

AMOS Conference 2025



PROGRAM

AMOS Conference is an in-person event with virtual attendance options and kicks off with a number of virtual and in-person Technical Short Courses in various Space Situational/Domain Awareness-related disciplines. The three plenary program days open with Keynote Addresses and SSA Policy Forum discussions followed by Technical Presentations covering a range of broad topical areas relating to SSA/SDA, all streamed live to the virtual conference platform. Posters are available in digital format this year and are accompanied by on-demand presentation videos. A select number of posters are invited for in-person presentation during the evening poster sessions.

Please note all dates/times listed are Hawaii Standard Time (HST). Agenda is subject to change.

Program at a Glance

FRI Sep 12	Virtual Platform Open to Registered Attendees On-Demand Launch Digital Poster Presentations
SUN Sep 14 – TUE Sep 16	EMER-GEN® Program (separate registration fee required) On-site Registration
MON Sep 15	Virtual Technical Short Courses (separate registration fee required)
TUE Sep 16	Exhibitor Load-in In-person Technical Short Courses (separate registration fee required) Welcome Reception Co-sponsored by KBR
WED Sep 17	Conference Opening & Cultural Invocation Opening Keynote Address General Chance Saltzman AMOS Policy Forum International Military SDA Sharing Featured Presentation Colonel Jonathan Whitaker Technical Session Space-Based Assets Sponsored by Anduril Featured Presentation Dr. Kelly Hammett Technical Session Space Domain Awareness Sponsored by EO Solutions Technical Session Conjunction/RPO Poster Session + Exhibit and Networking Reception Sponsored by MITRE Women & Allies in SDA
THU Sep 18	Virtual Keynote Address Aarti Holla-Maini AMOS Policy Forum US China–Space Safety Information Sharing–Exploring Need and Possibilities Featured Presentation Colonel Barry Croker Technical Session Satellite Characterization Featured Presentation Colonel Richard Beckman & Enrico Jeantete Technical Session SDA Systems & Instrumentation Sponsored by MAXAR Technical Session Machine Learning for SDA Applications Sponsored by ExoAnalytic Solutions Poster Session + Exhibit and Networking Reception
FRI Sep 19	Keynote Address Richard DalBello, Diane Howard & Kevin O’Connell AMOS Policy Forum SSA Needs for Novel Space Activities Technical Session Astrodynamics Sponsored by BAE Systems Technical Session Space Debris AMOS Student Space Exploration Day

AMOS Conference 2025



PROGRAM

Featured Presentation | *Barbara Golf*
Technical Session | *Atmospherics & Space Weather*
Technical Session | *Cislunar SDA*
Featured Presentation | *EMER-GEN® Outcomes*
Conference Closing & Awards Ceremony
Pau Hana Reception | *Co-sponsored by L3Harris*

Sunday 14 September – Tuesday 16 September



EMER-GEN®

The 8th annual EMER-GEN® is a joint initiative of the AMOS Conference and SGAC. The program is designed especially for young professionals and students enthusiastic about careers in space. Separate registration required. Visit www.emer-gen.com to learn more.

02:00
PM HST

06:00
PM HST

ON-SITE REGISTRATION | *Aulani Ballroom Foyer*

Monday 15 September

02:00
PM HST

06:00
PM HST

ON-SITE REGISTRATION | *Aulani Ballroom Foyer*

VIRTUAL TECHNICAL SHORT COURSES: *In-person and virtual short courses are offered this year. Separate registration fee required for each half-day course. Virtual short courses are “live” with the ability to interact with the instructor and attendees in real-time. Virtual courses will not be recorded. Access links will be provided to registrants closer to the course date.*

08:00
AM HST

12:00
PM HST

VIRTUAL COURSE A | Introduction to Data Driven Analytics and Applications to SSA | *Online Room-1*

VIRTUAL COURSE B | Data Assimilation for the Space Environment | *Online Room-2*

VIRTUAL COURSE C | Alphabet Soup: How GNC, FD, FSW, GSW, and M&S interact with SDA | *Online Room-3*

12:00

01:00

BREAK | *Explore the AMOS Virtual Venue and Digital Poster Hall*

01:00
PM HST

05:00
PM HST

VIRTUAL COURSE D | AI for Space Domain Awareness: A Hands-on Course | *Online Room-1*

VIRTUAL COURSE E | Optical Modeling and Simulation for SSA/SDA | *Online Room-2*

AMOS Conference 2025



PROGRAM

Tuesday 16 September

07:00 AM HST 06:00 PM HST **ON-SITE REGISTRATION** | *Aulani Ballroom Foyer*

IN-PERSON TECHNICAL SHORT COURSES: *In-person and virtual short courses are offered this year. Separate registration fee required for each half-day course. In-person short courses will not be livestreamed for virtual attendance, nor will they be recorded.*

08:00 AM HST 12:00 PM HST **IN-PERSON COURSE 01** | EM Spectrum Operations: Positioning, Navigation and Timing Situational Awareness (PNT-SA) | *Lokelani III Ballroom*

IN-PERSON COURSE 02 | Uncertainty Propagation for Space Situational Awareness | *Lokelani II Ballroom*

IN-PERSON COURSE 03 | Deep Learning & Large Language Methods for Space Domain Awareness | *Mauna Loa Ballroom*

IN-PERSON COURSE 04 | AstroTactics: Wargaming Emerging Space Capabilities and Assets | *Ilima Ballroom*

IN-PERSON COURSE 05 | Astrodynamics for xGEO Space Domain Awareness | *Vanda Ballroom*

12:00 01:00 **BREAK** | *Explore the AMOS Virtual Venue and Digital Poster Hall. Pick up lunch at one of the many locations on-site or next door at the Shops at Wailea.*

01:00 PM HST 05:00 PM HST **IN-PERSON COURSE 06** | Introduction to Event-Based Sensing for SDA: A Hands-On Tutorial | *Ilima Ballroom*

IN-PERSON COURSE 07 | Panchromatic, Multi-spectral, Spectroscopy, and Polarimetry Data Collection and Image Processing for Non-resolved Object Characterization | *Lokelani III Ballroom*

IN-PERSON COURSE 08 | Observing and Characterizing Space Debris | *Vanda Ballroom*

IN-PERSON COURSE 09 | Space Domain Decision Intelligence: Reasoning Under Uncertainty for Orbital Security and Sustainability | *Mauna Loa Ballroom*

IN-PERSON COURSE 10 | Telescopes and Optics: An Introduction to Ground-based Optical SDA | *Lokelani II Ballroom*

06:00 PM HST 07:30 PM HST **WELCOME RECEPTION** | *Luau Gardens*
Join us for an oceanfront reception at sunset as we welcome the AMOS 'ohana back to the island while listening to music by the U.S. Air Force Band of the Pacific.

Co-sponsored by The KBR logo consists of a stylized globe icon to the left of the letters "KBR" in a bold, blue, sans-serif font.

AMOS Conference 2025



PROGRAM

Wednesday 17 September

The three-day plenary program will be livestreamed in its entirety to the virtual conference platform, with on-demand playback available in 24-48 hours. All registered attendees are encouraged to visit the virtual Exhibit Hall and Digital Poster Hall to review materials and interact with sponsors and poster presenters.

06:00 AM HST 07:30 AM HST BREAKFAST AT LEISURE | *Luau Gardens*

07:30 07:45 **CONFERENCE OPENING** | *Haku/Pikake Ballroom*
Leslie Wilkins, President & CEO, Maui Economic Development Board, Inc.

CULTURAL INVOCATION
Kahu Kealahou Alika

07:45 08:30 **OPENING KEYNOTE ADDRESS**
*Introduction by **Victoria Samson**, Chief Director, Space Security and Stability, Secure World Foundation*



General Chance Saltzman
Chief of Space Operations, United States Space Force

08:30 09:30 **AMOS POLICY FORUM | International Military SDA Sharing**
In 2019, NATO released its first space policy as an institution and released in June 2025 a commercial space policy similar to the commercial utilization strategy that both DoD and USSF put out last year. As it is formalizing its space strategies and as other NATO members strengthen their military space capabilities, it is increasingly a possible platform for sharing SDA data. Similarly, the rise of the Quad (US, Japan, India, and Australia) also lends itself to serving as a way in which to share SDA data amongst military partners. This panel will discuss pathways for sharing SDA data, goals for doing so, identify possible gaps from the various SDA systems to find ways in which new SDA producers can fill niches, and look at how the commercial SSA sector can best work with military SDA actors.

Moderated by:

Victoria Samson, Chief Director, Space Security and Stability, Secure World Foundation

Panelists:

Group Captain Nicholas Bewley, Deputy Head Capability – Operations, Royal Air Force

Barbara Golf, Strategic Advisor for Pivot SDA, USSF/SSC

Group Captain Rex Harrison, Director Space Domain Awareness, Defence Australia

Lieutenant Colonel Amandeep Singh, Officer Commanding, Space Domain Awareness, The Indian Army, Ministry of Defence

AMOS Conference 2025



PROGRAM

09:30	10:00	EXHIBITION AND NETWORKING BREAK Sponsored by  <i>Exhibit Hall + Conference Platform</i>
Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.		
09:30 AM HST	07:00 PM HST	EXHIBITION HOURS FOR THE DAY
10:00	10:20	FEATURED PRESENTATION NATO Space Operations <i>Haku/Pikake Ballroom</i> <i>Introduction by Daron Nishimoto, Conference Technical Chair</i>
Colonel Jonathan Whitaker , Chief of Staff and Director of Space Operations, North Atlantic Treaty Organization (NATO) Combined Force Space Component Command (CFSpCC)		
10:20	10:30	POSTER PITCHES Listen to selection of poster presenters give a 30-second pitch on why you should come and view their poster presentation.
10:30	12:00	SPACE-BASED ASSETS Sponsored by  ANDURIL Co-chaired by Melrose Brown , UNSW Canberra Space and Orlando Diaz , NASA Ames Research Center
<i>Overview of the NASA Small Spacecraft & Distributed Systems Technology Demonstrations</i> Roger Hunter , NASA		
<i>Preliminary Simulation Results of Spaceborne Space Situational Awareness Using Large-Scale Passive Radars</i> Chinmay Gaikwad , Embry- Riddle Aeronautical University		
<i>Development of the CompactSWIR Payload for On-Orbit Satellite Detection and Extraction in J Band Imagery</i> Calum Meredith , Defence Science Technology Laboratory (DSTL)		
<i>Co-operative Optical and Sub-THz Radar Instrumentation for High-Resolution In-Orbit Conditional Monitoring of Space Objects</i> Leah-Nani Alconcel , University of Birmingham		
<i>Advancing RSO Characterisation: Flyby Non-Earth Imaging for Attitude State and Tumble Rate Estimation</i> Sam Kirkwood , HEO		
<i>SDA with the PTD-R and GEOstare SV2 Nano-Satellites</i> Willem Devries , Lawrence Livermore National Laboratory (LLNL)		
12:00 PM HST	01:00 PM HST	LUNCH <i>Lokelani Ballroom</i>
01:00	01:20	FEATURED PRESENTATION SDA for the Space Fight <i>Haku/Pikake Ballroom</i> <i>Introduction by Paul Kervin, Conference Technical Chair</i>
Dr. Kelly Hammett , Director and Program Executive Officer for the Space Rapid Capabilities Office		

PROGRAM

01:20	01:30	POSTER PITCHES Listen to selection of poster presenters give a 30-second pitch on why you should come and view their poster presentation.
01:30	03:00	SPACE DOMAIN AWARENESS Sponsored by  EO SOLUTIONS Co-chaired by Jeremy Raley , AFRL and Ayla Reed , AFRL/RDSM <i>The Importance of Differentiating Between Measurements, Estimates, and Validated Hypotheses Generated from Imagers, Photon Counters, and Event-Based Sensors</i> Mark Bolden , Trusted Space, Inc. <i>Astronomical Observatories as Tools for Space Object Characterization</i> Aishling Dignam , NOIRLab <i>A Mission-Oriented Framework for Evaluating Space Situational Awareness Data</i> Phillip Schmedeman , Colorado State University <i>Towards Greater Transparency: An Independent Method for Assessing Harmful Interference and Compliance in GEO</i> Apoorva T Karra , The University of Texas at Austin <i>Enhancing Space Safety and Security: GISTDA's Integrated Approach to Space Situational Awareness and Traffic Management</i> Purin Tanirat , Geo-Informatics and Space Technology Development Agency (GISTDA) <i>Occultation Observations with Event-Based Vision Sensors</i> Rachel Oliver , Cornell University
03:00	03:20	EXHIBITION AND NETWORKING BREAK <i>Exhibit Hall + Conference Platform</i> Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.
03:20	04:35	SPACE DOMAIN AWARENESS (Cont.) Co-chaired by Jeremy Raley , AFRL and Ayla Reed , AFRL/RDSM <i>Decisive Mission Analysis Capability: A Physics-Based Testing and Evaluation Framework for Space Domain Awareness and Space Control</i> Cameron Harris , EO Solutions LLC <i>Automated Similarity-Based Inference for Space Object Characterization</i> Randy Jensen , Stottler Henke Associates, Inc. <i>Hypothesis-Driven Sensor Tasking for Space Domain Awareness</i> Ofer Dagan , University of Colorado / Smead Aerospace Engineering Sciences Dept. <i>Detecting Satellite Maneuver Intent Using Game Theory</i> Philip Brown , University of Colorado Colorado Springs <i>Strategic Satellite Custody Maintenance with AlphaZero</i> Tyler Becker , University of Colorado Boulder

AMOS Conference 2025



PROGRAM

04:35	05:35	<p>CONJUNCTION/RPO Co-chaired by Mariel Borowitz, OSC/Georgia Tech and Keith LeGrand, Purdue University</p> <p><i>Validation Methodology for TraCSS Conjunction Assessment</i> Kerstyn Auman, The Aerospace Corporation</p> <p><i>NASA Conjunction Assessment Risk Analysis (CARA) Compendium for Artificial Intelligence and Machine Learning for Satellite Collision Avoidance</i> Dolan Highsmith, The Aerospace Corporation</p> <p><i>Telescope Observation Campaign of ADRAS-J Rendezvous and Proximity Operations</i> Max Geissbuhler, Slingshot Aerospace</p> <p><i>Graph-Based Optimization for High-Density LEO Constellation Design</i> Naomi Owens-Fahrner, BAE Systems</p>
05:35	07:00	<p>EXHIBITION AND POSTER SESSION <i>Exhibit Hall</i> Sponsored by MITRE Posters co-chaired by Pat Patterson, Space Dynamics Laboratory and Matthew Stevenson, LeoLabs</p> <p><i>Meet select poster presenters while enjoying a beverage and interacting with exhibitors and fellow attendees.</i></p>
08:00	10:00	<p>WOMEN & ALLIES IN SPACE DOMAIN AWARENESS <i>Pacific Terrace Rooftop</i> Desserts, dancing, and networking under the stars. <i>Limited to first 300 guests. Separate registration required. Register here:</i> https://bit.ly/WASDA25</p>

AMOS Conference 2025



PROGRAM

Thursday 18 September

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06:00 AM HST 07:30 AM HST BREAKFAST AT LEISURE | *Luau Gardens*

07:30 08:00 **VIRTUAL KEYNOTE ADDRESS** | *Haku/Pikake Ballroom*
Introduction by Ian Christensen, Senior Director, Private Sector Programs, Secure World Foundation



Aarti Holla-Maini
Director, United Nations Office for Outer Space Affairs

08:00 09:00 **AMOS POLICY FORUM | U.S. China–Space Safety Information Sharing–Exploring Need and Possibilities**

The two most prolific space actors today - in terms of number of operational spacecraft - are the United States and China. In the midst of a tense geopolitical relationship there is operational need for exchange of space safety information and building of operator-to-operator coordination channels for basic operational safety and stability in the space environment. This panel will discuss the extent of existing physical interactions between U.S. and Chinese constellations & the need for coordination, and from there explore what prospects may or may not exist for practical exchange of information between the two communities.

Moderated by:
Ian Christensen, Senior Director, Private Sector Programs, Secure World Foundation

Panelists:
Kristin Burke (Virtual), Senior Space and Counterspace Researcher, China Aerospace Studies Institute
Siamak Hesar, Founder & CEO, Kayhan Space
Josef Koller, Head of Space Safety and Sustainability, Amazon Kuiper
Audrey Schaffer, Vice President of Strategy and Policy, Slingshot Aerospace
Zhang Peng (Pre-recorded), Director of Solutions, Galaxy Space, Ltd.

09:00 09:30 **EXHIBITION AND NETWORKING BREAK** | *Sponsored by* **SPACE NAV**
Exhibit Hall + Conference Platform

Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.

09:00 AM HST 07:00 PM HST EXHIBITION HOURS FOR THE DAY

AMOS Conference 2025




PROGRAM

09:30 AM HST	09:50 AM HST	FEATURED PRESENTATION Space Force Mission Delta 2 Update <i>Haku/Pikake Ballroom</i> <i>Introduction by Lieutenant Colonel Douglas Thornton, Commander, 15th Space Surveillance Squadron, U.S. Space Force</i>
Colonel Barry Croker , Commander, Mission Delta 2		
<hr/>		
09:50	10:00	POSTER PITCHES Listen to selection of poster presenters give a 30-second pitch on why you should come and view their poster presentation.
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10:00	12:00	SATELLITE CHARACTERIZATION Co-chaired by Sean Allen , USSF/Space Systems Command/SZ and Heather Cowardin , NASA
<i>Expanding Pattern-of-Life Capabilities on Satellite Passive Radio Frequency Datasets</i> Harris Mohamed , Kratos		
<i>Dual-band Characterisation of Low-Earth Orbit Satellites Using Machine Learning Techniques</i> Alexander Macmanus , Defence Science Technology Laboratory (Dstl)		
<i>An Evaluation of Photometric Fingerprinting and Change Detection at Scale</i> Clarice Reid , Slingshot Aerospace		
<i>Event Camera Photometry for Non-Resolved Objects</i> Conor Benson , University of Colorado Boulder		
<i>Integrating AI in Space Operations: Spin Status Characterization and Initial Orbit Determination from Single Optical Tracks</i> George Choumos , National Observatory of Athens		
<i>Remotely Monitoring the Activity of Geostationary Satellites with Thermal Imaging</i> Sarah Caddy , University of Melbourne		
<i>Large-Scale Data-Driven Comparison of Earthshine Model Effectiveness from Photometric Observations of Diverse LEO Satellites</i> Timothy Olson , Slingshot Aerospace		
<i>Real-Time Pose and Dynamics Estimation of Non-Cooperative RSOs using Flash LiDAR for Autonomous Rendezvous and Docking</i> Ricardo Delgadillo , Advanced Scientific Concepts LLC		
<hr/>		
12:00 PM HST	01:00 PM HST	LUNCH <i>Lokelani Ballroom</i>
<hr/>		
01:00 PM HST	01:30 PM HST	FEATURED PRESENTATION SDA Support to Next-Generation Space Mobility and Logistics <i>Haku/Pikake Ballroom</i> <i>Introduction by Colonel Max Yates, SML & Chief, Space Electro-Optics Division, AFRL/RDS</i>
Colonel Richard Beckman , Director, Space Vehicles and Commander, Phillips Research Site Air Force Research Laboratory, AFRL/RV Space Vehicles Directorate Enrico Jeantete , Deputy Director, Innovation and Prototyping Acquisition Delta, Space Systems Command		

PROGRAM

01:30	03:15	SDA SYSTEMS & INSTRUMENTATION Sponsored by  Co-chaired by Jose Miguel Lozano , GMV and Jeff Sherk , Aerospace Corporation
		<i>Accurate LEO Tracking with Passive RF – Measurement and Results Analysis</i> Baptiste Guillot , Safran Data Systems
		<i>Maritime Based Sensor Network for Persistent Monitoring of Resident Space Objects, Satellite Launches and Missile Launches</i> Matthew Bold , Lockheed Martin Space Systems Company
		<i>Extending the Horizon: Advanced Daytime Space Domain Awareness Using Spaceflux's Novel SWIR Optical System</i> Marco Rocchetto , Spaceflux
		<i>Cislunar SDA with the Daniel K. Inouye Solar Telescope (DKIST)</i> Thomas Rimmel , DKIST, National Solar Observatory
		<i>Bias and Denoising Techniques to Improve Dim RSO Detection by up to 2.9x with an Event-based Vision Sensor</i> Brian McReynolds , U.S. Air Force
		<i>Event Camera Physical Modeling Extensions and Photonic Sensitivity Exploration for Space Situational Awareness Applications</i> Benjamin Schmachtenberger , The Johns Hopkins University Applied Physics Laboratory
		<i>Designing a Longwave IR Architecture to Improve Space Domain Awareness in Low Earth Orbit</i> Michael Veto , BAE Systems

03:15	03:45	EXHIBITION AND NETWORKING BREAK <i>Exhibit Hall + Conference Platform</i>
		Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.

03:45	05:30	MACHINE LEARNING FOR SDA APPLICATIONS Sponsored by  Co-chaired by Heather James , Kitware, Inc. and Justin Fletcher , USSF SSC/SZG
		<i>Machine Learning for Event-Based Vision Sensor Space Domain Awareness Object Tracking</i> Michael Albert , NRO
		<i>Safe, Autonomous Multi-Agent Inspection of Space Objects Leveraging Relative Orbit Dynamics</i> Mark Stephenson , University of Colorado Boulder
		<i>Rapid Deployment, Calibration, and Training of Optical Observatories for Space Domain Awareness</i> Zach Gazak , SSC/SZBA

AMOS Conference 2025



PROGRAM

Operational Photometry for SDA: Robust, Source-Agnostic, and Sim-to-Real Ready
Kimmy De Alba, Odyssey Systems--Space Systems Command (A&AS)

Uncertainty-Aware Physics-Informed Machine Learning (PIML) for Cislunar Orbit Determination
Gregory Badura, Georgia Tech Research Institute

Reinforcement Learning for Space-to-Space Surveillance: Autonomous Scheduling for Resident Space Object Imaging
Daniel Huterer Prats, University of Colorado Boulder

Genetic Algorithm-Driven Scheduling for Radar-Based Satellite Tracking
Kenny Andersson, Swedish Defence Research Agency (FOI)

05:30 07:00

EXHIBITION AND POSTER SESSION | *Exhibit Hall*

Posters co-chaired by **Pat Patterson**, Space Dynamics Laboratory and **Matthew Stevenson**, LeoLabs

Meet select poster presenters while enjoying a cocktail and interacting with exhibitors and fellow attendees.

Friday 19 September

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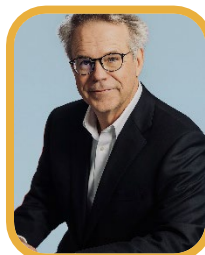
06:00 07:30
AM HST AM HST

BREAKFAST AT LEISURE | *Luau Gardens*

07:30 08:00

FIRESIDE CHAT | **Reflections on the Evolution of U.S. Policy for Space Traffic Management** | *Haku/Pikake Ballroom*

The Fireside Chat features a bipartisan group of former U.S Executive branch officials: **Richard DalBello**, **Diane Howard**, and **Kevin O'Connell**. All three have served at the U.S. Office of Space Commerce (OSC), starting with O'Connell taking on the Director role 2018-2021. Howard joined the office in 2019 to serve as Chief Counsel until 2021. DalBello took over as OSC Director from 2022-2024. Howard also served as Director, Commercial Space Policy at National Space Council during 2021-2024. This anticipated lively discussion will set the stage for the panel that will follow.



Richard DalBello, Principal, RDB Space

Diane Howard, Senior Strategy Advisor, MITRE & Principal at sur l'espace P, LLC

Kevin O'Connell, Founder & CEO, Space Economy Rising, LLC

AMOS Conference 2025



PROGRAM

08:00	09:00	<p>AMOS POLICY FORUM SSA Needs for Novel Space Activities</p> <p><i>A number of areas of novel space activities are now seeing operational commercial missions increase in scope and pace. These include return and reentry activities; rendezvous and proximity operations, including satellite servicing and active debris removal; and cislunar and lunar surface missions. These activities offer both new needs for SSA information and new challenges for collecting SSA data. This panel will discuss the role of SSA in enabling and supporting these novel commercial space activities and seek to identify gaps and opportunities for improvement in current capabilities. It will also discuss how national space traffic coordination systems would support this mission and how SSA information might support improved licensing practices for novel space activities.</i></p> <p><u>Moderated by:</u> Brian Weeden, Systems Directors, The Aerospace Corporation</p> <p><u>Panelists:</u> Alberto Águeda, Director of Space Surveillance and Traffic Management, GMV Mariel Borowitz, Director of International SSA Engagement (IPA), Office of Space Commerce, NOAA, U.S. Department of Commerce Tahara Dawkins, Director of Policy, Astroscale Pascal Faucher, Chairman EU SST, Defense and Security, CNES Carolyn Frueh, Harold DeGroff Associate Professor of Aeronautics and Astronautics, Purdue University; Chair COSPAR PEDAS</p>
09:00	09:30	<p>EXHIBITION AND NETWORKING BREAK Exhibit Hall + Conference Platform Sponsored by  VOYAGER</p> <p>Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.</p>
09:00 AM HST	03:10 PM HST	EXHIBITION HOURS FOR THE DAY
09:00 AM HST	01:00 PM HST	<p>STUDENT SPACE EXPLORATION DAY Ilima Ballroom + Exhibit Hall</p> <p>The AMOS Conference welcomes Maui County middle school students and their STEM educators to explore careers in space and visit exhibit booths for hands-on STEM activities.</p>
09:30	10:45	<p>ASTRODYNAMICS Sponsored by </p> <p>Co-chaired by Laura Pirovano, Northstar Earth & Space and Sam Wishnek, BAE Systems Inc.</p> <p><i>A Three Pillar Algorithm Pipeline for Low Latency Space Object Maneuver Detection</i> Patrick Miga, Advanced Space</p> <p><i>Adaptive Tracking of Space Objects using Riemannian Manifolds on the 2-Sphere</i> Martin Adams, Universidad de Chile</p> <p><i>Benefits of RTN Reference Frame as Standard for Optical Observation Data</i> Sean Stratton, SciTec</p>

AMOS Conference 2025

PROGRAM



The Model Constrained Unscented Transform for LEO Propagation
Thomas Dearing, ARKA Group

AURORAS: Orbit Determination with Just One Look
Harry Krantz, Applied Research Associates

10:45 12:00

SPACE DEBRIS

Co-chaired by **James Blake**, University of Warwick and **Zach Gazak**, SSC/SZG

Leveraging Astronomical Surveys for Space Debris Detection and Characterization: Application to VST/OmegaCAM
Elisabeth Rachith, EPFL

A Sensitivity Analysis of DAS Lifetime Collision Probability Estimates
Yash Chandramouli, Amazon Kuiper

Improved Astrometry and Sensitivity for a Survey of Faint Geosynchronous Debris
James Blake, University of Warwick

Rapid Tracking and Cataloguing Fragmentation in Orbit Using Three Telescopes: The Intelsat 33E Case
Manuel Pavy, CNES

Tracking Small Debris Using Probabilistic Methods
Matthew Poplewell, Advanced Space, LLC

12:00 01:00
PM HST PM HST

LUNCH | *Lokelani Ballroom*

01:00 01:20

FEATURED PRESENTATION | SDA Architecture Updates | *Haku/Pikake Ballroom*
Introduction by **Arthur Grijalva**, Director, SpaceWERX, AFRL/RGX

Barbara Golf, U.S. Space Force, Strategic Advisor for SDA, Space Systems Command

01:20 02:50

ATMOSPHERICS / SPACE WEATHER

Co-chaired by **Tzu-Wei Fang**, NOAA Space Weather Prediction Center, **Piyush Mehta**, Associate Professor of Space Systems, West Virginia University, and **Shaylah Mutschler**, Space Environment Technologies

Beyond Density Alone: Accuracy Assessment of Atmospheric Models for Orbit Prediction from a Satellite Operator's Perspective
Pol Mesalles-Ripoll, SpaceNav

Neural-Augmented Space Weather Forecasting for Uncertainty Propagation in LEO Conjunction Analysis
Thamim Ansari, Digantara

Removing Bias in Atmospheric Density Modeling for Reducing Propagation Error
Jordan Murphy, Slingshot Aerospace

A Novel Technique for Realistic Uncertainty Characterization In Dynamic LEO Environment
Rachit Bhatia, West Virginia University

AMOS Conference 2025

PROGRAM



Aerodynamic Modeling in Very Low Earth Orbit: An Investigation into the GOCE Satellite

Matilde Monteiro, University of Aveiro

Bring the Noise: Three Rules for Improving Thermospheric Density Retrieval From LEO POD Data

Charles Constant, University College London

02:50 03:10

EXHIBITION AND NETWORKING BREAK | *Exhibit Hall + Conference Platform*

Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.

03:10 04:25

CISLUNAR SDA | *Haku/Pikake Ballroom*

Co-chaired by **Jill Bruer**, AFRL and **Channing Chow**, Cloudstone Innovations

Initial Orbit Determination from Ephemeris Models: Accurate Reconstruction of Maneuvering Cislunar Orbits Using Nonlinear Programming

Casey Heidrich, University of Colorado Boulder

Visibility Informed Covariance Analysis for Cislunar Periodic Orbits

Evangelina Evans, University of Colorado Boulder

Cislunar Admissible Regions from Periodic Orbit Manifolds

Cedric Petion, The University of Texas at Austin

A Game-Theoretical Exploration of L1/L2 Cislunar Space Situational Awareness Using Bayesian Games

John Boh, The University of Texas at Austin

Single Observation Orbit Determination for Periodic Cislunar Orbits via Parameterization

Sam Wishnek, BAE Systems Inc.

04:25 04:40

FEATURED PRESENTATION | **EMER-GEN® Outcomes**

Aishling Dignam, Postdoctoral Research Fellow, NOIRLab

Mahhad Nayyer, Graduate Research Assistant, Purdue University

Katherine Stevens, Application Engineer I, Maui High Performance Computing Center

04:40 05:00

CONFERENCE CLOSING & AWARDS CEREMONY

In collaboration with the Space Surveillance Technical Committee of the [American Astronautical Society](#) (AAS), the AMOS Conference recognizes outstanding efforts in the field of Space Situational/Domain Awareness by presenting the annual AMOS Conference Best Paper and Student Awards. Also awarded are a series of Poster Awards.

05:00 06:30

PAU HANA RECEPTION | *Kahoolawe Lawn*

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*A select number of posters are invited for in-person presentation during the Poster Sessions, as indicated with a (**) double asterisk.*

Prototype Development of Web AI-Based Decision Support System: Insight and Recommendation for Satellite Anomalies Identification

Nadirah Abdul Rahim, International Islamic University, Malaysia

Probabilistic Multi-Agent Data Fusion for Reliable Conjunction Assessment and Enhanced Decision-Making

Ankit Agrawal, Digantara Research & Technologies Pvt Ltd

*A High-Performance and Robust Light Curve Inversion Method for Attitude Monitoring of Three-Axis Stabilised Satellites***

Alberto Águeda, GMV

An Introduction to the Optical Fence Subnetwork for Optical Triangulation

Krzysztof Armiski, Polish Space Agency

*Towards an AI-enabled Space Battle Management System on Space Protocol's Quantum Resilient Blockchain***

Samya Bagchi, Space Protocol LLC

Toward an On-Orbit Reference Network for Enhanced Ephemeris Quality Testing in Low Earth Orbit

Santosh Bhattarai, University College London

Enhancing Space Weather Awareness: The New Neutron Monitor Station in Hawai'i and AMS on the ISS

Veronica Bindi, University of Hawaii at Manoa

*Advancing Concepts for Global Coordination on SSA***

Mariel Borowitz, Office of Space Commerce

*Real-Time AI Video Processing for Single-Shot RSO Detection, Classification, and Localization via Ellipse Regression***

Matt Brown, Geost

*Verification and Validation of Orbital Capacity Assessment Tools of Varying Fidelities***

Indigo Brownhall, University College London

Plasma Detection and Ranging (PLADAR): Introducing a New In-Situ Technique for Sub-Cm Orbital Debris Detection

Victor Bucklew, L3Harris Technologies

Monitoring Satellites by Comparing Infrared Observations to a Multi-Component Thermal Model

Stephen Catsamas, University of Melbourne

*Near-Term Solar Proxy Forecasting for High-Precision Orbit Propagation Using Online Machine Learning***

Fabio Chiappina, a.i. solutions

AMOS Conference 2025



PROGRAM

*Is a Picture Worth 1000 Words: Characterization Potential of Commercial Non-Earth Imaging of Satellites***
Thomas Cooley, Turion Space Corp.

Simultaneous Orbital and Physical Property Estimation for Space Domain Awareness Using Augmented State Estimation Filtering
Jeremy Correa, Katalyst Space Technologies

*Cosmic Collaboratory: The SDA AI/ML Model Hosting Service***
Forest Danford, Sandia National Laboratories

*Toward Integration of Large Language Models for Command and Control in Space Domain Awareness***
Enrique De Alba, EO Solutions

Rapid Classification of near-Earth and Cislunar Objects using Electro-Optical Observations
Joseph Diamond, Peraton

*Automating Motion Hypothesis Methods for Cislunar Satellite Discovery***
Stefan Doucette, InTrack Radar Technologies, Inc.

EOSSA: Standardized Data Fields to Report Panchromatic, Multi-spectral, Spectroscopy, Polarimetry, and Spectropolarimetry Electro-Optical Data for Space Domain Awareness
Phillip Fishbein, Applied Optimization

Uncorrelated Track (UCT) Processing: Establishing Efficient Algorithmic Treatment and Benchmarking Best Practices for Space Domain Awareness (SDA)
Filippo Fonseca, Yale University

Drag Management and Conjunction Prevention for a Crosslink CubeSat Laser Communications Mission
Paige Forester, Massachusetts Institute of Technology

*Utilizing Civilian Launches as Live Exercises for Evaluating a Federated Protect and Defend SDA Battle Management System***
Greg Furlich, University of Colorado Boulder

Application of Uncertainty Propagation with Adaptive Gaussian Mixture Models for Cislunar Objects
John Gaebler, KBR

Imaging Hypersonic Plasma Signatures Using a Programmable Telescope and Video-Rate SWIR Multispectral Camera
Sarvesh Garimella, MyRadar

*Novel Algorithms for Custody Maintenance and Tracking in the Cislunar Environment***
Matthew Givens, Advanced Space

*Application of ODTK and LSAS Algorithms for UCT Processing***
Tim Glinski, LSAS Tec

*Informing the Human Element: Behavioral Psychology Applied to Space Domain Operations***
Jason Goldberg, Riverside Research Institute (RRI)

AMOS Conference 2025



PROGRAM

*XGEOSTARE: Extensible GEO Space-based Telescopes for Actionable Refinement of Ephemeris***
Nathan Golovich, LLNL

Hierarchical Neuro-Symbolic AI for Autonomous Spacecraft Maneuvering and Anomaly Detection
Allan Grosvenor, MS

Issues with Satellite Collision Risk Aggregation
Matthew Hejduk, Aerospace

*Diode-Pumped Alkali Laser LiDAR Network for Enhanced Space Domain Awareness***
Bill Hersman, LiDAR Space

Multi-Order Shooting Scheme for Initial Orbit Determination for Cislunar Objects
Jonathan Hope, Pennsylvania State University

Wide Field Telescope for Laser Illumination Avoidance and SSA Operations
Kevin Jim, Oceanit

Real-Time Airglow Detection Using Hierarchical Machine Learning Models
Ryan Jochims-Torres, University of Houston

Characterizing, Reconstructing, and Analyzing Maneuvers
Tom Johnson, Exa Research, LLC

Satellite Debris Classification Framework: Using Graph Neural Networks for Explosion and Collision Event Characterization
Bhargav Joshi, Digantara

*Leveraging Unresolved Hyperspectral Signatures for Robust Deep Learning Classification of Geosynchronous Satellites***
Jason Kirkendall, Rochester Institute of Technology

High-Precision Orbit Determination from Lunar Orbiter TTC Data Using a 12m Parabola Antenna Long Baseline Aperture Synthesis
Yuichiro Kitagawa, LSAS Tec Co., Ltd.

Cybersecurity for Responsible AI/ML Usage in SDA Applications
Daniel Kline, Johns Hopkins University

*Neutron-2: Advancing Space Weather Monitoring and Anomaly Detection with a Dual CubeSat System***
Piper Kline, Hawaii Space Flight Laboratory

Solaris-5 a New 1-Meter Wide Field of View Optical Space Surveillance Sensor
Beata Konacka, Nicolaus Copernicus Astronomical Center, Polish Academy of Sciences

New Twin Tube Telescope for Photometry of LEO Objects
Oleksandr (Alex) Kozhukhov, National Space Facilities Control and Test Center of State Space Agency of Ukraine

Applying Deep Learning to Anomaly Detection of Russian Satellite Activity for Indications Prior to Military Activity
David Kurtenbach, Kansas State University

AMOS Conference 2025



PROGRAM

*Deep Learning Based Classification of GEOs using Unresolved Spectral Data***

George Landon, Cedarville University

Correlation of Rotational Motion of Rocket Bodies with Falcon Telescope Network Photometric Observations

Tae Lim, United States Naval Academy

Measuring Neutral Density Enhancements due to Space Weather

Erik Long, Orbotic Systems Inc.

*Applying Deep Learning Object Detection Techniques to Detect RSOs for Ground-Based EO Sensors***

Aidan Lorenz, ARKA Group

*Coupling of Thermosphere-Exosphere Helium Dynamics for Improved Satellite Drag Physics***

Sarah Luettgen, University of Colorado Boulder

Thermospheric Density Prediction and Uncertainty Quantification through Generative AI-based Architectures

Saikat Majumder, Digantara

Efficient Photometric Modeling of Complex Spacecraft Geometries toward Next-Generation Light Curve Analysis

Jordan Maxwell, SCOUT Space Inc.

Optimizing Space Surveillance Capabilities: System Analysis and Competitive Procurement for PROVIDENCE's 2.5m Telescope

Pierre-Louis Mayeur, Onera

*Quasi-Zenith Satellite System Hosted Payload (QZSS-HP)***

Sophia McCollum, Space Systems Command

Assessment of Space Traffic Management Performance for Large Constellations – A Self-reporting Aggregated Residual Risk Approach from the OneWeb Constellation

Pablo Minguijon Pallas, OneWeb

*NICEcube – A Cubesat Solution to Enable Thermospheric Density Forecasts for Improved Space Domain Awareness***

Martin Mlynczak, Space Environment Technologies

*Multi-Sensor Target Tracking using Multiple Hypothesis Testing***

Joyce Mo, Princeton Satellite Systems

A Multi-Agent System for Space Domain Awareness and Space Battle Management: Exploiting LLMs and Multimodal Data Fusion for Optimal Decision-Making

Michael Moniger, Booz Allen Hamilton

*A Modular Benchmarking Framework for Evaluating Large Language Models in Space Situational Awareness using Notice to Space Operators Data***

Trier Mortlock, Lawrence Livermore National Laboratory (LLNL)

Deep Multi-Task And Representation Learning Method for Atmospheric Turbulence Prediction and Correction from Focal Plane Speckle Images

Nick Murphy, Georgia State University

AMOS Conference 2025



PROGRAM

*A Quantitative Assessment of Optimized GEO Survey Strategies using Space Based Optical Sensors***
Rithwik Neelakantan, Digantara

Rapid Tracking, Characterization, and Cataloguing of Multi-Payload Launches to Low Earth Orbit
Nicholas Noyes, Slingshot Aerospace

*Electro-optical Signature Generation Using Physic-Aided Deep Neural Networks***
Jorge O'farrill, MTSI

*Pattern of Life Analysis Real-time Identification System (POLARIS)***
Tamara Payne, Altamira Technologies Corp.

*Automated Target Injection for Sensor-Specific Model Calibration***
Kevin Phan, EO Solutions LLC

Socio-Technical Configuration Analysis of Space Objects for Enhanced Space Domain Awareness
Tiffany Phan, The University of Texas at Austin

*Collision Avoidance Maneuver Planning and Optimization Considering Control Uncertainty and Mission Requirements***
Yann Picard, NorthStar Earth & Space, Inc.

*NorthStar's Fragmentation Analysis of the Intelsat 33e Breakup in GEO***
Laura Pirovano, NorthStar Earth & Space

*Optimizing Screening Volume Size for Large-Scale Conjunction Assessment***
Nicholas Ravago, Omitron, Inc.

*USKF for Robust Orbit Determination via Data Fusion and Covariance Realism for LEO Spacecrafts***
Oscar Rodriguez Fernandez, OKAPI:Orbits GmbH

*AI-Driven Satellite Characterization: Enhancing RSO Detection with Deep Learning and Non-Earth Imaging***
Alexander Rogers, Turion Space Corp.

End-to-End Autonomous Mission Planning and Spacecraft Attitude Optimization for Resident Space Object Imaging
Atilla Saadat, Turion Space Corp.

*An SDA Sensor Tasking Optimization Algorithm for Large Catalogs of Maneuvering Targets***
Gavin Saul, Virginia Tech National Security Institute

Orbital State Recommender Validation for Space Battle Management Applications
Oliver Schultz, Lockheed Martin Space

*Enhancing Ground-Based Cislunar SDA: Reducing Search Area for Monitoring Small-Maneuver Earth Return Trajectories Using Poincaré Maps***
Connor Segal, EO Solutions

Differentiating Weather Phenomena from Reentering Objects Using NEXRAD Radar
Anirudh Selvam, The University of Texas at Austin

AMOS Conference 2025



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*Development of VISION (Vigilant Integrated Space Information and mOnitoring Network): An Integrated Space Information Monitoring System for Space Flight Safety***

Jaedong Seong, Korea Aerospace Research Institute

*Evaluating Maneuver Pattern of Life Violations using Unsupervised Learning and Object History***

Anirudh Sharma, Digantara

*Iridium's Use of Mean Elements in Collision Assessment***

Ryan Shepperd, Iridium

*SWFCast: Fusing Foundation Models and Diverse Data to Forecast Space Weather***

Matthew Shoupe, Booz Allen Hamilton

*Optimal Tasking and Scheduling of Satellite Constellations for Space Situational Awareness***

Allan Shtofenmakher, Massachusetts Institute of Technology

*Science and Modelling of the ESA Salsa Satellite Re-Entry Captured During Airborne Observation***

Jiri Silha, Comenius University, Faculty of Mathematics, Physics and Informatics

Spectral Radiance Characterization of Starlink and Other Satellites for Terrestrial Optical Navigation

Jake Singh, Rhea Space Activity

Assessing the Operational Impacts of Orbital Debris

Benjamin Skopic, Institute for Defense Analyses

*Breakthrough in Coordinated Ground and Space-Based Observations***

Lee Spitler, Macquarie University

*Human Factors in Space Operators-Leveraging Aviation Safety Frameworks for Enhanced Orbital Domain Resilience***

Ruth Stilwell, Aerospace Policy Solutions, LLC

*Harnessing High-Performance Computing in the Cloud for I-T Coupled Ensemble-Based Space Weather Data Assimilation***

Rachel Stutz, Orion Space Solutions

Satellite Monitoring and Characterization with Kinematic Doppler Residuals

Shriharsh Tendulkar, LeoLabs

*Unlocking Accurate Photometric Reconstruction of Dim, Unresolved Point Source Objects with an Event-based Vision Sensor***

Zachry Theis, Air Force Research Labs

*Joint Commercial Operations Common Communications Channel***

James Tippets, Tech7

*Panopticon: A Low-SWAPC Wide-Field Sensor for Enhanced Space Domain Awareness***

Nathan Toner, Cloudstone Innovations LLC

AMOS Conference 2025



PROGRAM

*Multi-Band Polarimetry for GEO Satellite Characterization***

Takuro Tsuchikawa, Mitsubishi Electric Corporation

*Dynamic Sensor Tasking for Automated Resident Space Object Characterization***

Jeffrey Uyekawa, Katalyst Space Technologies

*Use of Astronomical Photometric Methods for SDA EO System Optimization***

Vincent Vella, First Light Sciences

*Enhanced Process Noise Application in Estimation Filters for Cislunar Orbit Determination and Maneuver Detection***

Charles J. Wetterer, KBR

Australian Orbit Determination of Manoeuvring GEO Satellites

Kruger White, DSTG

*Conjunction Assessment Performance and Operational Comparisons between the USSF Mission Delta 2 Conjunction Analysis System and the Traffic Coordination System for Space (TraCSS)***

Robert Wolff, Dept of Commerce Office of Space Commerce

*Design of a Space-Based Hyperspectral Characterization Sensor***

Raymond Wright, BAE Systems

*A Framework for Space Safety Analysis: Fragmentation Footprint and Multi-Shell Critical Density***

Di Wu, Embry- Riddle Aeronautical University

*Unsupervised Metric Learning for Satellite Attitude Estimation***

Jun Yoshida, NEC

*The February 2025 re-entry event over Poland***

Tomasz Zubowicz, Polish Space Agency