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#AMOS25th #EMERGEN2024

Contact: **Sandy Ryan**
Conference Director, Maui Economic Development Board
1305 North Holopono Street, Suite 1, Kihei, HI 96753
Office: 808-875-2300
Mobile: 808-283-1267
Email: sandy@medb.org
Website: www.medb.org

Event Date: AMOS Conference - Sept 17-20, 2024
EMER-GEN Conference – Sept 15-17, 2024

Location: Wailea Beach Resort
3700 Wailea Alanui Drive, Wailea, HI 96753

Description: The Advanced Maui Optical and Space Surveillance Technologies (AMOS) Conference is the premier technical conference in the nation devoted to space situational awareness. The cross section of private sector, government, and academic participation helps foster important dialogue and international collaboration. The continued growth in attendance and participating countries at AMOS reflects a growing interest in space sustainability and space commerce initiatives as new actors—national governments, private sector companies, non-governmental entities, and universities—become involved in these activities.

AMOS 2024 will be hybrid with an in-person event complemented by virtual components including livestream.

The call for papers for the 2024 AMOS Conference closed March 1 and attracted an outstanding number of exceptional abstracts from 24 countries. The number and content of the submissions demonstrate the continued evolution and advancements in field of space domain awareness and is reflected in the session topics to be covered this year: Astrodynamics, Cislunar SDA, Conjunction/RPO, Machine Learning for SDA Applications, Satellite Characterization, SDA Systems & Instrumentation, Space-based Assets, Space Debris, Space Domain Awareness; and Atmospheric/Space Weather.

Papers are eligible for publication in the 2024 Journal of Astronautical Sciences as well as a Best Paper and Presentation Award. There is also a Student Award for the best manuscript submitted by a student.

In addition to the Technical Sessions, the AMOS Conference features Keynote Speakers, Policy Forums and Technical Short Courses. The on-site Exhibit Venue is at capacity, providing opportunities for sponsors to showcase new technologies and services as well as encourage networking. There will also be virtual access to posters and networking rooms.

This will be the seventh year for the **EMER-GEN program**, designed especially for young professionals and students (35 and under) enthusiastic about careers in space. The program will be in-person with three webinars pre-event to prepare the cohort.

Presenter: This event is presented by the **Maui Economic Development Board**, a 501(c)(3) not-for-profit corporation established in 1982 with a mission to diversify Maui County's economy, building pathways to innovation, jobs and opportunity for our residents. Through partnerships with the public and private sector, MEDB undertakes projects that assists growth industries with navigating and thriving in our county, educates and trains residents for new careers, and engages our community in forums that determine future economic directions.

AMOS CONFERENCE FAST FACTS – continued

Technical Chairs

Paul Kervin, AFRL/RDSM retired

Daron Nishimoto, Consultant, E.O. Solutions

2024 Session Topics and Chairs

Astrodynamics

Tom Kelecy, The Aerospace Corporation

Geoff Lake, Ball Aerospace

Atmospherics/Space Weather

Mary Ellen Craddock, Northrop Grumman Corporation

Shaylah Mutschler, Space Environment Technologies

Cislunar SDA

John Iannamorelli, Purdue University

Jamie Stearns, AFRL Space Vehicles Directorate

Conjunction/RPO

Jeff Aristoff, Slingshot Aerospace

Mariel Borowitz, OSC / Georgia Tech

Machine Learning for SDA Applications

Heather Griffith James, Kitware, Inc.

Nathan Toner, Cloudstone Innovations

Satellite Characterization

Carolin Frueh, Purdue University

Emily Gerber, Ten One Aerospace

SDA Systems & Instrumentation

Jeff Sherk, The Aerospace Corporation

Stacie Williams, HQ U.S. Space Force

Space-Based Assets

BT Cesul, Umbra

Orlando Diaz, NASA Ames Research Center

Space Debris

Heather Cowardin, NASA

Zach Gazak, SSC/SZG

Space Domain Awareness

Ayla Reed, AFRL/RDSM

Lauchie Scott, Defense R&D Canada

TECHNICAL SHORT COURSES

Short courses provide opportunities for working professionals to upgrade their technical job skills and remain abreast of recent developments in their respective fields of interest. The small size of each class gives you an excellent opportunity for personalized instruction.

Taught by highly regarded industry experts on a variety of subjects, courses have been scheduled to be presented either in-person on Maui on September 17; or online on September 16, 2023.

Ten short courses will be presented on-site at the AMOS Conference venue at the Wailea Beach Resort over two sessions. All participation will be in-person with no live streaming available. The courses, and the presenters are:

1. **CA Risk Assessment Technical Short Course** – Presented by Francois Laporte, CA senior expert, CNES; Lauri Newman, Conjunction Assessment Program Officer, NASA Headquarters; Matthew Hejduk, Chief Engineer, Satellite Conjunction Assessment, HQ NASA, The Aerospace Corporation
2. **Astrodynamics for xGEO Space Domain Awareness** – Presented by Aaron J. Rosengren, Assistant Professor, University of California San Diego; Shane D. Ross, Professor, Virginia Tech
3. **Panchromatic, Multi-spectral, Spectroscopy and Polarimetry Data Collection and Image Processing for Non-resolved Object Characterization** – Presented by Francis Chun, Professor, USAF Academy, Department of Physics and Meteorology; Timothy Giblin, Senior Scientist, i2 Strategic Services, LLC; David Strong, Senior Scientist, Strong EO Imaging, Inc.; Benjamin Roth, Director, Astronomy Research Group and Observatory, USAF Academy, Department of Physics and Meteorology; Anil Chaudhary, Principal Scientist, Applied Optimization, Inc.; Phillip Fishbein, Computer Engineer/Mathematician, Applied Optimization, Inc.
4. **Uncertainty Quantification for Space Situational Awareness** – Presented by Brandon Jones, Associate Professor, The University of Texas at Austin
5. **Using a Modular Open System Approach (MOSA) to Enhance Space Situational and Domain Awareness** – Presented by Yvette Rodriguez, Research Director / Professor, Defense Acquisition University; Monique Ofori, Systems Engineering Manager / Contractor Support to OUSD(R&E) SE&A, SAIC / OUSD(R&E) Systems Engineering
6. **Deep Learning Methods for Space Domain Awareness** – Presented by Roberto Furfaro, Professor and Director of Space4 Center, University of Arizona; Richard Linares, Associate Professor, Massachusetts Institute of Technology; Weston Faber, Senior Scientist, L3Harris
7. Cancelled
8. **Observing and Characterizing Space Debris** – Presented by Thomas Schildknecht, Director of Swiss Optical Ground Station, University of Bern, Astronomical Institute
9. **Telescopes and Optics: An Introduction to Ground-based Optical SDA** – Presented by Peter Zimmer, Research Scientist
10. **The Case for Space Environmentalism** – Presented by Moriba Jah, Professor Aerospace Engineering & Engineering Mechanics, The University of Texas at Austin

AMOS CONFERENCE FAST FACTS – continued

Five technical short courses will be presented virtually on Monday September 16. The presentations are “live” and participants will have the ability to interact with the instructor and attendees in real-time.

A. Cross-Domain Learning For Space Law: Challenging the lessons from Maritime, AI and Cyber Domains to Enable a Circular Space Economy – Ralph Dinsley, Founder/Managing Director, 3S Northumbria Ltd; Christopher Newman, Professor of Space Law and Policy, Northumbria University; Lauren Napier, Lecturer In Law, Space, Cyber, Telecommunications, AI and Robotics, Northumbria University

B. Methods of Cognitive Learning for Space Traffic Management – Presented by Mark Abrams, Principal, and Steve Stennett, Principal, Cognitive Learning Systems

C. Astrodynamics Essentials: Mastering the Math and Physics of Space Orbits Simulation
– Presented by Richard L. Lachance, President & CEO, RLL Consulting

D. Imaging, Tracking, and Object Detection – Presented by David Gerwe, Scientist, and Steven Griffin, Chief Engineer, Boeing

E. SSA System and Catalog Architecture Design – Presented by Thomas Johnson, CEO, Exa Research, LLC

AMOS CONFERENCE FAST FACTS – continued

2024 Sponsors

Po’okela (*working together*) Boeing

Kokua (*to help and support*)

Comspoc KBR L3 Harris SAIC

Laulima (*working together*)

Anduril Kratos Northrop Grumman
BAE Systems LeoLabs SpaceNav
EO Solutions Linquest
ExoAnalytic Solutions Mitre

Lokahi (*collaboration and unity*)

Astroscale LSAS Tec
Booz Allen Hamilton Maxar
CACI Peraton
General Atomics Electromagnetic Systems Raytheon
Johns Hopkins Applied Physics Laboratory Secure World Foundation
Lockheed Martin Slingshot Aerospace

Kupa’a (*loyal and committed*)

Blue Halo Space Foundation
General Dynamics Mission Systems SpaceMap
Hawaii Technology Development Corporation (HTDC)

Malama (*to care for*)

a.i. solutions Hart Scientific Consulting Sea West Observatories
Advanced Scientific Concepts Kayhan Space SEAKR Engineering
Advanced Space Lipoa SpaceFlux
Astro Haven Enterprises MDA Space SpaceX
Celestron NEC Aerospace Systems Tech7
Charles River Analytics Pier-Tech Inc Toptica Photonic
GEOST Planewave Instruments Transastra
GMV Rocket Communications USRA

Exhibitors

a.i. solutions | Advanced Scientific Concepts | AFRL | Astro Haven Enterprises | BAE Systems
Celestron | Charles River Analytics | COMSPOC | General Atomics Electromagnetic Systems | GEOST
GMV | Hart Scientific Consulting | JHU Applied Physics Laboratory | Kayhan Space | KBR | Kratos
LeoLabs | Lipoa | LSAS Tec | MAXAR | Mitre | Planewave Instruments | Rocket Communications
SAIC | Sea West Observatories | SEAKR | Slingshot Aerospace | SpaceFlux
SpaceMap | SpaceNav | TOPTICA Photonics | Transastra

FAQs

How did the conference come to be on Maui?

Maui has some of the most diverse and highly capable optical telescopes (AEOS), instrumentation (adaptive optics, spectrometers, photometers, radiometers, etc.) and processing capabilities (MHPCC) centralized into one location on the planet earth.

The AMOS Conference began in 1999 as an AFRL initiative, executed by the Maui Economic Development Board (MEDB). At that time, the focus of the conference was as a users' conference and to promote the Air Force Maui Optical and Supercomputing Site (AMOS) which has provided the U.S. Department of Defense (DoD) with space situational awareness (SSA) capabilities for over 65 years (since 1951).

In 2006, MEDB assumed ownership of the AMOS Conference from the Air Force, and proceeded to build upon early success by evaluating and adding elements to the conference that bring value to the SSA/SDA (Space Domain Awareness) Community. In the 16 years since, MEDB's intent in presenting the AMOS Conference is still to support the Air Force's mission on Maui which, in turn, supports MEDB's mission of economic diversification.

What are the various activities of the AMOS Conference?

In order for the AMOS Conference to continue to be of benefit to the Air Force, it must also be of benefit to the SSA/SDA Community at large. The conference has expanded from solely Technical Sessions to include exhibition and sponsorship opportunities; SSA Policy sessions that explore international issues; keynotes by international SSA thought leaders; invited workshops that promote international collaboration and cooperation on SSA/SDA topics; and technical short courses. Evening receptions provide informal opportunities to network and build connections.

How are presenters selected for the Technical Sessions?

A Call for Papers is announced at the beginning of the year with submissions closing March 1. Papers are reviewed and selected by Technical Chairs that have been selected to moderate the specific sessions noted to be in high demand by the submissions.

Papers that are not accepted for an oral presentation may be invited to present a Poster. To expand the number of opportunities to present at AMOS, virtual posters are offered with select presenters invited to present in-person. All presenters, oral or poster, are required to submit a final paper by August 30 in order to present at the AMOS Conference.

Where are the Technical Papers published?

Final papers are collated into the Proceedings for the year and available for purchase 8-10 weeks post-Conference. The Conference also maintains an archive of individual technical

AMOS CONFERENCE FAQ – continued

papers presented at the AMOS Conference since 2006 which is searchable online as a resource to the SSA technical community <https://amostech.com/archives/>.

In 2024, relevant papers will be considered for publication in the 2024 Journal of Astronautical Sciences, an archival publication devoted to the sciences and technology of astronautics. Articles are published which present significant new results, important insights, or state of the art surveys in all areas of astrodynamics, celestial mechanics, atmospheric flight mechanics, navigation and guidance, and space related sciences.

What awards are associated with the AMOS Conference?

For the seventh year, the Space Surveillance Technical Committee of the American Astronautical Society (AAS) and AMOS Conference will present a Student Award for the best manuscript submitted and presented by a student. The winner receives a stipend, as well as free registration for both the AMOS Conference and EMER-GEN.

All presentations are eligible for an overall Best Paper that will be presented end of the Conference. Poster presenters are also in the running for awards – Best Poster, Most Creative, Best Newcomer and Best Poster Pitch Presentation.

What is the SSA Policy Forum?

The SSA Policy Forum, coordinated in collaboration with Secure World Foundation, explores international issues related to Space Situational Awareness in a panel format. Held at the start of each day of the 3-day AMOS Conference, Wednesday to Friday, the sessions are preceded by a relevant keynote presented by an invited SSA thought leader. Bringing together the developers and implementers of SSA capabilities and the architects of SSA policy provides a forum to interact at a time when the landscape is rapidly changing. This year's topics are:

1. Sustainable Operations of Large Constellations: The Role of Orbital Carrying Capacity and Other Tools
2. SSA in the Asia-Pacific: Where We Are, Where We Are Going
3. Space Weather and SSA—What's Needed Next?

How will the virtual conference experience be for attendees?

A robust virtual platform provided by X-CD technologies will allow attendees to attend the live plenary sessions and participate in Q & A via a chat function. The platform will include a poster venue and the opportunity to network with fellow attendees. Technical sessions will be on-demand and all presentations will be recorded for later access by those registered unable to attend the live streaming.

A virtual exhibit hall will have a collection of resources (links and downloads) provided by sponsors. In the poster venue, attendees can view pre-recorded 3 minutes presentations of the posters and post questions to the presenters via the discussion board.

AMOS CONFERENCE FAQ – continued

Who attends?

Along with United States representatives from military, government, academia and commercial sectors, the number of countries that have attended over the history of AMOS Conference is 33 -- Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Finland, France, Germany, India, Iran, Israel, Italy, Japan, Netherlands, New Zealand, Philippines, Poland, Republic of Korea, Russia, Singapore, Slovakia South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, Ukraine, United Arab Emirates and the United Kingdom.

A sampling of companies, universities, and government organizations that have attended AMOS can be [viewed/downloaded](#).

What is EMER-GEN and what do you expect to achieve?

The EMER-GEN program is a joint initiative of the AMOS Conference and the Space Generation Advisory Council (SGAC). Designed especially for young professionals and students (35 and under) enthusiastic about careers in space, the original 2+ day program has grown to include webinars before the main event with a focus on fostering innovation and entrepreneurship among the cohort. Through the whole program, participants are challenged to solve/hack a problem to create new opportunities for space-based technologies.

With the help of advisers from industry, government, academia and NGOs, the EMER-GEN experience offers the experience offers

- Mentoring with renowned space specialists from the public sector (military and civil), private sector, and nongovernmental organizations
- Networking with other young professionals
- Technical Short Course presented by a specialist in space situational awareness
- Professional Development sessions to enhance your effectiveness in a global environment

The partnership with the SGAC provides an opportunity to extend the reach of the AMOS Conference and to contribute to the professional development of the upcoming space generation.

Scholarships are available to Hawaiian residents.

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2024 AMOS CONFERENCE PRESS RELEASES

(latest to earliest)

Contact: Annette Lynch, Director of Communications, Maui Economic Development Board
Ph: 808-270-6811 E: annette@medb.org

FOR IMMEDIATE RELEASE

Keynote and SSA Policy Forum Speakers announced for the 25th AMOS Conference

Kihei, Maui, Hawaii, August 11, 2024 – With the 25th annual AMOS Conference sold-out for months an impressive line-up of speakers will feature in the morning sessions. Keynotes and SSA Policy Forums kick-off each of the three days with Lieutenant General Philip A. Garrant, Commander of Space Systems Command, headquartered at Los Angeles Air Force Base, to give the opening Keynote on Day 1 – Wednesday September 18.

The AMOS Conference, to be held September 17-20 on Maui, has been the nation’s leading technical conference on space situational/domain awareness. Bringing together policymakers and experts from the private sector, academia, the military, and government agencies, the AMOS conference attracts papers and presentations from the world’s foremost scientists working in the near-space arena.

Lt. Gen. Garrant’s remarks will be followed by the first of three SSA Policy Forums. A collaboration with Secure World Foundation, the SSA Policy Forum brings together the developers and implementers of SSA capabilities and the architects of SSA policy to discuss a landscape that is rapidly evolving.

On Day 1 an international panel will discuss the “*Sustainable Operations of Large Constellations: The Role of Orbital Carrying Capacity and Other Tools.*” Given the increasing operational experience with the deployment and operation of large satellite constellations - and additional systems in the pipeline - the need to improve holistic approaches to mitigate risks on safety and sustainability in the space environment related to these constellations also increases in relevancy. Approaches such as crossing policy, operational, and SSA services aspects – will have important benefits for business and service continuity, maintaining access to orbit for future users, and ensuring safety in a multi-user domain.

Moderator Ian Christenson, Senior Director, Private Sector Program Secure World Foundation will be joined by Richard Linares, Associate Professor, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology; Andrew Ratcliffe, Chief Engineer, United Kingdom Space Agency and others.

DAY 2

Dr. Hiroshi Yamakawa, President, Japan Aerospace Exploration Agency (JAXA), will kick off Day 2 with a keynote presentation. First joining JAXA 2003-2006, Yamakawa was engaged in mission design of numerous Earth-orbiting scientific satellite projects as well as in lunar and interplanetary missions. He also engaged in the navigation, guidance, and control systems of the solid propellant rocket, M-V, and liquid propellant reusable sounding rocket, RVT. He was a study manager and a project manager of the Euro-Japan collaborative mission to Mercury

“BepiColombo” from 2000 through 2006. He was a visiting scientist at NASA JPL in 1997-1998 and at ESA ESTEC in 2002.

He moved to Kyoto University in 2006 as a professor of the Research Institute of Sustainable Humanosphere, a professor of the Graduate School of Engineering (cooperating chair) and a deputy director of the Unit for Synergetic Studies of Space. His academic interest lay in orbital mechanics, trajectory optimization, space propulsion, and space situational awareness.

He was appointed as secretary general at the Secretariat of Strategic Headquarters for Space Policy, Cabinet Secretary, Government of Japan in 2010 through 2012. Then, he was assigned member of the Committee for National Space Policy, Cabinet Office from 2012 through 2018. Yamakawa was appointed President of JAXA in April 2018.

The keynote presentation will be followed by a Policy Forum discussion titled “*SSA in the Asia-Pacific: Where We Are, Where We Are Going.*” While it is agreed that a certain baseline level of SSA is needed to ensure spaceflight safety, different operators and actors have different needs for it.

Victoria Samson, Chief Director, Space Security and Stability, Secure World Foundation, will moderate this panel as it discusses what those needs are in the Asia-Pacific region and examine how countries and companies within it are determining what should be prioritized and how they are developing their own SSA capabilities. The possibility of regional cooperation in sharing SSA data will be discussed, as will any challenges and possible roadblocks to doing so.

Samson will be joined onstage by Dan Ceperley, Founder & Chief Operating Officer, LeoLabs; Sittiporn Channumsin, Director of Space Technology Research Center, GISTDA; and Lexie Weikert, Manager Business Development, National Security, Astroscale.

DAY 3

On the Friday of the AMOS Conference, Pam Melroy, Deputy Administrator, NASA, will give the keynote presentation.

Melroy was commissioned through the Air Force Reserve Officers’ Training Corps (ROTC) program in 1983. As a co-pilot, aircraft commander, instructor pilot, and test pilot, Melroy logged more than 6,000 flight hours in more than 50 different aircraft before retiring from the Air Force in 2007. She is a veteran of Operation Desert Shield/Desert Storm and Operation Just Cause, with more than 200 combat and combat support hours.

Melroy was selected as an astronaut candidate by NASA in December 1994. One of only two women to command a space shuttle, Melroy logged more than 38 days (924 hours) in space. She served as pilot on two flights and was the mission commander on STS-120 in 2007. All three missions were assembly missions to build the International Space Station.

After serving more than two decades in the Air Force and as a NASA astronaut, Melroy took on a number of leadership roles, including at Lockheed Martin, the Federal Aviation Administration, the Defense Advanced Research Projects Agency, Nova Systems Pty, Australia, and as an advisor to the Australian Space Agency. She also served as an independent consultant and a member of the National Space Council’s Users Advisory Group.

Col. (USAF, ret) Pam Melroy was sworn in as the NASA deputy administrator on June 21, 2021.

The final Policy Forum of the week will feature a discussion of “*Space Weather and SSA – What’s Needed Next?*” Recent events such as the February 2022 loss of 38 Starlink satellites due to space weather highlight the important connection between space weather and orbital trajectory predictions. Historically, the limited operational low Earth orbit (LEO) population with an altitude distribution biased towards high LEO meant operations were less sensitive to the accuracy of space weather prediction. The proliferation of LEO and very LEO with large constellations makes space weather modeling and forecasting an acute challenge.

This session will examine space weather prediction capabilities, current practices for atmospheric density modeling, and the impact that these have on both the accuracy of SSA and conjunction warnings as well as the ability to share SSA data among various stakeholders. Further, it will look to US and international plans to address these issues in light of changing SSA data and service models.

Krystal Azelton, Senior Director, Program Planning, Secure World Foundation will moderate the panel that includes Marco Concha, Flight Dynamics Lead, Amazon Kuiper; Tzu-Wei Fang, Space Scientist, NOAA Space Weather Prediction Center; Piyush Mehta, Associate Professor, West Virginia University; and Matthew Shoupe, Senior Associate, Commercial Space Strategy, Booz Allen Hamilton.

FEATURED PRESENTATION AND MORE

In addition to the keynotes and policy forums, the conference features technical sessions, exhibit and poster sessions, fourteen technical short courses plus feature presentations. This year’s featured presentations include Richard DalBello, Director, Office of Space Commerce; and Barbara Golf, USSF, Strategic Advisor for SDA, SSC/SZ. Ms. Golf will present “*Joint Commercial Operations (JCO) Introduction and Way Forward.*”

Colonel Jeremy Raley, Air Force Research Laboratory, and Colonel Joseph Roth, U.S. Space Force return to the AMOS stage to present “*Future Space-based Logistics for SDA.*”

On Thursday afternoon Lieutenant Colonel Jason Altenhofen, U.S. Space Force, Space Systems Command; and Gregory Less, Millennium Space Systems will give the Featured Presentation “*Victus Nox: Tactically Responsive Space – Space Domain Awareness Mission.*”

Presented by Maui Economic Development Board (MEDB), the AMOS Conference will be hybrid, offering livestreaming of all presentations. In-person registration has been sold out for months with many placing value on the numerous networking opportunities provided. In anticipation of numbers and limited seating, the conference will be streamed live to an overflow room and to the virtual platform and mobile app. Virtual tickets are still available providing access to all presentations as well as online networking and digital swag provided by sponsors.

The 2024 AMOS Conference is sponsored by a.i. solutions, Advanced Scientific Concepts, Advanced Space, Anduril, Astro Haven Enterprises, Astroscale, BAE Systems, BlueHalo, Booz Allan, CACI, Celestron, Charles River Analytics, COMSPOC, EO Solutions, ExoAnalytic Solutions, General Atomics Electromagnetic Systems, General Dynamics Mission System, GEOST, GMV, Hart Scientific Consulting International, HTDC, JHU Applied Physics Laboratory, Kayhan Space, KBR, Kratos, L3 Harris, LeoLabs, LinQuest Corporation, Lipoa

Investments, LLC, Lockheed Martin, LSAS Tec, MDA Space, Maxar, Mitre, NEC Aerospace Systems, Northrop Grumman, Peraton, Pier-Tech Inc., Planewave Instruments, Raytheon, Rocket Communications, SAIC, Sea West Observatories, SEAKR, Slingshot Aerospace, SpaceFlux, SpaceMap, SpaceNav, SpaceX, The Boeing Company, The Tech7 Company, TOPTICA Photonics, Transastra, USRA.

Learn more at <https://amostech.com/>

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PHOTOS:



CAPTION: Lt. Gen. Philip A. Garrant is Commander, Space Systems Command will give the opening Keynote for the 2024 AMOS Conference



CAPTION: Dr. Hiroshi Yamakawa, JAXA will give the keynote on Day 2 of AMOS 2024



CAPTION: Col. (USAF, ret) Pam Melroy, NASA, will give the keynote on Day 3 of AMOS 2024

7th EMER-GEN® Cohort to explore real-world challenges

Kihei, Maui, Hawaii, July 24, 2024 – The 7th Annual EMER-GEN® program will ask young professionals and students to come up with innovative solutions to real-world challenges faced by the evolving global space industry. The program, aimed at fostering the next generation of space professionals, is held on Maui September 15-17 and kicks off August 28 with a series of three pre-event webinars.

EMER-GEN was co-founded in 2018 by the Maui Economic Development Board (MEDB, host of the AMOS Conference) in affiliation with the Space Generation Advisory Council (SGAC). The program provides young professionals and students with opportunities to engage with experts in the space industry, develop leadership skills, and collaborate on projects that address current and future challenges in space exploration and technology.

Participants engage in workshops, interactive table-top exercises, and mentorship sessions conducted by industry experts, gaining valuable insights into cutting-edge technologies, policy frameworks, and entrepreneurship in the space sector. These interactions not only nurture their technical skills but also equip them with the leadership and teamwork abilities required to thrive in their careers.

“The program encourages participants to think creatively, collaborate in teams and develop innovative solutions at both a technological and policy level,” said Annette Lynch, Director of Communications with MEDB. “The diverse range of activities and speakers helps participants enhance both their technical expertise and leadership capabilities.”

A core element of the program is the mentorship provided by experienced professionals. These mentors offer valuable advice, share their experiences, and provide insights into career development opportunities. Such mentorship is invaluable in encouraging participants to pursue their aspirations in the space sector with confidence.

The specific challenges and topics within the program are shaped each year with the help of three young professionals on the planning committee including two representatives nominated by SGAC. Ulrike Nostitz, who is finishing up a fellowship with the International Space University's (ISU) Space Studies Program (SSP) 2024 in Houston, is excited to be on the committee stating, “My involvement in planning allows me to contribute to the program's content, enhance my organizational skills, and build connections with industry professionals. As a delegate, I get to network with international peers and experts, and explore career opportunities. This dual role lets me gain some really great insights into the latest industry trends, learn and expand my knowledge, and advocate for the next generation of space professionals, all while contributing to the program's success and expanding my network, and of course....having lots of fun!”

Nostitz is joined on the committee by fellow SGAC representative, Christopher Capon, CEO of Nominal Systems, an Australian based startup; and Matthew Lugo, an EMER-GEN Alum and Maui resident who works with Privateer Space, located in the Lipoa Maui Community in Kihei.

Lugo, who attended the EMER-GEN Program in 2022, commented, “EMER-GEN was an excellent and rare opportunity to receive career advice from some of the most experienced and talented people in the industry. As a member of the EMER-GEN 2024 planning committee, I hope to facilitate networking opportunities for up-and-coming talent in the SSA/SDA community and make a meaningful impact on both my industry and my local community of Hawaii.”

Through its structured approach and hands-on experiences, EMER-GEN paves the way for a new generation of space leaders who will shape the future of sustainable use of space.

“I highly recommend the EMER-GEN program to all attendees seeking early career advice and development,” Lugo concluded, “... as well as those looking to network with a standout cohort of peers.”

Learn more about the program and schedule at <http://www.emer-gen.com>.

[The Space Generation Advisory Council](#) is a global non-governmental, non-profit (US 501(c)3) organization and network which aims to represent university students and young space professionals ages 18 to 35 to the United Nations, space agencies, industry, and academia. Headquartered in Vienna, Austria, the SGAC network of members, volunteers and alumni has grown to more than 13,000 members representing more than 150 countries.

The annual Advanced Maui Optical and Space Surveillance Technologies (AMOS) Conference, a program of the Maui Economic Development Board, is the premier technical conference in the nation devoted to space domain awareness. The cross section of military, contractor, and academic participation fuels important dialogue and collaboration on a national and international scale.



CAPTION: Industry experts are eager to support the next generation of space professionals at EMER-GEN



CAPTION: EMER-GEN Delegates work in teams to come up with innovate solutions to technical and policy challenges

Technical Short Courses announced for the 2024 AMOS Conference

Kihei, Maui, Hawaii, June 21, 2024 - Technical Short Courses have been announced for the 2024 AMOS Conference offering attendees opportunities to learn and deepen their understanding of cutting-edge technologies and trends related to space situational/domain awareness (SSA/SDA).

The annual AMOS Conference, presented by Maui Economic Development Board, is celebrating its 25th year. Renowned for bringing together leading experts, researchers, and practitioners from the fields of space domain awareness, courses are offered both in-person on Maui on September 17; or online on September 16. The plenary sessions follow September 18-20 along with networking and exhibit sessions.

“The high number of Short Course proposals we receive reflect the growth in technology, trends and audience.” said Sandy Ryan, Conference Director. “The courses offer opportunities to dive deep into specialized topics, equipping participants with cutting-edge skills and knowledge that drive innovation and excellence in topics related to SDA.”

The short courses cover diverse topics, from conjunction assessment, machine learning and astrodynamics to space law and space environmentalism. By attending these courses, conference participants gain practical insights and skills that contribute to advancements in optical and space surveillance technologies.

In-person courses

Ten short courses will be presented on-site Tuesday, September 19 at the AMOS Conference venue at the Wailea Beach Resort over two sessions. All participation will be in-person with no live streaming available, and no recording. The interactive courses, and the presenters are:

1. **CA Risk Assessment Technical Short Course** – Presented by Francois Laporte, CA senior expert, CNES; Lauri Newman, Conjunction Assessment Program Officer, NASA Headquarters; Matthew Hejduk, Chief Engineer, Satellite Conjunction Assessment, HQ NASA, The Aerospace Corporation
2. **Astrodynamics for xGEO Space Domain Awareness** – Presented by Aaron J. Rosengren, Assistant Professor, University of California San Diego; Shane D. Ross, Professor, Virginia Tech
3. **Panchromatic, Multi-spectral, Spectroscopy and Polarimetry Data Collection and Image Processing for Non-resolved Object Characterization** - Presented by Francis Chun, Professor, USAF Academy, Department of Physics and Meteorology; Timothy Giblin, Senior Scientist, i2 Strategic Services, LLC; David Strong, Senior Scientist, Strong EO Imaging, Inc.; Benjamin Roth, Director, Astronomy Research Group and Observatory, USAF Academy, Department of Physics and Meteorology; Anil Chaudhary, Principal Scientist, Applied Optimization, Inc.; Phillip Fishbein, Computer Engineer/Mathematician, Applied Optimization, Inc.
4. **Uncertainty Quantification for Space Situational Awareness** - Presented by Brandon Jones, Associate Professor, *The University of Texas at Austin*
5. **Using a Modular Open System Approach (MOSA) to Enhance Space Situational and Domain Awareness** - Presented by Yvette Rodriguez, Research Director /

Professor, *Defense Acquisition University*; Monique Ofori, Systems Engineering Manager / Contractor Support to OUSD(R&E) SE&A, SAIC / OUSD(R&E) Systems Engineering

6. **Deep Learning Methods for Space Domain Awareness** - Presented by Roberto Furfaro, Professor and Director of Space4 Center, University of Arizona; Richard Linares, Associate Professor, Massachusetts Institute of Technology; Weston Faber, Senior Scientist, L3Harris
7. **Introduction to Event-Based Sensing for SDA: A Hands-On Tutorial** - Presented by Rachel Oliver, Assistant Professor, AFIT; Gregory Cohen, Associate Professor in Neuromorphic Systems, Western Sydney University; Michael Dexter, Associate Professor, AFIT; Alexandre Marcireau, Postdoctoral Fellow, Western Sydney University; Nicholas Ralph, Postdoctoral Fellow, Western Sydney University
8. **Observing and Characterizing Space Debris** - Presented by Thomas Schildknecht, Director of Swiss Optical Ground Station, *University of Bern, Astronomical Institute*
9. **Telescopes and Optics: An Introduction to Ground-based Optical SDA** - Presented by Peter Zimmer, Research Scientist, and Mark Ackermann, Optical Scientist, J.T. McGraw and Associates, LLC
10. **The Case for Space Environmentalism** - Presented by Moriba Jah, Professor Aerospace Engineering & Engineering Mechanics, The University of Texas at Austin

Virtual Courses

Five technical short courses will be presented virtually on Monday September 16. The presentations are “live,” (no recording) and participants will have the ability to interact with the instructor and attendees in real-time.

A. Cross-Domain Learning For Space Law: Challenging the lessons from Maritime, AI and Cyber Domains to Enable a Circular Space Economy – Ralph Dinsley, Founder/Managing Director, 3S Northumbria Ltd; Christopher Newman, Professor of Space Law and Policy, Northumbria University; Lauren Napier, Lecturer In Law, Space, Cyber, Telecommunications, AI and Robotics, Northumbria University

B. Methods of Cognitive Learning for Space Traffic Management - Presented by Mark Abrams, Principal, and Steve Stennett, Principal, Cognitive Learning Systems

C. Astrodynamics Essentials: Mastering the Math and Physics of Space Orbits Simulation - Presented by Richard L. Lachance, President & CEO, RLL Consulting

D. Imaging, Tracking, and Object Detection - Presented by David Gerwe, Scientist, and Steven Griffin, Chief Engineer, Boeing

E. SSA System and Catalog Architecture Design - Presented by Thomas Johnson, CEO, Exa Research, LLC

Full descriptions of all the short courses are available at <https://amostech.com/short-courses>. A separate registration fee is required for each course and courses can be added to new and existing registrations. Places will be limited due to space and to ensure an interactive experience for all.

Recognized as the preeminent scientific conference in the field of space domain awareness, the AMOS Conference is attended by over 1,000 scientists, engineers and space experts from around

the globe and across industry, government, military, and academic sectors. Learn more about the program at <https://amostech.com/agenda/>

PHOTO



CAPTION:

Aaron Rosengren leads a short course on Astrodynamics at the 2023 AMOS Conference

Keynote Speaker announced for the 25th AMOS Conference

Kihei, Maui, Hawaii, June 4, 2024 – AMOS Conference organizers are delighted to welcome Lieutenant General Philip A. Garrant to Maui to give the opening keynote as it celebrates its 25th anniversary. The 2024 program is taking shape with keynote speakers, policy forum topics, featured presentations, and technical sessions scheduled for September 17-20.

Launched in 1999 with the Air Force Research Laboratory, and presented by Maui Economic Development Board, the AMOS Conference is the premier technical conference in the nation devoted to space situational/domain awareness. Bringing together policymakers and experts from the private sector, academia, the military, and government agencies, the conference attracts papers and presentations from the world's foremost scientists and leaders working in the near-space arena.

“Celebrating 25 years of the AMOS conference reflects a quarter-century of innovation, collaboration, and progress in the space domain,” said Sandy Ryan, Conference Director, MEDB. “We are honored to be an active partner in this growth and look forward to the continued exchange of knowledge and ideas shaping the future of space.”

As the Commander of Space Systems Command, headquartered at Los Angeles Air Force Base, Lt. Gen. Garrant is responsible for more than 15,000 military, civilian and contractor personnel worldwide and an annual budget of \$15.6 billion, while managing the research, design, development, acquisition, launch, and sustainment of satellites and the associated command and control systems. His extensive portfolio includes military satellite communication, missile warning, navigation and timing, space-based weather, space launch and test ranges, space superiority, responsive space and other emerging evolutionary space programs.

Prior to Space Systems Command, Lt. Gen. Garrant served as the Deputy Chief of Space Operations, Strategy, Plans, Programs, and Requirements, and had the overall responsibility for the strategies, requirements, and budget of the United States Space Force. During his career, he has served in a variety of acquisition positions including Systems Engineer, Program Manager, Program Element Monitor, Squadron Commander, Senior Materiel Leader, Deputy Program Executive Officer and Program Executive.

Technical Sessions

An outstanding number of exceptional abstracts from 24 countries were received for consideration for presentation at this year's AMOS Conference. The number and content of the submissions demonstrate the continued evolution and advancements in field of space domain awareness and is reflected in the session topics to be covered this year: Astrodynamics, Atmospheric/Space Weather; Cislunar SDA, Conjunction RPO, Machine Learning for SDA Applications, Satellite Characterization, SDA Systems & Instrumentation, Space-based Assets, Space Debris, and Space Domain Awareness.

Submissions have been selected for oral and poster presentations. In an effort to showcase a greater body of technical work, the Conference includes a virtual poster category in addition to traditional in-person poster and oral presentations.

Twenty-eight students have submitted abstracts and are eligible for the 7th annual AMOS Student Award, presented in collaboration with the American Astronautical Society. The award

includes a small honorarium, complimentary registration to the AMOS Conference and to EMER-GEN®. All papers presented at AMOS are eligible for the Best Paper award and award winners are also selected for Poster presenters including: The Golden Ticket (Best Poster); Most Creative; Newcomer Award; and Best Lightening Pitch Award.

The AMOS conference is hybrid with livestreaming of all oral presentations for those unable to travel to Maui. Virtual attendees have access to all presentations as well as online networking.

The AMOS Conference is preceded by the 7^h Annual EMER-GEN® program, a professional development opportunity for students and young professionals enthusiastic about careers in space. A joint initiative with the Space Generation Advisory Council (SGAC) EMER-GEN puts the focus on fostering innovation and entrepreneurship. The program features mentoring sessions with renowned space specialists; networking; technical short courses; and interactive professional development sessions designed to enhance the young professionals' effectiveness in a global environment.

Registration is open for both events. Learn more at <https://amostech.com/>

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PHOTOS:



CAPTION: Lt. Gen. Philip A. Garrant is Commander, Space Systems Command will give the opening Keynote for the 2024 AMOS Conference