

# SCR 100

**Measure Title:**

RECOGNIZING AEROSPACE AS A STRATEGIC AND TIMELY GROWTH INDUSTRY FOR HAWAII AND REQUESTING THE STATE ADMINISTRATION TO TAKE PROACTIVE COORDINATED, AND SUSTAINED ACTION TO FULLY REALIZE THE SIGNIFICANT SCIENTIFIC, EDUCATIONAL, AND COMMERCIAL BENEFITS THE AEROSPACE INDUSTRY CAN BRING TO THE STATE.

George R. Ariyoshi  
999 Bishop Street, 23<sup>rd</sup> Floor  
Honolulu, HI 96813

**TESTIMONY**

February 26, 2010

Re: SCR and HCR relating to Aerospace in Hawaii

Dear Members of the Twenty-Fifth Legislature:

I am writing this testimonial in strong support of **SCR 100** and **HCR 123**, which advocate a concerted and proactive effort on the part of our State Administration to help realize the substantial scientific, educational and commercial benefits the aerospace industry can bring to Hawaii.

At a time when declining commercial activity and soaring budget deficits are creating significant financial challenges for residents statewide, we need to pursue innovative and sustainable measures that can rejuvenate our economy. We must not abandon our future. I believe the key to reversing our current economic downturn is to invest in Hawaii's future – providing measured and sustained support for strategic growth industries that have strong potential for job creation, revenue generation, and both expanding and diversifying our professionally skilled workforce.

As this resolution clearly articulates, aerospace is demonstrably one such industry for Hawaii – providing unique opportunities to enhance basic and applied research at local universities, expand public education and professional training in multiple STEM disciplines, stimulate Hawaii-based commercial development in high-demand technologies, and attract significant overseas investments to our State.

Even more impressively, aerospace can build upon our unique location, resources and international connectivity to establish Hawaii as a regional center for advanced aviation technology and training, a national testbed for pioneering space-based renewable energy systems, a trans-Pacific hub for next-generation commercial space transportation, and a global leader in the formulation and implementation of multinational partnerships that can forge more affordable and beneficial roadmaps to space.

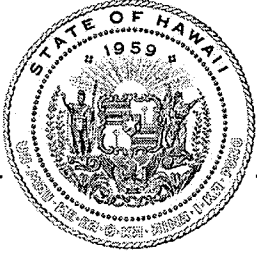
As such, I commend our State Legislature for the initiative, vision and commitment set forth in these resolutions, and strongly encourage their unanimous adoption.

Thank you for the opportunity to provide these comments.

Sincerely,

  
George R. Ariyoshi

GRA:khy



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

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Statement of

**THEODORE E. LIU**  
**Director**

Department of Business, Economic Development, and Tourism

before the

**COMMITTEE ON PUBLIC SAFETY AND MILITARY AFFAIRS**

March 18, 2010

1:20 p.m.

State Capitol, Conference Room 229

in consideration of

**SCR 100**

**RECOGNIZING AEROSPACE AS A STRATEGIC AND TIMELY GROWTH  
INDUSTRY FOR HAWAII AND REQUESTING THE STATE ADMINISTRATION TO  
TAKE PROACTIVE, COORDINATED AND SUSTAINED ACTION TO FULLY  
REALIZE THE SIGNIFICANT SCIENTIFIC, EDUCATIONAL AND COMMERCIAL  
BENEFITS THE AEROSPACE INDUSTRY CAN BRING TO THE STATE.**

Chair Espero, Vice Chair bunda, and Members of the Senate Committee on Public Safety and Military Affairs. The Department of Business, Economic Development, and Tourism (DBEDT) supports the intent of SCR 100 and concurs that aerospace represents a strategic and timely growth industry for our State.

Hawaii's unique geography and mid-Pacific location, coupled with its substantial scientific and technological resources and capabilities, give our State significant and competitive advantages in aerospace. Our department's Office of Aerospace Development (OAD) is leveraging these strategic assets through partnerships with NASA, the Federal Aviation

Administration, leading universities and aerospace corporations to develop programs in Hawaii that can both advance humankind's exploration of space as well as provide diverse research, educational and commercial development opportunities for local residents statewide.

One such program is the Pacific International Space Center for Exploration Systems (PISCES), initiated through Act 149 in the 2007 Session and now headquartered at the University of Hawaii at Hilo. PISCES is pioneering world-class research and aerospace education programs to train the next generation of space scientists and engineers, as well as forging innovative technologies to support future robotic and human missions to space.

To date, PISCES has brought over \$2 million in federal grants and international business to Hawaii in support of space technology field tests on the Big Island; established space engineering classes, seminars, internships, space habitat design competitions, and community outreach programs for Hawaii students through the University of Hawaii at Hilo; and provided unique opportunities for Hawaii researchers to partner with international university and industry colleagues in the design and development of advanced space energy, resource utilization and life-support systems. It also holds tremendous promise for expanding commercial enterprise in the islands – including Hawaii-based development of technology spinoffs in parallel computing, materials processing, communications, and other fields associated with space exploration.

Other highly innovative initiatives supported through OAD will expand Hawaii's role as a major contributor to and beneficiary of the global aerospace enterprise, including efforts to establish our State as a national center for aviation training and next-generation technology development, an international hub for commercial space transportation, and headquarters for the newly-established Pacific International Space Alliance (PISA) – a consortium of space-faring nations throughout the Asia-Pacific region that will convene annually in Hawaii to develop

multinational partnerships that can significantly reduce the costs, enhance the benefits and expedite implementation of future space missions.

Aerospace thrives in Hawaii because of our indigenous assets and unique location, and thus represents a dynamic growth industry for our State that will not be exported as it matures. For comparatively modest up-front investments, this industry can deliver phenomenal returns – fueling innovation in scientific research, STEM education and commercial enterprise, while establishing our State as a globally recognized leader in the exploration and utilization of space.

We look forward to working with the State Legislature, local schools and universities, and Hawaii’s private sector to help realize this industry’s full potential statewide.

Thank you for the opportunity to testify on this resolution.



## **UNIVERSITY OF HAWAII SYSTEM**

### **Legislative Testimony**

Written Testimony Presented Before the  
Senate Committee on Public Safety and Military Affairs  
March 18, 2010, 1:20 p.m.

by

Virginia S. Hinshaw, Chancellor

And

Rolf-Peter Kudritzki, Director

Institute for Astronomy

University of Hawai'i at Mānoa

**SCR100 – RECOGNIZING AEROSPACE AS A STRATEGIC AND TIMELY GROWTH INDUSTRY FOR HAWAII AND REQUESTING THE STATE ADMINISTRATION TO TAKE PROACTIVE, COORDINATED, AND SUSTAINED ACTION TO FULLY REALIZE THE SIGNIFICANT SCIENTIFIC, EDUCATIONAL, AND COMMERCIAL BENEFITS THE AEROSPACE INDUSTRY CAN BRING TO THE STATE.**

I am pleased to provide this testimony in strong support of SCR 100, which underscores the importance and potential of aerospace as a strategic and timely growth industry for the State of Hawai'i.

As this resolution emphasize, Hawai'i's unique geography, mid-Pacific location, resident scientific and technological expertise, and substantial international connectivity provide our State with exceptional and competitive advantages in the international space community – strategic assets and capabilities that can expand and diversify our role as both a contributor to and beneficiary of the global space enterprise.

Hawai'i is no newcomer to aerospace, and for the past half century has played a seminal role in both developing and implementing our national space agenda. The University of Hawai'i, often in partnership with NASA, NSF, NRL, AFOSR and aerospace companies worldwide, has taken a leadership role in these efforts – beginning with astronaut training for the Apollo lunar missions to the development of world-class observatories on the islands of Hawai'i and Maui, and continuing with nationally and internationally funded programs supporting astronomical and space surveillance research as well as planetary geosciences, advanced satellite communications, space-based remote sensing and environmental monitoring, and other areas utilizing aerospace-related technologies. Yet new opportunities are forthcoming in aerospace that are ideally suited for our State – many of which hold substantial scientific, educational and commercial promise for residents statewide.

Hawai'i's unique geography and environmental resources will enable us to serve as a test-bed and training site for new technologies and integrated systems that can take us back to the Moon, to Mars and beyond. Our State's inter-island and trans-Pacific aviation routes make it an ideal location to help test and evaluate next generation air

traffic control and flight safety technologies. Our strategic location will enable us to serve as a trans-Pacific node for future commercial space transportation, as well as a launch site for sending experimental payloads and small satellites to Earth orbit. Our multiple research alliances with Asia-Pacific nations can facilitate an international dialogue and exchange toward multinational space partnerships that can reduce costs and enhance the benefits of future space missions.

Aerospace clearly presents windows of opportunity for our State to develop creative alliances among our university, government and private sectors that can foster innovative joint research ventures, better train Hawai'i's workforce in strategic technology skills, and pave the way for the research spinoffs to the private sector for commercialization – all of which can significantly strengthen our economic base, enrich our educational opportunities, and expand Hawai'i's leadership role in pioneering the “next generation” of human space exploration.

As such, I strongly support the visionary recommendations set forth in SCR 100, and urge our State Legislature to unanimously adopt this resolution.

Thank you for the opportunity to testify on this measure.

**SCR 100 and HCR 123 RELATING TO AEROSPACE DEVELOPMENT**

**Testimony presented**

**March 9, 2010**

**By**

**Rose Tseng  
Chancellor  
University of Hawai'i at Hilo**



Aloha.

On behalf of the University of Hawaii at Hilo, I am most pleased to provide this testimony in strong support of SCR 100 and HCR123, which are designed to strengthen Hawaii's capabilities and competitiveness as a major player in the global space industry.

The resolutions clearly articulate Hawaii's strategic assets and capabilities in aerospace – from astronomy and planetary geosciences to advanced satellite communications and remote sensing – and set forth a dynamic vision for expanding and diversifying our scientific, educational and commercial enterprise in this industry.

We concur that Hawaii's diverse geological terrain, resident scientific expertise, and unique mid-Pacific location make it an ideal venue to support international collaboration in aerospace-related enterprise – especially for the design of earth-orbiting communications and remote sensing systems, the development of Hawaii as an international hub for advanced aviation training and commercial space transportation, and the testing and validation of innovative technologies to support future robotic and manned missions to the Moon, Mars, and other solar system bodies. We also believe Hawaii's participation in this enterprise will not only advance the goals of our national space program, but also bring significant scientific, economic and educational benefits to our State – especially through programs such as the Pacific International Space Center for Exploration System, or PISCES, which is now headquartered at our Hilo Campus.

I know some of you have had the opportunity to witness the pioneering technology field tests that PISCES has conducted over the past two years on the slopes of Mauna Kea, bringing over \$2 Million of international business to Hawaii and demonstrating, among other things, that water and oxygen can be extracted from volcanic rock that closely simulates the lunar and Martian soils, or "regolith". This pioneering research, in combination with the outstanding space curricula, seminars, lunar outpost design competitions and community outreach programs being developed through PISCES, are providing tremendous opportunities for both students and faculty at UH Hilo, as well as K-12 students island-wide, to engage in a wealth of new education and research programs promoting science, technology, engineering and mathematics (the STEM disciplines).

PISCES is now developing collaborative academic programs with faculty at UH Manoa to expand these opportunities throughout the UH System, as well as cooperative agreements with overseas universities to expand UH Hilo's capacity to provide

outstanding research and educational opportunities for the people of Hawaii. In addition, PISCES is expanding partnerships with both NASA and foreign space agencies to enable our faculty to collaborate with international scientists and engineers in designing "next generation" systems and equipment for future space missions. It also will enhance opportunities for both university and K-12 students to work with astronauts, geologists, doctors, technicians and other professionals to help plan, develop and implement robotic and human voyages beyond earth orbit, as well as enable these students to explore, and possibly pursue, future careers in aerospace.

At a critical time when NASA and the global space community are retooling their efforts to launch the next era of space exploration, Hawaii has a unique opportunity to leverage its strategic assets and capabilities to assume a leadership role in the aerospace industry. We concur with these resolutions that our State should take a proactive and sustained approach to pursue and realize this significant potential. The Office of Aerospace Development (OAD) within DBEDT has been instrumental in supporting the development of PISCES and other space-related activities statewide that can help achieve this goal. As such, we also strongly support the recommendation for the State to provide adequate funding and staff to sustain OAD's operations.

I hope all of you will join OAD and me in supporting PISCES and other outstanding aerospace-related programs in Hawaii that can enhance our State's role as a major contributor to and beneficiary of the global space enterprise.

Thank you for the opportunity to testify on this resolution.



Rose Tseng  
Chancellor  
University of Hawai'i at Hilo



## WEST OAHU COMPOSITE SQUADRON

United States Air Force Aux.

CIVIL AIR PATROL

P.O. Box 75607, Kalaeloa, Hawaii 96707

16 March 2010

Honorable Senator Will Espero, Chair

Honorable Senator Robert Bunda, Vice Chair

Including Senators of the Twenty-Fifth Legislature's  
Committee on Public Safety and Military Affairs

Hawaii State Capitol  
415 South Beretaina Street  
Honolulu, Hawaii 96813

Reference: Testimony in Strong Support of SCR #100

To be held on March 18, 2010 in Conference Room #229

Dear Honorable Senator Espero and Committee,

On behalf of providing rich education and training opportunities for our youth to explore and develop the new frontiers of Aerospace, I would like to congratulate the committee for placing this important issue on your Hearing Agenda.

Concurring with the Senate, I know that you have recognized aerospace as a strategic industry for the State of Hawaii. Taking the proactive approach, it seems that you have also recognized the potential benefits and the significance on the educational, scientific and

business resources the aerospace industry can bring to Hawaii. Leveraging Hawaii's unique location with international connectivity, particular emphasis should be focused on innovative development to grow scientifically, educationally, and enhance our commercial enterprise statewide.

Realizing Hawaii's full potential as a global leader in Commercial Aerospace Travel, the development of commercial spaceports and space-based research labs, we would lead the way in space tourism. Not only will this position increase our Department of Tourism, but would promote and assist with the coordination of activities, event and programs on behalf of the State.

Your continued support toward enhancing Hawaii's future in the Aerospace Industry, will encourage our youth to explore, develop and increase their life skills for future generations.

I do appreciate your time and the opportunity for me to offer my testimony.

Rich Hargrave  
Captain, Civil Air Patrol  
West O'ahu Composite Squadron  
Commander

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# HAWAII'ACADEMY OF SCIENCE

## Educational Programs Office

c/o College of Education, UHM • 1776 University Avenue UA4-4 • Honolulu, Hawaii 96822  
Phone: (808) 956-7930 • Fax: (808) 956-5183 • E-mail: acadsci@hawaii.edu  
Website: www.hawaii.edu/acadsci

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March 9, 2010

### Testimony in Support of SCR100 and HCR123 Hawaii State Legislature - 2010 Session

Dear Members of the Twenty-Fifth Legislature:

We are pleased to provide this testimony in strong support of SCR 100 and HCR 123, which underscore the importance and potential of aerospace as a strategic and timely growth industry for the State of Hawaii.

As you may know, the mission of the Hawaii'i Academy of Science is to help achieve a robust and sustainable future for our State through the promotion of scientific knowledge, with a focus on facilitating linkages among diverse organizations with research, educational, and business interests related to science and technology. We view aerospace as an innovative sector that impacts a broad range of industries, and one that holds significant potential for generating partnerships among local companies, universities and research institutions, as well as between Hawaii-based and overseas institutions, to develop new scientific, educational and commercial opportunities for our island communities.

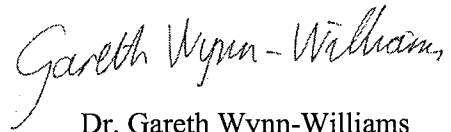
More than any other industry, aerospace provides a dynamic and inspirational widow to our future – for our State, our nation, and the international community. Scientific research and technology development in this sector are helping to revolutionize global communications, high performance computing, weather forecasting, advanced aviation, sustainable agriculture, medical technologies, and the list goes on. It also affords an innovative and motivational platform from which to launch STEM education initiatives that can inspire the next generation of scientists and engineers that will lead us to that future, providing a technologically proficient workforce that will enhance our State's resources and capabilities in multiple professional fields.

We strongly concur with the observations in both SCR 100 and HCR 123 that Hawaii's strategic mid-Pacific location, unique geographical characteristics, resident scientific and technical expertise, and extensive ties with the Asia-Pacific community well position our State to serve as both a major contributor to and beneficiary of the global space enterprise. In light of the current international movement toward multinational space initiatives, we also believe the timing is critical for Hawaii to proactively establish its role as both a catalyst for and leader of such ventures. The visionary recommendations set forth in these measures will help achieve this goal.

Thank you for the opportunity to testify on these resolutions.



Carolyn Kaichi  
Program Manager – Hawai'i Academy of Science  
Director - Hawai'i State Science and Engineering Fair



Dr. Gareth Wynn-Williams  
President  
Hawai'i Academy of Science

March 8, 2010



The Legislature of the State of Hawai'i  
State Capitol  
Honolulu, Hawai'i

Dear Members of the Twenty-Fifth Legislature:

I am delighted to submit this testimony in strong support of SCR 100 and HCR 123, recognizing the State of Hawai'i's significant achievements and future potential in aerospace, and encouraging the State to take proactive and sustained efforts to realize the exceptional scientific, educational and commercial benefits this industry can bring to the islands.

Our nation and the world are at a crossroads in space. With budget deficits decisively impacting every sector of the global economy, we must make strategic choices among many competing priorities to chart the best course toward a robust and sustainable future – investing in dynamic growth industries with strong potential for innovation that can accelerate scientific research and discovery, champion STEM education to expand a technologically proficient workforce, and catalyze lucrative spinoffs to the commercial sector that can enhance our quality of life.

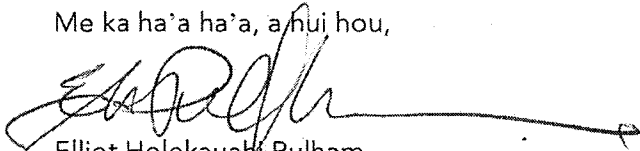
Over the past half century, space exploration has played this role, leading to revolutionary advances in telecommunications, aviation, navigation, weather forecasting, agriculture, medical technology, computing, entertainment, commerce, and many other industries. Our spaceward quest will continue to pioneer new frontiers that will profoundly enhance life on Earth; and I believe that Hawai'i, by virtue of its unique location, strategic environmental resources, and diverse technological assets and capabilities, can and should play a leadership role in helping both our nation and the world forge new roadmaps to space.

As a part Hawai'ian and native of the "Big Island" of Hawai'i, I also understand the vital importance of the Ohana – that family is the essence which binds us together as a community, as a nation, and indeed as a species, empowering us to reach for our dreams. There are many forces that can draw us together as a family, each member of which has something special to contribute. No other endeavor unites our global Ohana as broadly and effectively as space exploration and Hawai'i has much to contribute to this accord – especially as a catalyst for international dialogue and multinational collaboration.

We, at the Space Foundation, look forward to working with all of Hawai'i to realize this stellar potential.

Mahalo for the opportunity to testify on these measures.

Me ka ha'a ha'a, a hui hou,



Elliot Holokauahi Pulham  
Chief Executive Officer

*To advance space-related endeavors to inspire, enable, and propel humanity.*

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## The Aerospace States Association

107 S. West Street, Alexandria, VA 22314 Suite 510  
Tel: 202 257-4872 Email AerospaceStates@comcast.net

March 8, 2010

### Testimony for SCR 100 and HCR 123 2010 Session – Hawaii State Legislature

Dear Members of the Twenty-Fifth State Legislature:

We are most pleased to provide testimony in strong support of SCR 100 and HCR 123, recognizing aerospace as a strategic and timely growth industry for the State of Hawaii.

As you may know, the Aerospace States Association is a nonpartisan organization, led by Lt. Governors and other top-ranking state leaders, that advocates on behalf of all fifty states for R&D funding, workforce training, economic development in aerospace and aviation, and excellence in math and science education to help keep states competitive in the global aerospace marketplace. We view the aerospace industry as an engine that defends our nation, drives our economy, and provides Americans with inspiring and highly paid jobs. Our homeland security, economic vitality, and national mobility clearly rely upon and benefit from a strong and diversified aerospace sector.

The State of Hawaii has been an active member of ASA since its inception, and over the years has substantially contributed to both the growth of our organization and our national debate on aerospace. Your State also has several unique characteristics – in particular, its mid-Pacific location, Moon-Mars like terrain, and strategic international ties with the Asia-Pacific community – which make it an ideal location to support a wide range of aerospace-related activities, including pioneering research in astronomy, planetary geosciences and deep space surveillance; the development, testing and evaluation of innovative technologies to advance both robotic and human space missions; growth as a strategic international node supporting advanced aviation training and the rapidly emerging commercial space transportation sector; and innovation in STEM education to inspire the next generation of aerospace entrepreneurs.

ASA is committed to supporting state-based initiatives that can strengthen our nation's leadership in aerospace, and believe the recommendations set forth in these resolutions will both advance this objective as well as strengthen Hawaii's role as a major contributor to and beneficiary of the global space enterprise. We look forward to working with all of you in realizing this vision.

Thank you for the opportunity to testify on these measures.

Respectfully,

Brian Dubie

Chair, Aerospace States Association

Lt. Governor, State of Vermont





# PACIFIC AVIATION MUSEUM PEARL HARBOR

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March 16, 2010

**Subject: Support of SCR 100 relating to Aerospace**

Thank you for this opportunity to appear before you and to provide testimony in strong support of SCR100 advocating aerospace as a strategic and timely growth industry for the State of Hawaii.

I represent the Pacific Aviation Museum Pearl Harbor, a 501 (c) non-profit organization. Our mission is to develop and operate an aviation museum on Ford Island which (1) educates young and old alike, (2) builds technical skills in our schools, (3) honors aviation history, (4) preserves aviation-related artifacts, and (5) attracts new industry. Parallel to our mission is that of the Hawaii Aerospace Program.

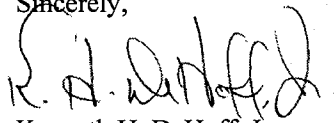
In order to educate Hawaii's students for futures in science and technology and build required skills in our schools, the Pacific Aviation Museum Pearl Harbor reaches out to Title 1 school programs, youth and adult education programs, Boy and Girl Scout programs, lectures, free admission to military in uniform and ongoing programs with other community organizations. The museum's core education program consists primarily of elementary and middle school field trips with an emphasis in science, math, and history. The museum has seen continuous growth in the number of students participating in its educational programs since opening to the public in 2006.

The museum is a member of the Pearl Harbor Historic Partnership sites which includes the World War II Valor in the Pacific Monument (USS Arizona Memorial), USS Bowfin Submarine Museum and Park, Battleship Missouri Memorial and Pacific Aviation Museum Pearl Harbor. Working together, this organization can expand the visitor experience to Pearl Harbor and Hawaii; and increase the visibility and synergy for all four historic sites. We diligently look for new ways to broaden our community participation as well as support.

Last year we worked with the Hawaii Department of Economic Development to conduct the first Hawaii Aerospace Week. It was, by any measure, a success. We support this as an ongoing program and will continue to participate as a sponsor and contributor.

There has never been a more compelling time to share aviation and to attract the aerospace industry to Hawaii. Please support SCR100.

Sincerely,



Kenneth H. DeHoff, Jr.  
Executive Director



Pacific International  
Space Center for  
Exploration Systems

March 2, 2010

To the Members of the Hawai'i State Legislature:

I am writing in support of the Aerospace Concurrent Resolution (SCR100 and HCR123), which clearly lays out the case for leadership by Hawai'i in aerospace in general and space exploration in particular. The case is a strong one, built upon the unique geographical location and geological attributes of the State and the proven benefits of space-related science, technology and industry.

Hawai'i, with its central location in the Pacific Rim of space-faring nations, five of which currently have or are planning missions to the Moon, is well situated to bring international partners together in a common purpose to explore and eventually settle space. Although the current U.S. administration has decided on a flexible path to space exploration for the time being, it is inevitable that we and other nations around the world will return to the Moon at some point, and when we do it will be to stay. Meanwhile, there is much in the new direction for NASA that bodes well for Hawai'i, particularly in the development of new technology that will allow us to go anywhere we want to in space and be able to stay there.

As director of UH-Hilo's PISCES center, which is a successful product of past efforts of the Office of Aerospace Development and the Legislature, I am keenly aware of the benefits of development of the State's aerospace potential. I see the excitement that space inspires in young people as I give talks at schools across the Big Island. I know the attraction of the PISCES test site on Mauna Kea for space agencies and companies around the world to come and test new concepts for sustaining life on the Moon and beyond. And I can attest to the strong potential for space-related activities to generate high-paying jobs.

Given the longstanding need for Hawai'i to diversify its economy beyond agriculture and the hospitality industry, a need made glaringly urgent by the current recession, I can think of no other industrial sector that could do as much in that regard as aerospace. The expertise needed for development of a vibrant aerospace industry spans many other areas, including energy, environment and transportation, all of which can strengthen the State's universities and add to its workforce capabilities, which in turn will enable the State to attract additional high-tech industry.

I urge passage of this resolution and I thank you for your attention.

Sincerely,

Frank Schowengerdt, Director

**University of Hawai'i at Hilo  
200 W. Kawili St.  
Hilo, HI 96720**



March 9, 2010

Dear Members of the Twenty-Fifth Legislature:

On behalf of the Maui Economic Development Board, Inc. (MEDB) I am pleased to provide testimony relating to SCR100 and HCR123 relating to aerospace as a strategic and timely growth industry for the State of Hawaii.

From MEDB's inception, we have viewed the cultivation of the optics and astronomy sector as one of several key strategies for diversifying the economy of Maui County. Exploration of space through the exceptional clarity offered by Haleakala and the telescopes of the University of Hawaii and the US Air Force continue to anchor and spur new activity to the benefit of our residents.

Maui High Performance Computing Center, one of the largest supercomputing centers in the nation, resulted from the image processing needs of the Air Force. Homegrown companies like Hnu Photonics, Pacific Defense Solutions, and Oceanit trace their beginnings to the opportunities in optics and astronomy. For more than a decade, MEDB has presented the AMOS Conference, the premier conference devoted to the activities atop Haleakala, particularly those related to space situational awareness. This nationally renowned conference now draws over 650 conferees annually from the private sector, academia and government and represents over \$1.5 million in visitor spending.

Optics and astronomy is an underpinning of Maui County's extensive activities in STEM (science, technology, engineering and math) education and career paths. MEDB's Women in Technology program regularly taps the research and development expertise of that sector to bolster its teacher training, job shadowing, internships, mentoring and project-based learning initiatives. We regularly utilize the telescope "classroom" to support hundreds of students and teachers whose horizons are expanded by the early interface with the career possibilities available to them in the field of astronomy. UH Maui College recently created another 4-year degree specifically responding to the growing opportunities in adaptive optics.

MEDB appreciates the active association with Jim Crisafulli and the State's Office of Aerospace Development. Leadership in advancing this sector at the state level, coupled with the significant ongoing activities at the county level, would allow us to fully realize the benefits of this economy strategy for our residents for years to come.

Sincerely,

Jeanne Unemori Skog  
President & CEO

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1305 N. Hibiscus Street, Suite 1  
Kihei, Maui, Hawaii 96753

Telephone: 1.808.875.2300  
Facsimile: 1.808.879.0011  
www.medb.org

**Testimony in Support of SCR 100**

Date: 6 March 2010

Submitted by: Joseph E. Ciotti, PhD  
Director, Center for Aerospace Education  
Hawai'i Teacher-in-Space/NASA Ambassador  
Windward Community College

Dear Members of the Twenty-Fifth Legislature:

I am pleased to provide testimony in strong support of SCR100 and advocating aerospace as a strategic and timely growth industry for the State of Hawaii.

I've been intimately involved with space education in Hawai'i for over 40 years. I can personally testify to the significant impact that past and recent commitments to this endeavor have had on our youth and to the welfare of our State. I've witnessed this through my decades of teaching astronomy and space science at both the secondary and college level, through my extensive K-12 and community outreach efforts at Windward Community College's Center for Aerospace Education which has reached over 250,000 people, through the rocketry projects my Hawai'i Space Grant students continue to undertake, and through over forty years of experience I enjoyed at all three planetariums in Hawai'i—including designing and constructing two of them.


Following in the wake of its rich seafaring heritage, Hawai'i has already undertaken bold spacefaring ventures. From world-class astronomical observatories ... to NASA-sponsored *in situ* rehearsals of manned and robotic space missions ... to its role in international airline transportation and potential future space tourism, Hawai'i is uniquely poised for significant economic growth through the leadership choices it makes regarding the aerospace industry.

Hawai'i's prominent role and potential for major contributions in aerospace research and technology were recently showcased during a statewide week of celebration—*Aerospace in Hawai'i Week* (October 4-19, 2009). Current and future trends of our aerospace efforts were also addressed at a Special Session on Aerospace at the Hawaii State Capitol in August 2008. The projects and issues presented—from STEM-based aerospace education to the development of spaceplane launch/landing facilities at Hawai'i airports—were bold and far-reaching—all demanding expertise in a wide range of fields, including business, education, science, and technology.

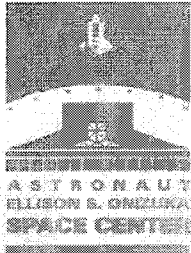
By recognizing aerospace as a strategic industry in Hawai'i, passage of this Senate Concurrent Resolution will provide the urgently needed support and boost to DBEDT's Office of Aerospace Development in fulfilling its responsibility to oversee the economic growth of this fast-paced and strategically important industry in Hawai'i.

I strongly support SCR 100.

Sincerely,

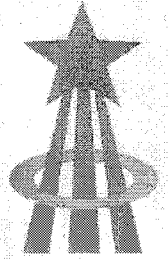
  
Joseph Ciotti

Windward Community College  
45-720 Kea'ahala Road  
Kane'ohe, Hawai'i 96744  
808-236-9111 (w)  
808-225-5637 (c)  
[ciotti@hawaii.edu](mailto:ciotti@hawaii.edu)  
<http://aerospace.wcc.hawaii.edu>



## ONIZUKA MEMORIAL COMMITTEE

DEDICATED TO THE MEMORY OF COLONEL ELISON S. ONIZUKA



To: Hawaii Legislators  
From: Nancy C. Tashima  
RE: Support of SCR100 and HCR123  
Date: March 3, 2010

Dear Members of the Twenty-Fifth Legislature:

I am pleased to provide testimony in very strong support of SCR100 and HCR123 advocating aerospace as a strategic and timely growth industry for the State of Hawaii.

Considering the current financial situation of Hawaii, it is imperative that our State seek inventive and innovative methods of improving our economy for all of its citizens. We can no longer depend totally on the tourist industry to provide enough jobs to sustain our economy.

As a science educator in Hawaii for the past forty-one years, I envision our students being educated and trained to support aerospace-related professions along with the improvement of their Science, Technology, Engineering, and Mathematics skills. Hawaii's youth needs to have the desire to remain in our State and the possibilities related to the aerospace industry will allow them to have the vision to succeed in professional careers.

I implore you to please support SCR100 and HCR123. Hawaii needs all of the benefits of the aerospace industry.

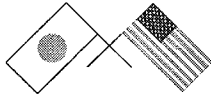
Respectfully submitted,

Nancy C. Tashima  
Onizuka Space Center, Curator  
Hawaii Resource Science Teacher  
NASA Solar System Educator  
NASA Messenger Educator Fellow  
\*AIAA Outstanding Aerospace Educator Awardee

\*American Institute of Aeronautics and Astronautics

PO BOX 833, KAILUA-KONA, HI 98745 PHONE: (808) 328-3411 FACSIMILE: (808) 326-9751

GEORGE APPLIGATE · RICHARD M. ASBACH · DEBORAH L. BAKER · MIDORI FUJIMOTO · RAYMOND A. KIMOTO  
MORRIS Y. KIMURA · CLAUDE S. ONIZUKA · DIANE QUITIQUIT · NORMAN M. SAKATA · LARRY TANIMOTO  
GLENN G. UCHIMURA · FRED YAMASHIRO · JOHN DE FRIES · ALBERT SHIOTSUKA · DALE SUEZAKI · LYNN SATO



# JAPAN-UNITED STATES SCIENCE, TECHNOLOGY & SPACE APPLICATIONS PROGRAM (JUSTSAP)

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**Dr. Yujiro Ogawa**

*Dept. of Environment & Disaster Research  
Fuji-Tokoha University*

## ADVISORS

**The Honorable**

**George Ariyoshi**  
*Former Governor of Hawaii*

**The Honorable**

**Tetsuo Kondo**  
*Former Member, Japanese Diet*

## SECRETARIAT

**Mr. Jim Crisafulli**

*Office of Aerospace Development  
State of Hawaii*

March 5, 2010

## **Testimony in Support of SCR100 and HCR123 Hawaii State Legislature - 2010 Session**

Dear Members of the Twenty-Fifth Legislature:

I am pleased to submit this testimony in strong support of SCR 100 and HCR 123, which underscore the importance and potential of aerospace as a strategic and timely growth industry for the State of Hawaii.

Over the past two decades, our JUSTSAP organization has worked closely with the Hawaii State Government to spawn a broad range of innovative projects promoting advanced satellite communications, remote sensing for disaster management, microgravity research, the development of solar-powered alternative energy systems, and other space-related applications benefiting communities within the Asia-Pacific region. The Pacific International Space Center for Exploration Systems (PISCES), the most recent brainchild of JUSTSAP, is now being developed in Hawaii as an international center for space-related research and development, aerospace education, professional training, and the formulation of collaborative multinational space exploration missions. All of these programs have engaged the substantial scientific and technological expertise resident within JUSTSAP to promote collaborative research and educational partnerships with University of Hawaii faculty and students, as well as with local business entrepreneurs.

Looking to the future, we strongly believe programs like JUSTSAP and PISCES will be able to leverage Hawaii's diverse natural resources, abundant scientific and technological expertise, unique geographical terrain, and strategic mid-Pacific location to support the development and implementation of pioneering global space missions, including Earth orbiting systems supporting global communications and space-based observations of our planet, as well as robotic and manned missions to the Moon, Mars, and other solar system bodies. Collectively, these efforts will provide a broad range of scientific, economic, and educational opportunities to help grow Hawaii's research and development infrastructure, expand and diversify private sector initiatives in aerospace-related technology, enhance secondary and college-level training and mentorship programs in advanced mathematics, engineering and science disciplines; and ultimately strengthen Hawaii's role as a globally-recognized leader in space exploration.

In light of this phenomenal potential, JUSTSAP concurs with the bold vision for Hawaii's future in aerospace as set forth in these resolutions and strongly recommends their expeditious approval.

Respectfully submitted,

Chairman



Statement of  
**JOHN C. MANKINS**  
PRESIDENT

Artemis Innovation Management Solutions LLC  
Ashburn, Virginia USA / Tel: (+1) 703-625-0424  
email: [john.c.mankins@artemisinnovation.com](mailto:john.c.mankins@artemisinnovation.com)

**To the**  
**HOUSE & SENATE of the 25<sup>th</sup> Legislature, 2010**  
**State of Hawaii**  
in consideration of  
**HCR 123 and SCR 100**  
RELATING TO  
**RECOGNIZING AEROSPACE AS A STRATEGIC AND TIMELY GROWTH INDUSTRY FOR**  
**HAWAII**

Wednesday, 11 March 2010

Dear Members of the House and the Senate of the 25<sup>th</sup> Legislature, State of Hawaii:

I would like to offer the strongest possible support for the subject resolutions.

The resolutions (HCR 123 and SCR 100) make note of Hawaii's strategic assets vis-à-vis aerospace, including its unique mid-Pacific location, the moon- and Mars-like terrain, the State's resident expertise covering a broad range of aerospace-related technologies, and long-standing ties among Hawaii and various space-faring nations throughout the Asia-Pacific region. Hawaii represents a superb, and in some ways unique setting for timely and cost effective research and development in a variety of aerospace fields.

Certainly, the State represents an important location for the development, demonstration and application of a range of novel and potentially important new aerospace technologies, including various green energy systems. For example, during 2008 my firm along with an international team of researchers conducted a first-of-a-kind experiment in a novel form of energy y- solar-powered wireless power transmission. The experiment performed, which was later broadcast on the Discovery Channel as part of its "Project Earth" series, may someday enable new green energy sources for Hawaii, the United States and for markets the world over. There are a wide variety of other commercial aerospace technology R&D projects and developments that may only be cost-effectively advanced through the involvement of the State of Hawaii.

In addition, the coming years represent a time of potentially great government funding opportunity for the State of Hawaii. The new strategy and policy announced



recently by the White House for the U.S. civil space program represents a profound change in direction and budgets. The new strategy embraces commercial space ventures for both access to space and space operations. In addition, in the policy science, technology, engineering and medical (STEM) education and international partnerships are proposed to play central roles. Most importantly, the new FY 2011 budget for NASA proposes to dramatically accelerate through a 20-fold increase in funding the development of innovative technologies and infrastructure and to reduce the costs and enhance the benefits of future robotic and human missions to space beyond low Earth orbit, to the Moon, to Mars, and to destinations beyond.

The State of Hawaii could reap great benefits in both of these arenas: commercial aerospace investments, and new Federal Government civil space programs. However, the competition for business and for government funding will be fierce. In order to secure a fair share of likely future commercial investments and government program acquisitions, the State must be prepared and positioned appropriately.

The resolutions HCR 123 and SCR 100 propose a number of specific actions in support of aerospace as an engine for innovation and education in the State of Hawaii during the coming years, and direct that the Office of Aerospace Development within the Department of Business, Economic Development and Tourism, should promote and help coordinate these activities and programs on behalf of the State of Hawaii.

There will be great opportunities for the State of Hawaii from aerospace investments during the coming 1-3 years. I would like to take this opportunity to strongly support resolutions HCR 123 and SCR 100, and to urge that adequate financial and staffing resources be provided to the Office of Aerospace Development to enable it to effectively assume and undertake the duties described for the Office in the resolutions.

Thank you for the opportunity to provide these thoughts to your deliberations.

Sincerely,

A handwritten signature in black ink, appearing to read "John C. Mankins", with a long, sweeping horizontal line extending to the right.

John C. Mankins  
President, Artemis Innovation Management Solutions LLC





11710 Plaza America  
Drive  
Suite 2000  
Reston, Virginia 20190  
Office: 703-871-5176  
Mobile: 703-298-6630  
Email: rcoppola@ptc.com

March 9, 2010

Dear Members of the Twenty-Fifth Legislature:

I, on behalf of the 26 Real World Design Challenge partner organizations in government, industry and education, am pleased to provide testimony in strong support of SCR100 and HCR123 advocating aerospace as a strategic and timely growth industry for the State of Hawaii.

The aerospace industry is a vital part of the economy of the United States and the State of Hawaii. It is critical for both national security and global economic competitiveness. Hawaii has been a leader in aerospace and should consider this sector as a key part of the state's economic and strategic portfolio.

Hawaii is a partner in the Real World Design Challenge. The National Winning team in 2008/2009 was from the Iolani School. With the Real World Design Challenge in "green aviation" and other educational initiatives, Hawaii is building the education and workforce pipeline need to support the aerospace industry and other Science Technology, Engineering and Mathematics industries. Much of the innovation in our society emanates from the aerospace industry's research and development and the many spin of technologies. These technologies spawn new industries. The students of Hawaii are our future and they are being prepared to be the "innovators of tomorrow" and take their place supporting the "innovation economy of the 21<sup>st</sup> Century.

I strongly support SCR100 and HCR123. I hope both of these resolutions will receive strong bi-partisan support.

Sincerely,

A handwritten signature in dark ink, appearing to read "Ralph K. Coppola", is written over a light blue horizontal line.

Ralph K. Coppola, Ed.D.  
Director, Real World Design Challenge &  
Director of Global Government & Strategic Education Programs



MARS INSTITUTE

**Mars Institute Testimony to State of Hawaii Legislature on Resolutions SCR 100 & HCR 123**

10 March 2010

Dear Members of the Twenty-Fifth Legislature:

The Mars Institute is pleased to provide testimony in strong support of resolutions SCR 100 and HCR 123, which advocate aerospace as a strategic and sustainable growth industry for Hawaii.

The Mars Institute is a 501c3 non-profit research organization registered in California, dedicated to the advancement of the scientific exploration of Mars and space for the benefit of humankind. The Mars Institute is funded by NASA and by other organizations to conduct scientific research, spacecraft mission development, logistics support, and education and public outreach activities, in support of the advancement of the scientific exploration of space by robotic systems and humans. The Mars Institute is a world-renowned organization in the study and use of locations on Earth, from the Mojave Desert of California to remote lands in the Arctic and Antarctica, that serve as "analogs" (or stand-ins) for the exploration of the Moon, Mars, and asteroids.

The Mars Institute views Hawaii as an outstanding "analog" in this regard, as the State offers a unique combination of geologic features (wide array of volcanic landforms), terrain (vast lava fields, blocky terrain, submarine environments), academic, technical and local traditional expertise (e.g., the University of Hawaii, PISCES, the Hawaii Cultural Advisory Council), and geographic location (center of the Pacific Rim region) that make it highly valuable and able to play a key and growing role in the advancement of space exploration, with the prospect of many new and good jobs for residents in the State and many exciting educational and global outreach opportunities.

The Mars Institute also believes that, as the Hawaii State Legislature considers resolutions SCR 100 and HCR 123, the advancement of space exploration and industry in the State of Hawaii can be, and must be, conducted in harmony with, and with deep respect for, local communities and traditions.

The Mars Institute remains available for further testimony if desired.

Yours Respectfully,

Pascal Lee, Ph.D.  
Chairman, Mars Institute, NASA Research Park, Moffett Field, CA 94043-0006  
E-mail: [pascal.lee@marsinstitute.net](mailto:pascal.lee@marsinstitute.net), Tel: 408-687-7103.

March 9, 2010  
Testimony in support of SCR 100 and HCR 123  
Relating to Aerospace Development in Hawai'i  
Submitted by: Judith Fox-Goldstein  
Director, University of Hawai'i at Hilo Conference Center

Dear Members of the Twenty-Fifth State Legislature:

I serve as Director for the University of Hawai'i at Hilo Conference Center, and I would like to voice my strong and unqualified support for SCR 100 and HCR 123.

For over eighteen years, the University of Hawai'i at Hilo Conference Center has supported the development and implementation of scientific and research-oriented conferences, programs, and meetings. We also continue to be strong supporters of initiatives that help diversify Hawai'i's aerospace industry, and we commend your visionary efforts in this direction.

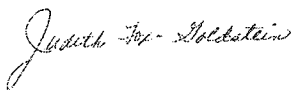
The UH Hilo Conference Center networks extensively with a wide variety of external organizations and resources on a national and international basis and, because of our strategic location in the Pacific, many of these organizations are now bringing their scientific meetings to Hawai'i.

For example, our office has been the primary coordinator for the annual Hawai'i symposium of the Japan-U.S. Science, Technology & Space Applications Program (or JUSTSAP) and we continue to witness the very positive economic and educational benefits spawned through this unique scientific collaboration. During this past November's JUSTSAP conference, the excitement about expanding efforts in space exploration were particularly re-sounding – especially concerning the formation of a new Pacific International Space Alliance, or PISA, that will help secure Hawai'i's role as a global leader in multinational space exploration. The momentum is definitely growing!

NASA is currently in the process of revolutionizing its vision for space exploration – one that will rely heavily on the formation of public-private partnerships and multinational alliances to reduce the costs and enhance the benefits of future space missions – and I believe Hawai'i is exquisitely positioned to support this effort. Of course, both NASA and the international space community recognize that our state's capabilities and potential in aerospace are extraordinary, and that the short- and long- term benefits to Hawai'i – scientific, educational and economic – will be substantial.

I also want to strongly advocate for funding to maintain the Office of Aerospace Development – not only as this support is critical to run such outstanding programs like JUSTSAP, but also because it will demonstrate Hawai'i's commitment to expanding and diversifying this industry and encourage both federal and private institutions to work in collaboration with our State to develop new aerospace ventures that can literally lead us to the stars.

I sincerely hope you will join all of us testifying today in supporting bold vision and recommendations set forth in these resolutions, and thank you for the opportunity to provide these comments before your Committee.



---

Judith Fox-Goldstein, Administrative Director  
University of Hawai'i at Hilo Conference Center

3/9/2010

---

Date



March 9, 2010

Dear Members of the Twenty-Fifth Legislature:

I am pleased to submit testimony in strong support of SCR 100 and HCR 123, which identify aerospace as a timely and sustainable growth industry for Hawaii.

As you may know, Lockheed Martin is a global security company that is principally engaged in the research, design, development, manufacture, integration and maintenance of advanced products and services in aeronautics, electronics, information technology and space systems. We also are the largest provider of IT services, systems integration, and training for the U.S. Government.

Our company enthusiastically supports expansion of aerospace activities in Hawaii. Aerospace programs and partnerships can be important components of efforts to rejuvenate our economy and secure a more prosperous future in the islands. The key is to invest in Hawaii's future by building a technology-skilled workforce while supporting the development and growth of strategic industries that create high paying jobs – industries like aerospace, which sustains an average salary of around \$65,000 a year.

Aerospace is like a rising tide that carries all boats, providing innovative opportunities to expand scientific research and discovery, stimulate diverse spinoffs in the commercial sector, and inspire the next generation of scientists and engineers. Aerospace skills and technologies are also major contributors in the development and application of renewable energy solutions, such as the ocean thermal energy conversion (OTEC) project Lockheed Martin has proposed for Hawaii in partnership with the Navy and the State.

As SCR 100 and HCR 123 clearly underscore, Hawaii's strategic mid-Pacific location, unique environmental resources and diverse technological assets make it an ideal location to seed and grow a wide range of aerospace-related activities, which is why Lockheed Martin has established a field office in Honolulu to help catalyze new initiatives that can serve both our U.S. Space Program and the global aerospace community. We look forward to working with the Hawaii Office of Aerospace Development and other institutions and organizations throughout the islands in pursuing these goals.

Thank you for the opportunity to testify on these measures.

A handwritten signature in black ink, appearing to read "Mark A. Torreano", written in a cursive style.

Mark A Torreano  
Senior Manager  
Honolulu Field Office

LTC(R) Jerry L. Cornell  
P.O. Box 56  
Puunene, HI 96784

March 8, 2010

Dear Esteemed Members of the State of Hawaii Twenty-Fifth Legislature,

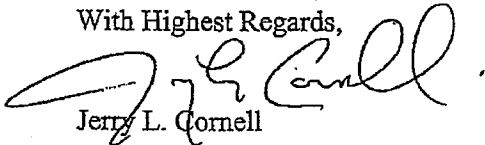
It is my deepest obligation to Hawaii, our country, the aerospace industry and the future scientist and engineers working in the technology sector of our great state, that I write this testimony. I strongly urge each of you to consider the opportunities and possibilities that will be made available to the people and the future of Hawaii with the passing of SCR100 and HCR123 thus allowing the growth and development of the aerospace industry in Hawaii.

As a retired Army Aviator and the Site Executive for the State of Hawaii for the Boeing Company, I am compelled to share my personal and professional optimism of a thriving Hawaii aerospace industry. Such a sector will provide high tech jobs, a basis of need and interest in the physical sciences within the classrooms of our island schools and a major role as an international leader of technological achievement and advancement of the sciences within the world's aerospace community.

Situated in the center of the broad ocean area of the Pacific and the highly desired proximity to the Earth's equator, Hawaii is the perfect geographic location to host numerous permanent aerospace programs. Programs that will exist in perfect harmony with the core values of our people and our land; programs in aerospace operations, test & evaluation, research & development, astronomy, exploration, oceanography, medical research and many more. To our island neighbors throughout the Pacific Rim from which our people originated, the passing these resolutions can mean a breakthrough or an avenue of approach to allow entry into the tech sector for their students and their economy.

I call upon each of you to consider the opportunities and benefits that the passing of SCR100 and HCR123 will bring to the people and to the future of Hawaii. My deepest mahalo to each of you for your leadership and allowing me this opportunity to share my testimony in support of this legislation.

With Highest Regards,



Jerry L. Cornell

Lawrence E. Osborn  
7868 Makaaoa Place  
Honolulu, HI 96825

TESTIMONY

March 10, 2010

Dear Members of the State of Hawaii Twenty-Fifth Legislature,

I am writing this testimony to you to urge passage of SCR 100 and HCR123 that will recognize the potential of the aerospace sector as a strategic and timely growth industry for Hawaii.

I am employed by Northrop Grumman Corporation, a leading global security company whose 120,000 employees provide innovative systems, products, and solutions in aerospace, electronics, information systems, shipbuilding and technical services to government and commercial customers worldwide.

Hawaii possesses many attributes that make it attractive for the aerospace industry to thrive. Its location in the mid-Pacific and cultural diversity postures it as a gateway to Asian markets. The many Department of Defense organizations and activities in Hawaii position aerospace companies close to prospective customers. Hawaii's uncluttered airspace and vast ocean areas make it an ideal location for test and evaluation, as evidenced by the investment the Navy has made in Kauai's Pacific Missile Range Facility.

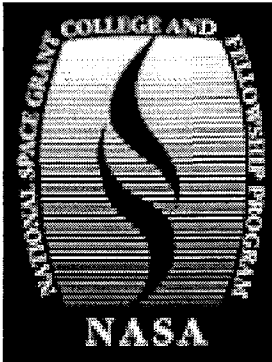
I urge you to pass this legislation and pursue other measures to promote a healthier business climate in Hawaii where the aerospace sector can contribute to economic growth.

Thank you for the opportunity to provide these comments.

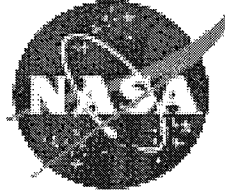
Sincerely,



Lawrence E. Osborn



## NASA Aerospace Education "Flight Training" Lab



University of Hawaii –Windward Campus  
45-720 Kea'ahala Road  
Kaneohe, Hawaii 96744

Dear Members of the Twenty-Fifth Legislature: I am pleased to provide testimony in strong support of SCR100 and HCR123 advocating aerospace as a strategic and timely growth industry for the State of Hawaii.

Being the NASA Aerospace Flight Lab Coordinator, The Associate Director for Rocketry in the Hawaii Space Grant Consortium, a lecturer of Physics and Astronomy for the University of Hawaii at Windward, and a High School Physics and Chemistry teacher, I see this resolution as being instrumental to Hawaii's future.

Due to its unique geographical location, being close to the equator, along with its placement in the middle of the largest ocean on Earth, Hawaii stands poised to develop a thriving space industry. I see this as being supportive, if not integral, to the development of future industry, tourism, and education.

Sincerely,

Jacob V. Hudson Jr. Ph.D.

## **JAMSS America, Inc.**

16055 Space Center Blvd., Suite 240, Houston, TX 77062

Tel: 281-461-3700 • FAX: 281-461-3776



March 8, 2010

To the Members of the Hawaii State Legislature:

I am writing in full support of the Aerospace Concurrent Resolution (SCR 100 and HCR 123), which cogently lays out the case for establishing Hawaii's long term leadership position in aerospace in general and space exploration in particular. The Legislature showed remarkable vision several years ago in its establishment of the Hawaii Office of Aerospace Development as well as in the establishment of the Pacific International Space Center for Exploration Systems (PISCES) located at the University of Hawaii in Hilo (UHH). Passage of these important bills is absolutely necessary to ensure that these organizations can continue to perform their impressive work which, to date, has been extremely effective in establishing Hawaii's leadership position as a geographical, geological and educational hub in facilitating the technology development needed by our nation's space exploration plans and those plans of other countries.

From within the international community of space faring nations, this case is fully supported by historical precedent, current activities and by future needs.

- Hawaii played a critical role in preparations for our nation's first voyages to the Moon during the Apollo program. Geologists, scientists, engineers and flight crews from each of the seven Apollo missions destined to land on the Moon conducted lunar surface science and technology demonstrations and geologic field training on the slopes of Mauna Kea, from within the Kilauea Caldera and from other Big Island locations.
- As late as last month, a large contingent of NASA and foreign space agency engineers and scientists from multiple Pacific Rim countries participated in a three week series of technology demonstrations on Mauna Kea. These demonstrations were follow-on to those performed in Hawaii during 2007 and were designed to test human-tended and robotic technologies and operator skills needed to fully utilize the natural resources found within the lunar soil- from within the confines of a simulated lunar outpost. These highly successful tests were facilitated by the Office of Aerospace development, the UHH and by PISCES and were highly successful.
- The President's current budget proposal for GFY 2011 has specific and generous provisions for continued research in such technologies which will enable the future exploitation of lunar surface resources by human and robotic means.

As a young NASA engineer, I enthusiastically participated in facilitating the Apollo program's crew training activities in Hawaii. Thirty-eight years later, as President of the



American subsidiary of the prime ISS operations support contractor for the Japanese Aerospace Exploration Agency (JAXA), and as a 15-year participant in Hawaii's annual Japanese U.S. Science, Technology and Space Applications Program (JUSTSAP) forum sponsored by the Office of Aerospace Development, I am privileged to witness first hand how the State's aerospace investments have directly resulted in a new enthusiasm for international participation in space exploration. No where has this enthusiasm been more evident than among Hawaii's K-12 and college students and among the international student community. In February 2010, over a dozen university students from the U.S., Japan, Iran, and Belarus enthusiastically demonstrated their academic prowess and hands-on exploration technology skills as part of the UHH PISCES conference in Hilo. These skills included prototype designs for unmanned lunar cargo carriers, an environmentally safe lunar repository for Earth-grown seed genomes, and a robotic rover vehicle wirelessly operated from within the UHH facility by students sitting at their workstations in Tokyo!

I urge the Hawaii Legislature to continue its support for international space exploration through passage of this important legislation. It is enabling for a continuation of the Hawaiian tradition of setting out on voyages beyond our current habitat; it is enabling to sustaining current international technology development in support of lunar and Mars explorations; and, it is enabling for Hawaii to continue its growth of the next generation of space explorers. These tough economic times will pass, but the opportunities presented by this legislation will reap benefits for generations of American and international space travelers to come.

Respectfully,



Dan Bland  
President

[dbland@jamssamerica.com](mailto:dbland@jamssamerica.com)

March 17, 2010

Hawaii State Legislature  
State Capital  
Honolulu, Hawaii 96813

COMMITTEE ON PUBLIC SAFETY AND MILITARY AFFAIRS

Senator Will Espero, Chair  
Senator Robert Bunda, Vice Chair

Thursday, March 18, 2010  
1:20 p.m.  
Conference Room 229  
State Capitol  
415 South Beretania Street

SUPPORTING TESTIMONY RELATING TO: Senate Concurrent Resolution 100

Aloha Chair Espero, Vice Chair Bunda and Members of the Committee:

On behalf of Enterprise Honolulu, the O'ahu Economic Development Board, we are in support of SCR 100 advocating aerospace as a strategic and timely growth industry for the State of Hawai'i.

We support the request that the State Administration take proactive, coordinated and sustained action, to fully realize the significant scientific, educational, commercial and long term positive benefits the aerospace industry can bring to our State.

We believe this resolution will greatly assist in efforts to grow the aerospace industry here in Hawai'i, creating new high paying jobs, diversifying our economy and providing new exciting challenges for our youth.

Thank you for allowing this testimony to be included at this hearing.

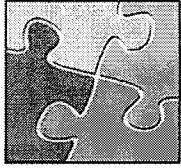
'O wau nō me ka ha'a ha'a

Mark McGuffie  
Managing Director

ENTERPRISE  
HONOLULU

THE BUSINESS CLIMATE OF PARADISE

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Economic Strategies LLC

Support Testimony on  
S.C.R. NO. 100  
RELATING TO AEROSPACE DEVELOPMENT

Committee on Public Safety And Military Affairs

Senator Will Espero, Chair  
Senator Robert Bunda, Vice Chair

Thursday, March 18, 2010, 1:20 p.m., Conference Room 229

Economic Strategies LLC, a Hawaii Economic Development Organization (EDO) strongly **supports SCR 100**, recognizing Aerospace as a strategic Hawaii growth industry and requesting the state administration fully support and fund the activities of the Office of Aerospace Development.

Hawaii has a long history of aerospace development that dates back to the 1930's with the original trans-pacific flight development. In the ensuing years Hawaii played a growing role in scientific discovery and pioneering innovation. During this period of growth Hawaii developed key infrastructure and educational programs to support the strategic resources being developed throughout the state, from the Pacific Missile Range Facility on Kauai, advanced surveillance facilities at PACOM, the Air Force Maui Space Observatory and Super Computer Facility, to the training facilities for space exploration (PISCES) and the telescopes on Mauna Kea.

Last year the Thirty Meter Telescope (TMT) Committee selected Mauna Kea as the future home to the TMT, the largest telescope scheduled to be built anywhere in the world. It will join the current galactic explorers on the mountain as the crown jewel of Hawaii's astrophysical exploration community. All of these Hawaii assets deserve the support and funding to keep them competitive and an active Office of Aerospace Development staffed and funded to aid in sector growth.

Hawaii has all the major private sector members of the aerospace community working throughout the state and can leverage that relationship to assist in growing the industry to create a brighter future for Hawaii, create good paying local jobs and provide a new education path for STEM curriculum.

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Last year a team from Iolani School won the state wide “Real World Design Challenge,” a national contest sponsored by the FAA, NASA and the private sector to design a next generation wing to improve fuel economy. The same team went on to win the national championship.

With congress and NASA opening up the first 100 miles of space for commercialization, Hawaii can strengthen its position in this growth market through support and funding of the efforts to develop this sector, to expand STEM education throughout the state and to secure space port license authorization for Honolulu International Airport, Kalaeloa Airport, and Kona Airport, plus support for the Pisces and UH space initiatives.

Why now? NASA rolled out America’s new vision for space exploration in 2006, and our current President set policy this year to expand the role of the private sector in the development of next generation space activities. Hawaii has many assets/resources/capabilities/advantages that can positively respond to this effort.

Hawaii's strategic mid-Pacific location and long-standing ties with Asia-Pacific nations, makes the islands an ideal site to support collaborative international science, education and economic development initiatives (e.g., conferences/symposia, research, astronaut training, advanced optics and robotics testing and evaluation)

Getting recognition and support for the aerospace industry in Hawaii and providing for the staffing and funding of the Office of Aerospace Development is the first step towards a future linking Hawaii to any part of the world wide space exploration and space tourism industry.

Failure to act on this now could mean Hawaii will not be on the aerospace map at all. The timing is right for these activities so Economic Strategies strongly supports **SCR 100**.



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