.caltech.edu

Hiroko Shinnaga is a staff scientist at California Institute of Technology Submillimeter Observatory (CSO). She obtained a Doctor of Science at Ibaraki University (Institute of Astrophysics and Planetary Sciences) in Japan. Her thesis work included the development of a wide millimeter band polarimeter, and polarimetric observations using the instrument with the 45-meter telescope, done at the Nobeyama Radio Observatory, a division of the National Astronomical Observatory of Japan. Following postdoctoral research fellowships at the Submillimeter Array project at Academia Sinica Institute of Astronomy and Astrophysics (ASIAA) in Taiwan and at Harvard-Smithsonian Center for Astrophysics (CfA) in the U.S., she became a staff scientist at California Institute of Technology Submillimeter Observatory (CSO) in 2004. Her research interests include submillimeter/millimeter astronomy, polarimetry, interferometric imaging observations and techniques, masers, late stages of stellar evolution, early phases of star formation, studies of interstellar, circumstellar, and stellar magnetic fields.

Doug Simons
Gemini Observatory
Contact: dsimons@gemini.edu

Doug Simons received his B.S. in astronomy at the California Institute of Technology in 1985, and a 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 for 4 years. Doug joined Gemini in May of 1994 as the Systems Scientist, then managed Gemini's instrument development program before becoming Gemini's Director in May 2006. Principal areas of interest include infrared instrumentation and studies of the Galactic center, low mass stars, and star formation regions.

Stephanie Slater
CAPER, University of Wyoming
Contact: sslaterwyo@gmail.com

Stephanie Slater is an Assistant Professor at the University of Wyoming, where her teaching and scholarship focus on science education. Her favorite classes are those where she helps to prepare new teachers to teach inquiry, and graduate courses for teachers, where she helps them to increase their knowledge of astronomy and how to teach it. Her doctoral work at the University of Arizona focused on the kinds of experiences that turn young scientists into astronomers, causing her to say that she doesn’t study astronomy; rather, she studies astronomers. In addition to important research experiences, Stephanie studies issues of spatial reasoning and cognitive load in the learning of astronomy. Prior to entering academia, Stephanie spent 15 fantastic years as a K-12 classroom science teacher, an experience that resulted in an invested interest in science curriculum and course development, and in the programs that lead to science teachers’ knowledge of content and research-based pedagogy. She also serves as the Director of Research for the Conceptual Astronomy and Physics Education Research (CAPER) Team at the University of Wyoming.

Tim Slater
University of Wyoming
Contact: timslaterwyo@gmail.com

Timothy F. Slater is the first University of Wyoming Excellence in Higher Education Endowed Chair in Science Education where his scholarship focuses on the teaching and learning of science. He is also the Director of the Conceptual Astronomy and Physics Education Research (CAPER) group which he founded while in the Astronomy Department at the University of Arizona. His research focuses on student conceptual understanding in formal and informal learning environments, inquiry-based curriculum development, and authentic assessment strategies, with a particular emphasis on non-science majors and pre-service teachers. Most semesters, you can find him in a giant lecture hall teaching astronomy to 300 non-science-majoring students at a time. He also teaches science teaching methods courses for future teachers. Tim earned his Ph.D. at the University of South Carolina in geophysics and his M.S. from Clemson University in astrophysics. He holds two bachelors' degrees from Kansas State University, one in science education and one in physical science. He has extensive experience working with teachers and students in Hawai‘i and works closely with programs at the UH Institute for Astronomy. Tim is the elected education officer for the American Astronomical Society, an elected member of the Board of Directors for the Astronomical Society of the Pacific, an elected councilor-at-large for the Society of College Science Teachers, is on the Editorial Board of the Astronomy Education Review, and has served multiple terms as chairman of the Astronomy Education Committee of the American Association of Physics Teachers. He represents the United States as the U.S. National Chairman of the 2009 International Year of Astronomy. He is an author of more than 70 refereed articles, winner of numerous awards, and is frequently an invited speaker on improving teaching of science through educational research and teacher education.

Walter Steiger
Caltech Submillimeter Observatory
Contact: steiger@hawaii.edu

Walter Steiger is Professor Emeritus of Physics and Astronomy at the University of Hawai‘i at Manoa. During his 30-year career at Manoa, he began an astronomy program and developed a solar observatory at Makapu‘u Point on O‘ahu, which later was supplanted by one on Haleakala, Maui. On Haleakala he conducted studies of the airglow and zodiacal light. After an early retirement in 1980, he entered a new form of teaching at the Bishop Museum Planetarium. During this period he also served for four years on the UH Board of Regents. In 1987, looking for another new challenge, he was offered the opportunity to work on Mauna Kea as Site Manager for the Caltech Submillimeter Observatory. After retirement from CSO, he was back to his first love of teaching physics, this time at UH-Hilo, as Adjunct Professor in the UHH Department of Physics and Astronomy. He now talks and writes about the origins of astronomy in Hawai‘i, and also helps CSO with its outreach program.

Ryuji Suzuki
Subaru Telescope
Contact: ryuji.suzuki@subarutelescope.org

Ryuji Suzuki is a post-doctoral research fellow at Subaru Telescope. Ryuji moved to Hilo in 2002 when he was a graduate student of Tohoku University in Japan. Ryuji had joined a project which developed a wide-field infrared camera for the Subaru Telescope, before he obtained his Ph.D. in 2006. After he graduated from the university, Ryuji moved to the next project where he has been developing another infrared camera for the Subaru Telescope with Adaptive Optics. His research interest is understanding when and how galaxies, particularly spiral,

elliptical and irregular, formed and evolved since the Universe was born 14 billion years ago. As an instrument scientist, Ryuji wishes to continue his research using the instruments that he built or will build. He also would like to see his instruments being used by astronomers around the world to achieve important results. Ryuji has played a role as an optical designer on instrument development teams. When he is away from astronomy, Ryuji likes to exercise, go out for a drive, or read books about optics.

Marianne Takamiya
UH Hilo Physics & Astronomy
Contact: takamiya@hawaii.edu

Marianne Takamiya comes from Chile where she obtained her B.Sc. in Physics. She earned her Ph.D. in Astronomy and Astrophysics from The University of Chicago and came to Hilo in 1998 as one of the first Gemini Science Fellows. She is a mother of two children and wife of an astronomer. She is currently an Assistant Professor in the Department of Physics and Astronomy at the University of Hawai‘i at Hilo where she teaches physics and astronomy courses and studies the evolution of galaxies and star formation in galaxies near and far.

Holly Thomas
Joint Astronomy Centre
Contact: h.thomas@jach.hawaii.edu

Holly Thomas is a Staff Astronomer at the James Clerk Maxwell Telescope. She received her Ph.D. in Astrophysics in 2007 from the University of Manchester in the UK. In her current role she is responsible for maintaining the pointing model for the telescope, assisting visiting astronomers, as well as spending some time pursuing her own research. Her research interests center on galactic star formation with a particular focus on the most massive stars. These huge stars form deep inside giant clouds of gas and dust, which makes them impossible to see directly. Instead, Holly uses the JCMT and other submillimeter telescopes to peer inside these clouds and understand the mechanisms by which stars form within them. In her spare time she likes to explore the islands both on land and in the sea. She also enjoys finding new places to eat and drink, reading mystery novels and trying out different sports.

Kumiko Usuda
Subaru Telescope
Contact: kumiko@subaru.naoj.org

Kumiko Usuda is a Japanese astronomer. Before she moved to Hilo in 1998, she visited Chile in South America and Mauna Kea in Hawai‘i to carry out astronomical observations. Her research deals with studying gas in the Milky Way, our Galaxy. Now she works at Subaru Telescope, the Japanese optical-infrared telescope on Mauna Kea, as an outreach scientist. After she moved to Hilo, she gave birth to two children, a girl in 1999 and a boy in 2002. Kumiko loves to talk astronomy to K-12 students or to preschoolers both in Hawai‘i and in Japan. She has already visited a lot of classrooms and has provided hands-on workshops in Hilo and vicinity. During the International Year of Astronomy (IYA) in 2009, Kumiko led three projects on the Big Island of Hawai‘i: Cosmic Poster Contest, Mauna Kea Brand Astronomy Trading Cards, Galileo Block Party (held October 24), and one in Japan, the production of a poster titled “400 Years of the Astronomical Telescope”. Visit http://www.naoj.org/staff/kumiko for details about her outreach activities.

Bernie Walp
Gemini Observatory
Contact: bwalp@gemini.edu

Bernie Walp is a System Support Associate at Gemini North Observatory. He followed a two-decade career in public-opinion research and political strategy consulting with the study of mathematics and a bachelor's degree from San Francisco State University. He served as a research aide and observer for the California and Carnegie Planet Search at UC Berkeley under Profs. Geoff Marcy and Debra Fischer, then as a telescope operator at Lick Observatory, and later as the site director of Mt. Wilson's Infrared Spatial Interferometer under Prof. Charles Townes of UC Berkeley.

Gregory Wirth
W.M. Keck Observatory
Contact: wirth@keck.hawaii.edu

Greg Wirth was raised in Michigan and became interested in astronomy despite living in one of the cloudier places on our planet! He studied physics, astronomy, and applied math at Northwestern University and earned a Ph.D. in Astronomy and Astrophysics from the University of California, Santa Cruz. For the last 8 years he has been an astronomer at the W. M. Keck Observatory, which operates the world's two largest optical telescopes on the summit of Mauna Kea. He currently lives in Waimea with his wife, three young children, a cat and three chickens. Greg credits the members of his local astronomy club with nurturing a lifelong interest in astronomy, and he is happy to repay those mentors by sharing the wonders of the Universe with students and enthusiasts everywhere.

Hilo, Hawaii
February, 2011

Classroom Visits

Hilo, Hawaii
February, 2011

Classroom Visits

Across the universe

Photos by WILLIAM ING/Tribune-Herald

Educator Stephanie Slater, center, sends two Hilo Intermediate seventh-graders onto the school lawn Tuesday to enact the movements of the planets Venus and Earth around the sun. The exercise, involving some 50 Spartan students from two combined classes, was one of numerous "Journey Through the Universe" classroom visits by researchers and engineers to 18 Hilo-area schools this week. This year, the Journey education team interacted with an estimated 8,000 students, grades K-12.

Spartan seventh-graders enact an approximation of the planet Jupiter, left, its moons, and their elliptical orbits around the sun. Slater had previously given the students an orientation talk on the basics of planetary movements. After the field exercise, the kids returned to the classroom and completed pencil drawings showing what they'd learned of the solar system.

Core Beliefs: ***Journey though the Universe*** is founded on three core beliefs that define–

Our Purpose:
We believe that to continue the legacy of scientific exploration, every generation must be inspired to learn what we know about our world and the universe, and how we have come to know it.

Our Pedagogy:
We believe that learners must see themselves in the stories we tell, and experience scientific exploration through their own involvement.

Our Approach to Programs:
We believe that it takes a community to educate a child … and a network of communities to reach a generation.

Sponsored in part by:

GEMINI OBSERVATORY
Exploring the Universe. Sharing its Wonders

'IMILOA
Astronomy Center of Hawai'i

University of Hawai'i Hilo

TMT
THIRTY METER TELESCOPE

Mauna Kea Observatories – Clearly the Best

NAO

CAPER Team
Center for Astronomy & Physics Education Research
University of Wyoming

Subaru

For more details, visit:
http://www.gemini.edu/journey

Participating Schools

Connections Public Charter School
E. B. de Silva Elementary
Ha`aheo Elementary
Hilo Community School for Adults
Hilo High School
Hilo Intermediate
Hilo Union Elementary
Kalaniana`ole Elem. & Intermediate
Chiefess Kapi`olani Elementary
Kaumana Elementary
Ka'Umeke Ka`eo Public Charter School
Ke Ana La'ahana Public Charter School
Keaukaha Elementary
Laupahoehoe High & Elementary
Nawahiokalaniopu'u
Waiakea Elementary
Waiakea Intermediate
Waiakea High School

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Hilo/Laupahoehoe/Waiakea Complex Area
Hawaii Department of Education

Journey Through The Universe

Feb. 10-18, 2011

Are There Other Planets Like Our Own?

JOURNEY through the UNIVERSE

The Program

The Hilo/Laupahoehoe/Waiakea Complex Area is now in its seventh year of ***Journey through the Universe***, a national educational initiative developed by the National Center for Earth and Space Science Education (NCESSE). Using the exciting fields of human space flight and the Earth and Space sciences, ***Journey through the Universe*** engages communities in sustained science, math, and technology education. The program takes entire communities, students, teachers, and families to the frontier. ***Journey through the Universe*** is a celebration of human exploration, how we have come to know what we know about the Universe, and the joys of learning.

As a designated ***Journey through the Universe*** community, we belong to the local and national network that will provide ongoing support and educational materials to inspire and excite our students and teachers throughout the year. It is aligned to the Hawaii State and National Science Standards and provides continual professional development in space science curriculum.

JOURNEY WEEK
SCHEDULE OF EVENTS

Educators' Workshop

Friday, Feb. 11
4:00 pm - 7:30 pm
Lesson plans, materials, telescope- building

'Imiloa Astronomy Ctr
For registered teachers

Classroom Visits

Feb. 14 - 18

HLW Complex Area Schools, Gr. K-12
As scheduled

Family Science Events
(open to the public)

Sunday, Feb. 13, 9am - 4pm

'Imiloa Astronomy Center: Displays, astrotalks and planetarium shows. *Limited capacity.*

Wednesday, Feb. 16, 6pm -9pm

University of Hawai'i at Hilo Theatre: Displays, telescope viewing, astrotalks by visiting scientists.

Inspiring Students

Hilo, Hawaii is currently one of 10 communities around the nation designated ***Journey through the Universe*** sites. Now in the sixth year of the project, the Hilo-Laupahoehoe-Waiakea Complex Area brings ***Journey through the Universe*** to classrooms and the community with this year's theme:

Are There Other Planets Like Our Own? (Earth-Space Science)

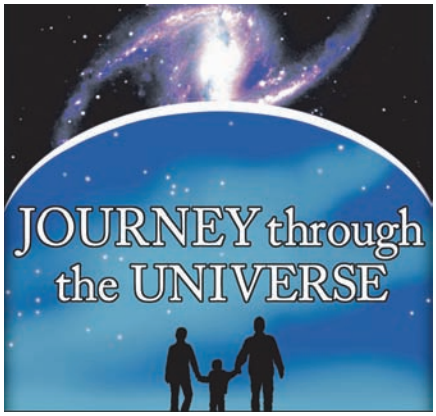
Teachers will attend the ***Educators' Workshop*** for hands-on practice with standards-based lessons and materials to take back to the classroom.

Over 50 local and visiting scientists will make ***Classroom Visits*** to share their expertise, pique curiosity, and inspire students to consider careers in science.

Students and their families will attend ***Family Science Events*** at 'Imiloa Astronomy Center and Borders Book Store to participate in activities, interact with participating scientists, and experience the wonder of space exploration.

Celebrating the past,
Embracing the present,
And inspiring the future...

FAMILY SCIENCE NIGHT



Come join us for Journey 2011

Family Science Night at UH Hilo!

February 16th 6-9pm

UH Hilo Theater

Stargazing Afterwards!

7-8pm Brad Bailey "Astrobiology and Lunar Science: The Origins of Life (and a Scientist!)"

How crater on the moon provide evidence of heavy bombardment and how life started in deep ocean vents.

8-9pm Scott Fisher

"What's up? – Talk Story Hour about Recent Discoveries in Astronomy"

Exciting recent discoveries made here in Hawaii and around the world. Afterwards, a game of "Stump the Astronomer"

There will be fun activities from the UHH Astrophysics Club, PISCES and Mauna Kea Observatories

FREE Admission!

Sunday, February 13, 2011
Family FREE DAY

Sponsored by KTA Super Stores

- Hourly astronomy presentations by the **Journey through the Universe Team and NASA.**
- Special planetarium programming.
- Exhibit and landscape tours.
- Free Kites to the first 500.
- Birthday cake and keiki hands on activities.
- KTA Super Stores BBQ plates on sale.
- Antique cars, HELCO sustainable home, and Volcanoes National Park booths.

Hawaii State Department of Education

KTA SUPER STORES

'Imiloa Astronomy Center of Hawai'i
600 Imiloa Place, Hilo Hawai'i
Part of the Univeristy of Hawai'i at Hilo

808-969-9703
Visit us at
www.imiloahawaii.org

'IMILOA
Astronomy Center of Hawai'i

Free Admission for the Day
9:00 am to 4:00 pm

Sky Garden Restaurant
Open 7:00 am to 8:30 pm

Journey Though the Universe Family Science Day Presentations
Sunday February 13, 2011
In ʻImiloa Astronomy Center's Moanahōkū Hall

9:30 -10:15 am

Doris Daou: "The Moon at Home and in the Classroom!"
The past year has seen a plethora of new Lunar Education and Public Outreach programs and resources. From public outreach projects such as the 'International Observe the Moon Night' and 'MyMoon', citizen science projects such as 'MoonZoo', formal programs such as a suite of lunar teacher professional development workshops and the revitalized Lunar Sample Education Disk Program, the lunar community has been providing education and outreach opportunities for a diverse group of audiences across various platforms. We would like to show you some of the fun and exciting lunar Education and Public Outreach creations and invite you to join us in learning about and exploring "Our Moon".

10:30 - 11:15 am

Scott Fisher: "What's up? – a Talk Story Hour about Recent Discoveries in Astronomy"
In this presentation Dr. Fisher will talk about some of the exciting recent discoveries made at observatories on the Big Island and from around the world. There will also be time for a game of "Stump the Astronomer" where the speaker will (attempt to) answer questions from the audience.

11:30 - 12:15 pm

Kevin Grazier: "Earthlings Invading Mars"
NASA currently has two orbiters and two landers operational at Mars, and will be adding to that number this year by launching a rover named Curiosity. Kevin Grazier discusses some of the recent results from Mars, and what we might expect from the next Earthly visitor to the Red Planet.

12:15 - 1:15pm
Exhibitor viewing in Hall
Exhibits offered by the Observatories on Mauna Kea, NASA Lunar Space Institute, UHH Astrophysics Club, Visitor Information Station and many others will be open for viewing!

1:15 - 2:00pm

Brian Day: "The New Moon"
Our understanding of the Moon has changed dramatically due to results from a series of recent robotic lunar missions. Our old view of the Moon as an arid, static, and empty place has been replaced. Our new view of the Moon includes rich deposits of water ice, a wide variety of exotic compounds, a thin though potentially active atmosphere, and perhaps even a water cycle. This new understanding of our nearest neighbor in space has profound implications for understanding of our own origins and humanity's future on the Moon.

2:15 - 3:00pm
Sandra Dawson: "TMT - Thirty Meter Telescope"
The Exciting Journey of TMT, Past, Present and Future

3:15 - 4:00pm

Drs. Tim and Stephanie Slater: "Seeing the Universe with Different Eyes"
Recent technology allows astronomers to see the dynamic Universe from many different viewpoints. This interactive and entertaining session demonstrates novel tools and techniques astronomers use to observe the Universe by looking at seemingly common everyday objects through modern eyes.

ʻIMILOA Astronomy Center of Hawai'i

JOURNEY through the UNIVERSE

Hawaii State Department of Education

KTA SUPER STORES

chamber connection

HICC.biz

News from Hawai`i Island Chamber of Commerce

Happy New Year!

CHAMBER CONNECTION

JANUARY 2011

Inside

Upcoming Events

Business After Hours
Coquis Hideaway Game Room
Thursday, Jan. 20 5:30-8:00pm
(see page 6)

Board of Directors Meeting
Thursday, Jan 27 11:30am
Hilo Yacht Club

Brown Bag Lunch Series
Friday, Jan. 28 12:00-1:30pm
Hawaii Innovation Center
Conference Room
(see page 10)

Journey Through The Universe Reception
Tuesday, Feb. 15 5:00-8:00pm
Hilo Yacht Club
(see page 8)

11th Annual President's Cup Golf Tournament
Saturday, Feb. 19, 8:30am tee time
Big Island Country Club
(see page 7)

Journey Through the Universe 2011

Tuesday February 15, 2011
Hilo Yacht Club

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.

Hawai`i Island Chamber of Commerce
Japanese Chamber of Commerce and Industry of Hawai`i
Hawaii State Department of Education's
Hilo/Laupahoehoe/Waiakea Complex
Gemini Observatory
`Imiloa Astronomy Center of Hawai`i
Mauna Kea Observatories
Thirty Meter Telescope
NASA Lunar Science Institute
University of Hawai`i at Hilo

Welcome to the Journey Through The Universe Reception

This Evening's Program

Master of Ceremonies
Vaughn Cook, Vice President
Hawai`i Island Chamber of Commerce

Welcome
Mike Gleason, President
Hawai`i Island Chamber of Commerce

Randall M. Kurohara, President
Japanese Chamber of Commerce & Industry of Hawai`i

Introduction
Janice Harvey
Gemini Observatory, Journey Through the Universe Team Leader

Presentation of Proclamation, Office of the Governor
Wendy Botelho-Cortez, Governor's Representative

Presentation of Proclamation, Office of the Mayor
Randall M. Kurohara, Director
Department of Research & Development
County of Hawai`i

Presentation of Proclamation, State House of Representatives
Janice Harvey

Valerie Takata, District Superintendent
Department of Education

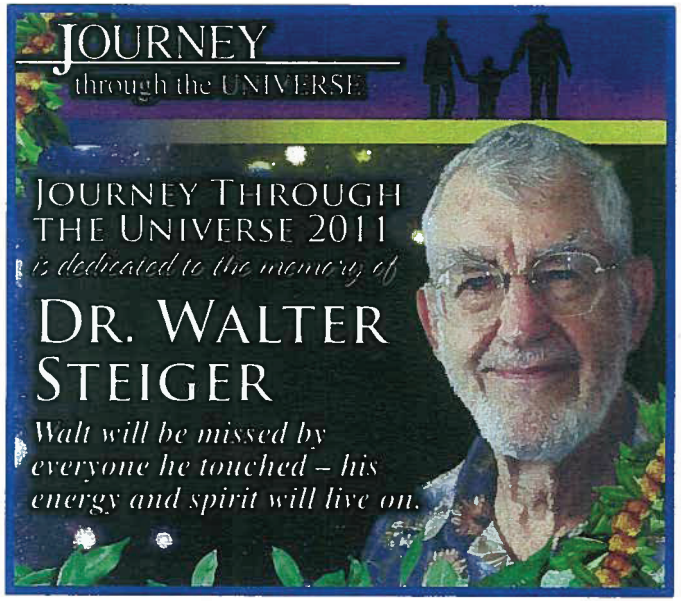
Doug Simons, Director
Gemini Observatory

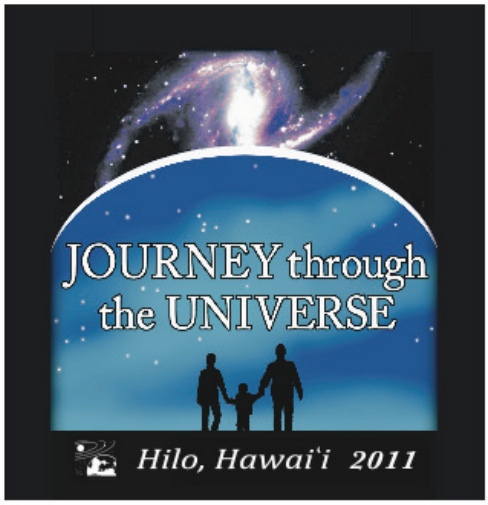
Journey Through The Universe Film

Door Prizes

Journey Through The Universe Astronomy Educators

Andy Adamson
Christian Anderson
Colin Aspin
Brad Bailey
Kenyan Beals
Dan Birchall
Kimberly Brenton
Kristin Chiboucas
Paul Coleman
Richard Crowe
Doris Daou
Sandra Dawson
Brian Day
Jeff Donahue
Anil Dosaj
Angelic Ebbers
Patty Elison
Scott Fisher
Brian Force
Gary Fujihara
Tom Geballe
Jesse Goldman
Taras Golota
Stephen Goodsell
Kevin Grazier
Olivier Guyon
John Hamilton
Janice Harvey
Saeko Hayashi
Michael Hoenig
Ryoko Ishioka
Eric Jeschke
Ka`iu Kimura
Scot Kleinman
Shawn Laatsch
Bernhard Laurich
Dan Lyons
Frantz Martinache
Tony Matulonis
Richard McDermid
Callie McNew
Peter Michaud
Richard Oram
Stephen Pompea
Robert Potter
Ramprasad Rao
Julie Renaud-Kim
Kathy Roth
Hiroko Shinnaga
Doug Simons
Tim Slater
Stephanie Slater
Sunny Stewart
Ryuji Suzuki
Marianne Takamiya
Kumiko Usuda
Bernie Walp
Greg Wirth
Robert Wyman





Journey through the Universe

2011

T-shirts (front & back)

Journey through the Universe 2011

Nametags

Journey through the Universe 2011

Journey Through The Universe

Coming in 2011!

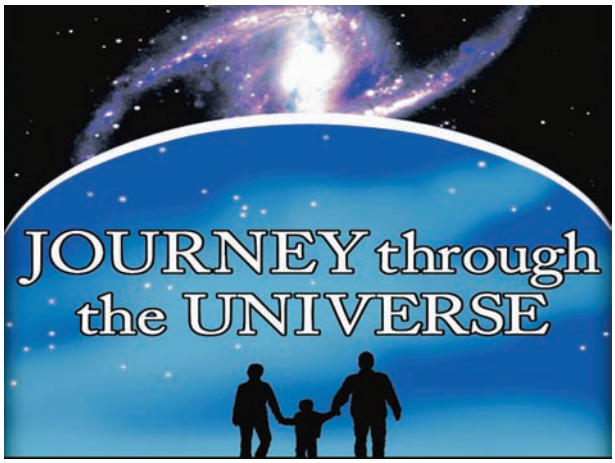
Department of Education

Hilo/Laupahoehoe/Waiakea Complex

Airport Banner

School & Community Banners

State of Hawaii
Department of Education



NASA LUNAR SCIENCE INSTITUTE

CAPER Team
Center for Astronomy & Physics Education Research
University of Wyoming

GEMINI OBSERVATORY
Exploring the Universe, Sharing its Wonders

Hilo, Hawai'i
February 10 - 18, 2011

TMT
THIRTY METER TELESCOPE

Astronomy `Ohana

University of Hawai'i Hilo

'Imiloa Astronomy Center of Hawai'i

Mauna Kea Observatories — Clearly the Best — Hawai'i

Subaru National Astronomical Observatory of Japan

Institute for Astronomy, University of Hawai'i

NASA IRTF — University of Hawai'i

Hōkū Ke'a

NOAO

Joint Astronomy Centre — JCMT — UKIRT

Smithsonian Astrophysical Observatory — SMA — Academia Sinica IAA

W. M. Keck Observatory

NRAO

CFH

CSO

Community Sponsors

Bank of Hawaii

Hawai'i Island Economic Development Board
Island of Opportunity

Hawaii Tribune Herald

Business-Education Partnership

Japanese Chamber of Commerce & Industry of Hawaii — Since 1951

KTA SUPER STORES

KWXX — Your Island Music Station!

BIG ISLAND TOYOTA — CUSTOMERS FIRST SINCE 1962

Hawaii Island Chamber of Commerce — Since 1915

Rotary International