***Variability in the Sun and Climate over the SORCE Mission***

***A look back at what we’ve learned over the last 11 years***

**SORCE Science Meeting**

**Jan. 28-31, 2014 \* Cocoa Beach, Florida**

***Monday, Jan. 27***

**Welcoming Reception**

**5:30-6:30 p.m. Courtyard Marriott**

***Tuesday, Jan. 28***

**Welcome and Introduction**

**8:00 – 8:20 a.m. *Welcome / Introduction / SORCE Status***

Tom Woods, LASP, University of Colorado, Boulder

**Session 1. Role of the Sun in Climate Change during the SORCE Mission**

 *Chair: Jae Lee, NASA GSFC, Greenbelt, Maryland*

**8:20 – 9:00 a.m. Keynote: Robert Cahalan,** NASA GSFC, Greenbelt, Maryland

 *After 11 Years with SORCE – What’s New? What’s Next?*

**9:00 – 9:30 a.m. Josefino Comiso,** NASA GSFC, Greenbelt, Maryland

 *Sea Ice Changes in Recent Decades*

**9:30 – 9:50 a.m. Cassandra Bolduc,** Université de Montréal, Canada

 *Modelling Stratospheric Ozone Variability with the MOnteCArlo SSI Model (MOCASSIM)*

**9:50 – 10:20 a.m. Break**

**10:20 – 10:40 a.m. Martin Mlynczak,** NASA Langley Research Center, Hampton, Virginia

 *Influence of Solar Variability on the Structure, Composition, and Energy Balance of the Atmosphere from 2002 to 2014*

**10:40 – 11:00 a.m. William Ball,** Imperial College London, UK

 *SSI and Stratospheric Ozone: A new assessment of the relationship using Bayesian Inference*

**11:00 – 11:20 a.m. Aimee Merkel,** LASP, University of Colorado, Boulder

 *Further Evidence of Solar Cycle Variability in Middle Atmospheric Ozone and the Importance of Incorporating SSI in Atmospheric Modeling*

**11:20 – 11:40 a.m. Anna Shapiro** (presented by Werner Schmutz), PMOD/WRC, Switzerland

 *The Stratospheric Response to a Discrepancy of the SSI Data*

**Panel Discussion / Q&A (Buffet Lunch provided)**

**11:40 – 12:50 p.m. *Current and Future Plans for Sun-Climate Research***

 Panel: Madhulika Guhathakurta, Cheryl Yuhas, Tom Sparn, and Werner Schmutz

**Session 2. Solar Spectral Irradiance (SSI) Measurements**

 *Chair: Erik Richard, LASP, University of Colorado*

**12:50 – 1:20 p.m. Keynote: Tom Woods,** LASP, University of Colorado, Boulder

 *Reference Solar Spectra for Earth Science Research*

**1:20 – 1:50 p.m. Jeff Morrill,** Naval Research Laboratory (NRL), Washington, DC

 *A Combined SUSIM / SBUV UV Solar Spectral Irradiance Dataset from 1991 to 2012*

**1:50 – 2:20 p.m. Gérard Thuillier,** LATMOS / CNRS, France

 *SOLSPEC: Recent results and status*

**2:20 – 2:40 p.m. Christian Muller,** Belgium Institute for Space Aeronomy, Brussels

 *Full Solar Rotations Observed by the SOLAR Payload on the ISS in December 2013 and June2014*

**2:40 – 3:10 p.m. Werner Schmutz,** PMOD/WRC, Switzerland

 *Variations of Near-UV and Visual Solar Spectral Irradiance as Measured by VIRGO/SoHO and PREMOS/Picard*

**3:10 – 3:40 p.m. Break**

**3:40 – 4:00 p.m. Gaël Cessateur,** PMOD/WRC, Switzerland

 *THE PREMOS/PICARD Radiometer: An overview after 3 years of observations*

**4:00 – 4:20 p.m. Jerry Harder,** LASP, University of Colorado, Boulder

 *Observations of Solar Variability in the 240-2400 nm Range using SORCE SIM*

**4:20 – 4:40 p.m. Matthew DeLand,** Science Systems and Applications, Inc. (SSAI), Lanham, Maryland

 *Solar Cycle 24 Variability Observed by Aura OMI*

**4:40 – 5:00 p.m. David Bolsée,** Belgium Institute for Space Aeronomy, Brussels

 *Accurate Determination of the TOA Solar Spectral NIR Irradiance Using a Primary Standard Source and Bouguer-Langley Technique*

***Wednesday, Jan. 29***

**Session 3. Decadal and Longer Sun-Climate Variations**

 *Chair: Gary Rottman, LASP, University of Colorado*

**8:30 – 9:20 a.m. Keynote: Roger-Maurice Bonnet,** ISSI, Bern, Switzerland

 *Review and Discussion of Past and Future Climates, of their Astronomical, Solar, and Anthropogenic Forcing. Strategies for Future Space and Modeling Research*

**9:20 – 9:50 a.m. Jürg Beer,** Eawag: Swiss Federal Institute, Dubendorf, Switzerland

 *Solar Variations and Climate Change: The view from ice cores*

**9:50 – 10:10 a.m. Dong Wu,** NASA GSFC, Greenbelt, Maryland

 *The s=0 Atmospheric Oscillations in 35-Year MERRA Zonal Wind and Temperature*

**10:10 – 10:40 a.m. Break**

**10:40 – 11:10 a.m. Alexander Ruzmaiken,** NASA JPL, California Institute of Technology, Pasadena

 *Sun-Climate Variations on Centennial Time Scales*

**11:10 – 11:30 a.m. Guoyong Wen,** NASA GSFC; GESTAR, Morgan State University, Baltimore, Maryland

 *Climate Responses to Spectral Solar Forcing in GISS GCMAM*

**11:30 – 1:30 p.m. Box Lunch provided**

**Session 4. Total Solar Irradiance (TSI) Measurements and Composites**

 *Chair: Marty Snow, LASP, University of Colorado*

**1:30 – 2:10 p.m. Keynote: Greg Kopp,** LASP, University of Colorado, Boulder

 *“Variability” in the TSI Over the SORCE Mission – and Beyond*

**2:10 – 2:40 p.m. Wolfgang Finsterle,** PMOD/WRC, Switzerland

 *Of Straying Photons, Shiny Apertures, and an Inconstant Solar Constant – Advances in TSI Radiometry*

**2:40 – 3:10 p.m. Richard Willson,** ACRIM Principal Investigator, Coronado, California

 *ACRIM3 Characterization by the LASP/TRF and the Total Solar Irradiance Database*

**3:10 – 3:40 p.m. Break**

**3:40 – 4:00 p.m. Shashi K. Gupta,** Science Systems and Applications Inc. (SSAI), Lanham, Maryland

 *Projection of SORCE Total Solar Irradiance Measurements 5-10 Days Forward for Near Real-Time Applications*

**4:00 – 4:20 p.m. Jae N. Lee,** JCET, Univ. of Maryland, Baltimore County; NASA GSFC, Greenbelt, MD

 *Rotational Variations in Total Solar Irradiance Observations: From SORCE/TIM, ACRIM/ACRIM III, and SoHO/VIRGO*

**4:20 – 4:40 p.m. Jean-François Cossette,** Université de Montreal, Canada

 *Cyclic Thermal Signature in a Global MHD Simulation of Solar Convection*

**Science Dinner – Tribute to Robert Cahalan, *Eau Gallie Yacht Club***

***5:25 Bus Departs Hotel, 5:45 pm Reception, 6 pm Sunset, 6:30 pm Dinner***

***Thursday, Jan. 30***

**Session 5. SSI Composites, Proxies, Models**

 *Chairs: AM – Jerry Harder, LASP, University of Colorado*

 *PM – Greg Kopp, LASP, University of Colorado*

**8:00 – 8:30 a.m. Keynote: Martin Snow,** LASP, University of Colorado, Boulder

 *The Magnesium II Index: 35 Years and Counting*

**8:30 – 9:00 a.m. Ken Tapping**, National Research Council, D.R.A.O., Penticton, BC, Canada

 *The Continuing Deviation between the Sunspot Number and F10****.****7 Activity Indices*

**9:00 – 9:30 a.m. Rich Stolarski**, Johns Hopkins University, Baltimore, Maryland

 *The Impact of Solar Spectral Irradiance Variations on Stratospheric Composition: Theory and observations*

**9:30 – 9:50 a.m. Tamás Várnai,** NASA GSFC, Greenbelt, Maryland; and University of Maryland, Baltimore County

 *Advances in Understanding 3D Interactions between Sunlight and the Atmosphere during the SORCE Mission*

**9:50 – 10:20 p.m. Break**

**10:20 – 10:50 a.m. Margit Haberreiter,** PMOD/WRC, Switzerland

 *SOLID – a European Project towards a Comprehensive Solar Irradiance Data Exploitation*

**10:50 – 11:20 a.m. Matthieu Kretzschmar,** LPC2E, CNRS University of Orléans, France

 *Assessment of Solar Irradiance Datasets for the SOLID Project*

**11:20 – 11:40 a.m. Micha Schöll,** LPC2E, CNRS University of Orléans, France

 *First Steps Towards a Homogeneous Solar Spectral Irradiance Data Set: Selection, merging and quality assessment*

**11:40 – 1:00 p.m. Buffet Lunch Provided**

**1:00 – 1:30 p.m. Natalie Krivova,** Max-Planck-Institut für Sonnensystemforschung, Germany

 *Modelling Solar Irradiance with SATIRE*

**1:30 – 2:00 p.m. Sami Solanki,** Max-Planck-Institut für Sonnensystemforschung, Germany

 *Towards the Next Generation of Solar Irradiance Reconstruction Models*

**2:00 – 2:20 p.m. Anatoliy Vuiets,** LPC2E, CNRS University of Orléans, France

 *What Can We Learn from SORCE about the Contribution of Different Magnetic Structures to the Solar Spectral Irradiance?*

**2:20 – 2:40 p.m. Serena Criscuoli,** National Solar Observatory (NSO), Sacramento Peak, Sunspot, NM

 *Interpretation of SIM Measurements from Analysis of 3D MHD Simulations*

**2:40 – 3:10 p.m. Break**

**3:10 – 3:40 p.m. Thierry Dudok de Wit,** LPC2E / Centre National de la Recherche Scientifique(CNRS) & University of Orléans, France

 *Multi-Wavelength Solar Radio Observations and their use as Solar Proxies for Upper Atmospheric Modeling*

**3:40 – 4:00 p.m. Juan Fontenla,** NorthWest Research Associates, Boulder, Colorado

 *The UV SSI of the Sun Compared to Cooler Stars, Similarities and Differences*

**4:00 – 6:00 p.m. Poster Session – Brief Introduction and Reception**

 *Chair: Marty Snow, LASP, University of Colorado*

***Friday, Jan. 31***

**Session 6. Legacy of SORCE and Future Directions after SORCE**

 *Chair: Tom Woods, LASP, Univ. of Colorado*

**8:00 – 8:40 a.m. Keynote: Gary Rottman,** LASP, University of Colorado, Boulder

 *The Historical Development of SORCE*

**8:40 – 9:10 a.m. Graeme Stephens,** NASA JPL and California Institute of Technology, Pasadena

 *Maintaining the Continuation of Long-term Satellite Total Solar Irradiance Observation – thoughts from an NRC review*

**9:10 – 9:30 a.m. Peter Pilewskie,** Dept. of Atmospheric and Oceanic Sciences and LASP, University of Colorado, Boulder

 *Status of the Total Solar Irradiance Sensor (TSIS) Mission*

**9:30 – 9:50 a.m. Mark Rast,** Dept. of Astrophysical and Planetary Sciences and LASP, University of Colorado, Boulder

 *The Case for a Radiometric Imager, and How to Build One*

**9:50 – 10:10 p.m. Break**

**10:10 – 10:40 a.m. Yukihiro Takahashi,** Hokkaido University, Sapporo, Japan

 *Micro-Satellite as an Alternative Vehicle*

**10:40 – 11:10 a.m. Brian Soden,** Rosenstiel School for Marine and Atmospheric Science (RSMAS), University of Miami, Florida

 *Diagnosing Radiative Forcings in CMIP5 Models*

**11:10 – 11:30 a.m. Pål Brekke,** Norwegian Space Centre, Oslo, Norway

 *NORSAT-1: Total Solar Irradiance, Space Weather, and Ship Detection*

**11:30 – 12:00 p.m. Steve Platnick,** NASA GSFC, Greenbelt, Maryland

 *Challenges in Using Current Generation Imager Solar Reflectance Observations for Climate Change Detection and Future Directions*

***2014 SORCE Science Meeting Poster Session***

***Thursday, Jan. 30, 4-6 pm***

**Summary of Poster Presentations *(in alphabetical order)*:**

**Stéphane Beland,** LASP, University of Colorado, Boulder

*SORCE SIM Data Version 19*

**Odele Coddington,** LASP, University of Colorado, Boulder

*Applying Information-Theoretic Approaches for Objective Model Selection and Quantification of a Model Selection Uncertainty*

**Angela Cookson,** San Fernando Observatory, California State University, Northridge

*Using Ground-Based Ca II K Images as a Proxy for Shorter UV*

**Thierry Dudok de Wit,** LPC2E, CNRS University of Orléans, France

*How to Make Composites out of Multiple Observations*

**Thierry Dudok de Wit,** LPC2E, CNRS University of Orléans, France

*The Impulse Response of the Solar Spectral Irradiance: What does it tell us about the solar spectral variability?*

**Wolfgang Finsterle,** PMOD/WRC, Switzerland

*CLARA – A Compact and Light-Weight Absolute Radiometer*

**Claus Frӧhlich,** PMOD/WRC, Switzerland

*Understanding Long-term Changes of the VIRGO Radiometer and Sunphotometer in Space*

**Claus Fröhlich,** PMOD/WRC, Switzerland

*New and Improved Version of the VIRGO SPM Data*

**Linda A. Hunt,** Science Systems and Applications Inc. (SSAI), Hampton, Virginia

*Solar Cycle Dependence of Odd-Oxygen, Odd-Hydrogen, and Ozone in the Mesopause Region Observed by SABER*

**Doug Lindholm,** LASP, University of Colorado, Boulder

*SORCE Solar Irradiance Data Products and the LASP Interactive Solar Irradiance Data Center (LISIRD)*

**Courtney Peck,** Dept. of Physics and LASP, University of Colorado, Boulder

*The Role of the Solar Center-to-Limb Variation in Deduced Photometric Trends*

**Erik Richard,** LASP, University of Colorado, Boulder

*A Compact Solar Spectral Irradiance Monitor for Future Small Satellite and CubeSat Science Opportunities*

**Nicola Scafetta,** ACRIM team

*Empirical Evidences for a Planetary Gravitational/Electromagnetic Modulation of Total Solar Irradiance Satellite Measurements*

**Nicola Scafetta,** ACRIM team

*Discussion on Climate Oscillations: CMIP5 general circulation models versus vs. a semi-empirical harmonic model based on astronomical cycles*

**Martin Snow,** LASP, University of Colorado, Boulder

*SORCE Undergraduate Research Program*

**Tom Sparn,** LASP, University of Colorado, Boulder

*Research to Operations, Possibilities for Total and Spectral Solar Irradiance in the Next 25 Years*

**Katherine Suess,** LASP, University of Colorado, Boulder

*Developing a Proxy Model for Solar EUV Irradiance using SORCE and GOES*