



2008

calcon

AUGUST 25 TO 28, 2008

CALCON TECHNICAL CONFERENCE

SESSIONS & ABSTRACTS ■ POSTERS ■ EXHIBITS

Utah State University Eccles Conference Center, Logan, Utah, USA

- 8:00 AM–8:30 AM Registration / Continental Breakfast
- 8:30 AM–12:00 PM **PRE-CONFERENCE TUTORIAL:** Uncertainty Analysis and Budgeting for On-Orbit Radiometric Calibration
- Calibration Requirements and Planning for Missile Defense Remote Sensing
Ray Russell—The Aerospace Corporation
 - On-Orbit Components of Radiance Uncertainty Analysis Budgets for Operational Satellite Instruments: A CALCON Exploratory
Bob Iacovazzi and Fred Wu—NOAA
 - Correlation of Target-dependent Calibration Methods used to Determine Absolute Radiometric Accuracy for Space-based Remote Sensing Payloads
Howard Bowen—ITT
- 12:00 PM–1:15 PM Registration
- 1:15 PM–1:30 PM **CONFERENCE WELCOME:** Brent Miller—Vice President for Research, Utah State University
- 1:30 PM–2:15 PM **KEYNOTE ADDRESS:** Chester A. “Chet” DeCesaris, Jr.—Principal Deputy for Test, Fielding and Integration, Missile Defense Agency
- 2:15 PM – 3:45 PM **TECHNICAL SESSION:** Pre-launch Testing and Post-launch Performance
- CLARREO: Advances in High Accuracy Spectrally Resolved Radiance Measurements for Climate Forecast Testing and Global Climate Benchmarks
James Anderson—Harvard University
 - AIRS Pre-Launch Spectral Calibration: Spectral Resolving Power Measurement vs. Prediction
Charles Dionne—BAE Systems
 - The On-Orbit Calibration of SeaWiFS: Functional Fits to the Lunar Time Series
Gene Eplee—Science Applications International Corporation
 - Status of CrIS Instrument Pre-launch Calibration
Denise Hagan—Northrop Grumman Space Technology
- 3:45 PM–4:05 PM Refreshment Break
- 4:05 PM–5:45 PM **TECHNICAL SESSION:** Pre-launch Testing and Post-launch Performance (cont.)
- Statistical Analysis of Contrast Ratios in Earth Observed Scenes for VIIRS
Stephen Mills—Northrop Grumman Space Technology
 - Apparent 3rd Order Effects in VIIRS MWIR (3 to 5 microns) and the Relation to Calibration Errors Using a Blackbody
Stephen Mills—Northrop Grumman Space Technology
 - MODIS On-board Blackbody Performance
Jack Xiong—NASA Goddard Space Flight Center
 - MODIS Solar Diffuser On-orbit Performance
Jack Xiong—NASA Goddard Space Flight Center
 - Measuring and Correcting for the Non-linearity of Microwave Radiometers
Giovanni De Amici—Northrop Grumman Space Technology
- 6:15 PM–8:30 PM **OPENING SOCIAL** at the Space Dynamics Laboratory
1695 North Research Park Way, North Logan

8:00 AM–8:30 AM Continental Breakfast

8:30 AM–10:20 AM **TECHNICAL SESSION:** National Standards Laboratory Resources for Radiometric Calibration

- Calibrations and Uncertainties of Low Background IR Test Chambers using the BXR
Adriaan Carter—NIST
- Radiometers for Absolute Calibrations at 1 pW of Total Infrared Power
Adriaan Carter—NIST
- Progress in On-orbit SI-traceable Radiance Measurements for CLARREO
Jonathan Gero—Harvard University
- Results of a NIST-led Inter-laboratory Comparison of Infrared Reflectance
Leonard Hanssen—NIST
- Spectral Characterization of Infrared Radiometers and Imagers
Sergey Mekhontsev—NIST

9:30 AM–4:30 PM Exhibits Open

10:20 AM–11:05 AM Refreshment Break
Poster Viewing—Authors Present

11:05 AM–12:15 PM **TECHNICAL SESSION:** Calibration Methods using Celestial Objects


- Correlation of Target-dependent Calibration Methods used to Determine Absolute and Relative Radiometric Accuracy, Monitor Long-term Stability, Assess Stray Light Performance, Measure MTF Performance and Estimate Effective Focal Length for the IKONOS Space-based Remote Sensing Payload
Howard Bowen—ITT
- Long-wave IR Spectroscopic Observations of Space Objects with the Broadband Array Spectrograph System (BASS) at the Advanced Electro-Optical System (AEOS) Telescope on Maui
Mark Skinner—AMOS Observatory
- Calibrated Stellar Database of the USGS Lunar Calibration Program
Tom Stone—US Geological Survey

12:15 PM–1:15 PM Lunch Provided

1:15 PM–3:25 PM **TECHNICAL SESSION:** Equipment, Capabilities, and Facilities for Radiometric Calibration

- Image Assessment System for Landsat ETM+ / TM / MSS Datatypes
James Dewald—South Dakota State University
- MIC5 Calibrator Fabrication and Characterization
Alan Bird—USU/Space Dynamics Laboratory
- Performance of the Cryogenic Michelson Interferometer
Philippe Lagueux—Telops Inc
- Novel Cryogen-Free Calibration Sources in the Infrared
Tanya Myers—Pacific Northwest National Laboratory
- Diffraction Analysis in Optical Design
Eric Shirley—NIST
- Capability of Low Reflectance Measurements by an Infrared Laser-based Reflectometer
Jinan Zeng—NIST
- Concept for a Space-Based Transfer Standard Spectroradiometer
Donald Heath—Ball Aerospace & Technologies Corporation

TUESDAY, AUGUST 26, 2008

- 3:25 PM–4:05 PM Refreshment Break
- 4:05 PM–5:35 PM **TECHNICAL SESSION: System-level Program Requirements and Calibration Planning**
- On-Orbit Calibration Knowledge and Program Objectives for CLARREO
John Dykema—Harvard University
 - MKV Carrier Vehicle Sensor Calibration
Joseph Tansock—USU/Space Dynamics Laboratory
 -  ~~CLARREO Mission Visible and Near-Infrared Radiometry Studies~~
~~Greg Kopp—LASP/University of Colorado~~
 - NPP VIIRS, CrIS, ATMS, OMPS SDR Cal/Val Planning
Lushalan Liao—Northrop Grumman Space Technology
- 6:00 PM–7:30 PM **LOW BACKGROUND INFRARED (LBIR) FACILITY USER'S BOARD MEETING**
University Inn, Room 510
- Free Evening

WEDNESDAY, AUGUST 27, 2008

- 7:00 AM–7:30 AM Continental Breakfast
- 7:30 AM–10:15 AM **TECHNICAL SESSION: US-only Restricted Session**
- GEO Payload Ground Radiometric Calibration Analysis Overview
Qiong Jackson—Northrop Grumman
 - GEO Payload Ground Radiometric Calibration Tests Overview
Qiong Jackson—Northrop Grumman
 - A Methodology for Characterization and Long-Term Trending of SBIRS Radiometric Data
Tim Boyd—Northrop Grumman
 -  ~~In-flight Performance Characterization of EO Sensors using Specular Reflectors~~
~~Stephen Schiller—Raytheon Space and Airborne Systems~~
 - Combining Radiometric Calibration and Complex Scene Projection for Mission Simulation in the AEDC Sensor Test Facilities
Randy Nicholson—Aerospace Testing Alliance (ATA)
 - CrIS Flight Model 1 Test Overview
Ronald Glumb—ITT
 - CrIS Sensor Calibration & Signal Processing Methods
Joe Predina—ITT
- 9:30 AM–4:30 PM Exhibits Open
- 10:15 AM–10:35 AM Refreshment Break

- 10:35 AM–12:20 PM **TECHNICAL SESSION: Pre-launch NPP Sensor Characterizations**
- Preparation for CrIS and Radiosonde Matchups
Eugene Kratz—Raytheon ITSS
 - Absolute Radiometric Calibration of the CrIS Sensor
Mark Esplin—USU/Space Dynamics Laboratory
 - Pre-Launch Spectral Calibration of the CrIS Sensor on NPOESS/NPP
Larrabee Strow—University of Maryland Baltimore County
 - Analysis of CrIS Flight Model 1 Radiometric Linearity and Radiometric Noise
Joe Taylor—University of Wisconsin, SSEC
 - Cross-Comparison of Sensor Measurements from Different Satellite Platforms: Preparation for NPP/NPOESS On-Orbit Cal/Val
ZiPing (Frank) Sun—Northrop Grumman Space Technology
- 12:20 PM–1:20 PM Lunch Provided
- 1:20 PM–3:20 PM **TECHNICAL SESSION: Pre-launch NPP Sensor Characterizations (cont.)**
- Solar Diffuser Features in Earth-observing Sensors: What are They and What Can be Done about Them
Glen Jaross—SSAI / NASA
 - VIIRS Emissive Band Aliveness Test by Vicarious Internal Calibration
Carl Fischer—MIT Lincoln Laboratory
 - VIIRS Crosstalk and Ghosting Map Methodology
Mau-Song Chou—Northrop Grumman Space Technology
 - Focal Plane Filter Angle Resolved Scatter Update
Gene Waluschka—NASA Goddard Space Flight Center
 - Status of VIIRS Polarization Characterization for Ocean Color Algorithms
Patty Pratt—Northrop Grumman Corporation
 - Model Based Performance Evaluation of VIIRS Spatial Characteristics
Lushalan Liao—Northrop Grumman Space Technology
- 3:20 PM–4:05 PM Refreshment Break
Poster Viewing—Authors Present
- 4:05 PM–4:45 PM **TECHNICAL SESSION: Pre-launch NPP Sensor Characterizations (cont.)**
- Effects of Physical Orientation on Spectral Behavior of a Tungsten-Halogen Lamp
John Aldridge—MIT Lincoln Laboratory
 - Impact of Ambient Water Vapor on VIIRS M9 RVS Pre-Launch Characterization
Christopher Moeller—University of Wisconsin - Madison
- 4:45 PM–5:30 PM **TECHNICAL SESSION: Data Management**
- NSIPS Facility for NPP/NPOESS Cal/Val
Lushalan Liao—Northrop Grumman Space Technology
 - GRAVITE—Central Technical Support Infrastructure for the IPO NPP Calibration and Validation Program
Captain Vaughn Gonzalez, USAF—NPOESS Integrated Program Office
- 6:00 PM–8:00 PM **BARBEQUE IN LOGAN CANYON**
Guinavah-Malibu Campground Group Site C

- 7:30 AM–8:00 AM Continental Breakfast
- 8:00 AM–9:50 AM **TECHNICAL SESSION:** Inter-calibration and Validation of Operational Sensors
- Monitoring On-orbit Radiometric Stability of the Terra MODIS and Landsat 7 ETM+ Sensors using Pseudo-Invariant Test Sites
Gyanesh Chander—SGT at USGS
 - Spectral and Spatial Assessment of an Automated Approach to Ground-Based Vicarious Calibration
Jeff Czapla-Myers—University of Arizona
 -  ~~A Post-launch Calibration Strategy of the Nonlinear MTSAT Visible Sensor~~
~~Lance Avey—Science Systems and Applications Inc.~~
 - On the Use of Deep Convective Clouds to Monitor Geostationary Visible Sensor Degradation
David Doelling—NASA Langley Research Center
 - Comparison of AIRS and IASI Co-Located Radiances Over a Broad Temperature Range
Denis Elliott—Jet Propulsion Laboratory
- 9:50 AM–10:20 AM Refreshment Break
- 10:20 AM–11:20 AM **TECHNICAL SESSION:** Inter-calibration and Validation of Operational Sensors (cont.)
- Cross-calibration of Hyperspectral Imagers using Multispectral Sensors
Joel McCorkel—University of Arizona
 - Inter-Calibration of the AIRS and IASI Operational Infrared Sensors
Larrabee Strow—University of Maryland Baltimore County
 - Intercalibration of Microwave Sounding Unit for Climate Research—Lessons Learned
Cheng-Zhi Zou—NOAA/NESDIS/STAR
- 11:20 AM–11:35 AM **CONFERENCE CONCLUSION**
- 11:35 AM–12:35 PM Lunch Provided