

Sunday 11 September 2011

2:00 – 6:00 PM **EARLY REGISTRATION | Aulani Foyer**

Monday 12 September

2:00 – 6:00 PM **EARLY REGISTRATION | Aulani Foyer**

Tuesday 13 September

8:00 – 6:00 PM **EXHIBITOR MOVE-IN | Jade-Plumeria Ballroom**

2:00 – 6:00 PM **EARLY REGISTRATION | Aulani Foyer**

6:00 – 7:30 PM **WELCOME RECEPTION | Luau Gardens**
Co-sponsored by The Boeing Company

Wednesday 14 September

7:30 **CONFERENCE OPENING | Aulani Ballroom**
Jeanne Unemori Skog, President & CEO, Maui Economic Development Board

NATIONAL ANTHEM AND HAWAI'I PONO'I
TSgt Tamiko Boone, U.S. Air Force Band of the Pacific

INVOCATION
Reverend Kealahou Alike, Keawala'i Congregational Church

WELCOME REMARKS (*via video*)
Daniel K. Inouye, United States Senator

KEYNOTE ADDRESS
Introduction
Colonel L. Kirk Lewis, Ret.
Senior Analyst, Institute for Defense Analyses

General William L. Shelton
Air Force Space Command, U.S. Air Force

9:10 **BREAK (20 MINUTES)**

9:30 **BELTWAY OPTICS – THE IMPACT OF POLITICS ON SPACE POLICY | Aulani Ballroom**
Brendan Curry
Vice President-Washington Operations, Space Foundation

10:00 **SPACE SITUATIONAL AWARENESS**
Session Chair, Lt Col Jim Shell, Space Innovation & Development Center, USAF

Space Based Space Surveillance (SBSS) System: Delivering Unprecedented Space Situational Awareness
Lt Col Stephen Behm, Space Superiority Systems Directorate

Adding the Local Layer to the SSA Picture
Kipp Johnson, Scitor Corporation

Internal JSpOC SSA processing
Col Michael Wasson, JSpOC

11:00 **LUNCHEON (60 MINUTES) | Lokelani Ballroom**
Co-sponsored by BAE Systems

12:00

SPACE SITUATIONAL AWARENESS (continued) | **Aulani Ballroom**

DREAM: An Integrated Space Radiation Nowcast System for Natural and Nuclear Radiation Belts
Geoffrey Reeves, Los Alamos National Laboratory

Space Domain Awareness
Lt Col Travis Blake, DARPA

BMDSS SSA Integrated Sensing Demonstration (BISD)
Terje Turner, Aerospace Corp.

Unique Search and Track Procedures Utilizing the GEODSS Worldwide Sites
Kenneth Grant, BAE Systems

Space Fence PDR Phase Program Overview
~~Linda Haines, USAF/ESC/HSIB (Space Fence Program)~~ **Phillip Phu, MIT LL**

SSA Capability Improvements
Hans Thatcher, HQ AFSPC, Directorate of Requirements

Joint Space Operations Center (JSPOC) Mission System (JMS)
Maj Michael Morton, HQ AFSPC, Directorate of Requirements

2:20

BREAK (20 MINUTES)

2:40

NON-RESOLVED OBJECT CHARACTERIZATION

Session Chair, Matt Hejduk, a.i. solutions (AFSPC/A9A)

Use of Light Curve Inversion for Non-Resolved Optical Detection of Satellites Performing On Orbit Servicing in GEO
Lauchie Scott, DRDC Ottawa

Cylindrical RSO Signatures, Spin Axis Orientation and Rotation Period Determination
Phil Somers, Royal Military College of Canada

Toward Realistic Dynamics of Rotating Orbital Debris and Implications for Lightcurve Interpretation
Gregory Ojakangas, Drury University

AMOS Galaxy 15 Satellite Observations and Analysis
Doyle Hall, Boeing LTS Maui

4:00-6:00

EXHIBITION RECEPTION AND POSTER PRESENTATIONS | Jade-Plumeria Ballroom

Reception Co-sponsored by Analytical Graphics, Inc.

5:00-6:00

AMOS SITE CAPABILITIES TUTORIAL | Aulani Ballroom

Virginia Wright, Air Force Research Laboratory

5:30-6:30

NEW GENERATION NETWORKING RECEPTION | Kaho‘olawe Lawn

Sponsored by the Space Foundation (by invitation only)

8:00-10:00 PM

“AN EVENING UNDER THE STARS WITH ORBITAL” DESSERT RECEPTION | Pacific Terrace Rooftop

Sponsored by Orbital Sciences Corporation

Thursday 15 September

- 6:00 AM** **BREAKFAST | Luau Gardens** *at leisure from 6:00 am to 7:15 am*
- 7:30** **EXHIBITION AND POSTER ROOM | Jade-Plumeria Ballroom**
- 7:30** **KEYNOTE | Aulani Ballroom**
MRC Greenwood
President, University of Hawai'i
- SPACE IN THE CLASSROOM FOR MAUI SCHOOL STUDENTS | Mauna Loa and Ilima**
An Audience with an Astronaut | Mauna Loa and Ilima 9:00 AM & 10:30 AM
Space Hands-on Activities | Mei Court/Pavilion Lanai
Exhibit Tours | Jade-Plumeria Ballroom
Co-sponsored by the Space Foundation
- 8:00** **NON-RESOLVED OBJECT CHARACTERIZATION** (continued)
- Fingerprinting of Non-resolved Three-axis Stabilized Space Objects Using a Two-Facet Analytical Model
Anil Chaudhary, Applied Optimization, Inc.
- Understanding Satellite Characterization Knowledge Gained from Radiometric Data
Andrew Harms, Air Force Research Laboratory
- Specular and Diffuse Components in Spherical Satellite Photometric Modeling
Matt Hejduk, a.i. solutions
- Measurement of the Photometric and Spectral BRDF of Small Canadian Satellites in a Controlled Environment
Maj Donald Bedard, Royal Military College of Canada
- 9:20** **BREAK (20 MINUTES)**
- 9:40** **OPTICAL SYSTEMS**
Session Chair, Lt Col Travis Blake, DARPA/TTO – Space Systems
- USAF Academy Center for Space Situational Awareness
Mike Dearborn, USAF Academy
- CXLD**
~~Pointing Models & Calibration Capability for the Advanced Electro-Optical System (AEOS)~~
~~Don Brown, Textron Systems (retired)~~
- Status of Telescope Fabra ROA Montsec Optical Observations for Space Surveillance & Tracking
Octavi Fors, Departament d'Astronomia i Meteorologia, Institut de Ciències del Cosmos (ICC), Universitat de Barcelona (IEEC-UB)
- The HANDS-IONS Daytime Camera for GEO Satellite Characterization
Kevin Jim, Oceanit Laboratories, Inc.
- NEW**
FalconSAT-7: A Photon Sieve Space Telescope
USAF Academy
- 11:00** **LUNCHEON (60 MINUTES) | Lokelani Ballroom**
- 12:00 PM** **SPACE DEBRIS OBSERVATION STATUS AND NEEDS PANEL | Aulani Ballroom**

Moderator

David Finkleman, Center for Space Standards and Innovation, Convenor, ISO Space Operations Working Group

Panel Members

~~CXLD - Thomas Schildknecht, Astronomical Institute University of Bern~~

NEW - Patrick Seitzer, University of Michigan

- Yukihiro Kitazawa, IHI Corporation

- Daniel Oltrogge, Center for Space Standards and Innovation and Space Data Corporation

- Craig Smith, EOS, Australia

1:00

ORBITAL DEBRIS | Aulani Ballroom

~~CXLD Thomas Schildknecht, Astronomical Institute University of Bern (AIUB)~~

NEW Eugene Stansbery, NASA

Pan-STARRS Status & Geo Observation Results

Mark Bolden, AFRL/RDSME

A Search for Optically Faint GEO Debris

Patrick Seitzer, University of Michigan

CXLD

~~Results of an Optical Survey for Space Debris in MEO~~

~~Thomas Schildknecht, Astronomical Institute University of Bern (AIUB)~~

Effective Search Strategy Applicable for Breakup Fragments in the Geostationary Region

Toshiya Hanada, Kyushu University

CXLD

~~Identification of possible sources of HAMR objects in GEO region~~

~~Vladimir Agapov, KIAM~~

A New Orbital Analyst Tool for Associating Un-cataloged Analyst Debris with Historical Launches, Breakups, and Anomalous Events

Bruce Bowman, AFSPC / A9

Commercially-Hosted Payloads for Debris Monitoring and Mission Assurance in GEO

Lt Col Jim Shell, US Air Force

2:40

BREAK (20 MINUTES)

3:00

SPACE-BASED ASSETS

Session Chair, Seth Harvey, Air Force Research Laboratory

On-Orbit Teleoperation of Robotic Systems: Sensors and Real-Time Data Transmission

Markus Pietras, Technical University of Munich

Benefits of Hosted Payload Architectures for Improved GEO SSA

Jonathan Lowe, Analytical Graphics, Inc.

Implementation of a Ka-Band communication path for On-Orbit Servicing

Ralf Purschke, Institute of Astronautics

An Investigation into Using Differential Drag for Controlling A Formation of CubeSats

Matthew Horsley, Lawrence Livermore National Laboratory

4:20-5:20

EXHIBITION AND POSTER RECEPTION | Jade-Plumeria Ballroom

Reception Co-sponsored by SpaceNav

5:30-6:30

The Future of UTC and the Leap Second | Mauna Loa Room

David Finkleman, Center for Space Standards and Innovation

Friday 16 September

6:00 AM **BREAKFAST | Luau Gardens** *at leisure from 6:00 am to 7:15 am*

7:30 **EXHIBITION AND POSTER ROOM | Jade-Plumeria Ballroom**

7:30 **FUTURE DIRECTIONS FOR COLLABORATIVE SSA | Aulani Ballroom**

Moderator

Lt Gen Michael A. Hamel, USAF (Retired)
Senior Vice President, Strategy and Development, Orbital Sciences Corporation

Panel Members

- Maj Gen Jay Santee, Principal Director, Space Policy, Office of the Under Secretary of Defense for Policy
- Col Stephen Butler, Chief, Space Situational Awareness & C2, USAF
- Richard DalBello, Vice President Legal and Government Affairs, Intelsat General
- Paul Graziani, Chief Executive Officer, Analytical Graphics, Inc.

9:00 **BREAK (20 MINUTES)**

9:20 **ASTRODYNAMICS | Aulani Ballroom**
Session Chair, Paul Cefola, University at Buffalo (SUNY)

The All-Versus-All LEO Conjunction Problem
Arthur Lue, MIT Lincoln Laboratory

A High Performance Conjunction Analysis Technique for Cluster and Multi-Core Computers
Eric George, The Aerospace Corporation

An Application of Hadoop and Horizontal Scaling to Conjunction Assessment
Michael Prausa, The MITRE Corporation

Efficient All-vs-All Collision Risk Assessment
Miguel Molina, GMV Aerospace and Defence, S.A.

CXLD

~~Observing and Analysing a Close Conjunction in GEO
Tim Flohrer, ESA/ESOC Space Debris Office (OPS-GR)~~

NEW

Maneuver Optimization through Simulated Annealing
Willem de Vries, Lawrence Livermore National Laboratory

11:00 **LUNCHEON (60 MINUTES) | Lokelani Ballroom**

12:00 PM **ASTRODYNAMICS** (continued)

Reconciling Covariances with Reliable Orbital Uncertainty
Zachary Folcik, MIT Lincoln Laboratory

Demonstration of the DSST State Transition Matrix Time-Update Properties using the Linux GTDS Program
Paul Cefola, University at Buffalo (SUNY)

Orbit Determination and Data Fusion in GEO
Joshua Horwood, Numerica Corporation

1:00 **ADAPTIVE OPTICS/IMAGING**
Session Chairs, Capt Casey Pellizzari, Air Force Research Laboratory

Comparison of Turbulence-Induced Scintillations for Multi-Wavelength Laser Beacons Over Tactical (7 km) and Long (149 km) Atmospheric Propagation Paths
Mikhail Vorontsov, University of Dayton

Inverse Synthetic Aperture LADAR for Geosynchronous Space Objects: A Signal-to-Noise Analysis
Capt Casey Pellizzari, Air Force Research Laboratory, Det 15

Compact Multi-Channel, Multi-Frame, Blind Deconvolution
Douglas Hope, Institute for Astronomy, University of Hawaii

2:00 **BREAK (20 MINUTES)**

2:20 **ADAPTIVE OPTICS/IMAGING** (continued)

Multi-Frame Myopic Deconvolution for Imaging in Daylight and Strong Turbulence Conditions
Stuart Jefferies, HartSCI LLC

Laser Guide Star Radiometry From Several Off Axis Locations
Richard Tansey, Lockheed Martin

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~~Implementation of Real-Time Super High Resolution Optical Image Restoration~~
~~Jinyu Zhao, Chinese Academy of Sciences~~

Holographic Adaptive Laser Optics System (HALOS)
Geoff Andersen, USAF Academy

Quantifying Atmospheric Impacts on Space Optical Imaging and Communication Systems
Randall Alliss, Northrop Grumman Corporation

Interferometric Imaging of Geostationary Satellites: Signal-to-Noise
Anders Jorgensen, New Mexico Tech

4:00 **CONFERENCE ADJOURN**

POSTER AND EXHIBITOR DISMANTLE

5:30 – 8:30 PM **CLOSING DINNER AND SHOW | Luau Gardens**

Saturday 17 September

7:30 & 9:30 AM **OPTIONAL TECHNICAL TOUR** (departs from Wailea Marriott)

POSTER PRESENTATIONS

Session Chair, Bernie Klem, Arnold Engineering Development Center

Implementing Digital Feedback Controls for the Multiple Simultaneous Ring Cavities in the FASOR-X System
Jeffrey Baker, Boeing

Using a Physics-Based Reflection Model to Study the Reddening Effect Observed in Spectrometric Observations of Artificial Space Objects
Maj Donald Bedard, Royal Military College of Canada

Broadband Spectral-Polarimetric BRDF Scan System and Data for Spacecraft Materials
David Bowers, Applied Technology Associates

Benefits of a Geosynchronous Orbit (GEO) Observation Point for Orbit Determination
Ray Byrne, Sandia National Laboratories

Real Science, Real Education: The University Nanosat Program

Kelly Cole, AFRL/RVEP

The Superior Lambert Algorithm
Gim Der, DerAstrodynamics

Innovative System of Very Wide Field Optical Sensors for Space Surveillance in the LEO Region.
Linda Dimare, Department of Mathematics, University of Pisa

Setting the Image Scale and other Uses for Binary Stars
Jack Drummond, AFRL/RDS

Near Real-Time Operational Collision Risk Management - Evaluating and Mitigating High Risk Conjunction Events
Matthew Duncan, SpaceNav

CXLD

~~Small Space Launch for SSA: Origins, Challenges & Advancements
Lt Col Thomas Freeman, USAF/SMC~~

KAM Torus Frequency Generation from Two Line Element Sets
Capt Gregory Frey, U.S. Air Force

Short-Arc Correlation and Initial Orbit Determination for Space-Based Observations
Kohei Fujimoto, The University of Colorado at Boulder

A Technical Comparison of Satellite Conjunction Analysis Tools
Eric George, The Aerospace Corporation

Design Considerations for the Modeling and Simulation of a Large High Accuracy Catalog of Space Objects
Barry Graham, Tybrin Corporation

CXLD

~~Effects of Air Drag and Lunar Perturbations on Orbital Motion Near a Reference KAM Tours
Capt Luke Hagen, U.S. Air Force~~

The Large Binocular Telescopes ARGOS Ground-Layer Adaptive Optics System
Michael Hart, University of Arizona

Sensor-Scheduling Simulation of Disparate Sensors for Space Situational Awareness
Tyler Hobson, University of Queensland

On-Orbit Range Set Applications
Marcus Holzinger, University of Colorado at Boulder

A High-Fidelity Model of A Satellite Collision Viewed by a Radar
Matthew Horsley, Lawrence Livermore National Laboratory

Computing and Visualizing Reachable Volumes for Maneuvering Satellites
Ming Jiang, Lawrence Livermore National Laboratory

Daytime Sky Brightness Modeling of Haleakala
Kevin Jim, Oceanit Laboratories, Inc

The Light Curves of Geostationary Satellites and its Model
Ho Jin, Kyung Hee University

Streamlined Modeling for Characterizing Spacecraft Anomalous Behavior
Bernie Klem, Arnold Engineering Development Center

Detection of Artificial Satellites in Images Acquired in Track Rate Mode.
Martin Levesque, Defence Research & Development, Canada

Radar Calibration Using a Student-Built Nanosatellite
Larry Martin, University of Hawaii

Multi-Frame Blind Deconvolution Cramér-Rao Lower Bounds for Point Spread Function Estimates
Chuck Matson, Air Force Research Laboratory

Visible and Near-Infrared Properties of Optical Fibers Coupled to the Pathfinder High-Resolution NIR Spectrograph
Keegan McCoy, Pennsylvania State University

Toward Ground-Based Imaging of Satellites at Geosynchronous Altitude
David Mozurkewich, Seabrook Engineering

An Update on SSA in Australia
Neil Gordon, Defence Science and Technology Organisation (DSTO)

Analysis of Galaxy 15 Satellite Images from a Small-Aperture Telescope
Sergei Nikolaev, LLNL

Engineering the Ideal Gigapixel Image Viewer
Dominik Perpeet, Fraunhofer IOSB

Intuitive Space Weather Displays to Improve Space Situational Awareness (SSA)
Paul Picciano, Aptima, Inc.

The Magdalena Ridge Observatory's 2.4-meter Fast-Tracking Telescope: Space Situational Awareness and the Near-Earth Environment
Eileen Ryan, New Mexico Institute of Mining and Technology/MRO

LAASAM - Learning Agents for Autonomous Space Asset Management
Larry Scally, Colorado Engineering, Inc.

Simulated Synthesis Imaging of Geostationary Satellites
Henrique Schmitt, CPI/NRL

Optical Photon Counting Imaging Detectors with Nanosecond Time Resolution for Astronomy and Night Time Sensing
Oswald Siegmund, University of California, Space Sciences Laboratory

Parallel-Computing Architecture for JWST Wavefront-Sensing Algorithms
Jeffrey Smith, NASA Goddard Space Flight Center

Improved Basis Functions for Dynamic Calibration of Semi-Empirical Thermospheric Models
Eric Sutton, Space Vehicles Directorate

Forecasting the Disturbed Storm Time (Dst) Index
Charles Wetterer, PDS

Sensor Exposure, Exploitation, and Experimentation Environment
Sam Wootton, The MITRE Corporation

An Efficient Lucky Imaging System for Astronomical Image Restoration
Shixue Zhang, Chinese Academy of Sciences