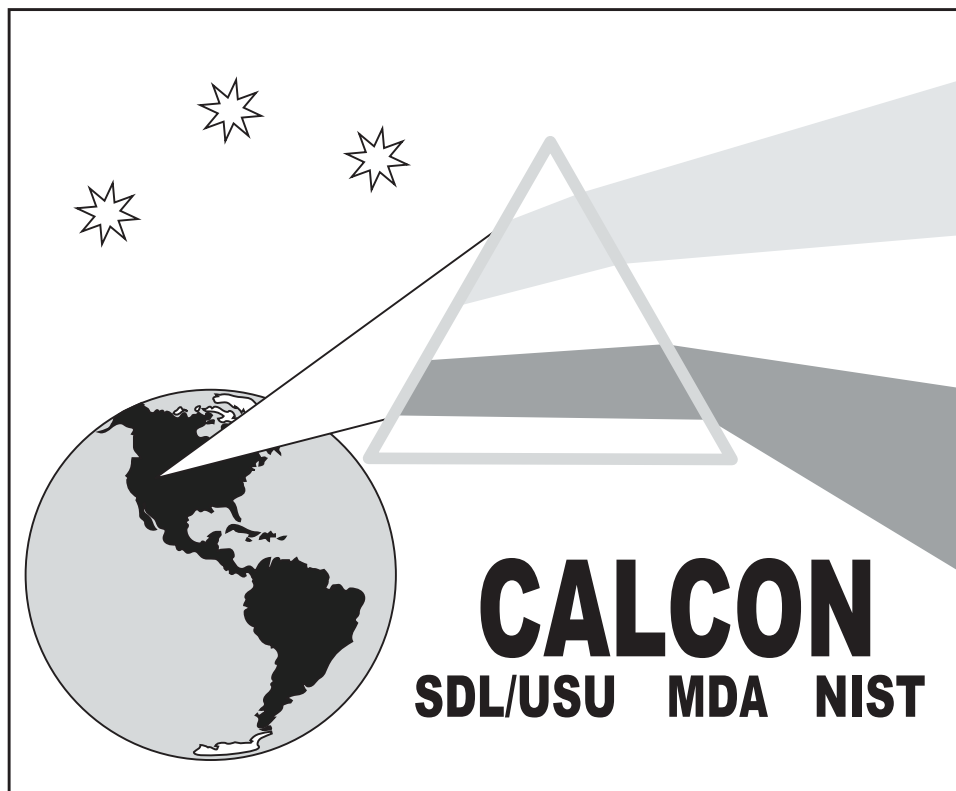


April 29 — May 2, 2002

Characterization and Radiometric  
**Calibration for Remote Sensing**  
Space Dynamics Laboratory / Utah State University, Logan, Utah

# *Program*



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The University of Arizona Optical Sciences Center  
The University of Alabama, Huntsville

# ACTUAL AGENDA

Monday, April 29<sup>th</sup>

Pre-Conference Workshop

**Part I:** "Calibration, Characterization and Data Validation: Examples in the Solar Reflective Range," Dr Edward Zalewski, University of Arizona, Optical Sciences Laboratory

**Part II:** "Calibration in the Mid and Long IR, Calibration Fundamentals and System Level Ground Calibration," Dr Steven Lorentz, L-1 Standards and Technology, Inc.; Mr Joseph Tansock, SDL

Tuesday, April 30<sup>th</sup>

Welcome and Introduction of Keynote Speaker: Dr Allan Steed, Director, Space Dynamics Laboratory, Utah State University

Keynote Presentation, Dr Al Parr, National Institute of Standards and Technology

Session I: Traceability of Absolute Radiometry in Remote Sensing to SI Units.

Session Chair -Steven Brown, NIST; Co-Chair - David Pollock, University of Alabama, Huntsville

"Calibration of ACRIM Total Solar Irradiance Experiments," Richard C. Willson, Columbia University and R.S. Helizon, Jet Propulsion Laboratory

"Precision of the Long-term Total Solar Irradiance Database," Richard C. Willson, Columbia University

"Improved Broadband Blackbody Calibrations for Low-Background Infrared Applications at the National Institute of Standards and Technology," Adriaan C. Carter, T.M. Jung, A. Smith, Jung Research and Development Corporation; S.R. Lorentz, L-1 Standards and Technology Inc.; Raju Datla, (NIST)

"Radiometrically Deducing Aperture Sizes," Allan W. Smith, A.C. Carter, T.M. Jung, Jung Research and Development Corporation; S.R. Lorentz, L-1 Standards and Technology, Inc. ; R.V. Datla, (NIST)

"Using the NIST Thermal-infrared Transfer Radiometer (TXR) for Intercomparison of Remote Sensing Radiometric Scales," Joseph P. Rice and Joseph J. O'Connell, (NIST)

"Systematic Uncertainties of Calculated Diffraction Corrections," Eric L. Shirley, A.W. Smith, R.U. Datla, National Institute of Standards and Technology (NIST)



~~POSTER "Aperture Issues in Infrared Source Calibrations: Area, Heating, Shuttering and Diffraction," Adriaan C. Carter, Jung Research and Development Corp.; S.R. Lorentz, L-1 Standards and Technology, Inc.; R. Datla, (NIST)~~



~~POSTER "Baseline calibration of the long term total solar irradiance database by a cryogenic ACRIM flight experiment," Richard C Willson, Columbia University; R.S. Helizon, Jet Propulsion Laboratory~~

POSTER "Design and Performance of a Cryogenic Amplifier for a low-noise Photo-detector," Allan W. Smith, A.C. Carter, T.M. Jung, Jung Research and Development Corporation; S.R. Lorentz, L-1 Standards and Technology, Inc.; R.V. Datla, (NIST)

POSTER "Application of Multiple Wavelength Pyrometry to Estimate Blackbody Emitter Temperature," Matt Pittard, J. Tansock, J. Peterson, S. Hansen, SDL

POSTER "A Cryogenic Infrared Radiometer for Transferal of NIST Radiometric Standards," Blake G. Crowther, Optical Research Associates; D.K. Scott, A.L. Shumway, V.A. Thurgood, SDL; R. Williams, Gencorp Aerojet

POSTER "Remote Sensing Accuracy, Current Sate of the Art," David B. Pollock, University of Alabama-Huntsville and A. Thompson, NIST

POSTER "The Next Step is in Progress - 'TRUTHS'," repeated from CALCON99, David B. Pollock, UABH; N.P. Fox National Physical Laboratory, UK; R.V. Datla, NIST; and T.L. Murdock, Frontier Technology Inc.

**Session II: Recent and Current Programs**

**Session Chair -Ed Zalewski, University of Arizona, Optical Sciences Center; Co-Chair - Mark Larsen, SDL**

"Radiometric Characterization and Calibration of the Marine Optical Spectrograph for the Marine Optical Buoy," Steven W. Brown, K.R. Lykke, B.C. Johnson, NIST; M.E. Feinholz, M. Yarbrough, S. Flora, Moss Landing Marine Laboratories; D.K. Clark, NOAA/NESDIS

"NISTAR - Calibration: The Final Frontier," Steven R. Lorentz, L-1 Standards and Technology, Inc.; J.P. Rice, NIST; T.M. Jung, Jung Research and Development Corporation

"Advanced Sensor Test and Integration Facility Overview," Richard Williams, Aerojet

"Calibration of a Cryogenic Infrared Radiometer," Deron Scott, S. Hansen, A. Shumway, V.A. Thurgood, SDL; Richard Williams, Aerojet

"Radiometric calibration of resistive array projectors at KHILS," David S. Flynn, MacAulay Brown Incorporated; E.M. Olson, T.P. Bergin, Mission Research Corporation; R.A. Thompson, G.C. Goldsmith II, US Air Force Research Laboratory

"The Total Irradiance Monitor: Final Ground Calibrations," Greg Kopp, G. Lawrence, G. Rottman, Laboratory for Atmospheric and Space Physics, University of Colorado

POSTER "Infrared Radiometer and Source System for the Advanced Sensor Test and Integration Facility (ASTIF)," Andrew Shumway, SDL

**Wednesday, May 1<sup>st</sup>**

**Session III: Calibration of Operational Meteorological Satellite sensors in the Visible and IR. Session Chair - C.R. Nagaraja Rao, NOAA/NESDIS (In Memoriam)**

**Session IV: Pre-launch to On-Orbit Calibration Transfer: Approaches and On-orbit Monitoring Techniques. Session Chair - Bob Barnes, NASA; Co-Chair - Jim Butler, NASA**

"NASA IKONOS Radiometric Characterization," Mary Pagnutti, R. Ryan, M. Kelly, Lockheed Martin Space Operations-Stennis Programs; V. Zanoni, NASA Stennis Space Center; S. Schiller, South Dakota State University; K. Thome, University Of Arizona

"On-orbit Performance of MODIS On-Board Calibrators," K. Chiang, X. Xiong, N. Che and J. Esposito, Science Systems and Applications, Inc.; W. Barnes, NASA/GSFC; B. Guenther, Lockheed Martin Corporation

"Degradation of MODIS Optics during the First Year of On-Orbit Operation," K. Chiang, X. Xiong, J. Esposito, C. Pan, and J. Sun, Science Systems and Applications, Inc.; W. L. Barnes, NASA/GSFC; and Bruce Guenther, Lockheed Martin Corporation

"Vicarious calibration experiment in support of the Multi-angle Imaging SpectroRadiometer (MISR)," Carol J. Bruegge, W. A. Abdou, M.C. Helmlinger, B.J. Gaitley, R. Ando, N.L. Chrien, Jet Propulsion Laboratory, California Institute of Technology; and Kurtis Thome, University of Arizona, Optical Sciences Center

"Radiance Measurement Results of the TES On-Board Radiometric Source," Luc Levesque, R. Bouchard and J. Giroux, ABB Bomem Inc.; R.G. Holm, Jet Propulsion Laboratory

"Calibration of the Bi-Spectral Infrared Push Broom Imager for the BIRD Mission," Eckehard Lorenz, W. Halle, W. Skrbek, I. Walter, German Aerospace Center, Institute of Space Sensor Technology and Planetary Exploration

"EO-1 Advanced Land Imager Pre-launch to On-Orbit Calibration Transfer, On-orbit Monitoring Techniques, and Results," Jeff A. Mendenhall and D.E. Lencioni, Massachusetts Institute of Technology/Lincoln Laboratory

"SABER In Orbit: Performance Verification and Calibration," Larry L. Gordley and Y. Wang, GATS, Inc.; J. M. Russell III, Hampton University; M. G. Mlynczak, NASA Langley Research Center, J. Tansock, R. Esplin, S. Brown, M. Jensen, S. Jensen, and J. Stauder, Space Dynamics Laboratory



~~POSTER "Radiometric Measurement Comparisons at NASA's Goddard Space Flight Center from the Ultraviolet through the Shortwave Infrared," James J. Butler, B.L. Markham, S.J. Janz, NASA, Goddard Space Flight Center; B.C. Johnson, S.W. Brown, E.A. Early, D.W. Allen, NIST; S.F. Biggar, E.F. Zalewski, University of Arizona; D.F. Heath, Research Support Instruments, Inc.; G. Meister, Futuretech Corporation; E. Kaita, M.G. Hom, Science Systems and Applications; J.W. Cooper, G.R. Smith, J.E. Marketon, Raytheon Information Technology and Scientific Services; S.J. Schiller, South Dakota State University; R.A. Barnes, Science Applications International Corporation~~

**Session V: Hyperion Imaging Spectrometer Results, and Hyper Spectral Imaging and Polarization Issues for Remote Sensing. Session Chair - Peter Jarecke, TRW, retired; Co-Chair - Pamela Barry, Raytheon**

"New Space Sensor Technology in the Hyperion Hyperspectral Imager," Mark Folkman, TRW

"Comparison of SeaWiFS, Hyperion and MTI calibration via the Moon," Hugh. H. Kieffer and T.C. Stone, U.S. Geological Survey

"Hyperion On-Orbit Validation of Spectral Calibration using Atmospheric Absorption Lines and an On-Board System," J. Shepanski, TRW; and Pamela Barry, Raytheon

~~"Hyperion On-Orbit Validation of Absolute Radiometric Calibration and Validation Using Ground Truth at a site in Lake Frome, Australia," Peter Jarecke, K. Yokoyama, J. Pearlman, TRW; D. Jupp, CSIRO Earth Observation Centre; and P. Barry, Raytheon~~

"Aggregation of Hyperion Hyperspectral Spectral Bands into Landsat 7 ETM+ Spectral Bands," Pamela Barry, Raytheon; Peter Jarecke, J. Pearlman, TRW and B. Markham, NASA/GSFC

"Calibration of an Imaging Michelson Interferometer with Nonlinear Detectors," Mark

P. Esplin, E.R. Huppi, and R.J. Huppi, Stewart Radiance Laboratory/Space Dynamics Laboratory/Utah State University

"Hyper Spectral Imaging and Polarization Issues for Remote Sensing," F. A. Best, D. C. Tobin, R. O. Knuteson, R. K. Garcia, D. D. LaPorte, and H. E. Revercomb, University of Wisconsin-Madison, Space Science and Engineering Center; G. E. Bingham, SDL/USU; and W. L. Smith, NASA Langley Research Center

POSTER "Off-Axis Wavenumber Shift of an Imaging Michelson Interferometer," Mark P. Esplin and R.J. Huppi, SRL/SDL/USU

**Traditional Cookout at the American West Heritage Center with "Blue Sage," Country and Western Music**

**Thursday, May 2<sup>nd</sup>**

**Special Poster Session**

**Session VI Calibration Planning Efforts for New and Emerging Programs. Session Chair - Randy Nicholson, Sverdrup Technology, Co-Chair - Milt Triplett, Computer Sciences Corporation**

"Radiometric Small-Signal Linearity Calibration," Alan W. Bird, J.J. Tansock, SDL

"Radiometric Calibration of the Scripps Earth Polychromatic Imaging Camera," Edward A. Early, S.W. Brown, NIST; B.C. Bush, D.W. Allen, B.C. Johnson, Scripps Institution of Oceanography

"ANSI/NCSL Z-540 in the IR Measurement Community," Randy J. Jost, Utah State University; R.W. Davis, EG&G Technical Services

"Extending IR Calibration Capabilities at the AEDC to a Closed-Loop Test System," Randy A. Nicholson and K.D. Mead, Sverdrup Technology, Arnold Engineering Development Center

"Testing of Radiometers, Blackbodies, and HALOs in the AEDC 7V Chamber Engineering Development Center," Kimberly D. Mead and R.A. Nicholson, Sverdrup Technology

POSTER "Optical Remote Sensing at Montana State University," Joseph A. Shaw, Montana State University

POSTER "System Level Ground Calibration at Utah State University/SDL," Joe Tansock, SDL

**Session VII: Focus on the Future - A Summary With the Session Chairs. Chair - Joe Tansock, SDL**

**Wrap up; Joe Tansock, Conference Chair**

**Adjourn**