2010
CALCON Technical Conference

Call for Papers Call for Exhibitors

August 23 to 26, 2010

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

calcon

Calibration is becoming increasingly more challenging as measurement requirements for many of today's remote sensing applications become more stringent. The Annual Conference on Characterization and Radiometric Calibration for Remote Sensing provides a forum for scientists, engineers, and managers to present, discuss, and learn. Experts in the calibration community offer relevant knowledge and suggestions about calibration, characterization, and radiometric issues within the microwave, IR, visible, and UV spectrums. Individuals developing measurement requirements for today and future sensor systems are encouraged to participate and help close the gap between expectations and real world experiences. The continuity and advancement of our calibration community depends on your participation.

Conference Sponsors

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Visit the conference website
www.spacedynamics.org/conferences/calcon

Technical Session Topics & Themes

We invite you to participate in the 19TH Annual CALCON Technical Conference by submitting an abstract for an oral or poster presentation. CALCON promotes the interchange of technical data and lessons learned from programs within the remote sensing community, with emphasis toward calibration.

Technical sessions will be organized to cover a wide range of topics that address interests of the larger sensor calibration community, dependent on the number and quality of submissions received. Each session will focus on a broad theme represented in a selected group of submitted abstracts. The topics listed below are grouped to illustrate several possible themes for potential technical sessions. However, we welcome abstracts on any topic relating to radiometric sensor calibration.

Inter-calibration and Validation of Operational Sensors

Performance comparison between sensors of differing scientific objectives, capabilities, and mission parameters to assess measurement bias and uncertainty.

- Post-launch calibration using onboard and/or vicarious techniques
- Retrievals through data assimilation, with various data used for validation
- Results of particular approaches, validation campaigns and experiments
- Techniques, platforms, and instruments for validation
- Application of calibration results to scientific measurements
- Requirements and potential approaches for the calibration of global satellite observing sensors

Radiometric Sensor Calibration Uncertainty and Error Analysis

Sensor calibration and characterization relies on models, measurements, and analysis to provide the needed data to derive results. Coupled with the models, measurements and analysis are estimates of errors and uncertainties that show how well the results are understood.

- Modeled vs. measured results
- Uncertainty and error assessment techniques
- Measurement equipment characterization methods; both development and operational equipment
- End to end system level uncertainty assessment

Equipment, Capabilities, and Facilities for Radiometric Calibration

Hardware and resources to support national and international requirements for radiometric calibration of remote sensing instruments, including long-term trending and performance enhancements of existing facilities.

- Design, characterization and validation of test and calibration equipment, facilities, test chambers, and scene simulators (Earth, solar and other objects)
- Hardware-in-the-loop test equipment
- Specialized measurement equipment (spectral, polarization, and other)
- Long- and short-term accuracy and precision of data sources used for validation, including models

Calibration Methods using Celestial Objects

Presentation of radiometric measurements and calibration methods using the Sun, Moon, stars, and other celestial objects in the ultra-violet, visible, and infrared wavelengths.

- Characterization and calibration of celestial sources for on-orbit sensor calibration
- Post-launch calibration and long-term trending using celestial observations
- Calibration accuracy using celestial objects
- Real-life experience and lessons learned using celestial objects for radiometric sensor calibration

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Pre-launch Testing and Post-launch Performance

Assessment of pre- and post-launch calibration and performance characterization for operational remote sensing systems.

- Pre-launch and on-orbit measurement techniques
- Instrument transition from the laboratory to space environments
- Application of ground calibration results to on-orbit measurements
- Operational sensor calibration lessons learned

Calibration of Microwave Radiometers and other Microwave Instruments

Calibration and characterization issues associated with making radiometric measurements within the microwave band, including the comparison or fusion of microwave data with data obtained within the optical bands.

- Antenna emission and warm load gradients due to solar intrusions
- Inter-sensor comparisons
- Traceability of microwave calibration to a NIST standard at the sensor data level
- Long-term stability characteristics

System-level Program Requirements and Calibration Planning

The relationship between system performance specifications and calibration test requirements.

- Calibration transfer chains developed for remote sensing instruments and their relationship to uncertainty in on-orbit measurements
- Performance modeling versus measured response
- Translation of user requirements to sensor performance specifications
- Designing measurements to verify system requirements
- Existing, planned, and/or proposed calibration/validation approaches
- Risk reduction studies for future sensors

Sensor Calibration for Ground-Based and Airborne Radiometric Measurements

- Rocket and jet engine plume signature measurements
- Calibration methods for atmospheric contaminant monitoring and characterization
- Active and passive sensing of atmospheric constituents
- Calibration requirements for ground-based and airborne radiometric measurements
- Real-world measurement results and calibration lessons learned

National Standards Technology Advancement

Opportunities for communication and collaboration between national standards laboratories and the calibration community to improve calibration technologies and methodologies.

- Calibration traceability to standards—NIST and international
- Relationship between primary, secondary, and transfer standards and applications to remote sensing
- Maintenance of a valid calibration throughout instrument life
- Activities within the community aimed at increasing the quality of our satellite based measurements

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Calibration Data Analysis Methods and Software

Techniques, logistics, and algorithms required to reduce calibration data and derive calibration parameters.

- Propagation of calibration uncertainties in product generation
- Error analysis for comparison of data retrievals
- Techniques for the characterization and calibration of radiometric imagers
- Real time calibration and performance assessment
- Methods and techniques of handling and exploiting large sets of remote sensing data
- Remote source identification, discrimination, and tracking methods and algorithms

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Calibration Methods for Climate Change Measurement and Modeling

Methods and techniques that are capable of meeting the very stringent calibration precision and accuracy requirements of climate change measurement and modeling programs, and calibration results for sensors designed to achieve climate-quality measurement results.

- Inter-calibration of past and present operational sensor datasets
- Plans to achieve climate-quality calibration for present and future operational sensors
- Uncertainty budgeting for climate-quality calibration of environmental remote sensors
- Environmental remote sensing techniques for climate change measurement and modeling

Special US-Only Restricted Session

The program will include a US-only Restricted Session for US Department of Defense (DoD) government programs and associated contractors to present and interact with peers in the EO calibration community on material that is restricted. All presentations will be ITAR/export controlled. Verification of US citizenship or permanent residency is required. Attendees must submit a Verification Form.

Poster Session

A Poster session will provide a forum for authors to present their work in an informal and interactive setting. The poster may be an overview of a technical topic, problem, question, or case study and is ideal for presenting investigative results or introducing innovative work. Posters are intended to provide authors and participants with the ability to connect with each other and to engage in discussions about the work. Posters supporting any technical session category are encouraged. Posters will be displayed throughout the conference, with dedicated time for poster viewing.

Abstract Submission

Abstract Deadline: April 22, 2010 Submit online at www.spacedynamics.org/conferences/calcon

On-line abstract submission is required for oral and poster presentations. Directions and links for the submittal process can be found at www.spacedynamics.org/conferences/calcon.

Abstracts should relate to the technical session theme and clearly summarize the proposed paper in one single-spaced page. Abstracts that focus primarily on the marketing of commercial material are discouraged. Each abstract must include: (1) title of paper, (2) author(s), (3) affiliation for each author listed, (4) name and affiliation of presenter, (5) point of contact with complete mailing and email addresses, phone and fax numbers, and (6) the session topic or theme that best describes the abstract.

By submitting, each author/coauthor agrees to the following conditions:

1. All approvals, including government and organizational approvals, have been obtained to submit an abstract. Proper approval and clearances are the responsibility of the author—please plan accordingly.
2. The CALCON Technical Conference is authorized to circulate abstracts to committee members and reviewers for evaluation and selection purposes.
3. Accepted abstracts will be posted on the CALCON website prior to the Conference and will be published and distributed to all on-site conference participants.
4. Conference proceedings will be published post-conference and mailed to attendees.

Abstracts for US-Only Restricted Session

Submit abstracts for the US-Only Restricted Session directly to Deron Scott via e-mail at deron.scott@sdl.usu.edu. Please fax "For Official Use Only" abstracts to Deron at (435) 797–4160.

Titles and abstracts should be at the unclassified level. Upon acceptance, authors will receive instructions for submitting US-Only Restricted presentation materials.

Contact Deron at (435) 797-4575 for clarification regarding US-Only Restricted Session abstracts.

Papers and presentations that lead to a manuscript for submission to a peer-reviewed journal are encouraged, although not required. Authors should contact the journal for submission and coordination.

The following are a sampling of journals that will consider publication of CALCON–related subjects.

- SPIE Optical Engineering
- SPIE Journal of Applied Remote Sensing (Electronic Journal)
- IEEE Transactions on Aerospace and Electronic Systems
- IEEE Transactions on Geoscience and Remote Sensing
- Journal of Spacecraft and Rockets
- International Journal of Remote Sensing

Call for Exhibitors

We invite organizations to participate in a commercial exhibit to be held in conjunction with the Conference. The Conference is unique in its focus on calibration and its draw of domestic and international scientists and engineers dedicated to calibration, characterization, and radiometric issues within the Microwave, IR, visible, and UV spectrums. This is a great opportunity to showcase products and services to international representatives, professionals within the US Government and supporting industries, and domestic representatives from related industries and academia. Background information on the Conference, including attendance statistics, can be found at **www.spacedynamics.org/conferences/calcon**.

Exhibit Registration and Fees
Exhibit registration begins April 1, 2010, at 9:00 A.M. MST. Reservations for exhibit space are processed on a first-come, first-served basis.

Exhibit space dimensions are listed on the exhibit layout. Please note that exhibit space dimensions vary. The rental fee is $325. The fee includes one 8' draped table and two chairs.

The exhibit layout and registration form are available on the conference website at **www.spacedynamics.org/conferences/calcon/exhibits**.

Sponsorship Opportunities

Corporate sponsorship opportunities are available to companies wishing to elevate their visibility during the Conference. Sponsors receive increased exposure through Conference publications, the CALCON website, and on-site recognition. Sponsorship is available to any company regardless of exhibit participation.

We invite you to co-sponsor the Tuesday, Wednesday or Thursday luncheon or a refreshment break. Lunches and breaks provide an excellent opportunity for Conference participants and vendors to interact in a casual atmosphere. All Conference participants and vendors are invited to participate in these complimentary events.

To secure a sponsorship, submit the Conference Sponsorship Form at www.spacedynamics.org/conferences/calcon/sponsorships or contact Stephanie Halton at (435) 797-4318 or stephanie.halton@usurf.usu.edu.

Luncheon Sponsorship—$400
Three sponsorships available for each day

Package amenities are available on the conference website: www.spacedynamics.org/conferences/calcon

Refreshment Break Sponsorship—$300
One morning and one afternoon sponsorship available for each day

Package amenities are available on the conference website: www.spacedynamics.org/conferences/calcon

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