Online: www.amostech.com
Facebook: AMOScon
Twitter: @amoscon
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#AMOScon #EMERGEN2022

Contact: **Sandy Ryan**
Conference Director, Maui Economic Development Board
1305 North Holopono Street, Suite 1, Kihei, HI 96753
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Event Date: AMOS Conference - Sept 27-30, 2022
EMER-GEN Conference – Sept 25-27, 2022

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

FAST FACTS

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.

Continuing to adapt in response to the COVID-19 pandemic, AMOS 2022 will be hybrid with an in-person event complemented by virtual components including livestream.

The call for papers for the 2022 AMOS Conference closed March 1 and attracted a record number of abstracts. Over 260 submissions from 20 countries cover various topics of space situational/domain awareness (SSA/SDA) including Adaptive Optics & Imaging, Atmospherics/Space Weather; Cislunar SSA; Conjunction/RPO; Machine Learning; Non-Resolved Object Characterization; Optical Systems & Instrumentation and Space Debris.

Papers are eligible for publication in the 2022 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. This year marks the return of the on-site Exhibit Hall to provide opportunities for sponsors to showcase new technologies and services as well as encourage networking. There will also be virtual access to exhibits, posters and networking rooms.

This will be the fifth 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 a series of webinars pre-event.

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

2022 Session Topics and Chairs

Adaptive Optics & Imaging
Brandoch Calef, The Boeing Company
Michael Hart, University of Arizona; HartSCI LLC

Astrodynamics
John Gaebler, AFRL Maui
Tom Kelecy, Stratagem Group

Atmospherics/Space Weather
Randy Alliss, Northrop Grumman Corporation
Thomas Berger, University of Colorado at Boulder, Space Weather Technology, Research, and Education Center (SWx TREC)

Cislunar SSA
Channing Chow, Cloudstone Innovations LLC
Jaime Stearns, AFRL Space Vehicles Directorate

Conjunction/RPO
Zach Funke, AFRL
Jim Shell, Novarum Tech LLC

Machine Learning Applications of SSA
Islam Hussein, Trusted Space
Charlotte Shabarekh, MIT Lincoln Laboratory

Non-Resolved Object Characterization
Zach Gazak, Odyssey
Emily Gerber, Stratagem Group

Optical Systems & Instrumentation
Jeff Sherk, The Aerospace Corporation
Stacie Williams, AFOSR

Space-Based Assets
John Ianni, AFRL
Pat Patterson, Space Dynamics Laboratory

Space Debris
Heather Cowardin, NASA Johnson Space Center
Carolin Frueh, Purdue University

AMOS CONFERENCE FAST FACTS – continued

Space Situational Awareness/Space Domain Awareness
Moriba Jah, University of Texas at Austin
Danielle Wood, Massachusetts Institute of Technology

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 27; or online on September 26, 2022.

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. **Conjunction Assessment (CA) Risk Assessment** – Presented by Francois Laporte, CAESAR Team Leader, CNES; Lauri Newman, Senior Engineer, Goddard Space Flight Center – NASA; and Matthew Hejduk, Chief Engineer, NASA Robotic CARA, Astrorum Consulting LLC
2. **The Dynamic Co-Evolution of Space Policy and Technology: Historical Overview and Lessons for Assessing Future Trends** – Presented by Nancy Hayden, Distinguished Member Technical Staff; Mark Ackermann, Senior Analyst; both of Sandia National Laboratories; and Victor Gamiz, Senior Scientist, Tau Technologies
3. **Deep Learning Methods for Space Domain Awareness** – Presented by Roberto Furfaro, Professor, University of Arizona; Richard Linares, Charles Stark Draper Assistant Professor, Massachusetts Institute of Technology; Weston Faber, Senior Research Scientist, L3Harris.
4. **Optical Modeling and Simulation for SSA/SDA**– Presented by Patrick North, Sensing Engineer, Image and Computer Scientist; and Novarah Kazmi Policht, Application Engineer; both of AGI, An Ansys Company.
5. **Navigating the Sea of Space Law** – Presented by Liberty Shockley, Engineer, U.S. Space Force
6. **Demystifying Machine and Deep Learning** – Presented by Joseph Coughlin, Associate Director, The Aerospace Corporation; Rohit Mital, Chief Technologist, KBR, Inc.
7. **Observing and Characterizing Space Debris** – Presented by Thomas Schildknecht, Vice Director, Head Optical Astronomie, Director Zimmerwald Observatory, Astronomisches Institut Universität Bern

AMOS CONFERENCE FAST FACTS – continued

8. **An Introduction to Event-Based Sensors for SDA: A Hands-On Tutorial** – Presented by:
   Gregory Cohen, Associate Professor, Western Sydney University; Mike Hawks,Air Force Institute of Technology; Peter McMahon-Crabtree, Senior Research Physicist, AFRL/RVSW; Brian McReynolds, PhD Student, U.S. Air Force; David Monet, Senior Research Astronomer, AFRL/RVSW; Rachel Oliver, Doctoral Student, U.S. Space Force; Zachry Theis, Chemist, AFRL; Grant Thomas, PhD Student, Air Force Institute of Technology.
9. **Space Law & The Space Law Games: Legal Liability and Mapping the Future in LEO Operations** – Presented by Ralph Dinsley, Executive Director, Northern Space and Security Ltd; Christopher Newman, Professor of Space Law and Policy, Northumbria University; Lauren Napier, Northumbria University
10. **Astrodynamics for xGEO Space Domain Awareness** – Presented by Aaron J. Rosengren, Assistant Professor, Jacobs School of Engineering, University of California San Diego; Shane D. Ross, Professor, Virginia Tech

Six technical short courses will be presented virtually on Monday September 26. The presentations are "live" and participants will have the ability to interact with the instructor and attendees in real-time.

A. Space Domain Awareness (SDA) Workshop– Presented by Wiley Larson, CEI; Pamela Magee, Editor, Space Technology Series; Moriba Jah, Associate Professor, University of Texas at Austin

B. Space Weather Impacts on Orbital Operations – Presented by Thomas Berger, Executive Director; and Vishal Ray, Postdoctoral Research Associate, both of University of Colorado University of Colorado / Space Weather Technology, Research, and Education Center (SWx TREC)

C. Telescopes and Optics for Ground-Based Optical SSA – Presented by Peter Zimmer, Astronomer; and Mark Ackermann, Optical Lead; both of J.T. McGraw and Associates, LLC

D. LeoLabs Cloud-based SDA Platform – Presented by Victor Gardner, Technical Director, Space Domain Awareness; Edward Lu, VP Strategic Projects; Darren McKnight, Senior Technical Fellow; all of LeoLabs

E. The International Framework for Space Behavior: Present Foundations and Future Prospects – Presented by Mark Skinner, Senior Project Leader for Space Traffic Management; Angie Buckley, Principal Engineer/Senior Scholar; Robin Dickey, Space Policy and Strategy Analyst; all of the Aerospace Corporation

F. In-orbit data processing – Writing SpaceCloud applications – Presented by Fredrik Bruhn, Chief Evangelist, Unibap; Miguel Nunes, Deputy Director, Hawaii Space Flight Laboratory

AMOS CONFERENCE FAST FACTS – continued

2022 Sponsors

Po'okela *(working together)* Boeing

Kokua *(to help and support)*

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Lockheed Martin
Northrop Grumman
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SAIC

Laulima *(working together)*

CACI
COMSPOC
Kratos
LeoLabs
Northstar Earth & Space
Peraton
Slingshot Aerospace
SpaceNav

Lokahi *(collaboration and unity)*

AWS
Ball Aerospace
ExoAnalytic Solutions
Raytheon
Secure World Foundation
Space Foundation

Kupa'a *(loyal and committed)*

General Atomics
JHU Applied Physics Laboratory
Linquest
SpaceMap

Malama *(to care for)*

Advanced Scientific Concepts
The Aerospace Corporation
Astro Haven
Blue Canyon Technologies
Celestron
GEOST
Japan Space Forum
Kayhan Space
Lipoa/Maui Research & Technology Park
LSAS Tec
Planewave Instruments
Rocket Communications
Sierra Nevada Corporation
Terran Orbital
Toptica Photonic

Exhibitors

Advanced Scientific Concepts | The Aerospace Corporation | AFRL
Astro Haven Enterprises | AWS | Ball Aerospace | Blue Canyon Technologies
CACI | Celestron | COMSPOC | General Atomics | GEOST | Hawaii Air National Guard
JHU Applied Physics Laboratory | Kayhan Space | KBR | Kratos | LeoLabs
Lockheed Martin | Lipoa/Maui Research & Technology Park | Northstar Earth & Space
Planewave Instruments | Privateer Space | Rocket Communications | SAIC
Sierra Nevada Corp | Slingshot Aerospace | SpaceMap | Terran Orbital | TOPTICA Photonics

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. All presenters, oral or poster, are required to submit a final paper by August 31 in order to present at the AMOS Conference.

AMOS CONFERENCE FAQ – continued

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 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 2022, relevant papers will be considered for publication in the 2022 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 fifth 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.

All presentations are eligible for an overall Best Paper that will be presented end of the Conference.

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.

How will the virtual conference experience be for attendees?

A robust virtual platform will allow attendees to explore the conference venue at their leisure as well as attend the live plenary sessions and participate in Q & A via a chat function. The platform will include virtual exhibit booths, networking rooms and poster venue. Technical sessions will be on-demand and all presentations will be recorded for later access by those registered unable to attend the live streaming.

In the virtual exhibit booths, attendees can view collateral and videos as well as meet virtually with sponsor representatives. 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 awarded to Hawaiian residents.

# # #

2022 AMOS CONFERENCE PRESS RELEASES

(latest to earliest)

Contact: Sandy Ryan, Conference Director, Maui Economic Development Board
Ph: 808-875-2318 E: sandy@medb.org

FOR IMMEDIATE RELEASE

Speakers Updates for the 2022 AMOS Conference

Kihei, Maui, Hawaii, September 11, 2022 – The 23rd AMOS (Advanced Maui Optical and Space Surveillance Technologies) Conference has announced new additions to an impressive line-up of speakers as it counts down to the September 27-30 event. Record audience numbers have registered to participate in an event known for its networking opportunities. Keynote presentations, invited talks, and policy forums feature in the program, in addition to the technical sessions that are the mainstay of AMOS.

Lieutenant General Michael A. Guetlein will now open the conference on Day 1 replacing General John W. Raymond, Chief of Space Operations, US Space Force. Lt Gen Guetlein is Commander, Space Systems Command, headquartered at Los Angeles Air Force Base, California. He is responsible for approximately 10,000 employees nationwide and an annual budget of $11 billion, managing the research, design, development, acquisition, launch and sustainment of satellites and their 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.

In the afternoon of Day 1, Colonel Marc A. Brock, Commander, Space Delta 2, US Space Force will present an invited talk titled “Space Delta 2: Mission Federation and Realignment for a Contested and Congested Domain.”

Day two of the conference begins with a keynote by Ezinne Uzo-Okoro, Assistant Director for Space Policy, White House Office of Science and Technology Policy (OSTP). In addition to the technical sessions and policy forum that day, Diane Howard, Director of Commercial Space Policy, National Space Council has been invited to speak on “National Space Council Policy Update 2022: Embracing Opportunity.”

The keynote speaker on Friday is Richard DalBello, the Director of NOAA’s Office of Space Commerce (OSC). The afternoon session will feature Colonel Jeremy A. Raley, Division Chief, Space Rapid Capabilities Office, US Air Force and Colonel Joseph J. Roth, Director, Innovation and Prototyping Directorate and Commander, Space Systems Center, US Air Force. Their presentation is titled “Challenging Space: Strategic S&T from LEO to Cislunar.”

Presented by Maui Economic Development Board (MEDB), the AMOS conference will be hybrid, offering livestreaming of all presentations.

For more than 20 years, Maui’s AMOS Conference 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.

Learn more at https://amostech.com/

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PHOTOS:

Caption: Lieutenant General Michael A. Guetlein is the opening Keynote for the 23nd annual AMOS Conference

Caption: Diane Howard, Director of Commercial Space Policy, National Space Council will present in the afternoon of Day 2 of the AMOS Conference.

Contact: Sandy Ryan, Conference Director, Maui Economic Development Board
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FOR IMMEDIATE RELEASE

Space Industry Leaders to Speak at EMER-GEN® 2022

Kihei, Maui, Hawaii, September 2, 2022 – An incredible line-up of speakers and mentors will join the 5th annual EMER-GEN program which kicks off September 7 with the first of three preparatory webinars. Over twenty leaders in the space industry readily said yes when asked to support the emerging generation of young professionals enthusiastic about careers in space.

A joint initiative of the AMOS Conference and the Space Generation Advisory Council (SGAC), EMER-GEN culminates on Maui, Hawaii September 25-27 for the main program that features professional development, skill building, mentoring and networking. Tom Kubancik, Founder and Executive VP of Trusted Space, has worked with EMER-GEN organizers to coordinate the Hackathon challenge that will challenge teams to innovate a product or service that will exist in the space economy in the next 5 to 15 years on or near the moon, leveraging the capacity provided by the NASA Artemis program or similar capability.

"I both proud and excited to participate in EMER-GEN once again this year," said Kubancik. "It has been a wonderful opportunity to experience the intellect and creativity of the young professionals in our industry. Seeing how they process challenges in our Hackathon, has provided a front row seat, into what the next generation of leaders are interested in and possibly where they will take our industry. The Artemis generation is here, and they have boundless opportunity -- lets enable them with another great EMER-GEN program."

Kubancik will be joined in the first webinar by Joe Cassady, Executive Director, Space, Aerojet Rocketdyne who will speak on Emerging Capabilities for Lunar and Deep Space Transportation.

Webinar two will feature Bhavya Lal, Associate Administrator for Technology, Policy and Strategy & Acting Chief Technology Officer for NASA. She will provide the cohort with background on NASA and the Artemis program to help them develop their ideas for the Hackathon.

Webinar three will change tack with a focus on consensus building, an engaging and interactive session that takes place during the main event on Maui. Victoria Samson of Secure World Foundation will give background for the cohort to formulate their own positions related to Reducing Space Threats through Norms, Rules and Principles of Responsible Behavior. Samson will be supported by Quentin Verspieren, Assistant Professor with The University of Tokyo who, as part of the EMER-GEN Program Committee has coordinated the session and will be the chair once discussions get underway September 26.

Forty-eight delegates will join EMER-GEN this year with nearly half of these based in Hawaii to help develop aerospace careers locally.

Presentations on Monday September 26 include Celestial Navigation with Kala Baybayan Tanaka of Hui Wa'a Kaulua. She will introduce the cohort to the Hawaiian Star Compass and other aspects of Hawaiian culture that pertain to leadership and communication. Doug Loverro of Loverro Consulting and Former Deputy Assistant Secretary of Defense for Space Policy returns to EMER-GEN to provide an overview of Space and Space Traffic Management. He will give the young professionals insights into the interconnectivity between civil and military actors from both a national and international perspective.

Loverro and Victoria Samson will also join the mentoring session with other mentors drawn from industry, government, academia and NGOs. These include:

Almudena Azcarate Ortega, *Space Security & WMD Programmes, United Nations Institute for Disarmament Research*
Jerry Cornell, *The Boeing Company*
Heather Cowardin, *NASA*
Carolin Frueh, *School of Aeronautics and Astronautics at Purdue*
Jacqui Hoover, *Hawaii Island Economic Development Board*
Diane Howard, *National Space Council*
Islam Hussein, *Trusted Space*
Moriba Jah, *Privateer Space*
Mark Mulholland, *Office of Space Commerce in the U.S. Department of Commerce*
Daron Nishimoto, *Maui Economic Development Board*
Jim Przybysz, *Northrop Grumman Corporation*
Melanie Stricklan, *Slingshot Aerospace*

EMER-GEN will end September 27 with pitch presentations given by the Hackathon teams. Winners will receive a trophy. That evening delegates are also invited to the Welcome Reception of the AMOS Conference for networking and celebration.

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.

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PHOTOS:

Delegates work in teams to brainstorm their ideas for the 2021 EMER-GEN® hackathon

Tom Kubancik, Trusted Space, has helped set up the hackathon challenge for the 2022 EMER-GEN program.

Doug Loverro returns to EMER-GEN to give the cohort an overview of Space and Space Traffic Management.

Contact: Sandy Ryan, Conference Director, Maui Economic Development Board
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FOR IMMEDIATE RELEASE

AMOS Conference morning program puts the focus on SSA/SDA Policy

Kihei, Maui, Hawaii, September 1, 2022 –The 23rd annual AMOS (Advanced Maui Optical and Space Surveillance Technologies) Conference once again features SSA Policy Forums that put the spotlight on hot topics related to Space Situational/Domain Awareness. Presented by Maui Economic Development Board (MEDB), the AMOS Conference held on Maui September 27-30 will be hybrid, offering livestreaming of all presentations.

Coordinated in collaboration with Secure World Foundation, the SSA Policy Forum discussions bring together the developers and implementers of SSA capabilities and the architects of SSA policy to interact at a time when the landscape is rapidly changing.

On Day 1 the topic is *"Using SSA to Verify Future Space Security Agreements."* As the international community strives to negotiate space security agreements, the question arises about how to verify actions on orbit and whether the agreed-to behavior is being followed. SSA can provide a technical foundation for verification; by understanding what SSA can do, states are better placed to negotiate behaviors that can be confirmed by outside observers. This panel will discuss the technical ranges of SSA programs and how they can be applied to verify future space security agreements.

Moderator Victoria Samson, Washington Office Director for Secure World Foundation will be joined onstage by panelists, Almudena Azcarate Ortega, Associate Researcher, Space Security and Weapons of Mass Destruction Programs, United Nations Institute for Disarmament Research; Daniel Ceperley, Founder & CEO, LeoLabs; Michael Gleason, Senior Project Engineering, Center for Space Policy and Strategy, The Aerospace Corporation; Douglas Hendrix, CEO, ExoAnalytic Solutions and Benjamin Silverstein, Research Analyst, Carnegie Endowment for International Peace (CEIP.)

On Day 2, the Policy Forum will consider the question *"Is Orbital Carrying Capacity a Useful Metric?"* With the increasing deployment of very large satellite constellations, we are seeing a fundamental change in the way we use the space environment - calling into question our understanding of the carrying capacity of specific orbital regimes or regions. There are research efforts underway to define and apply approaches to assessing orbital capacity.

This panel will discuss those approaches, and the work needed to understand how orbital capacity can be applied in behavioral and operationally relevant ways to improve the safe and sustainable use of LEO for all operators.

Moderated by Ian Christensen, Director of Private Sector Programs, Secure World Foundation; the panel will livestream panelists John Janka, Chief Officer, Global Government Affairs & Regulatory, Viasat Inc.; Francesca Letizia, Space Debris Engineer, European Space Agency; Hugh Lewis, Professor, Engineering and Physical Sciences, University of Southampton. Appearing onstage at AMOS will be Richard Linares, Associate

Professor of Aeronautics and Astronautics, Massachusetts Institute of Technology; and Akhil Rao, Assistant Professor of Economics, Middlebury College.

On Day 3, Brian Weeden, Director of Program Planning of Secure World Foundation will moderate a panel that will explore *"The European Perspective on Space Traffic Management."* While space traffic management has been a hot policy topic for the last several years, the conversation has largely been driven by the perspective from the United States. The European Union recently announced their strategy on STM, which is billed as a different approach than that from the United States. This panel will discuss the current EU thinking on STM, how it is similar or different from that of the United States or other countries, and what the prospects are for cooperation or competition going forward to develop an international STM regime.

The international panel will include: Pascal Faucher, Chair, European Union Space Surveillance and Tracking; Defense & Security, CNES; Sebastien Moranta, Research Manager, European Space Policy Institute; Rodolphe Muñoz, Legal Officer, European Commission, Directorate- General for Defence Industry and Space; and Regina Peldszus, Space Policy Officer (Space Security, Space Situational Awareness), European External Action Service.

For more than 20 years, Maui's AMOS Conference 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.

The 2022 AMOS Conference has attracted record attendance 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.

In addition to the keynote and policy forums, programming includes technical sessions, invited speakers, exhibit and poster sessions, plus technical short courses on topics ranging from space law and collision avoidance, to space debris and the use of machine learning in SSA. Virtual attendees have access to all presentations as well as online networking and virtual exhibits.

Learn more at https://amostech.com/

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PHOTO:


Victoria Samson
Almudena Azcarate Ortega
Daniel Ceperley
Michael Gleason
Doug Hendrix
Ben Silverstein
Ian Christenson
John Janka
Francesca Letizia
Hugh Lewis
Richard Linares
Akhil Rao
Brian Weeden
Pascal Faucher
Rodolphe Muñoz
Sebastien Moranta
Regina Peldzus

Contact: Sandy Ryan, Conference Director, Maui Economic Development Board
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FOR IMMEDIATE RELEASE

Short Courses announced for the 2022 AMOS Conference

Kihei, Maui, Hawaii, June 22, 2022 – The Short Courses for the 2022 AMOS (Advanced Maui Optical and Space Surveillance Technologies) Conference are a blend of old and new – with a host of new presenters and topics joining those familiar to AMOS. 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 27; or online on September 26, 2022.

Renowned as the premier technical conference in the nation devoted to space situational awareness/space domain awareness, short courses add an opportunity to upgrade technical job skills and remain abreast of recent development in fields of interest.

"The number and quality of submissions for short courses was a positive challenge for the organizing committee after initially planning to have only courses presented in-person this year." said Sandy Ryan, Conference Director. "Adding the virtual courses help us to be more inclusive of both the short course topics and the audience who may not be able to attend in person due to travel restrictions."

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. **Conjunction Assessment (CA) Risk Assessment** - Presented by Francois Laporte, CAESAR Team Leader, CNES; Lauri Newman, Senior Engineer, Goddard Space Flight Center – NASA; and Matthew Hejduk, Chief Engineer, NASA Robotic CARA, Astrorum Consulting LLC
2. **The Dynamic Co-Evolution of Space Policy and Technology: Historical Overview and Lessons for Assessing Future Trends** - Presented by Nancy Hayden, Distinguished Member Technical Staff; Mark Ackermann, Senior Analyst; both of Sandia National Laboratories; and Victor Gamiz, Senior Scientist, Tau Technologies
3. **Deep Learning Methods for Space Domain Awareness** - Presented by Roberto Furfaro, Professor, University of Arizona; Richard Linares, Charles Stark Draper Assistant Professor, Massachusetts Institute of Technology; Weston Faber, Senior Research Scientist, L3Harris.
4. **Optical Modeling and Simulation for SSA/SDA**- Presented by Patrick North, Sensing Engineer, Image and Computer Scientist; and Novarah Kazmi Policht, Application Engineer; both of AGI, An Ansys Company.
5. **Navigating the Sea of Space Law** - Presented by Liberty Shockley, Engineer, U.S. Space Force

6. **Demystifying Machine and Deep Learning** - Presented by Joseph Coughlin, Associate Director, The Aerospace Corporation; Rohit Mital, Chief Technologist, KBR, Inc.
7. **Observing and Characterizing Space Debris -** Presented by Thomas Schildknecht, Vice Director, Head Optical Astronomie, Director Zimmerwald Observatory, Astronomisches Institut Universität Bern
8. **An Introduction to Event-Based Sensors for SDA: A Hands-On Tutorial - Presented by:**
   Gregory Cohen, Associate Professor, Western Sydney University; Mike Hawks,Air Force Institute of Technology; Peter McMahon-Crabtree, Senior Research Physicist, AFRL/RVSW; Brian McReynolds, PhD Student, U.S. Air Force; David Monet, Senior Research Astronomer, AFRL/RVSW; Rachel Oliver, Doctoral Student, U.S. Space Force; Zachry Theis, Chemist, AFRL; Grant Thomas, PhD Student, Air Force Institute of Technology.
9. **Space Law & The Space Law Games: Legal Liability and Mapping the Future in LEO Operations - Presented by** Ralph Dinsley, Executive Director, *Northern Space and Security Ltd*
   Christopher Newman, Professor of Space Law and Policy, *Northumbria University*
   Lauren Napier, *Northumbria University*
10. **Astrodynamics for xGEO Space Domain Awareness -** Presented by Aaron J. Rosengren, Assistant Professor, Jacobs School of Engineering, University of California San Diego; Shane D. Ross, Professor, Virginia Tech

Five technical short courses will be presented virtually on Monday September 26. The presentations are "live" and participants will have the ability to interact with the instructor and attendees in real-time.

A. **Space Domain Awareness (SDA) Workshop**- Presented by Wiley Larson, CEI; Pamela Magee, Editor, Space Technology Series; Moriba Jah, Associate Professor, University of Texas at Austin
B. **Space Weather Impacts on Orbital Operations** - Presented by Thomas Berger, Executive Director; and Eric Sutton, Senior Research Associate, both of University of Colorado University of Colorado / Space Weather Technology, Research, and Education Center (SWx TREC)
C. **Telescopes and Optics for Ground-Based Optical SSA** - Presented by Peter Zimmer, Astronomer; and Mark Ackermann, Optical Lead; both of J.T. McGraw and Associates, LLC
D. **LeoLabs Cloud-based SDA Platform** - Presented by Victor Gardner, Technical Director, Space Domain Awareness; Edward Lu, VP Strategic Projects; Darren McKnight, Senior Technical Fellow; all of LeoLabs
E. **In-orbit data processing - Writing SpaceCloud applications** - Presented by David Brough, Senior Research Scientist; Cam Key, Research Scientist; James Nance, Research Scientist, all of Numerica Corporation

Full descriptions of all the short courses are available at https://amostech.com/short-courses. Separate registration fee is required for each course and courses can be added to

existing registrations. Places will be limited due to space and to ensure an interactive experience for all.

The Tuesday short courses are followed by a Welcome Reception, sponsored by The Boeing Company, to kick-off the main AMOS program that runs September 28-30. The AMOS Conference brings together policymakers and technical experts from the private sector, academia, military, and government, attracting papers and presentations from the world's foremost scientists working in Space Domain Awareness.

Learn more about the program at https://amostech.com/agenda/

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PHOTOS:

Caption: Technical Short Courses at AMOS Conference

Caption: Liberty Shockley, U.S. Space Force, is presenting a technical short course at the 2022 AMOS Conference

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FOR IMMEDIATE RELEASE

Speakers and Program Announced for the 2022 AMOS Conference

Kihei, Maui, Hi, June 16, 2022 - An exciting line-up of speakers are scheduled to open each day of the 23rd AMOS (Advanced Maui Optical and Space Surveillance Technologies) Conference setting up an engaging three-day program with leading-edge technical presentations selected from over 260 submissions. Presented by Maui Economic Development Board (MEDB), the hybrid conference to be held on Maui, September 27-30, 2022 will include livestreaming of all presentations.

The opening keynote will be presented by **General John W. "Jay" Raymond, Chief of Space Operations, US Space Force**. As Chief, General Raymond serves as the senior uniformed Space Force officer responsible for the organization, training and equipping of all organic and assigned space forces serving in the United States and overseas. As members of the Joint Chiefs of Staff, the Chief of Space Operations and other service chiefs function as military advisers to the Secretary of Defense, National Security Council, and the President.

Gen. Raymond was commissioned through the ROTC program at Clemson University in 1984. He has commanded at squadron, group, wing, numbered air force, Major Command and Combatant Command levels. Notable staff assignments include the Director of Plans and Policy (J5), U.S. Strategic Command; and the Deputy Chief of Staff for Operations, Headquarters U.S. Air Force.

Gen. Raymond deployed to Southwest Asia as Director of Space Forces in support of operations Enduring Freedom and Iraqi Freedom. Prior to leading establishment of the U.S. Space Force and serving as the first Chief of Space Operations, Gen. Raymond led the re-establishment and commanded U.S. Space Command as the eleventh U.S. combatant command.

Day two of the conference will start with a keynote presentation by **Ezinne Uzo-Okoro, Assistant Director for Space Policy, White House Office of Science and Technology Policy (OSTP.)** Uzo-Okoro's portfolio includes Orbital Debris, In-space Servicing, Assembly, and Manufacturing (ISAM), Earth Observations, Space Weather, Aeronautics, and Planetary Protection. In 17 years at NASA, she contributed to over 60 missions and programs – as an engineer, technical expert, manager and executive – in earth observations, planetary science, heliophysics, astrophysics, human exploration, and space communications, which represent $9.2B in total program value.

Her presentation will include OSTP announcements about their year-long whole-of-nation approach to mitigating, tracking, and remediating debris.

The keynote speaker for Friday is **Richard DalBello, the new Director of NOAA's Office of Space Commerce (OSC)**, recently appointed by Secretary of Commerce Gina Raimondo.

DalBello has more than 30 years of experience in the space industry and was most recently vice president of Government Affairs at GXO, Inc., a space consulting firm. He was previously vice president of Business Development and Government Affairs for Virgin Galactic and served as the director of Space and Aeronautics, in the White House Office of Science and Technology Policy (OSTP) from 2013 to 2015. He has also worked as vice president of Government Affairs for Intelsat General and served as president of the Satellite Industry Association (SIA).

OSC's key mission is to foster the conditions for the economic growth and technological advancement of the U.S. commercial space industry, issuing, enforcing, and maintaining operating licenses for private remote sensing space systems. OSC is also responsible for modernizing and managing the U.S. systems for space situational awareness.

"The increasing interest in space domain awareness and space traffic management maintains the relevance of the AMOS Conference drawing attention and participation of the highest caliber to Maui in September," said Sandy Ryan, Conference Director with host, MEDB. "Our three keynotes will provide different perspectives – military, government and commercial – nicely setting the stage for the space policy discussions that follow each day."

SSA Policy Forum

Each of the day's keynotes will be followed by the SSA Policy Forum, coordinated in collaboration with Secure World Foundation that explores international issues related to Space Situational/Domain Awareness in a panel format. It brings together the developers and implementers of SSA capabilities and the architects of SSA policy to interact at a time when the landscape is rapidly changing.

On Day 1 the topic is "Using SSA to Verify Future Space Security Agreements." As the international community strives to negotiate space security agreements, the question arises about how to verify actions on orbit and whether the agreed-to behavior is being followed. SSA can provide a technical foundation for verification; by understanding what SSA can do, states are better placed to negotiate behaviors that can be confirmed by outside observers. This panel will discuss the technical ranges of SSA programs and how they can be applied to verify future space security agreements.

On Day 2, the Policy Forum will consider the question "Is Orbital Carrying Capacity a Useful Metric?" With the increasing deployment of very large satellite constellations, we are seeing a fundamental change in the way we use the space environment - calling into question our understanding of the carrying capacity of specific orbital regimes or regions. There are research efforts underway to define and apply approaches to assessing orbital capacity. This panel will discuss those approaches, and the work needed to understand how orbital capacity can be applied in behavioral and operationally relevant ways to improve the safe and sustainable use of LEO for all operators.

On Day 3 a panel will explore "The European Perspective on Space Traffic Management." While space traffic management has been a hot policy topic for the last several years, the conversation has largely been driven by the perspective from the United States. The European Union recently announced their strategy on STM, which is billed as a different approach than that from the United States. This panel will discuss the current EU

thinking on STM, how it is similar or different from that of the United States or other countries, and what the prospects are for cooperation or competition going forward to develop an international STM regime.

For more than 20 years, Maui's AMOS Conference 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. In addition to the keynote and policy forums, programming includes technical sessions, invited speakers, exhibit and poster sessions, plus technical short courses on topics ranging from space law and collision avoidance to space debris and the use of machine learning in SSA. Virtual attendees have access to all presentations as well as online networking and virtual exhibits.

The AMOS conference is preceded by the 5th Annual EMER-GEN® program, a professional development opportunity for students and young professionals enthusiastic about careers in space. The program features mentoring sessions with renowned space specialists, along with 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: General John W. "Jay" Raymond is the opening Keynote for the 23nd annual AMOS Conference

Caption: Ezinne Uzo-Okoro, Assistant Director for Space Policy, White House Office of Science and Technology Policy (OSTP) will speak on Day 2 of the AMOS Conference.

Caption: Richard DalBello, Director of NOAA's Office of Space Commerce (OSC) will present the keynote on Day 3 of the 2022 AMOS Conference.

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FOR IMMEDIATE RELEASE

Young Professionals invited to join 5th EMER-GEN® Program

Kihei, Maui, Hi, June 9, 2022 - The 5th Annual EMER-GEN® program has launched registration for young professionals enthusiastic about a career in space. A joint initiative of the AMOS Conference and the Space Generation Advisory Council (SGAC), EMER-GEN kicks off September 7 with a series of pre-event webinars with a focus on fostering innovation and entrepreneurship among the cohort.

The cohort will come together on Maui, Hawaii September 25-27 for the main program that features professional development, skill building, mentoring and networking. Throughout the program, participants working in teams will be challenged to solve/hack a problem to create new opportunities for space-based technologies.

Four young professionals on the planning committee help shape the program along with the host organizers, Maui Economic Development Board (MEDB.) Two representatives nominated by SGAC, Rishin Aggarwal, Indian Space Research Organization, and Eniko Molnar, Satellite Applications Catapult (UK) are joined by 2021 Alum Zachary Stein, of The Boeing Company, a resident of Maui. 2020 alum, Quentin Verspieren of the University of Tokyo, returns to the committee to provide his experience and knowledge of the program, space policy and consensus building.

"The young professionals in the planning committee help us to keep the program both fresh and relevant to our target audience," said Sandy Ryan, Conference Director for MEDB. "It is good to hear new approaches or topics as well as what worked well from the previous years to continue to grow."

MEDB draws upon the help of guest speakers and advisers from industry, government, academia and NGOs for an EMER-GEN experience that 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 specialists in space situational awareness
- Professional Development sessions to enhance effectiveness in a global environment

Scholarships are available for Hawaii-based residents as the program looks to help build the Hawaii aerospace sector.

Learn more about the program and schedule and how to apply 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: Former Dep Asst Secretary of Defense for Space Policy, Doug Loverro leads a professional development session on consensus building for the young professionals of EMER-GEN.

CAPTION: Mentoring sessions are a drawcard for the annual EMER-GEN program.

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FOR IMMEDIATE RELEASE

Registration open for the 23rd AMOS Conference

Kihei, Maui, Hi, May 17, 2022 - Registration is open for the Advanced Maui Optical and Space Surveillance Technologies (AMOS) Conference to be held September 27-30, 2022 at the Wailea Beach Resort. The premier technical conference in the nation devoted to Space Situational/Domain Awareness (SSA/SDA) is proceeding as a hybrid event with both in-person and livestream components.

This year the AMOS Conference received over 260 abstracts from 20 countries. Papers have been selected to be presented in technical sessions that cover Astrodynamics; Atmospherics/Space Weather; Cislunar SSA; Conjunction/RPO; Machine Learning for SSA Applications; Non-Resolved Object Characterization; Optical Systems & Instrumentation; Space-Based Assets; Space Debris; and Space Situational/Domain Awareness.

AMOS provides the opportunity to stay on the cutting edge of industry trends while networking and cross-sharing knowledge within the SSA community. 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.

The program will feature Keynote speakers, policy forums, technical sessions (oral and poster), exhibits, short courses and networking receptions. Both in-person and livestream attendees will have access to a virtual platform to facilitate networking and collaboration before, during and after the conference.

This year marks the return of the in-person Exhibit and Poster Venue. Exhibitors will be able to display their products, services and new technologies. Attendees will have access to the largest pool of technical posters yet, with all posters in digital format with accompanying briefings. Select posters have been invited for in-person presentation during the evening Poster Sessions.

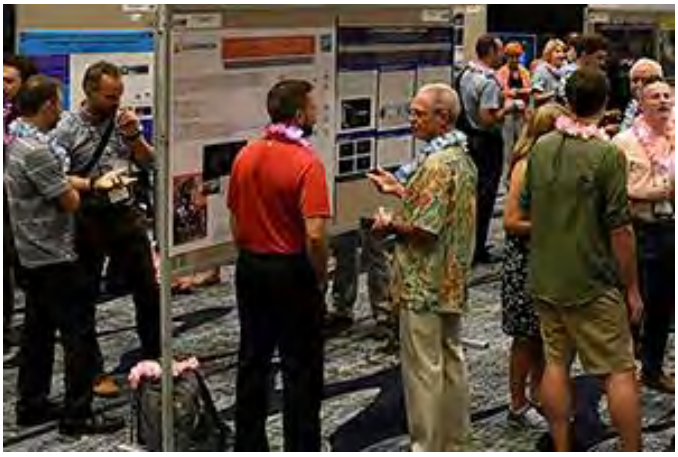
The AMOS Conference will be preceded by an EMER-GEN® program for young professionals enthusiastic about careers in space. The program features mentoring sessions with renowned space specialists, along with professional development sessions designed to enhance the young professionals' effectiveness in a global environment. A number of webinars pre-event will help the cohort prepare for the on-site program. Registration for EMER-GEN will open in June.

The AMOS Conference and EMER-GEN are presented by the Maui Economic Development Board, Inc. (MEDB), a nonprofit corporation established in 1982 to focus on diversifying

Maui's economy. MEDB's mission involves taking innovative actions that strengthen existing industry as well as diversifying through new opportunities.

Learn more about registration at https://amostech.com/registration/ and EMER-GEN at http://www.emer-gen.com.

CAPTION: The SSA Policy Forum explores international issues related to Space Situational/Domain Awareness in a panel format.



CAPTION: Select posters have been invited for in-person presentation during the evening Poster Sessions.

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FOR IMMEDIATE RELEASE

23rd Annual AMOS Conference attracts record abstract submissions

Kihei, Maui, Hi, March 11, 2022 - The call for papers for the 2022 AMOS Conference closed March 1 and attracted a record number of abstracts. Over 260 submissions from 20 countries cover various topics of space situational/domain awareness (SSA/SDA) including Adaptive Optics & Imaging, Atmospherics/Space Weather; Cislunar SSA; Conjunction/RPO; Machine Learning; Non-Resolved Object Characterization; Optical Systems & Instrumentation and Space Debris.

The Advanced Maui Optical and Space Surveillance Technologies (AMOS) Conference is the premier technical conference in the nation devoted to SSA/SDA and will be held September 27-30, 2022 at the Wailea Beach Resort. The event will be hybrid with both in-person and livestream components.

The continued growth in submissions 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.

Student submissions continue to be popular with twenty-three (23) students eligible for the 5th annual AMOS Student Award, presented in collaboration with the American Astronautical Society. Students need to submit their research paper by June 24 to vie for the award.

The call for papers also attracted proposals to conduct short courses on Tuesday, September 27. The short courses provide an opportunity to upgrade technical job skills and remain abreast of recent development in fields of interest within SSA/SDA subject areas. All courses will be held in-person this year.

“We look forward to welcoming the space surveillance community back to Maui in September,” said Sandy Ryan, Conference Director of Maui Economic Development Board (MEDB), the host of the AMOS Conference. “AMOS provides the opportunity to stay on the cutting edge of industry trends while networking and cross-sharing knowledge within the SSA community. The cross section of private sector, government, and academic participation helps foster important dialogue and international collaboration.”

The technical abstracts will be reviewed for selection for oral or poster presentations. In addition to the technical sessions and short courses, the program will feature keynote speakers, policy forums, and special interest topics. 2022 also marks the return of the on-site Poster Hall and Exhibit venue with opportunities for organizations to showcase and demonstrate their products and services and build important relationships. Both in-person and livestream attendees will have access to a virtual platform to enable networking and collaboration.

The AMOS Conference will be preceded by an EMER-GEN® program for young professionals enthusiastic about careers in space. The program features mentoring sessions with renowned space specialists, along with professional development sessions designed to enhance the young professionals' effectiveness in a global environment. Scheduled pre-event webinars will help the cohort prepare for the on-site program.

The AMOS Conference and EMER-GEN are presented by the Maui Economic Development Board, Inc. (MEDB), a nonprofit corporation established in 1982 to focus on diversifying Maui's economy. MEDB's mission involves taking innovative actions that strengthen existing industry as well as diversifying through new opportunities.

IMAGE - https://amostech.com/wp-content/uploads/2021/09/Keynote-AMOS2021-featured.jpg