

PISCES

Letter from the Director

PISCES Executive Director Rob Kelso



PISCES Executive Director Rob Kelso stands in front of Kaho'omakahou, Hawaiian for "The New Beginning." Local high school students recently reconstructed this space shuttle flight deck mock-up.

Adding to our State's Economic Development

One of the common reoccurring themes I hear in the County and the State, whether legislators, business leaders, parents, academics, economic developers, etc. It is the theme of our children leaving Hawaii because of

the lack of high technology jobs and hi-tech industries.

Throughout history, the greatest civilizations have always extended to new frontiers of their times.

Continue on pg. 2

A Day of Remembrance in Honor of Ellison Onizuka

In January, PISCES linked up with Kea'au High School in East Hawaii, Hawaii Community College, Civil Air Patrol, U.S. Air Force Color Guard, and many more to recognize Hawaii-born astronaut Ellison Onizuka's life and legacy with a special ceremony and unveiling event. The event was held on the 30th anniversary of the NASA *Challenger* disaster.

We were so humbled by the amazing turnout with special guests from Hawaii County, Hawaii Governor's office, and a special speech by Hawaii County Mayor Billy Kenoi. Later on, after the memorial portion of the event had finished, the students at Kea'au High School unveiled their months-long project. **Continue on pg. 2**

ISSUE 2 FEB. 3, 2016

In this issue:



Check out photographs from our Ellison Onizuka Remembrance Day Ceremony at Kea'au High School.

2



Apollo-era Scientist Dr. Doug Currie visits PISCES and lectures at the University of Hawaii at Hilo.

3

More at PISCES



PISCES takes a moment to reflect on the life and legacy of Hawaii State Sen. Gilbert Kahele.

4



Learn how to check out the latest news on PISCES online...

4

Letter from PISCES Director Continued...

Indeed, we define as “great” only those civilizations; which did explore and expand their frontiers, thereby ultimately influencing world culture. We credit as “great” the early Polynesian voyagers to Hawaii. And when, inevitably, some societies retreat from the frontiers they have pioneered, their greatness subsides as well.

We see this in the huge, powerful Chinese naval fleet in 1414 AD, truly a spectacular fleet! More than 30,000 people went on one naval voyage, traveling around Southeast Asia and the Indian Ocean. The Chinese Emperor who supported such exploits was a visionary leader. He died in

1424, and his successor was the exact opposite. He was not a leader or a strategic visionary and made the decision to stop all voyages and burn the entire fleet. Subsequently, in 1433, China returned to an isolationist policy, which accompanied a period of economic decline.

As former Hawaii governor George Ariyoshi recently said, “...there are geographic locations and capabilities of Hawaii that can never be taken away. The mid-Pacific capability and volcanic terrain offer new opportunities for technology investment in Hawaii that can create new high technology

Continued on page 4



A student is seen here in the space shuttle flight simulator at Kea’au High School. The endeavor was a joint project with PISCES and several other area partners.

“The opportunities are continuing to emerge for creating a vibrant aerospace economy. Aerospace business, and industry are ours to lose.”

Former Hawaii Gov. George Ariyoshi

In honor of Ellison Onizuka



Attendees of Jan. 28's special memorial for Ellison Onizuka are seen here looking at Kea’au High School's recently reconstructed space shuttle flight deck mock-up.

Students in Kea’au High School’s Automotive Program and Hawaii Community College’s Construction Academy, along with the help of several other teachers and students successfully reconstructed a space capsule. The finished project was nothing short of inspiring, complete with a flight simulator! A special thank you to the generous donors of the project. Congrats everyone!



Left: Hawaii County Mayor Billy Kenoi spoke at our memorial event for Ellison Onizuka

DR. DOUG CURRIE LECTURES AT UNIVERSITY OF HAWAII AT HILO



Dr. Doug Currie

Apollo-era Scientist Dr. Doug Currie visited with PISCES last month. Also during the visit, he provided lectures at the University of Hawaii at Hilo.

Dr. Currie was instrumental in the adoption by NASA of passive optical retroreflectors for the Lunar Laser Ranging Experiment deployed on the moon by the Apollo 11, 14 and 15 astronauts.

Dr. Currie was one of the pioneers of this simple technique of precise distance measurement that has had important applications to basic Physics.

According to Wikipedia.com, some of the findings of this long-term experiment include the discovery that the Moon is spiraling away from Earth at a rate of 3.8 cm per year; the Moon probably has a liquid core of about 20 percent of the Moon's radius; and that the universal force of gravity is very stable.

Other findings include the likelihood of any "Nordtvedt effect" (a differential acceleration of the Moon and Earth towards the Sun caused by their different degrees of compactness) has been ruled out by high precision, strongly supporting the validity of the Strong Equivalence Principle.

Dr. Currie is still actively involved with the next generation of Laser Retroreflectors and has tested prototypes here in Hawaii during the 2010 PISCES/NASA Field Tests.

It is hoped that these new optics will be deployed by some of the anticipated Google Lunar X-Prize (GLXP) landers to allow a higher precision.



Retroreflectors, or corner-cube prisms, are optical devices that return any incident light back in exactly the direction from which it came. Image from

<http://physics.ucsd.edu/~tmurphy/apollo/lrrr.html>

**Letter from Director
Continued...**

industries.

The opportunities are continuing to emerge for creating a vibrant aerospace economy. Aerospace business, and industry are ours to lose.”

Several bills are in the legislature for this FY17 session that deal with aerospace economic development. One bill specifically calls for a more concentrated effort in organizing and focusing on creating a vibrant aerospace sector in our state as a complementary economic development engine along with tourism, service industry and military. PISCES supports such a strategic vision.

Another bill would provide for an economic assessment by our state on the possibility of the development and market viability of a small satellite launch capability in Hawaii.

Aerospace ‘stands at the ready’ to support continued economic growth in Hawaii. The need to have a clear strategic plan that is partially state-funded, including incentives and

inducements packages to offer and entice prospective businesses and industries Hawaii, and legislatively supported by the State... is key for the aerospace industry to further emerge in this state. It is important to have more direction and a very clear position going forward for 5 or 10 years relative to new, emerging aerospace industry opportunities for our state. These legislative initiatives in the FY17 session will also serve as a clear signal to the federal sector, private sector and international communities as to Hawaii path to furthering economic and high-technology job growth within our great state.

Until next time...

-Rob Kelso

In Memory of Hawaii
State Sen. Gilbert Kahele

May 15 1942-Jan. 26-2016



PISCES extends its condolences to those impacted by the loss of Big Island Sen. Gilbert Kahele. PISCES Executive Director Rob Kelso describes Kahele as an important proponent for PISCES, “whose support and friendship would be sorely missed.” He was a strong advocate for Hawaii Island and an aviation flight-training center at the airport.

**LUNAR
LANDING PAD**



**MORE VIDEOS
ONLINE!**

Make sure to subscribe to our YouTube account to see the latest videos of the Vertical Take-off, Vertical Landing Pad Project.

Our Project Manager Rodrigo Romo has been recording every step of the process!



PISCES PRESS

PISCES has been featured in several stories locally, statewide and nationally in January. If you log onto www.pacificspacecenter.com and check out our “press coverage section” on the website, you can see a wide-range of news clips featuring our many projects. Enjoy!