

Wailea Beach Marriott Resort, Maui, Hawaii
Draft Agenda (as of 9/3/2012)

Monday 10 September

2:00-6:00 PM EARLY REGISTRATION I Aulani Foyer

3:00-8:00 PM EXHIBITOR MOVE-IN I Jade-Plumeria Ballroom

Tuesday 11 September

8:00-3:30 PM PRE-CONFERENCE SSA FORUM I Lokelani Ballroom
Presented in partnership with Space Foundation
(*separate registration required*)

10:00-8:00 PM EXHIBITOR MOVE-IN I Jade-Plumeria Ballroom

2:00-6:00 PM EARLY REGISTRATION I Aulani Foyer

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

Wednesday 12 September

6:00-7:15 AM BREAKFAST AT LEISURE I Luau Gardens

9:00-6:30 PM EXHIBIT HOURS I Jade-Plumeria Ballroom

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

NATIONAL ANTHEM AND HAWAI'I PONO'I
Chief Master Sergeant Laura Noel, U.S. Air Force Band of the Pacific

INVOCATION
Reverend Kealahou Alikea, Keawala'i Congregational Church

WELCOME REMARKS
Daniel K. Inouye, United States Senator (*via video*)
Jennifer Sabas, Chief of Staff, Office of Senator Daniel K. Inouye

8:00-9:00 KEYNOTE ADDRESS
Introduction
Colonel L. Kirk Lewis, Ret.
Senior Analyst, Institute for Defense Analyses

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

9:00 BREAK (20 MINUTES)

Welcome Coffee Hour for Spouses and Guests I Mala Lounge
Non-registered guests are invited to an informal presentation about optional island activities.
This is a nice opportunity to mingle and map plans for the week.

9:20-10:00

THE IMPACT OF SPACE TECHNOLOGY TRANSFER & COMMERCIALIZATION

Moderator: Kevin Cook, Director, Space Technologies Awareness, Space Foundation

Panel Members

- Leroy Chiao, Special Advisor–Human Spaceflight, Space Foundation
- David Deigan, President & Founder, AFM Incorporated
- Wes Freiwald, President, Pacific Defense Solutions
- Patrick Sullivan, President, Oceanit Laboratories, Inc.

10:10

ADAPTIVE OPTICS AND IMAGING

Session Chair: Charles Matson, Air Force Research Laboratory

Ka Band Objects: Observation and Monitoring (KaBOOM)

Invited Speaker: Barry Geldzahler, NASA Chief Scientist for Space Communication and Navigation

Development of Robust, Light-weight, Agile Deformable Mirrors in Carbon Fiber

Michael Hart, The University of Arizona

Active Optics Modernization of the AEOS Telescope

David Greenwald, Boeing

Numerical Techniques for 3D-Turbulence Effects Analysis and Piston Phase Retrieval

Mikhail Vorontsov, University of Dayton

11:30

LUNCHEON (60 MINUTES) | Lokelani Ballroom

Co-sponsored by BAE Systems

12:30 PM

ADAPTIVE OPTICS AND IMAGING (continued)

Temporally Evolving Atmospheric Phase Screen Generation

Isaac Putnam, USAF - AFIT/ENG

High Resolution Near Real Time Image Processing and Support for MSSS Modernization

Robert Bruce Duncan, Boeing Company

Application of the ITIQUE Image Quality Modeling Metric to SSA Domain Imagery

David Gerwe, Boeing

1:30

ORBITAL DEBRIS

Session Chair: Thomas Schildknecht, Astronomical Institute University of Bern

Overview of Multiyear Results of GEO and HEO Region Space Debris Search, Tracking and Characterization

Vladimir Agapov, KIAM RAS

Visible Light Spectroscopy of GEO Debris

Patrick Seitzer, University of Michigan Astronomy

Long-Term Evolution of High Area-to-Mass Ratio Objects in Different Orbital Regions

Thomas Schildknecht, Astronomical Institute University of Bern

2:30

BREAK (20 MINUTES)

Co-sponsored by Northrop Grumman Corporation

- 2:50** **ORBITAL DEBRIS** (continued)
- Prediction of HAMR Debris Population Distribution Released from GEO Space**
Aaron Rosengren, University of Colorado at Boulder
- Estimating the Error in Statistical HAMR Object Populations Resulting from Simplified Radiation Pressure Modeling**
Sven Flegel, Institute of Aerospace Systems, Technische Universitat Braunschweig
- Comparison Between Four Detection Algorithms for GEO Objects**
Toshifumi Yanagisawa, Japan Aerospace Exploration Agency
- Satellite Material Type and Phase Function Determination in Support of Orbital Debris Size Estimation**
Matthew Hejduk, LZ Technologies Inc.
- Probable Rotation States of Rocket Bodies in Low Earth Orbit**
Gregory Ojakangas, Drury University and LZ technology
- Brute Force Modeling of the Orbital Debris Evolution**
Sergei Nikolaev, Lawrence Livermore National Laboratory
- LightForce: Photon Pressure Induced Collision Avoidance**
Creon Levit, NASA Ames Research Center
- 5:10-6:30** **EXHIBIT AND POSTER SESSION** | Jade-Plumeria Ballroom
- 5:30-6:30** **NEW GENERATION “PAU HANA” NETWORKING RECEPTION** | Kaho’olawe Lawn
Co-hosted by the Space Foundation and Maui Economic Development Board (*by invitation only*)
- 6:00-7:00** **AIR FORCE MAUI OPTICAL AND SUPERCOMPUTING (AMOS) SITE CAPABILITIES TUTORIAL** (presented by Maj James Mikes, AFRL/RDSM)
- 8:00-10:00 PM** **AN EVENING UNDER THE STARS WITH ORBITAL | Pacific Terrace Rooftop DESSERT RECEPTION**
Sponsored by Orbital Sciences Corporation

Thursday 13 September

- 6:00-7:15 AM** **BREAKFAST AT LEISURE | Luau Gardens**
- 8:00-12:00 PM** **SPACE IN THE CLASSROOM**
Co-sponsored by Space Foundation
(300 middle school students and teachers to participate in Audience with an Astronaut and hands-on STEM activities)
- In partnership with Analytical Graphics, Inc., the Air Force Research Laboratory, The Boeing Company, Institute for Astronomy, University of Hawai’i, Lockheed Martin, Maui High Performance Computing Center, Orbital Sciences Corporation, and Pacific Defense Solutions.
- 9:00-4:30 PM** **EXHIBIT HOURS | Jade-Plumeria Ballroom**
- 7:30** **ASTRONOMY**
Session Chair: Michael Maberry, Institute for Astronomy, University of Hawai’i

The Pan-STARRS Wide Field Imaging System

Nicholas Kaiser, University of Hawaii

Status and Early Science Results of the PS1 Science Mission

Kenneth Chambers, Institute for Astronomy, University of Hawaii

Physical Characterization Studies of Near-Earth Object Spacecraft Mission Targets

Eileen Ryan, New Mexico Institute of Mining and Technology

8:30

NON-RESOLVED OBJECT CHARACTERIZATION

Session Chair: Matthew Hejduk, LZ Technologies Inc.

The Oculus-ASR: An Orbiting Nanosatellite Testbed for Unresolved Object Characterization

Jake LaSarge, Michigan Technological University

Imaging of Non-Resolved Objects Using the Fine Scale Optical Range

Thomas Pollock, Aerospace Engineering Department, Texas A&M University

9:10

BREAK (20 MINUTES)

9:30

NON-RESOLVED OBJECT CHARACTERIZATION (continued)

Algorithms for Automated Characterization of Three-Axis Stabilized GEOs using Non-Resolved Optical Observations

Jeremy Murray-Krezan, Air Force Research Lab - Space Vehicles

Satellite Surface Characterization from Non-resolved Multi-band Optical Observations

Doyle Hall, Boeing - LTS

Attitude Estimation for Unresolved Agile Space Objects with Shape Model Uncertainty

Marcus Holzinger, Texas A&M University

Large Phase Angle Observations of GEO Satellites

Rita Cognion, Oceanit

Noise-Robust Spectral Signature Classification in Non-resolved Object Detection using Feedback Controlled Adaptive Learning

Mark Schmalz, University of Florida

NOVEL APPROACHES TO ELECTRO-OPTICAL SSA SENSING

Session Chair: Eric Pearce, MIT Lincoln Laboratory

Subsystems of the ISON telescopes for GEO, HEO and LEO observations

Igor Molotov, Keldysh Institute of Applied Mathematics, RAS

11:30

LUNCHEON (60 MINUTES) | Lokelani Ballroom

12:30 PM

The Space Surveillance Telescope: Focus and Alignment of a Three Mirror Telescope

Deborah Woods, MIT Lincoln Laboratory

Rapid Cadence Collections with the Space Surveillance Telescope

David Monet, US Naval Observatory

An Optical Satellite Tracking System for Undergraduate Research

Shane Bruski, USAF

Early Science Instruments and Image Releases from SOFIA
Helen Hall, Universities Space Research Association

Real-Time Utilization of STSS for Improved Collision Risk Management
Matthew Duncan, SpaceNav

2:10 BREAK (20 MINUTES)
Co-sponsored by Universities Space Research Association (USRA)

2:30 JSpOC Mission System Application Development Environment
Maj Rick Luce, SMC/SY

Adding the "Local" Layer to the SSA Picture
Farakh Zaman, USAF/SMC/SY

3:10-4:30 EXHIBIT AND POSTER SESSION | Jade-Plumeria Ballroom
Co-sponsored by SpaceNav

4:30 PM CONFERENCE ADJOURN

Friday 14 September

6:00-7:15 AM BREAKFAST AT LEISURE | Luau Gardens

8:00-4:30 PM SPACE IN THE CLASSROOM
Co-sponsored by Space Foundation
(Teacher workshop)

9:00-3:00 PM EXHIBIT HOURS | Jade-Plumeria Ballroom

7:30 INTEGRATING SSA: LINKING POLICIES, OPERATIONAL NEEDS, TECHNOLOGY AND MISSION CAPABILITIES

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

Panel Members

- Paul Nielsen, Director and CEO of the Software Engineering Institute
- Paul Graziani, CEO and Co-founder of Analytic Graphics, Inc.
- Col Stephen Benavides, Director of Operations, Training and Exercises, Joint Functional Component Command for Space, USSTRATCOM

9:10 BREAK (20 MINUTES)

9:30 SPACE WEATHER
Session Chair: Randall Alliss, Northrop Grumman

Integration of Space Weather Forecasts into Space Protection
Geoffrey Reeves, Los Alamos National Laboratory

Forecasting of Optical Turbulence in Support of Realtime Optical Imaging and Communication Systems
Randall Alliss, Northrop Grumman

Trans-Ionospheric High Frequency Signal Ray Tracing
 Scott Wright, Northrop Grumman Corporation

10:30

DATA & SERVICES

Session Chair: Lt Col Travis Blake, DARPA/TTO - Space Systems

DARPA Space Domain Awareness
 Lt Col Travis Blake, DARPA/TTO - Space Systems

IBEX
 Robbie Robertson, Air Force Research Laboratory

Viral Space Situational Awareness
 Anthony Gleckler, GEOST, Inc.

11:30

LUNCHEON (60 MINUTES) | Lokelani Ballroom

12:30 PM

DATA & SERVICES (continued)

12:30

Space Situational Awareness using Market Based Agents
 Chris Sullivan, Oceanit

12:40

Integrated Net-Centric Data for a new Space Protection Paradigm
 William McShane, Lockheed Martin

1:00

A Comparison Between a Non-linear, Poisson-based Statistical Detector and a Linear, Gaussian Statistical Detector for Detecting Dim Satellites
 Lt Stephen Maksim, USAF AFIT/ENG

1:20

ASTRODYNAMICS

Session Chair: Paul Cefola, University at Buffalo (SUNY)

A General Solution to the Second Order J2 Contribution in a Mean Equinoctial Element Semianalytic Satellite Theory
 Zachary Folcik, MIT Lincoln Laboratory

Improving Low-Earth Orbit Predictions Using Two-line Element Data with Bias Correction
 James Bennett, The Satellite Positioning for Atmosphere, Climate and Environment (SPACE) Research Centre, School of Mathematical and Geospatial Sciences, RMIT University

Allocation of DSST in the New Implementation of Tastrodyweb Tools Web-site
 Juan Felix San Juan, Universidad de La Rioja

Orbital State Uncertainty Realism
 Joshua Horwood, Numerica Corporation

2:40

BREAK (20 MINUTES)

3:00

ASTRODYNAMICS (continued)

Rapid Non-Linear Uncertainty Propagation via Analytical Techniques
 Kohei Fujimoto, The University of Colorado at Boulder

Covariance Based Pre-Filters and Screening Criteria for Conjunction Analysis
 Eric George, The Aerospace Corporation

Precision Orbit Derived Atmospheric Density: Development and Performance
Craig McLaughlin, University of Kansas

Satellite Re-entry Modeling and Uncertainty Quantification
Matthew Horsley, Lawrence Livermore National Laboratory

New Angles-only Algorithms for Initial Orbit Determination
Gim Der, Derastronautics

Search and Determine Integrated Environment (SADIE)
Chris Sabol, Air Force Research Laboratory

NRC Assessment of the USAF Astrodynamic Algorithms
Paul Nielsen, Carnegie Mellon University's Software Engineering Institute

5:20 PM CONFERENCE ADJOURN

6:00-9:00 PM CLOSING DINNER | Luau Gardens

Saturday 15 September

7:30 & 9:30 AM OPTIONAL TECHNICAL TOUR
Departs from Wailea Marriott

POSTER PRESENTERS

Overview of Human-Centric Space Situational Awareness (SSA) Science and Technology (S&T)
Denise Aleva, AFRL

Implicit Runge-Kutta Methods for Uncertainty Propagation
Jeffrey Aristoff, Numerica Corporation

One Class of Nonlinear Model Solutions for Flight Vehicles and Applications to Targeting and Guidance Schemes
Dilmurat Azimov, University of Hawaii at Manoa

Laser Illuminated Imaging: Multiframe Beam Tilt Tracking and Deconvolution Algorithm
David Becker, United States Air Force

Spectrometric Characterization of Active Geosynchronous Satellites
Donald Bedard, Royal Military College of Canada

Determination of Satellite Characteristics through Visible Light Intensity Analysis
Shane Bruski, USAF

Optical Signature Analysis of Tumbling Rocket Bodies via Laboratory Measurements
Heather Cowardin, JACOBS/ESCG

Robust Global Image Registration based on a Hybrid Algorithm Combining Fourier- and Spatial-domain Techniques
Peter Crabtree, Air Force Research Laboratory

Early Science Results from SOFIA, the World's Largest Airborne Observatory
James De Buizer, USRA

New Positions and/or Orbits for Binary Stars Observed at the SOR

Jack Drummond, AFRL/RDS

Probabilistic Observation Association in a Distributed Architecture

Matthew Duncan, SpaceNav

A Study of the Effects of Material Type and Configuration on Optical Cross Section

Kelly Feirstine, Schafer Corporation

Modeling the Effects of Solar Cell Attitude Distribution on Optical Cross Section for Solar Panel Simulations

Kelly Feirstine, Schafer Corporation

Ballistic Coefficient Prediction for Resident Space Objects

Dave Gaylor, Emergent Space Technologies, Inc.

Wired Widgets: Agile Visualization for Space Situational Awareness

Kelly Gerschefske, MITRE

Daytime Sky Brightness Modeling of Haleakala along the GEO Belt

Brooke Gibson, Oceanit

Sapphire-like Payload for Space Situational Awareness

John Hackett, COM DEV Ltd.

Strip Coating Metrology on Large Scale Telescope Optics: Scalable Cost Saving Preventative Maintenance with First Contact Polymer™

James Hamilton, University of Wisconsin-Platteville

Orbital Error Analysis for Surveillance of Space

Nick Harwood, Defence Science and Technology Laboratory

GPU-based Space Situational Awareness Simulation Utilizing Parallelism for Enhanced Multi-sensor Management

Tyler Hobson, The University of Queensland

The JSpOC Mission System (JMS) Common Data Model: Foundation for Net-Centric Interoperability for Space Situational Awareness

Maryann Hutchison, The Aerospace Corporation

Implementation of Tomography for Raven, a Multi-Object Adaptive Optics science and technology demonstrator

Kate Jackson, University of Victoria: Mechanical Engineering

Imaging Geostationary Satellites with a Common-Mount Interferometer: Image quality and fringe tracking

Anders Jorgensen, New Mexico Tech

Characterizing Orbital Debris and Spacecrafts through a Multi-Analytical Approach

Susan Lederer, NASA

Sky Brightness Analysis using a Million GEODSS Observations

W. Jody Mandeville, MITRE Corporation

A Cramér-Rao Lower Bound Analysis of Multi-frame Blind Deconvolution

Charles Matson, Air Force Research Laboratory

Enabling the MLSpOC (Multi-Level Space Operations Center) of the Future

Dave Missal, Oracle - National Security Group

A Novel Approach to Environment Reconstruction in LiDAR and HSI Datasets

Dejan Nikic, The Boeing Company

Infrasound Rocket Signatures

John Olson, Geophysical Institute, UAF

Unique search and track procedures utilizing the Ground-Based Electro-Optical Deep Space Surveillance (GEODSS) worldwide sites

Thomas Peppard, BAE Systems

A Korean Space Situational Awareness Program: OWL Network

Jang-Hyun Park, Korea Astronomy and Space Science Institute

Enhanced Collaboration for Space Situational Awareness via Proxy Agents

Paul Picciano, Aptima

Optical Measurements of Tumbling Rocket Bodies

Jon Read, Hamilton Sundstrand

Net-Centric Sensors and Data Sources (N-CSDS) GEODSS Sidecar

David Richmond, Lockheed Martin

Analysis of the Long-term Area-to-mass Ratio Variation of Space Debris

Thomas Schildknecht, Astronomical Institute, University of Bern

Analysis of Galileo Style Geostationary Satellite Imaging: Image Reconstruction

Henrique Schmitt, Computational Physics, Inc.

Scalable Track Initiation for Optical Space Surveillance

Paul Schumacher, Air Force Research Laboratory RDSM

Large Area and High Efficiency Photon Counting Imaging Detectors with High Time and Spatial Resolution for Night Time Sensing and Astronomy

Oswald Siegmund, University of California, Space Sciences Lab

Data Handling and Protection of Need-to-Know Data in a Need-to-Share Netcentric Enterprise

Jeffrey Skelton, The MITRE Corporation

Low Frequency Plasma Turbulence as a Source of Clutter in Surveillance and Communication

Vladimir Sotnikov, Air Force Research Laboratory/Sensors Directorate

NASA's Marshall Space Flight Center Recent Studies and Technology Developments in the Area of SSA/Orbital Debris

Bruce Wiegmann, NASA - Marshall Space Flight Center (presented by Jack Mulqueen)

Cross-Organization Service Use Management for Space Situational Awareness

Jeremy Witmer, MITRE

Improving Ground Based Telescope Focus through Joint Parameter Estimation

J. Chris Zingarelli, USAF