

Hyperspectral Imaging and Sounding of the Environment Topical Meeting and Tabletop Exhibit

Collocated with

[Fourier Transform Spectroscopy \(FTS\)](#)

February 11-15, 2007

[Eldorado Hotel](#)

Santa Fe, New Mexico

[PDP Submission Deadline](#): January 22, 12:00 noon EST (17.00 [GMT](#))

[Hotel Reservation Deadline](#): January 21, 2007

[Pre-Registration Deadline](#): January 18, 2007



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Mitch Goldberg, *National Oceanic and Atmosphere Administration, USA*, **General Chair**
Hung-Lung Allen Huang, *Univ. of Wisconsin-Madison, USA*, **General Chair**

Fourier Transform Spectroscopy (FTS) Program Committee

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Hyperspectral Imaging and Sounding of the Environment (HISE) Program Committee

Mitch Goldberg, *National Oceanic and Atmosphere Administration, USA*, **General Chair**

Hung-Lung Allen Huang, *Univ. of Wisconsin-Madison, USA*, **General Chair**

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Hajime Okamoto, *Tohoku Univ., Japan*

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William L. Smith, *Hampton Univ., USA*

B. J. Sohn, *Seoul Natl. Univ., Republic of Korea*

Manfred Wendisch, *Leibniz Inst. Troposphärenforschung eV, Germany*

About HISE

The unprecedented advancement of remote sensing imaging and sounding by passive and active measurement technologies during and beyond this decade will provide unprecedented monitoring and understanding of our earth (land and ocean)-atmosphere system (E-AS). The uniqueness of these new observations will challenge scientists and users in all disciplinary areas and require new approaches for managing, processing and utilizing the data, including the integration of observations from different sensor constellations to maximize the information which these new sensors will provide.

Today, a number of advanced hyperspectral imaging and sounding instruments are on NASA and European research instruments, and some of them will evolve in a few years into operational imaging and sounding systems, for example NPOESS, METOP and GOES-R. Passive hyperspectral imaging and sounding data provide a unique and independent scale of information, such as spatial resolution and spectral resolution required to measure and monitor the intricate characteristic of E-AS. Where sounding information is required to study atmosphere evolution, imaging information is necessary to investigate land and coastal-ocean ecosystems. Complementary active sensors, due to their high signal sensitivity, have a key role in E-AS monitoring because they provide additional microphysical insights into the small targets existing within the E-AS. They also provide an important source of information for validating other retrievals from passive sensors.

Synergistic uses of imaging and sounding, and passive and active through collocation processing, in theory, will provide complementary information content to enhance knowledge about the state of E-AS.

Meeting Topics to Be Considered

Cloud/Aerosols Theme

- Cloud *in-situ* measurements
- Cloud active/passive remote sensing measurements
- Cloud detection and macro-physical property retrievals
- Cloud micro-physical property retrievals, including phase discrimination
- Ice cloud study
- Cloudy forward radiative transfer models
- Retrieval of water vapor and temperature profiles in cloudy atmospheres
- Aerosol retrievals, air quality
- Cloud clearing for data assimilation and retrieval
- Active and passive synergistic cloud analysis/study
- Imaging and sounding synergistic cloud analysis/study
- General radiative transfer modeling
- Retrieval of atmospheric profile, surface property, trace gases, aerosols and precipitation

Land Theme

- Biophysical land variable derivation
- Vegetation product set
- Land surface type and characterization
- Spectral property of land surfaces
- Fire hazard and special event monitoring and management
- Synergistic infrared and microwave imaging study of land resource
- Collection, data processing, distribution and general utilization of land remote sensing data
- Land resource preservation and management

Coastal - Ocean Theme

- Measurement strategies
- Monitoring harmful algae blooms
- Monitoring phytoplankton biomass
- Monitoring coastal and oceanic hazard
- Atmospheric Corrections

General Theme

- All relevant passive, active, imaging, and sounding hyperspectral remote sensing programs, missions, field campaigns, data processing, applications, validations, utilization, education, outreach and users' feedback are welcome.

Invited Speakers

HISE Invited Speakers

JMA1, Hyperspectral Infrared Imaging and Sounding--Measurement Concept, Technology, and Processing Approach, William L. Smith^{1,2}, H. Revercomb², F. Best², A. Huang², R. Knuteson², A. Larar³, X. Liu³, S. Mango⁴, D. Zhou³; ¹Hampton Univ., USA, ²Univ. of Wisconsin/SSEC-CIMSS, USA, ³NASA Langley Res. Ctr., USA, ⁴NPOESS Integrated Program Office, USA.

JMA3, Overview of GOES-R Risk Reduction and Algorithm Working Group Activities, Mitchell D. Goldberg; NOAA, USA.

HMA1, The Far-Infrared Spectrum: Exploring a New Frontier in the Remote Sensing of the Earth's Climate, Martin Mlynczak, David G. Johnson, David P. Kratz; NASA Langley Res. Ctr., USA.

HMA2, Hyperspectral Solar Spectral Measurements and Applications, Peter Pilewski¹, Sebastian Schmidt¹, Steven Platnick², Ping Yang³, Manfred Wendisch⁴, Jerry Harder¹, Jens Redemann⁵; ¹Univ. of Colorado, Lab for Atmospheric and Space Physics, USA, ²NASA GSFC, USA, ³Texas A&M Univ., USA, ⁴Inst. für Physik der Atmosphäre, Univ. Mainz, Germany, ⁵BAERI, USA.

HMA3, Hyperspectral Cloud and Aerosol Optical and Radiative Properties Modeling and Applications, Ping Yang¹, Gang Hong¹, Jianguo Niu¹, Zhibo Zhang¹, Hung-Lung (Allen) Huang², Bryan A. Baum², Jun Li³; ¹Texas A&M Univ., USA, ²Univ. of Wisconsin-Madison, USA.

HMB1, Discrimination of Aerosol and Clouds Using Hyperspectral and Multispectral Measurements, Steven Ackerman; Univ. of Wisconsin-Madison, USA.

HMB2, How 3D Science Can Help to Correctly Interpret Satellite Data on Aerosol-Cloud Interaction, Alexander Marshak; NASA, USA.

HMB3, Improved Characterization of Aerosol Properties Using Combined Information from Remote Sensing, Laboratory Measurements and Global Modeling, Oleg V. Dubovik; Lab d'Optique Atmospherique, CNRS Univ. de Lille, France.

HMC2, Radiative Transfer Modeling and Retrievals for Advanced Hyperspectral Sensors, Xu Liu¹, D. K. Zhou¹, A. M. Larar¹, W. L. Smith², Stephen A. Mango³; ¹NASA Langley Res. Ctr., USA, ²Hampton Univ., USA, ³NPOESS Integrated Program Office, USA.

HTuA1, Update on the MODIS Collection 5 Processing Cloud Optical and Microphysical Algorithm and Product Validation, Steven Platnick, Michael D. King; NASA Goddard Space Flight Ctr., USA.

HTuA2, Inference and Validation of Cloud Phase from MODIS, AIRS and CALIPSO Data, Bryan A. Baum¹, Robert E. Holz¹, Hung-Lung Huang¹, Yong-Keun Lee¹, Ping Yang², Shaima L. Nasir², Michael D. King³, Steve Platnick³; ¹Univ. of Wisconsin-Madison, USA, ²Texas A&M Univ., USA, ³NASA Goddard Space Flight Ctr., USA.

HTuA3, Improvement of Cloud Thermodynamic Phase Assessment Using Hyperspectral Measurements, Shaima L. Nasir¹, Brian H. Kahn², Bryan Baum³; ¹Texas A&M Univ., USA, ²JPL, USA, ³Univ. of Wisconsin-Madison, USA.

HTuA4, Remote Sensing of Clouds and Aerosols from POLDER: Recent Development in the A-Train Framework and Perspectives for New Mission Concept, Jérôme Riedi, Frédéric Parol, Didier Tanré, Jean-Luc Deuzé; Lab d'Optique Atmospherique, Univ. des Sciences et Technologies de Lille, France.

HTuB1, The Retrieval of Cirrus Quantities from AIRS Observations: Some Challenges and Opportunities, Brian Kahn; JPL, USA.

HTuB2, Ice Cloud Microphysical Properties and their Application to Satellite Remote Sensing, David Mitchell¹, Robert P. d'Entremont², R. Paul Lawson³; ¹Desert Res. Inst., USA, ²Atmospheric and Environmental Res., Inc., USA, ³SPEC, Inc., USA.

HTuB3, Impact of Crystal Habit on Cirrus Radiative Properties, Manfred Wendisch¹, Ping Yang², Peter Pilewski³; ¹Leibniz Inst Troposphärenforschung eV, Germany, ²Texas A&M Univ., USA, ³Univ. of Colorado, USA.

HTuC1, Cloud Microphysics from Cloud Radar and Lidar Onboard R/V Mirai and Comparison with CloudSat/CALIPSO Data, Hajime Okamoto; Tohoku Univ., Japan.

HTuC2, Overview of CERES, Norman G. Loeb, Bruce A. Wielicki; NASA Langley Res. Ctr., USA.

HTuC3, Assimilation of Microwave Observations in Cloudy Conditions, Fuzhong Weng; NOAA/NESDIS/ORA, USA.

HTuD1, The CALIPSO Mission and Initial Observations of Clouds and Aerosols from CALIOP, David Winker; NASA Langley Res. Ctr., USA.

HTuD4, Validation of Satellite-Based Retrievals Using Ground-Based Measurements, Gerald Mace; Univ. of Utah, USA.

HWA1, Monitoring Air Quality from Space, Shobha Kondragunta; NOAA/NESDIS, USA.

HWA2, Global Monitoring of Tropospheric Pollution from Geostationary Orbit, Kelly Chance; Harvard-Smithsonian Ctr for Astrophysics, USA.

HWA3, Observing Trace Gases from Spectrally Resolved Infrared Radiances, Christopher D. Barnes¹, Mitch Goldberg¹, Eric Maddy², Xiaozhen Xiong²; ¹NOAA/NESDIS/STAR, USA, ²QSS Group, Inc., USA.

HWA4, Towards Operational Monitoring of the Chemical Composition of the Atmosphere Using Solar Backscatter Imaging Techniques, Heinrich Bovensmann, Andreas Richter, M. Buchwitz, John P. Burrows; Inst. of Environmental Physics, Univ. of Bremen, Germany.

HWB1, Infrared Hyperspectral Sensor Radiance Performance Validation, Allen M. Larar¹, D. Zhou¹, W. Smith^{2,3}, X. Liu¹; ¹NASA Langley Res. Ctr., USA, ²Hampton Univ., USA, ³Univ. of Wisconsin-Madison, USA.

HWB2, Retrieval Lesson Learned from NAST-I Hyperspectral Data, Daniel K. Zhou¹, William L. Smith², Xu Liu¹, Allen M. Larar¹, Stephen A. Mango³; ¹NASA Langley Res. Ctr., USA, ²Hampton Univ., USA, ³NPOESS Integrated Program Office, USA.

HWB3, Hyperspectral Remote Sensing of the Ningaloo Reef: Data Collection, Processing, Validation and Applications in Monitoring One of the World's Largest, Most Diverse and Pristine Tropical Coral Reef Ecosystems, James E. Davies, Wojciech M. Klonowski, Leon J. Majewski, Mark A. Gray, Mervyn J. Lynch; Curtin Univ. of Technology, Australia.

HWC1, Overview of Chinese Second Generation Polar Orbiting Satellite FY-3 Imaging and Sounding Capabilities and Applications, Chaohua Dong, Jun Yang, Naimeng Lu, Yujie Liu, Zhongdong Yang, Bin Cai; Natl. Satellite Meteorological Ctr. (NSMC) of China Meteorological Administration (CMA), China.

HWC2, Development of a Multispectral and Hyperspectral Proxy Data System for GOES-R, Hung Lung A. Huang; *Univ. of Wisconsin-Madison, USA.*

HWC3, Retrieval of Cloud Properties from GOES-R, Patrick Minnis; *NASA Langley Res. Ctr., USA.*

HThA1, Infrared Radiative Transfer in Cloudy Atmospheres and Retrieval Applications, Jean-Luc Moncet; *Atmospheric and Environmental Res., Inc., USA.*

HThB1, Development and Demonstration of Hyperspectral Infrared Only Sounding Retrieval, Jun Li¹, Jinlong Li¹, Elisabeth Weisz¹, Chian-Yi Liu¹, Timothy J. Schmit², Allen Huang¹, Mitchell D. Goldberg², W. Paul Menzel¹; *¹Univ. of Wisconsin-Madison, USA, ²Ctr. for Satellite Applications and Res., NOAA/NESDIS, USA.*

HThB2, Capability of High Spectral Resolution Observations in the Infrared to Detect Water Vapor Structures, Carmine Serio, Giuseppe Grieco, Guido Masiello; *Univ. degli Studi della Basilicata, Italy.*

HThB3, Dry Bias in Satellite-Derived Clear-Sky Water Vapor and its Consequences in Climate Change Studies, B. J. Sohn; *Seoul Natl. Univ., Republic of Korea.*

Program Agenda

Time	Event	Location
Sunday, February 11		
3:00 p.m.–5:00 p.m.	Registration	North Concourse
Monday, February 12		
7:00 a.m.–5:00 p.m.	Registration	North Concourse
8:15 a.m.–8:30 a.m.	FTS/HISE Opening Remarks	Anasazi South
8:30 a.m.–10:30 a.m.	JMA • FTS/HISE Joint Session	Anasazi South
10:30 a.m.–11:00 a.m.	Coffee Break	Anasazi North
10:30 a.m.–4:00 p.m.	Exhibits Open	Anasazi North
11:00 a.m.–12:30 p.m.	FMA • Newton Session	Anasazi South
11:00 a.m.–12:30 p.m.	HMA • Full Spectral Hyperspectral Data and Particle Scattering Models	Zia
12:30 p.m.–2:00 p.m.	Lunch (on your own)	
2:00 p.m.–3:30 p.m.	FMB • Huygens Session	Anasazi South
2:00 p.m.–3:30 p.m.	HMB • Aerosols	Zia
3:30 p.m.–4:00 p.m.	Coffee Break	Anasazi North
4:00 p.m.–5:30 p.m.	FMC • Young-Fresnel Session	Anasazi South
4:00 p.m.–5:30 p.m.	HMC • Hyperspectral Data Analysis	Zia
Tuesday, February 13		
7:00 a.m.–5:00 p.m.	Registration	North Concourse
8:15 a.m.–10:15 a.m.	FTuA • Fourier Session	Anasazi South
8:15 a.m.–10:15 a.m.	HTuA • A-Train Cloud Analysis	Zia
10:15 a.m.–11:00 a.m.	Coffee Break	Anasazi North
10:15 a.m.–4:00 p.m.	Exhibits Open	Anasazi North
11:00 a.m.–12:30 p.m.	FTuB • Michelson Session	Anasazi South
11:00 a.m.–12:30 p.m.	HTuB • Ice Clouds	Zia
12:30 p.m.–2:00 p.m.	Lunch (on your own)	
2:00 p.m.–3:30 p.m.	FTuC • Peck Session	Anasazi South
2:00 p.m.–3:30 p.m.	HTuC • Polar-Orbiting Platform Data and Analysis	Zia
3:30 p.m.–4:00 p.m.	Coffee Break	Anasazi North
4:00 p.m.–5:30 p.m.	FTuD • Fellgett Session	Anasazi South
4:00 p.m.–5:30 p.m.	HTuD • Combination of Active and Passive Sensors	Zia
5:30 p.m.–7:00 p.m.	FTS/HISE Reception	Sunset Room
Wednesday, February 14		
7:30 a.m.–5:00 p.m.	Registration	North Concourse
8:15 a.m.–10:15 a.m.	FWA • Jacquinet Session	Anasazi South
8:15 a.m.–10:15 a.m.	HWA • Air Quality and Trace Gases	Zia
10:15 a.m.–11:00 a.m.	Coffee Break	Anasazi North
10:15 a.m.–5:00 p.m.	Exhibits Open	Anasazi North
11:00 a.m.–12:30 p.m.	FWB • Connes Session	Anasazi South
11:00 a.m.–12:30 p.m.	HWB • Hyperspectral IR Data	Zia
12:30 p.m.–2:00 p.m.	Lunch Break (on your own)	
2:00 p.m.–3:30 p.m.	FWC • Cooley-Tukey Session	Anasazi South
2:00 p.m.–3:30 p.m.	HWC • Geostationary Satellite Data	Zia
3:30 p.m.–5:00 p.m.	JWA • FTS/HISE Joint Poster Session	Anasazi North
5:00 p.m.–7:30 p.m.	Dinner Break (on your own)	
7:30 p.m.–9:00 p.m.	FWD • FTS Postdeadline Session	Anasazi South
7:30 p.m.–9:00 p.m.	HWD • HISE Postdeadline Session	Zia
Thursday, February 15		
8:00 a.m.–12:00 p.m.	Registration	North Concourse
8:30 a.m.–10:30 a.m.	FThA • Mertz Session	Anasazi South
8:30 a.m.–10:30 a.m.	HThA • Radiative Transfer	Zia
10:30 a.m.–11:00 a.m.	Coffee Break	Anasazi North
11:00 a.m.–12:30 p.m.	FThB • Brault Session	Anasazi South
11:00 a.m.–12:30 p.m.	HThB • Sounding Retrievals	Zia
12:30 p.m.–12:45 p.m.	FTS Closing Remarks	Anasazi South
12:30 p.m.–12:45 p.m.	HISE Closing Remarks	Zia

Explanation of Session Codes

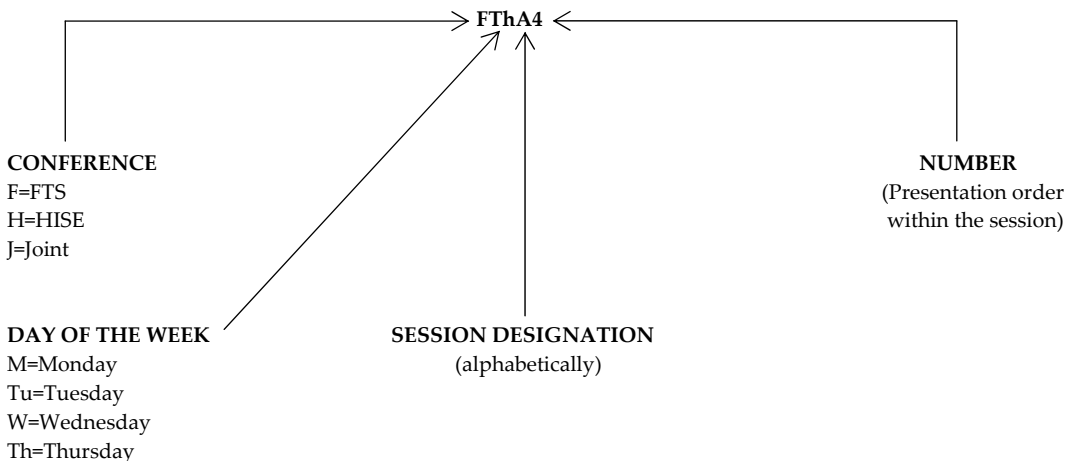
The first part of the code designates the conference (F=FTS, H=HISE, J=Joint).

The next part designates the day of the week (Monday=M, Tuesday=Tu, Wednesday=W, Thursday=Th).

The next part indicates the session within the particular day the talk is being given. Each day begins with the letter A and continues alphabetically.

The number on the end of the code signals the position of the talk within the session (first, second, third, etc.).

For example, a presentation numbered FThL4 indicates that this FTS paper is being presented on Thursday during the 1st session (A) and that it is the fourth paper presented in session FThA.



•Sunday, February 11, 2007•

North Concourse
3:00 p.m.–5:00 p.m.
Registration Open

•Monday, February 12, 2007•

North Concourse
7:00 a.m.–5:00 p.m.
Registration Open

Anasazi South
Opening Remarks
8:15 a.m.–8:30 a.m.

JMA • FTS/HISE Joint Session

Anasazi South
8:30 a.m.–10:30 a.m.

JMA • FTS/HISE Joint Session

Bryan A. Baum; Univ. of Wisconsin-Madison, USA, Presider
Claude Camy-Peyret; LPMA/CNRS, France, Presider

JMA1 • 8:30 a.m. • Invited •

Hyperspectral Infrared Imaging and Sounding— Measurement Concept, Technology, and Processing Approach, William L. Smith^{1,2}, H. Revercomb², F. Best², A. Huang², R. Knuteson², A. Larar³, X. Liu³, S. Mango⁴, D. Zhou³; ¹Hampton Univ., USA, ²Univ. of Wisconsin/SSEC-CIMSS, USA, ³NASA Langley Res. Ctr., USA, ⁴NPOESS Integrated Program Office, USA. Infrared hyperspectral spectrometers have brought on a new era in remote sensing measurement capabilities. The measurement concepts, technology, and processing approaches are reviewed.

JMA2 • 9:00 a.m. • Invited •

The Atmospheric Chemistry Experiment (ACE): Latest Results, Peter Bernath^{1,2}; ¹Univ. of Waterloo, Canada, ²Univ. of York, UK. ACE is a Canadian-led satellite mission that is measuring the concentrations of more than thirty atmospheric constituents by solar occultation. A selected overview of ACE results to date will be presented.

JMA3 • 9:30 a.m. • Invited •

Overview of GOES-R Risk Reduction and Algorithm Working Group Activities, Mitchell D. Goldberg; NOAA, USA. Abstract not available.

JMA4 • 10:00 a.m. • Invited •

The Tropospheric Emission Spectrometer: 2 1/2 Years of Tropospheric Composition Measurements from Space, David M. Rider; JPL, USA. The Tropospheric Emission Spectrometer (TES), launched on the AURA spacecraft in July 2004, covers the 3.2-15.4 micron spectral range with imaging arrays. TES generates global profiles of infrared-active constituents from the surface to the lower stratosphere.

Anasazi North

10:30 a.m.–11:00 a.m.

Coffee Break

Anasazi North

10:30 a.m.–4:00 p.m.

Exhibits Open

FMA • Newton Session

Anasazi South

11:00 a.m.–12:30 p.m.

FMA • Newton Session

Guy Guelachvili; CNRS, France, Presider

FMA1 • 11:00 a.m. • Invited •

First Results from the Far-Infrared Beamline at the Canadian Light Source, Robert R. McKellar; Natl. Res. Council of Canada, Canada. A beamline for high resolution far infrared spectroscopy is being commissioned at the CLS in Saskatoon. Significant increases in brightness are observed compared to conventional sources, but noise remains an issue for the synchrotron beam.

FMA2 • 11:30 a.m.

Mid Infrared Spectromicroscopy Beamline at the Canadian Light Source, Tim May¹, Thomas Ellis¹, Ruben Reininger²; ¹Canadian Light

HMA • Full Spectral Hyperspectral Data and Particle Scattering Models

Zia

11:00 a.m.–12:30 p.m.

HMA • Full Spectral Hyperspectral Data and Particle Scattering Models

Manfred Wendisch; Leibniz Inst Troposphärenforschung eV, Germany, Presider

HMA1 • 11:00 a.m. • Invited •

The Far-Infrared Spectrum: Exploring a New Frontier in the Remote Sensing of the Earth's Climate, Martin Mlynczak, David G. Johnson, David P. Kratz; NASA Langley Res. Ctr., USA. The far-infrared portion of Earth's emission spectrum is relatively unobserved despite its importance in regulating climate. New sensors enable exploration of the far-IR, opening a new window to half of the energy radiated by Earth.

HMA2 • 11:30 a.m. • Invited •

Hyperspectral Solar Spectral Measurements and Applications, Peter Pilewskie¹, Sebastian Schmid¹, Steven Platnick², Ping Yang³,

FMA • Newton Session (continued)

Source, Canada, ²Scientific Answers & Solutions LLC, USA. The Canadian Light Source (CLS) is commissioning a beamline for mid infrared spectromicroscopy spanning from 2.5 to 25 micron wavelengths. The optics and features of this beamline and current status of the facility are presented.

FMA3 • 11:45 a.m.

Generation of Quantitative Vapor Samples for FTIR Spectroscopy, Timothy J. Johnson, Robert L. Sams, Steven W. Sharpe; Pacific NW Natl. Lab, USA. To help construct a database of 0.1 cm⁻¹ resolution quantitative vapor-phase infrared spectra, PNNL had devised methods of improved reliability and accuracy for the delivery of liquid- and solid- phase compounds to the vapor phase.

FMA4 • 12:00 p.m.

Miniature Thermal Emission Spectrometer on the Mars Exploration Rovers, Greg L. Mehall, Philip R. Christensen; Arizona State Univ., USA. An overview of the Miniature Thermal Emission Spectrometer (Mini-TES) experiments on the Mars Exploration Rovers. The Mini-TES is a Fourier Transform Spectrometer (FTS) with a spectral range of 5-29 microns at 10 cm⁻¹ spectral resolution.

FMA5 • 12:15 p.m.

Infrared Observations of Saturn and Titan from Cassini, Donald E. Jennings¹, R. K. Achterberg², B. Bézard³, G. L. Bjoraker¹, J. C. Brasunas¹, R. Carlson², A. Coustenis³, F. M. Flasar¹, P. G. J. Irwin⁴, V. G. Kunde⁵, A. A. Mamoutkine², C. A. Nixon⁵, G. S. Orton⁶, J. C. Pearl¹, P. N. Romani¹, M. E. Segura⁷, A. A. Simon-Miller¹, E. H. Wishnow⁸, S. Vinatier³; ¹NASA Goddard Space Flight Ctr., USA, ²Science Systems and Applications, Inc., USA, ³Observatoire de Meudon, France, ⁴Clarendon Lab, Univ. of Oxford, UK, ⁵Dept. of Astronomy, Univ. of Maryland at College Park, USA, ⁶JPL, USA, ⁷QSS Group, Inc., USA, ⁸Univ. of California at Berkeley, USA. The Composite Infrared Spectrometer (CIRS) aboard the Cassini spacecraft has been orbiting Saturn for 2.5 years, yielding discoveries about the atmospheres and surfaces of the planet and its moons.

Lunch Break (on your own)

12:30 p.m.–2:00 p.m.

FMB • Huygens Session

Anasazi South

2:00 p.m.– 3:30 p.m.

FMB • Huygens Session

Jérôme Genest; Univ. Laval, Canada, Presider

FMB1 • 2:00 p.m.

• Invited •

Coherent Fourier-Transform Spectroscopy Based on Infrared Frequency Combs, Daniel van der Weide; Univ. of Wisconsin, USA. We demonstrate real-time recording of chemical vapor fluctuations from 22 m away with a fast Fourier-transform infrared (FTIR) spectrometer that uses a laser-like infrared probing beam generated from two 10-fs Ti:sapphire lasers.

FMB2 • 2:30 p.m.

Continuous-Wave Fourier Transform Laser Sources, Thilo Kraetschmer, Scott T. Sanders; Univ. of Wisconsin-Madison, USA.

HMA • Full Spectral Hyperspectral Data and Particle Scattering Models (continued)

Manfred Wendisch⁴, Jerry Harder¹, Jens Redemann⁵; ¹Univ. of Colorado, Lab for Atmospheric and Space Physics, USA, ²NASA Goddard Space Flight Ctr., USA, ³Texas A&M Univ., USA, ⁴Inst. für Physik der Atmosphäre, Univ. Mainz, Germany, ⁵BAERI, USA. Measurements of hyperspectral solar irradiance from aircraft and satellite are applied to a variety of cloud and aerosol remote sensing, and radiative energy budget applications.

HMA3 • 12:00 p.m.

• Invited •

Hyperspectral Cloud and Aerosol Optical and Radiative Properties Modeling and Applications, Ping Yang¹, Gang Hong¹, Jianguo Niu¹, Zhibo Zhang¹, Hung-Lung (Allen) Huang², Bryan A. Baum², Jun Li²; ¹Texas A&M Univ., USA, ²Univ. of Wisconsin-Madison, USA.

This paper reports on the simulations of the hyperspectral radiative signatures of ice clouds and aerosols. Additionally, the numerical accuracy of a newly developed fast cloudy radiative transfer model is assessed.

Lunch Break (on your own)

12:30 p.m.–2:00 p.m.

HMB • Aerosols

Zia

2:00 p.m.– 3:30 p.m.

HMB • Aerosols

Patrick Minnis; NASA, USA, Presider

HMB1 • 2:00 p.m.

• Invited •

Discrimination of Aerosol and Clouds Using Hyperspectral and Multispectral Measurements, Steven Ackerman; Univ. of Wisconsin-Madison, USA. This paper explores the advantages and disadvantages of using high-spectral resolution infrared observations coupled with imager data to detect cloud and aerosol and, where feasible, retrieve their microphysical properties.

HMB2 • 2:30 p.m.

• Invited •

How 3D Science Can Help to Correctly Interpret Satellite Data on Aerosol-Cloud Interaction, Alexander Marshak; NASA, USA. In operational retrievals of cloud and aerosol properties, cloudy pixels are treated independent of their neighbors. We will quantify the 3D

FMB • Huygens Session (continued)

Continuous-wave frequency comb Fourier transform sources utilize interference of frequency combs to measure spectra. Spectra obtained with this approach are in agreement with results from traditional spectrometers. The sources contain no moving parts.

FMB3 • 2:45 p.m.

Distribution of Background Measurements Using a Double-Beam FTIR Spectrometer, *François Bouffard¹, Jean-Marc Thériault²; ¹Univ. Laval, Canada, ²DRDC Valcartier, Canada*. Background measurements were acquired using a double-beam FTIR spectrometer in order to characterize their distribution. This distribution appears more favorable than the distribution of single-beam backgrounds for the passive detection of atmospheric contaminants.

FMB4 • 3:00 p.m.

•Invited•

FT-IR Hyperspectral Imaging: Applications and Data Analysis, *Boiana Budevska; DuPont Crop Protection, USA*. This paper briefly introduces applications of FT-IR hyperspectral imaging to laboratory analyses and focuses on application of FT-IR/ATR imaging to crop protection products on test and plant surfaces. Results from univariate and multivariate analyses of the hyperspectral images are shown and advantages of the multivariate approach demonstrated.

Anasazi North

3:30 p.m.–4:00 p.m.

Coffee Break

FMC • Young-Fresnel Session

Anasazi South

4:00 p.m.– 5:30 p.m.

FMC • Young-Fresnel Session

Akihiko Kuze; Japan Aerospace Exploration Agency, Japan, Presider

FMC1 • 4:00 p.m.

•Invited•

IASI Onboard MetOp and its Validation with IASI-Balloon, *Claude Camy-Peyret; LPMA/CNRS, France*. First results of the Infrared Atmospheric Sounding Interferometer (IASI) in orbit onboard the MetOp meteorological operational satellite since 19 October 2006 will be presented together with calibration and validation activities using IASI-balloon.

HMB • Aerosols (continued)

radiative effects on the retrievals of cloud and aerosol optical thicknesses and particle size.

HMB3 • 3:00 p.m.

•Invited•

Improved Characterization of Aerosol Properties Using Combined Information from Remote Sensing, Laboratory Measurements and Global Modeling, *Oleg V. Dubovik; Lab d'Optique Atmospherique, CNRS Univ. de Lille, France*. Several efforts on improving characterization of tropospheric aerosol by combining complementary information from laboratory measurements of scattering by aerosol particles, aerosol remote sensing from satellite and ground and global modeling of aerosol transport are discussed.

Anasazi North

3:30 p.m.–4:00 p.m.

Coffee Break

HMC • Hyperspectral Data Analysis

Zia

4:00 p.m.– 5:30 p.m.

HMC • Hyperspectral Data Analysis

Daniel K. Zhou; NASA Langley Res. Ctr., USA, Presider

HMC1 • 4:00 p.m.

International MODIS/AIRS Processing Package (IMAPP): AIRS Retrieval Updates and Efforts, *Elisabeth Weisz, Hung-Lung Huang, Jun Li; Cooperative Inst. for Meteorological Satellite Studies, USA*. Updates on the previous version of the IMAPP AIRS retrieval software, which provides international researchers with single field-of-view (FOV) temperature, humidity, ozone profiles and surface parameters, will be presented. Future release will include cloudy retrievals.

HMC2 • 4:15 p.m.

•Invited•

Radiative Transfer Modeling and Retrievals for Advanced Hyperspectral Sensors, *Xu Liu¹, D. K. Zhou¹, A. M. Larar¹, W. L. Smith², Stephen A. Mango³; ¹NASA Langley Res. Ctr., USA, ²Hampton Univ., USA, ³NPOESS Integrated Program Office, USA*. A novel radiative transfer model and a physical inversion algorithm based on principal component analysis will be presented. Instead of dealing with channel radiances, the new approach fits principal component scores of these quantities.

FMC • Young-Fresnel Session (continued)**FMC2 • 4:30 p.m.**

Atmospheric Chemistry Experiment (ACE) Measurements of Tropospheric and Stratospheric Chemistry and Long-Term Trends, Curtis Rinsland¹, Peter Bernath², Chris Boone², Ray Nassar³; ¹NASA Langley Res. Ctr., USA, ²Univ. of Waterloo, Canada, ³Harvard Univ., USA. We highlight chemistry and trend measurement results from the Atmospheric Chemistry Experiment (ACE) which is providing precise middle troposphere to the lower thermosphere measurements with a 0.02 cm⁻¹ resolution Fourier transform spectrometer covering 750-4400 cm⁻¹.

FMC3 • 4:45 p.m.

Static Infrared Fourier Transform Interferometer (SIFTI): Benefits of Phase Modulation Processing, Elodie Cansot, Philippe Hébert, Alain Rosak, Christian Buil, Frédéric Bernard; CNES, France. SIFTI (Static Infrared Fourier Transform Interferometer) is a high resolution spectrometer, part of the TRAQ payload. This paper presents a description of this instrument and gives a preliminary radiometric performance in presence of phase modulation.

FMC4 • 5:00 p.m.**• Invited •**

Far-Infrared Sounding of the Troposphere: Rational and the FIRST Instrument, Kenneth W. Jucks¹, Marty Mlynyczak², David Johnson², Harri Latvakowski³, Mike Watson³, Gail Bingham³, Stan Wellard³, Wes Traub¹; ¹Harvard-Smithsonian Ctr. for Astrophysics, USA, ²NASA Langley Res. Ctr., USA, ³Space Dynamics Lab, USA. The FIRST project shows the capabilities of an imaging FTS that covers the important long wavelength portion of the OLR. Here we describe the motivation behind the project, the prototype initial instrument, and results.

HMC • Hyperspectral Data Analysis (continued)**HMC3 • 4:45 p.m.**

A Fast Moderate-Spectral-Resolution Atmospheric Transmittance Model, Heli Wei¹, Xiuhong Chen¹, Ruizhong Rao¹, Yingjian Wang¹, Ping Yang²; ¹Anhui Inst. of Optics and Fine Mechanics, Chinese Acad. of Sciences, China, ²Dept. of Atmospheric Sciences, Texas A&M Univ., USA. A new moderate-spectral-resolution (1 cm⁻¹) atmospheric transmittance model based on the LBLRTM covering wavenumber from 1 to 25000 cm⁻¹ is reported. The model can be used to accurately and efficiently compute atmospheric spectral transmittance.

HMC4 • 5:00 p.m.

Characterization of a Harmful Algal Bloom in Monterey Bay, CA Using Airborne Hyperspectral Imagery, Curtiss O. Davis¹, Paul Bissett²; ¹Oregon State Univ., USA, ²Florida Environmental Res. Inst., USA. The Coastal Ocean Applications and Science Team (COAST) conducted its first experiment imaging a Harmful Algal Bloom (HAB) In Monterey Bay, CA. We describe the hyperspectral imagery and the detection of the HAB.

HMC5 • 5:15 p.m.

Improved AIRS/AMSU Surface and Atmospheric Soundings under Partial Cloud Cover Using an AIRS Only Cloud Clearing Approach, Joel Susskind; NASA GSFC, USA. The AIRS Version-5 cloud clearing and sounding methodology will be described briefly and results will be shown. These results demonstrate the importance of having sounding channels with very low noise extending to 2400 cm⁻¹.

•Tuesday, February 13, 2007•

North Concourse

7:00 a.m. – 5:00 p.m.

Registration Open

FTuA • Fourier Session

Anasazi South

8:15 a.m.– 10:15 a.m.

FTuA • Fourier Session

Felix Friedl-Vallon; *Inst. fuer Meteorologie und Klimaforschung, Germany, Presider*

FTuA1 • 8:15 a.m.

•Invited•

Limb Emission Spectroscopy with the MIPAS Balloon Version: Science, Satellite Validation and Future Perspectives, *Hermann Oelhaf; Inst. für Meteorologie und Klimaforschung Forschungszentrum Karlsruhe/ Univ. Karlsruhe, Germany.* The talk will review the cryogenic FTIR instrument MIPAS-B, including its capabilities and scientific data utilization for atmospheric research, spectroscopy and satellite validation. Perspectives to new generation instruments based on FTIR spectroscopy will be presented.

FTuA2 • 8:45 a.m.

•Invited•

First Wideband Measurement (100-1400 cm^{-1}) of the Atmospheric Emission Spectrum with an Uncooled FT Instrument (Including the Detector Unit) Operating at Stratospheric Balloon Altitude, *Luca Palchetti; IFAC-CNR, Italy.* In Earth radiation budget experiments, one missing measurement is the spectrally resolved OLR below 400cm^{-1} . The first spectral measurement down to 100cm^{-1} , performed with an uncooled FTS on-board a stratospheric balloon, is here described.

FTuA3 • 9:15 a.m.

Geosynchronous Imaging FTS (GIFTS) Calibration Performance Assessment, *Fred A. Best¹, Henry E. Revercomb¹, Robert O. Knuteson¹, David C. Tobin¹, Joe K. Taylor¹, Doug P. Adler¹, William L. Smith¹, Daniel K. Zhou², Robert A. Reisse², John D. Elwell³, Gregory W. Cantwell³, Gail E. Bingham³;* ¹*Univ. of Wisconsin-Madison, USA,* ²*NASA Langley Res. Ctr., USA,* ³*Utah State Univ., Space Dynamics Lab, USA.* The Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS) on-orbit radiometric calibration requirement of 1K is predicted to be met, based on the delivered performance of the engineering design unit on-board blackbody calibration subsystem.

FTuA4 • 9:30 a.m.

The Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS): Engineering Development Unit (EDU) Noise Performance, *Joe K. Taylor¹, Henry E. Revercomb¹, David C. Tobin¹, Fred A. Best¹, Robert O. Knuteson¹, John D. Elwell², Greg W. Cantwell², Deron K. Scott², Joe Tansock², Gail E. Bingham², William L. Smith³, Daniel K. Zhou⁴, Robert A. Reisse⁴;* ¹*Space Science and Engineering Ctr., Univ. of Wisconsin-Madison, USA,* ²*Utah State Univ., Space Dynamics Lab, USA,* ³*Hampton Univ., USA,* ⁴*NASA Langley Res. Ctr., USA.* The GIFTS EDU noise performance measured during thermal vacuum testing indicates that the required noise performance has been realized, and that goal performance has been achieved over much of both the Infrared detector bands.

HTuA • A-Train Cloud Analysis

Zia

8:15 a.m.–10:15 a.m.

HTuA • A-Train Cloud Analysis

Peter Pilewski; *NASA Ames Res. Ctr., USA, Presider*

HTuA1 • 8:15 a.m.

•Invited•

Update on the MODIS Collection 5 Processing Cloud Optical and Microphysical Algorithm and Product Validation, *Steven Platnick, Michael D. King; NASA Goddard Space Flight Ctr., USA.* Over the last year, extensive improvements and enhancements to the operational global MODIS cloud optical products have been implemented. Key elements of this new Collection 5 processing algorithm will be discussed along with examples.

HTuA2 • 8:45 a.m.

•Invited•

Inference and Validation of Cloud Phase from MODIS, AIRS and CALIPSO Data, *Bryan A. Baum¹, Robert E. Holz¹, Hung-Lung Huang¹, Yong-Keun Lee¹, Ping Yang², Shaima L. Nasiri², Michael D. King³, Steve Platnick³;* ¹*Univ. of Wisconsin-Madison, USA,* ²*Texas A&M Univ., USA,* ³*NASA Goddard Space Flight Ctr., USA.* We discuss how cloud phase is inferred from MODIS and AIRS data and compare global results with those obtained from analysis of CALIPSO depolarization measurements.

HTuA3 • 9:15 a.m.

•Invited•

Improvement of Cloud Thermodynamic Phase Assessment Using Hyperspectral Measurements, *Shaima L. Nasiri¹, Brian H. Kahn², Bryan Baum³;* ¹*Texas A&M Univ., USA,* ²*JPL, USA,* ³*Univ. of Wisconsin-Madison, USA.* We discuss the difficulties inherent in the bispectral infrared thermodynamic phase retrieval of potentially mixed-phase clouds and how the phase retrievals of these clouds may be improved by including hyperspectral infrared measurements.

FTuA • Fourier Session (continued)**FTuA5 • 9:45 a.m.**

GIFTS Radiance Validation from Ground-Based Sky-Viewing Comparisons to AERI, Henry E. Revercomb¹, William L. Smith¹, David C. Tobin¹, Robert O. Knuteson¹, Fred Best¹, Joe K. Taylor¹, David D. Turner¹, Daniel K. Zhou², Robert A. Reisse², Gregory W. Cantwell³, Joe Tansock³; ¹Univ. of Wisconsin-Madison, USA, ²NASA Langley Res. Ctr., USA, ³Utah State Univ., Space Dynamics Lab, USA. Spectral radiance validation of the Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS) engineering design unit has been performed using zenith sky viewing comparisons with an Atmospheric Emitted Radiance Interferometer (AERI). Good agreement is demonstrated.

FTuA6 • 10:00 a.m.

Geosynchronous Imaging Fourier Transform Spectrometer (GIFTS) Thermal Vacuum Testing: Aspects of Spectral Characterization, David C. Tobin¹, Henry E. Revercomb¹, Joe K. Taylor¹, Fred A. Best¹, Robert O. Knuteson¹, William L. Smith¹, John Elwell², Gregory W. Cantwell², Gail Bingham², Joe Tansock², Robert A. Reisse³, Daniel K. Zhou³; ¹Univ. of Wisconsin-Madison, USA, ²Utah State Univ., Space Dynamics Lab, USA, ³NASA Langley Res. Ctr., USA. Thermal vacuum testing of GIFTS was performed at the Space Dynamics Laboratory and completed in September 2006. With a focus on spectral characterization of the sensor, analyses of selected thermal vacuum tests will be presented.

Anasazi North

10:15 a.m.–11:00 a.m.

Coffee Break

Anasazi North

10:15 a.m.–4:00 p.m.

Exhibits Open

FTuB • Michelson Session

Anasazi South

11:00 a.m.–12:30 p.m.

FTuB • Michelson Session

Christopher Manning; Manning Applied Technology, USA, Presider

FTuB1 • 11:00 a.m.

•Invited•

Performance of a Field-Portable Imaging FTS, Martin Chamberland, Vincent Farley, Alexandre Vallières, André Villemaire; Telops Inc., Canada. This paper presents the performance of a commercial LWIR imaging FTS designed for field use. The imaging size is 320x256 in the 8-12 μm region with a user selectable spectral resolution reaching 0.25 cm^{-1} .

FTuB2 • 11:30 a.m.

Recent Developments in Instrumentation for Fourier-Transform Spectrometry, Jérôme Genest, Pierre Tremblay, Simon Roy, Philippe Saucier, Maxime Cadotte, Patrick Dubois, Simon Potvin, Geneviève Taurand, Frédéric Talbot; Ctr. d'Optique, Photonique et Laser, Canada. This presentation will discuss several recent developments that will impact the way we do Fourier-transform spectrometry. Real-time instrument line shape correction, new interferogram sampling techniques, frequency combs and super-continuum MID-IR sources will all be discussed.

HTuA • A-Train Cloud Analysis (continued)**HTuA4 • 9:45 a.m.**

•Invited•

Remote Sensing of Clouds and Aerosols from POLDER: Recent Development in the A-Train Framework and Perspectives for New Mission Concept, Jérôme Riedi, Frédéric Parol, Didier Tanré, Jean-Luc Deuzé; Lab d'Optique Atmosphérique, Univ. des Sciences et Technologies de Lille, France. We present here recent development in clouds and aerosols remote sensing from the PARASOL mission and focus on the new insights provided by additional information available from synergy with other instruments of the A-Train.

Anasazi North

10:15 a.m.–11:00 a.m.

Coffee Break

Anasazi North

10:15 a.m.–4:00 p.m.

Exhibits Open

HTuB • Ice Clouds

Zia

11:00 a.m.–12:30 p.m.

HTuB • Ice Clouds

Steven Platnick; NASA, USA, Presider

HTuB1 • 11:00 a.m.

•Invited•

The Retrieval of Cirrus Quantities from AIRS Observations: Some Challenges and Opportunities, Brian Kahn; JPL, USA. Abstract not available.

HTuB2 • 11:30 a.m.

•Invited•

Ice Cloud Microphysical Properties and their Application to Satellite Remote Sensing, David Mitchell¹, Robert P. d'Entremont², R. Paul Lawson³; ¹Desert Res. Inst., USA, ²Atmospheric and Environmental Res., Inc., USA, ³SPEC, Inc., USA. A retrieval methodology has been developed for retrieving Deff and ice water path for ice clouds. Unique aspects include temperature-dependent diagnosis of ice crystal and size distribution shape and their coupling with cloud optical properties.

FTuB • Michelson Session (continued)**FTuB3 • 11:45 a.m.**

A High Sensitivity Interferometer-Based Spectrometer without a Fourier Transform, Ricardo C. Coutinho¹, David R. Selviah², Hugh D. Griffiths³; ¹Brazilian Navy Weapon Systems Directorate, Brazil, ²Dept. of Electronic and Electrical Engineering, Univ. College London, UK, ³Defence College of Management and Technology, Cranfield Univ., UK. A novel interferometric technique which senses a change in spectrum without Fourier transformation is presented. It relies on measuring a feature of a short coherence interferogram, and compares favorably with FTS in complexity and sensitivity.

FTuB4 • 12:00 p.m.

A Novel Technique for the Metrology Calibration of a Fourier Transform Spectrometer, Locke D. Spencer, David A. Naylor; Dept. of Physics, Univ. of Lethbridge, Canada. A method is presented for using a Fourier transform spectrometer (FTS) to calibrate the metrology of a second FTS. This technique is particularly useful when the second FTS is inaccessible such as inside a cryostat.

FTuB5 • 12:15 p.m.

Detailed Characterization of Photoconductive HgCdTe Photodetectors: Gain and Noise Performances, Pierre Tremblay¹, Erik Kretschmer¹, Vincent Farley², Martin Chamberland²; ¹Univ. Laval, Canada, ²Telops Inc., Canada. We report a novel approach to characterize photoconductive detectors. A measurement procedure is set up in order to deduce blackbody responsivity and photoconductive gain, while clearly separating source and background contributions to the shot noise.

12:30 p.m.–2:00 p.m.

Lunch Break (on your own)

FTuC • Peck Session

Anasazi South

2:00 p.m.–3:30 p.m.

FTuC • Peck SessionJuliet Pickering; Imperial College, UK, *Presider***FTuC1 • 2:00 p.m.**

•Invited•

An Overview of the SHS Technique and Applications, Frederick L. Roesler; Univ. of Wisconsin-Madison, USA. The concepts of Spatial Heterodyne Spectroscopy (SHS) are described, and trade-offs to be considered in applications are reviewed. SHS instruments in use and in development for ground- and space-based applications will be highlighted.

FTuC2 • 2:30 p.m.

SHIMCAD Breadboard: Design and Characterization Overview, David D. Babcock¹, Chris R. Englert¹, John M. Harlander²; ¹NRL, USA, ²St. Cloud State Univ., USA. We describe the design and characterization of a breadboard longwave infrared spatial heterodyne spectroscopy (SHS) interferometer. By measuring key instrument parameters, we show that machining tolerances are sufficient for LWIR interferometers without post-integration alignment options.

HTuB • Ice Clouds (continued)**HTuB3 • 12:00 p.m.**

•Invited•

Impact of Crystal Habit on Cirrus Radiative Properties, Manfred Wendisch¹, Ping Yang², Peter Pilewskie³; ¹Leibniz Inst Troposphärenforschung eV, Germany, ²Texas A&M Univ., USA, ³Univ. of Colorado, USA. The impact of crystal morphology on solar and thermal infrared radiative properties of subtropical cirrus is quantified. For this purpose airborne measurements and simulated optical properties of nonspherical ice crystal are implemented into radiative simulations.

12:30 p.m.–2:00 p.m.

Lunch Break (on your own)

HTuC • Polar-Orbiting Platform Data and Analysis

Zia

2:00 p.m.– 3:30 p.m.

HTuC • Polar-Orbiting Platform Data and AnalysisDavid Winker; NASA Langley Res. Ctr., USA, *Presider***HTuC1 • 2:00 p.m.**

•Invited•

Cloud Microphysics from Cloud Radar and Lidar Onboard R/V Mirai and Comparison with CloudSat/CALIPSO Data, Hajime Okamoto; Tohoku Univ., Japan. This paper presents the results of cloud microphysical properties retrieved from 95-GHz radar and lidar onboard R/V Mirai. Particle size in mid-latitude cirrus is larger than in Tropics. Comparison with CloudSat/CALIPSO data is presented.

HTuC2 • 2:30 p.m.

•Invited•

Overview of CERES, Norman G. Loeb, Bruce A. Wielicki; NASA Langley Res. Ctr., USA. This paper presents an overview of the CERES project. It demonstrates how algorithm improvements have lead to improved top-of-atmosphere (TOA) radiative flux accuracy. CERES shortwave flux anomalies are compared with those from Earthshine and ISCCP-FD.

FTuC • Peck Session (continued)**FTuC3 • 2:45 p.m.**

An Imaging Heterodyne Spectrometer for Planetary Exploration, Cilia Damiani¹, Pierre Drossart¹, Alain Sémerly¹, Jean-Michel Réess¹, Jean-Pierre Maillard²; ¹LESIA, France, ²IAP, France. We present a new design for an imaging heterodyne FT spectrometer and the first test results. The use of SHS combined with cylindrical optics records an interferogram for each point of the slit height.

FTuC4 • 3:00 p.m.

•Invited•

10 Years of Solar FTIR Spectrometry at the Zugspitze: Atmospheric Studies and Satellite Validation, Ralf Sussmann; *IMK-IFU, Inst. für Meteorologie und Klimaforschung, Forschungszentrum Karlsruhe, Germany*. The high-resolution solar FTIR operated since 1995 at the Zugspitze (47 °N, 11 °E, 2964 m asl.) is presented together with highlights from its utilization for long-term sounding of atmospheric trace gases and satellite validation.

Anasazi North

3:30 p.m.–4:00 p.m.

Coffee Break

FTuD • Fellgett Session

Anasazi South

4:00 p.m.–5:30 p.m.

FTuD • Fellgett SessionDieter Hausmann; *German Aerospace Res. Est. DLR, Germany, Presider***FTuD1 • 4:00 p.m.**

•Invited•

Frequency Modulation FTS: A Broadband Method for Measuring Weak Absorptions and Dispersions, Nathalie Picqué, Guy Guelachvili; *LPPM/CNRS, France*. High-frequency modulation of the interferogram enables to achieve high sensitivity.

FTuD2 • 4:30 p.m.

High Resolution UV Fourier Transform Spectroscopy: SO₂ Photoabsorption Cross Sections for Planetary Atmosphere Studies, Richard J. Blackwell-Whitehead¹, Douglas S. Blackie¹, Juliet C. Pickering¹, Anne P. Thorne¹, James Rufus¹, Glenn Stark², Peter L. Smith³; ¹Imperial College London, UK, ²Wellesley College, USA, ³Harvard-Smithsonian Ctr. for Astrophysics, USA. Accurate laboratory SO₂ photoabsorption cross sections are essential for the meaningful interpretation of planetary atmospheres. New laboratory measurements of SO₂ spectra at low temperatures using high resolution VUV Fourier Transform spectroscopy are described.

FTuD3 • 4:45 p.m.

Line Mixing and Speed Dependence in CO₂ at 1.6 μm, Malathy Devi¹, Chris Benner¹, Linda R. Brown², Charles E. Miller², Robert A. Toth²; ¹College of William and Mary, USA, ²JPL, USA. To enable column CO₂ measurements from space by OCO, ~0.3% precisions for intensities and air-broadening parameters are required for near-IR CO₂ bands. Preliminary FTS laboratory measurements at 6350 cm⁻¹ using non-Voigt line profiles are described.

HTuC • Polar-Orbiting Platform Data and Analysis (continued)**HTuC3 • 3:00 p.m.**

•Invited•

Assimilation of Microwave Observations in Cloudy Conditions, Fuzhong Weng; *NOAA/NESDIS/ORA, USA*. Several experiments are conducted to prove the impacts of direct assimilation of cloudy radiances on hurricane analysis fields. Such tests include the WRF-GSI analysis and Hybrid Variational (HVAR) Scheme. Analysis results are rather promising.

Anasazi North

3:30 p.m.–4:00 p.m.

Coffee Break

HTuD • Combination of Active and Passive Sensors

Zia

4:00 p.m.–5:30 p.m.

HTuD • Combination of Active and Passive SensorsNorman Loeb; *NASA, USA, Presider***HTuD1 • 4:00 p.m.**

•Invited•

The CALIPSO Mission and Initial Observations of Clouds and Aerosols from CALIOP, David Winker; *NASA Langley Res. Ctr., USA*. Launched in April 2006, the CALIPSO satellite provides unique global measurements of aerosols and clouds using a two-wavelength polarization lidar. This talk will discuss mission status, instrument performance, and initial results.

HTuD2 • 4:30 p.m.

Comparing Actively Remote Sensed Lidar Cloud Properties with Passive AIRS and MODIS Retrievals, Robert E. Holz¹, Tiziano Maestri², Steven A. Ackerman¹, Liam E. Gumley¹; ¹Univ. of Wisconsin at Madison, CIMSS, USA, ²Università degli Studi "Alma Mater Studiorum, Italy. A new technique is presented that utilizes the vertically resolved lidar cloud extinction profile to estimate uncertainties in the passive retrievals of geometrically thick but tenuous cirrus.

HTuD3 • 4:45 p.m.

Aircraft Multi-Spectral Remote Sensing and In-Situ Measurements of UK Frontal Cirrus, Clare Lee¹, Anthony J. Baran¹, Martin D. Glew¹, Hazel Jones², Stuart M. Newman¹, Jonathan P. Taylor¹; ¹Met Office, UK, ²Univ. of Manchester, UK. Ice clouds have a significant impact on the Earth's water and radiation budgets. Here we present multi-spectral remote sensing and *in-situ* measurements of frontal cirrus, using the FAAM aircraft coincident with an A-train overpass.

FTuD • Fellgett Session (continued)

FTuD4 • 5:00 p.m.

•Invited•

Cavity Enhanced Laser Induced Fluorescence Spectroscopy of Small Gas-Phase Molecules, *Amanda J. Ross, Raphaël Vallon, Patrick Crozet; LASIM, Univ. Lyon 1 and CNRS, France*. Active and passive optical cavities have been incorporated in laser induced fluorescence experiments, allowing resolved fluorescence spectra of weak systems to be recorded in the visible and near infrared on a Bomem DA3 FT spectrometer.

Sunset Room

5:30 p.m.–7:00 p.m.

FTS/HISE Conference Reception

HTuD • Combination of Active and Passive Sensors (continued)

HTuD4 • 5:00 p.m.

•Invited•

Validation of Satellite-Based Retrievals Using Ground-Based Measurements, *Gerald Mace; Univ. of Utah, USA*. Abstract not available.

Sunset Room

5:30 p.m.–7:00 p.m.

FTS/HISE Conference Reception

•Wednesday, February 14, 2007•

North Concourse

7:30 a.m.–5:00 p.m.

Registration Open

FWA • Jacquinot Session

Anasazi South

8:15 a.m.–10:15 a.m.

FWA • Jacquinot Session

Bruce M. Swinyard; Rutherford Appleton Lab, UK, *Presider*

FWA1 • 8:15 a.m. •Invited•

FTS-2: A Submillimetre Astronomical Imaging Fourier Transform Spectrometer, David Naylor, B. G. Gom; Univ. of Lethbridge, Canada.

We present the design of FTS-2, a dual-port imaging Fourier transform spectrometer for use with SCUBA-2 at the James Clerk Maxwell Telescope. The challenging mechanical and optical constraints imposed by the telescope interfaces are discussed.

FWA2 • 8:45 a.m. •Invited•

Imaging FTS in Astronomy: SPIRE and Beyond, Kjetil Dohlen; Lab d'Astrophysique de Marseille (LAM), France. I describe the SPIRE far infra-red imaging Fourier spectrometer in terms of optical concept, error budgeting, and ground alignment. The instrument is part of the Herschel Space Observatory, to be launched in 2008.

FWA3 • 9:15 a.m.

A High Resolution Broad Spectral Range Spatial Heterodyne Spectrometer for UV Laboratory Astrophysics, John M. Harlander¹, James E. Lavler², Fred L. Roesler², Zach Labby²; ¹St. Cloud State Univ., USA, ²Univ. of Wisconsin-Madison, USA. A high resolving power (>500,000) Spatial Heterodyne Spectrometer with spectral coverage across the VUV - UV region is being built for laboratory spectroscopy including emission branching fractions, improved level energies, and hyperfine/isotopic parameters.

FWA4 • 9:30 a.m.

The USNO Dispersed Fourier Transform Spectrograph, Arsen R. Hajian¹, Bradford B. Behr¹, Andrew T. Cenko¹, Douglas G. Currie²; ¹US Naval Observatory, USA, ²Univ. of Maryland, USA. The "dispersed FTS" at USNO combines a FTS with a grating spectrometer, multiplexing the interferometer output and thus boosting the instrument sensitivity. We present initial astronomical results and discuss the wide variety of future applications.

FWA5 • 9:45 a.m.

Signal-to-Noise Ratio Tradeoffs Associated with Coarsely Sampled Fourier Transform Spectroscopy, Samuel T. Thurman, James R. Fienup; Inst. of Optics, Univ. of Rochester, USA. Signal-to-noise ratio (SNR) tradeoffs associated with coarsely sampled step-and-integrate Fourier transform spectroscopy are derived. We show that there is no SNR penalty in the shot-noise limit for a fixed total detector integration time.

HWA • Air Quality and Trace Gases

Zia

8:15 a.m.– 10:15 a.m.

HWA • Air Quality and Trace Gases

Oleg V. Dubovik; NASA Goddard Space Flight Ctr., USA, *Presider*

HWA1 • 8:15 a.m. •Invited•

Monitoring Air Quality from Space, Shobha Kondragunta; NOAA/NESDIS, USA. Abstract not available.

HWA2 • 8:45 a.m. •Invited•

Global Monitoring of Tropospheric Pollution from Geostationary Orbit, Kelly Chance; Harvard-Smithsonian Ctr for Astrophysics, USA.

Satellite measurements of major tropospheric pollutants have been robustly demonstrated and are now routinely made. Geostationary measurements are the logical next step in pollution monitoring from space. Requirements and constraints for geostationary measurements are presented.

HWA3 • 9:15 a.m. •Invited•

Observing Trace Gases from Spectrally Resolved Infrared Radiances, Christopher D. Barnes¹, Mitch Goldberg¹, Eric Maddy², Xiaozhen Xiong²; ¹NOAA/NESDIS/STAR, USA, ²QSS Group, Inc., USA. We present measurements of mid-tropospheric atmospheric carbon derived from the Aqua Atmospheric Infrared Sounder and inter-comparisons with NOAA Earth System Research Laboratory/Global Monitoring Division in-situ measurements.

HWA4 • 9:45 a.m. •Invited•

Towards Operational Monitoring of the Chemical Composition of the Atmosphere Using Solar Backscatter Imaging Techniques, Heinrich Bovensmann, Andreas Richter, M. Buchwitz, John P. Burrows; Inst. of Environmental Physics, Univ. of Bremen, Germany. As demonstrated by GOME/ERS-2 and SCIAMACHY/ENVISAT and partly to be continued until 2020 by GOME-2/METOP, solar backscatter spectroscopy is well suited to probe atmospheric chemical composition relevant for Ozone, Air Quality and Greenhouse Gas monitoring.

FWA • Jacquinot Session (continued)**FWA6 • 10:00 a.m.**

Enhanced Step-Mode FTIR Position Control, *Brandon Inberg, Carl Fahlstrom, Laura Dobeck, Lee H. Spangler, Steven R. Shaw; Montana State Univ., USA.* A step-scan interferometer has been modified to allow mirror locking a 1/6 He Ne wavelength intervals by generating quadrature synthetic reference signals representing a 3x multiple of the actual signal. Sample TRS data is presented.

Anasazi North

10:15 a.m.–11:00 a.m.

Coffee Break

Anasazi North

10:15 a.m.–4:00 p.m.

Exhibits Open

Anasazi North

10:15 a.m.–11:00 a.m.

Coffee Break

Anasazi North

10:15 a.m.–4:00 p.m.

Exhibits Open

FWB • Connes Session

Anasazi South

11:00 a.m.–12:30 p.m.

FWB • Connes Session

Peter Bernath; Univ. of Waterloo, Canada, Presider

FWB1 • 11:00 a.m.

•Invited•

Greenhouse Gases Observation from Space with TANSO-FTS on GOSAT, *Takashi Hamazaki¹, Yutaka Kaneko², Akihiko Kuze², Hiroshi Suto²; ¹JAXA - GOSAT Project Team, Japan, ²Japan Aerospace Exploration Agency, Japan.* Thermal And Near infrared Sensor for carbon Observation Fourier-Transform Spectrometer on GOSAT monitors CO₂ and CH₄ globally from space. It has three narrow bands (0.76, 1.6, and 2 micron) and a wide band (5.5-14.3 micron).

FWB2 • 11:30 a.m.

Design and Qualification of the TANSO Interferometer, *François Châteauneuf¹, Marc-André Soucy¹, Gaétan Perron¹, Luc Lévesque¹, Jun Tani²; ¹ABB, Canada, ²NEC Toshiba Space Systems, Japan.* The Greenhouse gases Observing SATellite will monitor global distributions of CO₂. This paper presents the interferometer designed for the Thermal And Near infrared Sensor for carbon Observation FTS along with qualification and performance verification activities.

FWB3 • 11:45 a.m.

Noise Modeling for the TANSO-FTS Sensor aboard GOSAT, *Mitsuhiro Tomosada¹, Akihiko Kuze², Hiroe Tsubaki³, Tatsuya Yokota⁴; ¹Inst. of Statistical Mathematics, Japan, ²Japan Aerospace Exploration Agency, Japan, ³Tsukuba Univ., Japan, ⁴Natl. Inst. for Environmental Studies, Japan.* Noise characteristics in the spectrum data obtained by a FTS sensor TANSO-FTS, which will be onboard GOSAT (Greenhouse gases Observing SATellite), were analyzed and modeled by numerical simulation.

FWB4 • 12:00 p.m.

Calibration Plan of GOSAT TANSO, *Kei Shiomi¹, Hiroshi Suto¹, Shuji Kawakami¹, Tomoko Kina¹, Mayumi Yoshida², Yasushi Mitomi², Nami Sekio², Fumie Kataoka²; ¹Japan Aerospace Exploration Agency, Japan, ²Remote Sensing Technology Ctr. of Japan, Japan.* GOSAT will be launched in 2008 for observing greenhouse gases by space-borne FTS named TANSO-FTS. Sensor characterization test and

HWB • Hyperspectral IR Data

Zia

11:00 a.m.– 12:30 p.m.

HWB • Hyperspectral IR Data

Steven Ackerman; Univ. of Wisconsin-Madison, USA, Presider

HWB1 • 11:00 a.m.

•Invited•

Infrared Hyperspectral Sensor Radiance Performance Validation, *Allen M. Larar¹, D. Zhou¹, W. Smith^{2,3}, X. Liu¹; ¹NASA Langley Res. Ctr., USA, ²Hampton Univ., USA, ³Univ. of Wisconsin-Madison, USA.* Advanced satellite sensors are tasked with improving measurements of the Earth's atmosphere. Measurement system validation is critical to achieving this goal and maximizing research and operational utility of resultant data.

HWB2 • 11:30 a.m.

•Invited•

Retrieval Lesson Learned from NAST-I Hyperspectral Data, *Daniel K. Zhou¹, William L. Smith², Xu Liu¹, Allen M. Larar¹, Stephen A. Mango³; ¹NASA Langley Res. Ctr., USA, ²Hampton Univ., USA, ³NPOESS Integrated Program Office, USA.* The retrieval lesson learned is important to many current and future hyperspectral remote sensors. Validated retrieval algorithms demonstrate the advancement of hyperspectral remote sensing capabilities to be achieved with current and future satellite instruments.

HWB3 • 12:00 p.m.

•Invited•

Hyperspectral Remote Sensing of the Ningaloo Reef: Data Collection, Processing, Validation and Applications in Monitoring One of the World's Largest, Most Diverse and Pristine Tropical Coral Reef Ecosystems, *James E. Davies, Wojciech M. Klonowski, Leon J. Majewski, Mark A. Gray, Mervyn J. Lynch; Curtin Univ. of Technology, Australia.* Underway physical and radiometric

FWB • Connes Session (continued)

preparation of post-launch calibration are implemented under Phase-C/D currently.

FWB5 • 12:15 p.m.

Limb Sounding with Imaging FTS: The Status of the GLORIA and IMIPAS Projects, Felix Friedl-Vallon¹, Hermann Oelhaf¹, Peter Preusse², Martin Riese²; ¹Forschungszentrum Karlsruhe, Germany, ²Forschungszentrum Juelich, Germany. First characterisation results of the breadboard for the airborne Global limb Radiance Imager of the Atmosphere (GLORIA) instrument are presented. The further development path for this imaging Fourier transform spectrometer is outlined.

12:30 p.m.–2:00 p.m.

Lunch Break (on your own)

FWC • Cooley-Tukey Session

Anasazi South

2:00 p.m.–3:30 p.m.

FWC • Cooley-Tukey Session

Jean-Pierre Maillard; *Inst. d' Astrophysique de Paris, France, Presider*

FWC1 • 2:00 p.m.

•Invited•

Externally Dispersed Interferometry for the Mt. Palomar Doppler Planet Search, David J. Erskine; *Lawrence Livermore Natl. Lab, USA*. A fixed-delay interferometer placed in series with Cornell's planned TripleSpec near-infrared spectrograph at Mt. Palomar's 200 inch telescope will greatly improve its Doppler velocity precision and effective spectral resolution.

FWC2 • 2:30 p.m.

The FIR Imaging Fourier Transform Spectrometer Concept for the SPICA Mission, Bruce M. Swinyard, Marc Ferlet; *Rutherford Appleton Lab, UK*. We present the results of the design study for an Imaging FTS instrument working in the 30-200 micron waveband. The instrument is intended for use on the Japanese SPICA mission for astronomy.

FWC3 • 2:45 p.m.

The FROID Algorithm for Spectral Reconstruction, Arsen R. Hajian¹, Bradford B. Behr¹, Andrew T. Cenko¹, Kevin H. Knuth², Douglas G. Currie³; ¹US Naval Observatory, USA, ²Univ. of Albany, USA, ³Univ. of Maryland, USA. We present a Bayesian algorithm for spectral reconstruction (FROID: Fourier Reconstruction of Optical Interferometer Data). The FROID method incorporates a priori information allowing honest treatment of non-Poisson noise, bandlimited data, and other real-world effects.

FWC4 • 3:00 p.m.

•Invited•

SpIOMM: A Ground-Based Wide-Field Imaging FTS, Frédéric Grandmont¹, Anne-Pier Bernier², Maxime Charlebois², Laurent Drissen²; ¹ABB Bomem, Inc., Canada, ²Univ. Laval, Canada. SpIOMM is an Imaging FTS operating at the Mégantic telescope. It produces astronomical cubes of data in the visible using a CCD. Its 1.5 millions field elements makes it the largest IFTS used in astronomy.

HWB • Hyperspectral IR Data (continued)

data were captured within the Ningaloo Marine Park. Three underway transects were conducted coincident with HyMap overpasses. Local mode MISR data and ancillary aerosol and meteorological observations complete the validation set.

12:30 p.m.–2:00 p.m.

Lunch Break (on your own)

HWC • Geostationary Satellite Data

Zia

2:00 p.m.–3:30 p.m.

HWC • Geostationary Satellite Data

Martin Mlynczak; *NASA Langley Res. Ctr., USA, Presider*

HWC1 • 2:00 p.m.

•Invited•

Overview of Chinese Second Generation Polar Orbiting Satellite FY-3 Imaging and Sounding Capabilities and Applications, Chaohua Dong, Jun Yang, Naimeng Lu, Yujie Liu, Zhongdong Yang, Bin Cai; *Natl. Satellite Meteorological Ctr. (NSMC) of China Meteorological Administration (CMA), China*. FY-3, the new series of Chinese polar-orbiting meteorological satellites is planned for 2007 launch. Eleven instruments covering violet, visible, near-infrared, infrared, and microwave observations to study weather, climate and other environmental features will be discussed.

HWC2 • 2:30 p.m.

•Invited•

Development of a Multispectral and Hyperspectral Proxy Data System for GOES-R, Hung Lung A. Huang; *Univ. of Wisconsin-Madison, USA*. This paper describes an ongoing effort to develop the state-of-the-art proxy data sets, models, software tools, and their associated documents in support of broad area of GOES-R Algorithm Working Group (AWG) application and development activities.

HWC3 • 3:00 p.m.

•Invited•

Retrieval of Cloud Properties from GOES-R, Patrick Mimmis; *NASA Langley Res. Ctr., USA*. The next generation of USA geostationary satellites will have an enhanced imager, the Advanced Baseline Imager, that will enable improved detection and retrieval of cloud properties. Use of new channel combinations for retrievals is discussed.

JWA • FTS/HISE Joint Poster Session
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Anasazi North

3:30 p.m.– 5:00 p.m.

JWA • FTS/HISE Joint Poster Session

JWA1

A Near-UV Spatial Heterodyne Spectrometer for Interstellar [OIII] Emission Line Studies, *Edwin J. Mierkiewicz¹, Fred L. Roesler¹, John M. Harlander², Ronald J. Reynolds¹, Kurt P. Jaehnig¹*; ¹Univ. of Wisconsin-Madison, USA, ²St. Cloud State Univ., USA. Using a newly developed spatial heterodyne spectrometer, we have obtained the first radial velocity resolved observations of interstellar 3727 Å emission and confirmed the superb performance of the technique for observing spatially extended faint sources.

JWA2

UV and VUV High Resolution Fourier Transform Spectroscopy: Laboratory Atomic Spectroscopy for Astrophysics Applications, *Juliet C. Pickering¹, Richard Blackwell-Whitehead¹, Darren Smillie¹, Anne P. Thorne¹, Peter L. Smith², Gillian Nave³*; ¹Imperial College, UK, ²Harvard-Smithsonian Ctr. for Astrophysics, USA, ³NIST, USA. High resolution spectrographs on astronomical telescopes create demands for accurate high resolution UV/VUV atomic data for interpretation of astrophysical spectra. Atomic spectroscopy combining high resolution VUV Fourier Transform and grating spectroscopy is described.

JWA3

FTIR Analysis of Pristine and Ion Irradiated Polymers, *Jitendra K. Quamara, Anu Sharma, Geetika Goyal, Randhir Singh, P. Raj, Maneesha Garg*; *Physics Dept., Natl. Inst. of Technology-Kurukshetra, India*. FTIR Spectroscopy has been applied for the analysis of swift heavy ion irradiated polyimides and PLCs. The FTIR spectra reveal the demerization of carbonyl groups, enhancement in the absorbed water and formation of new radicals.

JWA4

Reference Wavelengths of Thorium and Argon for the Calibration of Infrared Astronomical Spectrographs, *Gillian Nave¹, Craig J. Sansonetti¹, Florian Kerber²*; ¹NIST, USA, ²European Southern Observatory, Germany. We report new reference wavelengths emitted by a Th/Ar hollow cathode lamp in the range 900 nm to 4500 nm.

JWA5

Kilometric Path Lengths in Infrared Absorption with Time-Resolved Fourier Transform Spectroscopy, *Nathalie Picqué, Véronique Girard, Mathieu Jacquemet, Robert Farrenq, Guy Guelachvili*; *LPPM / CNRS, France*. Time-resolved Fourier transform spectroscopy associated to intracavity laser absorption allows to record highly sensitive high resolution spectra, in the infrared up to 2.5 μm , of both stable and unstable molecules.

JWA6

NIR All-Fiber Supercontinuum Frequency Comb Spectrometer, *Philippe Saucier, Frédéric Talbot, Jérôme Genest, Pierre Tremblay*; *Univ. Laval, Canada*. We discuss the realisation of an all-fiber spectrometer working on the principle of heterodyne measurement using two high brightness frequency combs exhibiting supercontinua in the NIR (1.2 μm - 1.9 μm).

JWA7

New Spectral Calibration Approach Suitable for Imaging Fourier Transform Spectrometers, *Simon A. Roy¹, Simon Potvin¹, Jérôme Genest¹, Raphaël Desbiens²*; ¹Univ. Laval, Canada, ²ABB Bomem Inc., Canada. A new approach to line shape correction is presented. The method uses line shape integration to calibrate the spectral grids of pixels and is thus convenient for spectrometers equipped a CCD camera.

JWA8

New Sampling Approach Suitable for Imaging Fourier Transform Spectrometers with Integrating Detector, *Simon A. Roy¹, Jérôme Genest¹, Martin Chamberland²*; ¹Univ. Laval, Canada, ²Telops Inc., Canada. A new approach to interferogram sampling is presented. The method reduces data load and processing overhead while allowing post-correction of sampling errors. It is particularly well suited for continuous-scan spectrometers equipped with a CCD camera.

JWA9

FPGA SoC Architecture for Imaging FTS Real-Time Data Processing, *Patrick Dubois^{1,2}, Martin Chamberland², Jerome Genest¹, Sebastien Roy¹*; ¹Univ. Laval, Canada, ²Telops Inc., Canada. A FPGA SoC architecture is presented which can perform real-time data processing of imaging FTS data. Datacubes co-adding, FFTs, spectral cropping and radiometric calibration can be performed at a datarate in excess of 30 Mpixels/s.

JWA10

An OSSE for Aerosol, *Renske Timmermans¹, Martijn Schaap¹, Stephen Tjemkes², Peter Builtjes¹*; ¹TNO, Netherlands, ²EUMETSAT, Germany. The study aims to quantify the impact of satellite derived aerosol information as observed by future instruments on the forecasting and analysis of PM2.5 levels over Europe using an observing system simulation experiment.

JWA11

Plume Identification and Tracking Using Satellite Imaging, *Moncef B. Tayahi¹, Ilham Sadri¹, Michael Meinhold²*; ¹Advanced Photonics Res. Lab, Univ. of Nevada, USA, ²SAIC, USA. The aim of this work is to combine visible, near infrared, and thermal optical infrared channels in order to produce a two-dimensional spectral map in which plumes can be identified and tracked in real time.

JWA12

Aerosol and Surface Properties Characterization from Joint Inversion of Ground-Based and Satellite Observations, *Alexander Sinyuk¹, Oleg Dubovik², Brent Holben³, Tom F. Eck⁴, Francois-Marie Breon⁵, John Martonchik⁶, Ralph Kahn⁶, David J. Diner⁶, Eric F. Vermote⁷, Jean-Claude Roger⁸, Tatyana Lapyonok¹, Ilya Slutsker¹*; ¹Science Systems and Applications, Inc., USA, ²Lab d'Optique Atmospherique, CNRS Universite de Lille, France, ³Lab for Terrestrial Physics, NASA Goddard Space Flight Ctr., USA, ⁴GEST Ctr., Univ. of Maryland Baltimore County, USA, ⁵Lab des Sciences du Climat et de l'Environnement, France, ⁶JPL, Caltech, USA, ⁷Univ. of Maryland at College Park, USA, ⁸OPGC/LAMP Univ. Blaise Pascal, France. A method for simultaneously retrieving aerosol and surface parameters from ground based and satellite observations collocated in space and time is presented. The improvements in aerosol and surface reflectance characterization are discussed.

JWA • FTS/HISE Joint Poster Session (continued)
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JWA13

Capabilities of the MTG-IRS Candidate Candidate Mission to Depict Horizontal Moisture Structures, *Stephen Tjemkes, Jochen Grandell, Regis Borde, Rolf Stuhlmann; EUMETSAT, Germany.* The MTG-IRS candidate mission has primary objective to monitor atmospheric dynamics using water vapour tracers. Using different analysis, capabilities of MTG to meet mission objectives will be shown

JWA14

Level 0 to 1 Algorithm Theoretical Basis for the On-Orbit Calibration of the Geostationary Imaging Fourier Transform Spectrometer, *Robert Knuteson, Henry E. Revercomb, David C. Tobin; Univ. of Wisconsin-Madison, USA.* The UW-Madison Space Science and Engineering Center has applied its extensive experience to the development of Level 0 to 1 ground data processing algorithms for the on-orbit calibration of the Geostationary Imaging FTS (GIFTS) sensor.

JWA15

Multilayer Cloud Detection in the MODIS Collection 5 Cloud Product, *Steven Platnick¹, Michael King¹, Gala Wind^{1,2}, G. Thomas Arnold^{1,2}, M. McGill¹, Steven Ackerman³, Robert Holz³, Bryan Baum³, Ping Yang⁴; ¹NASA Goddard Space Flight Ctr., USA, ²SSAI, USA, ³Univ. of Wisconsin-Madison, USA, ⁴Texas A&M Univ., USA.* Multilayer cloud detection using, in part, a water vapor absorption band at 0.94 μm has been implemented in the recent MODIS Collection 5 processing stream. Evaluation with active sensor(s) will be discussed.

JWA16

SIRAS-G, the Spaceborne Infrared Atmospheric Sounder for Geosynchronous Earth Orbit, *Thomas Kampe; Ball Aerospace and Technologies Corp., USA.* SIRAS-G, developed under NASA's 2002 IIP is enabling technology for future spaceborne IR sounders. A major aspect of this program was a laboratory demonstration dispersive spectrometer. Results from the demo instrument development program are described.

JWA17

GIFTS EDU Ground-Based Measurement Experiment, *D. K. Zhou¹, W. L. Smith², L. J. Zollinger³, R. J. Huppi⁴, R. A. Reisse¹, A. M. Larar¹, X. Liu¹, J. J. Tansock³, S. M. Jensen³, H. E. Revercomb², W. F. Feltz², G. E. Bingham³; ¹NASA Langley Res. Ctr., USA, ²Univ. of Wisconsin, USA, ³Space Dynamics Lab, Utah State Univ., USA, ⁴ZelTech, USA.* GIFTS EDU is an imaging infrared spectrometer designed for atmospheric soundings. The EDU ground-based measurement experiment was held in Logan, Utah during September 2006 to demonstrate its extensive capabilities for geosynchronous and other applications.

JWA18

Diurnal and Seasonal Contrasts in Cloud Properties from AIRS Data, *Yong-Keun Lee¹, Ping Yang², Hung-Lung Huang¹, Bryan A. Baum¹; ¹Space Science and Engineering Ctr., USA, ²Dept. of Atmospheric Sciences, Texas A&M Univ., USA.* We discuss diurnal and seasonal contrasts of cloud properties over a tropical region based on analysis of Atmospheric Infrared Sounder (AIRS) data.

JWA19

Hyperspectral Remote Sensing of the Coastal Environment, *David D. R. Kohler, W. Paul Bissett, Robert G. Steward, Mubin Kadiwala, Robert Banfield; FERI, USA.* Paper details the construction of a new hyperspectral sensor focused on the coastal environment. This sensor follows the same basic design strategy as its predecessor, the NRL developed PHILLS sensor.

JWA20

An Automated Nonrigid Registration for a Tunable Hyperspectral Imaging System, *Hector Erives¹, Scott Teare¹, Glenn J. Fitzgerald²; ¹New Mexico Tech, USA, ²Dept. of Primary Industries, Horsham, Australia.* A method that uses the Phase Correlation and a geometric transformation is proposed to estimate nonrigid registration errors for a hyperspectral imaging system. It computes multiple correlations to find and correct for local registration errors.

JWA21

Spectral Errors and Their Affect on Retrieval of Temperature and Water Vapor Profiles in the Presence of Clouds, *Brian R. Johnson, Grzegorz Miecznik, Thomas U. Kampe; Ball Aerospace and Technologies Corp., USA.* The impact of spectral channel registration errors in an imaging grating spectrometer on the retrieval of temperature and water vapor profiles in the presence of opaque, low-level (~700 mb) clouds is investigated.

JWA22

Effects of Jitter Motion on Atmospheric Temperature and Humidity Retrievals from FTS IR Measurements, *Grzegorz Miecznik, Brian R. Johnson; Ball Aerospace and Technologies Corp., USA.* Co-registration errors caused by a line of sight jitter across a cloud boundary introduce spectral artifacts into hyperspectral FTS radiances. Analytical derivation and examples of atmospheric temperature and moisture retrieval sensitivity to jitter is presented.

JWA23

Study of High Temporal Ozone Product from Imagers Onboard Geostationary Satellites, *Xin Jin¹, Jun Li¹, Christopher C. Schmidt¹, Timothy J. Schmit², Jinlong Li¹; ¹Cooperative Inst. for Meteorological Satellite Studies (CIMSS), USA, ²Advanced Satellite Product Branch, Ctr. for Satellite Applications and Res., NESDIS/NOAA, USA.* The capability of total column ozone (TCO) measurements was demonstrated by the SEVIRI data as a proxy for ABI. The retrieved TCO has good agreement (R=0.92, RMSE=4%) with that from OMI onboard the EOS/Aura platform

JWA24

The Hyperspectral Infrared Sounding Simulation Study Using WRF Data, *Chian-Yi Liu¹, Jun Li¹, Timothy J. Schmit², Elisabeth Weisz¹, Erik Olson¹, Jason Otkin¹; ¹CIMSS, USA, ²NOAA/NESDIS/Ctr. for Satellite Applications and Res., USA.* The geostationary hyperspectral infrared sounder studied for the next generation GOES. An atmospheric sounding retrieval algorithm has been developed for processing the GHS under clear and cloudy skies through eigenvector regression with all IR channels.

5:00 p.m.–7:30 p.m.

Dinner Break (on your own)

FWD • FTS Postdeadline Session

Anasazi South

7:30 p.m.–9:00 p.m.

FWD • FTS Postdeadline Session

Donald E. Jennings; NASA Goddard Space Flight Ctr., USA, Presider

HWD • HISE Postdeadline Session

Zia

7:30 p.m.–9:00 p.m.

HWD • HISE Postdeadline Session

Jerome Riedi; Lab d'Optique Atmospherique, Univ. des Sciences et Technologies de Lille, France, Presider

•Thursday, February 15, 2007•

8:00 a.m.–12:00p.m.

Registration Open

FThA • Mertz Session

Anasazi South

8:30 a.m.– 10:30 a.m.

FThA • Mertz Session

David Naylor; Univ. of Lethbridge, Canada, Presider

FThA1 • 8:30 a.m.

•Invited•

Flight Performance and Scientific Results of the Fourier Transform Spectrometer Onboard the ASTRO-F (AKARI) Satellite, *Mitsunobu Kawada; Nagoya Univ., Japan*. We developed the imaging Fourier transform spectrometer (iFTS) of the infrared astronomical satellite AKARI, which was launched on February 21, 2006. The iFTS works very well and takes many far-infrared spectra of the sky.

FThA2 • 9:00 a.m.

•Invited•

Double Pendulum Interferometers in Planetary Missions, *Sergio Fonti; Univ. degli Studi di Lecce, Italy*. The discussion is focused on the advantages of using double pendulum interferometers in planetary missions, but also on the problems connected with their characteristics. Examples of existing and future instruments of this kind are given.

FThA3 • 9:30 a.m.

Basic Principle of Doppler Asymmetric Spatial Heterodyne Spectroscopy (DASH): An Innovative Concept for Measuring Winds in Planetary Atmospheres, *Christoph R. Englert¹, Michael H. Stevens¹, David E. Siskind¹, David D. Babcock¹, John M. Harlander²; ¹NRL, USA, ²St. Cloud State Univ., USA*. We introduce an innovative concept for inferring altitude profiles of horizontal atmospheric wind by measuring the Doppler shift of multiple emission lines versus altitude. Instruments using this approach will be well suited for planetary missions.

FThA4 • 9:45 a.m.

Wide-field Imaging FTSs at High Spectral Resolution for Astronomy, *Jean-Pierre Maillard; Inst. d'Astrophysique de Paris, France*. An imaging FTS as a direct imager can combine a wide-field coverage with a high spectral resolution. This unique property is exploited in several instrumental projects which are presented.

HThA • Radiative Transfer

Zia

8:30 a.m.– 10:30 a.m.

HThA • Radiative Transfer

Allen M. Larar; NASA Langley Res. Ctr., USA, Presider

HThA1 • 8:30 a.m.

•Invited•

Infrared Radiative Transfer in Cloudy Atmospheres and Retrieval Applications, *Jean-Luc Moncet¹, Robert d'Entremont¹, David Mitchell², Gennady Ulymin¹, Ryan Aschbrenner¹, Alan Lipton¹; ¹Atmospheric and Environmental Res., Inc., USA, ²Desert Res. Inst., USA*. The Optimum Spectral Sampling method for fast and accurate radiative transfer has been enhanced for speed in clear atmospheres and extended to cloudy atmospheres. Applications to retrieval of cloud properties from infrared measurements are described.

HThA2 • 9:00 a.m.

A New Model for Domain-Average Solar Radiative Transfer in the Cloudy Atmosphere with Validation from Recent Ground-Based O₂ A-band Spectroscopy, *Anthony B. Davis¹, Klaus Pfeilsticker²; ¹Los Alamos Natl. Lab, USA, ²Heidelberg Univ., Inst. für Umweltphysik, Germany*. We present a new forward radiation transport model targeting large-scale shortwave fluxes and radiances in the presence of arbitrary cloudiness. Excellent agreement with recent pathlength observations is achieved with just one spatial variability parameter.

HThA3 • 9:15 a.m.

Improvements to the Tafkaa Atmospheric Correction Algorithm for Hyperspectral Ocean-Color Data, *Marcos J. Montes, Bo-Cai Gao; NRL, USA*. The Tafkaa atmospheric correction algorithm, used primarily for atmospheric correction of ocean color data, has been improved to include the ability to use the full view-geometry and solar geometry for each pixel of data.

HThA4 • 9:30 a.m.

Forward Modelling of Aircraft and Satellite Radiances from the EAQUATE Campaign, *Stuart M. Newman; Met Office, UK*. The European AQUA Thermodynamic Experiment (EAQUATE) produced a comprehensive set of radiometric and in-situ profiles. These data are valuable for investigations into atmospheric radiative transfer and validation of temperature and humidity retrievals from hyperspectral sounders.

HThA5 • 9:45 a.m.

Modeling Aerosol Radiance for NCEP Data Assimilation, *Quanhua Liu¹, Yong Han^{2,1}, Paul van Dels¹, Fuzhong Weng²; ¹JCSDA, USA, ²NOAA/NESDIS/OR, USA*. CRTM can quantitatively simulate the aerosol effect on satellite radiances. Sensitivity studies show that the dust aerosol may reduce modeling brightness temperature by 1 Kelvin at 11 μm and 4 Kelvin at 3.7 μm .

FThA • Mertz Session (continued)**FThA5 • 10:00 a.m.**

A New Static Fourier-Transform Spectrometer: The First Spectra from Synthesis Temporal Aperture Reconstruction Spectrometer, *Stéphane Santran, Patrice Nagtegaele, Bruno Bousquet, Laurent Sarger, Lionel Canioni; CPMOH, France*. In the framework of spatial aperture synthesis, we developed a temporal aperture synthesis allowing the concatenation of several interferograms. We succeed to enhance the resolving power of static Fourier-transform spectrometers by a factor of 40.

FThA6 • 10:15 a.m.

A Broadband Spatial Heterodyne Spectrometer for High Resolution Studies of Faint Extended Emission Sources, *Walter Harris, Olivia Dawson; Univ. of Washington, USA*. Spatial heterodyne spectrometers (SHS) provide high étendue and spectral resolution in a compact instrument well suited for observing extended emissions over a narrow bandpass. Here we describe progress toward development of a tunable broadband SHS.

Anasazi North

10:30 a.m.–11:00 a.m.

Coffee Break

FThB • Brault Session

Anasazi South

11:00 a.m.– 12:30 p.m.

FThB • Brault Session

Mark Abrams; FastMetrix, Inc., USA, Presider

FThB1 • 11:00 a.m.

•Invited•

Far-IR Cirrus Cloud Radiative Properties from the Tropospheric Airborne Fourier Transform Spectrometer (TAFTS) Instrument, *Paul D. Green, Neil Humpage, Caroline Cox, Jon E. Murray, John E. Harries, Juliet C. Pickering; Imperial College London, UK*. We present the results from on-going work on cirrus cloud radiative emission in the far-IR from datasets collected in a number of recent campaigns involving the TAFTS instrument.

FThB2 • 11:30 a.m.

Airborne Forward-Looking Interferometer Turbulence Investigation, *William Smith¹, Stanislav Kireev¹, Gary Gimmestad², Leanne West², Xu Liu³, Philip Schaffner³, John J. Murray³; ¹Hampton Univ., USA, ²Georgia Tech Res. Inst., USA, ³NASA Langley Res. Ctr., USA*. The NASA Langley Research Center is conducting a feasibility study of a Forward-Looking Interferometer to detect and measure hazards to aircraft, including turbulence, low visibility, volcanic ash, icing conditions, wind shear, and wake vortices.

FThB3 • 11:45 a.m.

Design of a Fourier-Transform Spectral Imager for Airborne Measurements, *Yann Ferrec¹, Jean Taboury¹, P. Fournet¹, H. Sauer¹, F. Goudail¹, P. Chavel¹, Nicolas Guérineau², C. Coudrain², S. Théras², P. Cymbalista², J. Primo², J. Deschamps²; ¹IOTA, France, ²ONERA, France*. We present an experimental spectral imager based on a Michelson interferometer with dihedrons. This design allows a high geometrical étendue and a simplicity for fringes tuning.

HThA • Radiative Transfer (continued)**HThA6 • 10:00 a.m.**

Retrieval of Aerosol Properties from SAGE III Limb Scattering Measurements: Future Applications for OMPS, *Robert P. Loughman¹, Didier F. Rault², Terry Deshler³; ¹Hampton Univ., USA, ²NASA Langley Res. Ctr., USA, ³Univ. of Wyoming, USA*. SAGE III limb scattering (LS) radiances are inverted, producing stratospheric aerosol extinction profiles. Initial agreement with coincident solar occultation measurements is $25 \pm 75\%$, and adding aerosol size distribution retrievals should increase extinction retrieval quality.

HThA7 • 10:15 a.m.

Applications of Synthetic GOES-R Data, *Louie Grasso¹, Mark DeMaria², Renate Brummer¹; ¹CIRA/CSU, USA, ²NOAA/NESDIS/ORA/RAMMB, USA*. A method has been developed to create synthetic GOES-R data from high-resolution mesoscale model and radiative transfer calculations. This synthetic data is being used to evaluate the capabilities of GOES-R for severe weather analysis.

Anasazi North

10:30 a.m.–11:00 a.m.

Coffee Break

HThB • Sounding Retrievals

Zia

11:00 a.m.–12:30 p.m.

HThB • Sounding Retrievals

Fuzhong Weng; NOAA/NESDIS/ORA, USA, Presider

HThB1 • 11:00 a.m.

•Invited•

Development and Demonstration of Hyperspectral Infrared Only Sounding Retrieval, *Jun Li¹, Jinlong Li¹, Elisabeth Weisz¹, Chian-Yi Liu¹, Timothy J. Schmit², Allen Huang¹, Mitchell D. Goldberg², W. Paul Menzel¹; ¹Univ. of Wisconsin-Madison, USA, ²Ctr. for Satellite Applications and Res., NOAA/NESDIS, USA*. Algorithm has been developed for retrieving temperature and moisture profiles from hyperspectral infrared sounder radiances under both clear and cloudy skies. Focus has been on handling surface emissivity and clouds in infrared only sounding retrieval.

HThB2 • 11:30 a.m.

•Invited•

Capability of High Spectral Resolution Observations in the Infrared to Detect Water Vapor Structures, *Carmine Serio, Giuseppe Grieco, Guido Masiello; Univ. degli Studi della Basilicata, Italy*. The problem of physically-based inversion of high spectral resolution infrared observations for the retrieval of fine-scale vertical structures of water vapor in the lower atmosphere has been addressed in this study.

FThB • Brault Session (continued)

FThB4 • 12:00 p.m. •Invited•

AIRIS—The Canadian Airborne Infrared Hyperspectral Imager: Current Status and Future Developments, *Tracy Smithson; DRDC-RDDC Valcartier, Canada*. The AIRIS instrument, developed for the Defense Research and Development Canada, is described. Example measurements are presented and progress towards future real-time processing capabilities, discussed.

Anasazi South

12:30 p.m.– 12:45 p.m.

FTS Closing Remarks

HThB • Sounding Retrievals (continued)

HThB3 • 12:00 p.m. •Invited•

Dry Bias in Satellite-Derived Clear-Sky Water Vapor and its Consequences in Climate Change Studies, *B. J. Sohn; Seoul Natl. Univ., Republic of Korea*. Abstract not available.

Zia

12:30 p.m.– 12:45 p.m.

HISE Closing Remarks

Key to Authors and Presiders

A

Abrams, Mark—FThB
 Achterberg, R. K.—FMA5
 Ackerman, Steven A.—HMB1, HTuD2, HWB, JWA15
 Adler, Doug P.—FTuA3
 Arnold, G. Thomas—JWA15
 Aschbrenner, Ryan—HThA1

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Babcock, David D.—FTuC2, FThA3
 Banfield, Robert—JWA19
 Baran, Anthony J.—HTuD3
 Barnett, Christopher D.—HWA3
 Baum, Bryan A.—HMA3, JMA HTuA2, HTuA3 JWA18, JWA15
 Behr, Bradford B.—FWA4, FWC3
 Benner, Chris—FTuD3
 Bernard, Frédéric—FMC3
 Bernath, Peter—JMA2, FMC2, FWB
 Bernier, Anne-Pier—FWC4
 Best, Fred A.—JMA1, FTuA3, FTuA4, FTuA6, FTuA5
 Bézard, B.—FMA5
 Bingham, Gail E.—FMC4, FTuA3, FTuA4, FTuA6, JWA17
 Bissett, W. Paul—HMC4, JWA19
 Bjoraker, G. L.—FMA5
 Blackie, Douglas S.—FTuD2
 Blackwell-Whitehead, Richard J.—FTuD2, JWA2
 Boone, Chris—FMC2
 Borde, Regis—JWA13
 Bouffard, François—FMB3
 Bousquet, Bruno—FThA5
 Bovensmann, Heinrich—HWA4
 Brasunas, J. C.—FMA5
 Breon, Francois-Marie—JWA12
 Brown, Linda R.—FTuD3
 Brummer, Renate—HThA7
 Buchwitz, M.—HWA4
 Budevskaja, Boiana—FMB4
 Buil, Christian—FMC3
 Builtjes, Peter—JWA10
 Burrows, John P.—HWA4

C

Cadotte, Maxime—FTuB2
 Cai, Bin—HWC1
 Camy-Peyret, Claude—FMC1, JMA
 Canioni, Lionel—FThA5
 Cansot, Elodie—FMC3
 Cantwell, Gregory W.—FTuA3, FTuA4, FTuA5, FTuA6
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 Cenko, Andrew T.—FWA4, FWC3
 Chamberland, Martin—FTuB1, FTuB5, JWA8, JWA9
 Chance, Kelly—HWA2
 Charlebois, Maxime—FWC4
 Châteauneuf, François—FWB2
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 Chen, Xiuhong—HMC3
 Christensen, Philip R.—FMA4
 Coudrain, C.—FThB3
 Coustenis, A.—FMA5

Coutinho, Ricardo C.—FTuB3
 Cox, Caroline—FThB1
 Crozet, Patrick—FTuD4
 Currie, Douglas G.—FWA4, FWC3
 Cymbalista, P.—FThB3

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Damiani, Cilia—FTuC3
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 Davis, Anthony B.—HThA2
 Davis, Curtiss O.—HMC4
 Dawson, Olivia—FThA6
 DeMaria, Mark—HThA7
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 Deshler, Terry—HThA6
 Deuzé, Jean-Luc—HTuA4
 Devi, Malathy—FTuD3
 Diner, David J.—JWA12
 Dobeck, Laura—FWA6
 Dohlen, Kjetil—FWA2
 Dong, Chaohua—HWC1
 Drissen, Laurent—FWC4
 Drossart, Pierre—FTuC3
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 Englert, Christoph R.—FTuC2, FThA3
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 Fonti, Sergio—FThA2
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 Friedl-Vallon, Felix—FTuA, FWB5

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 Garg, Maneesha—JWA3
 Genest, Jérôme—FMB, FTuB2, JWA6, JWA7, JWA8, JWA9
 Gimmetstad, Gary—FThB2
 Girard, Véronique—JWA5
 Glew, Martin D.—HTuD3
 Goldberg, Mitchell D.—JMA3, HWA3, HThB1

Gom, B. G.—FWA1
 Goudail, F.—FThB3
 Goyal, Geetika—JWA3
 Grandell, Jochen—JWA13
 Grandmont, Frédéric—FWC4
 Grasso, Louie—HThA7
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 Green, Paul D.—FThB1
 Grieco, Giuseppe—HThB2
 Griffiths, Hugh D.—FTuB3
 Guelachvili, Guy—FMA, FTuD1, JWA5
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 Hausamann, Dieter—FTuD
 Hébert, Philippe—FMC3
 Holben, Brent—JWA12
 Holz, Robert E.—HTuA2, HTuD2, JWA15
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 Lipton, Alan—HThA1
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 Liu, Quanhua—HThA5
 Liu, Xu—JMA1, HMC2, JWA17, HWB1, HWB2, FThB2
 Liu, Yujie—HWC1
 Loeb, Norman G.—HTuC2, HTuD
 Loughman, Robert P.—HThA6
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 Lynch, Mervyn J.—HWB3

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 Maddy, Eric—HWA3
 Maestri, Tiziano—HTuD2
 Maillard, Jean-Pierre—FTuC3, FWC, FThA4
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 Meinhold, Michael—JWA11
 Menzel, W. Paul—HThB1
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 Mierkiewicz, Edwin J.—JWA1
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 Minnis, Patrick—HMB, HWC3
 Mitchell, David—HTuB2, HThA1
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Mlynczak, Martin—FMC4, HMA1, HWC
 Moncet, Jean-Luc—HThA1
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 Nassar, Ray—FMC2
 Nave, Gillian—JWA2, JWA4
 Naylor, David A.—FTuB4, FWA1, FThA
 Newman, Stuart M.—HTuD3, HThA4
 Niu, Jianguo—HMA3
 Nixon, C. A.—FMA5

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 Okamoto, Hajime—HTuC1
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 Pilewskie, Peter—HMA2, HTuA, HTuB3
 Platnick, Steven—HMA2, HTuA1, HTuA2, HTuB, JWA15
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 Rider, David M.—JMA4
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 Rinsland, Curtis—FMC2
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Romani, P. N.—FMA5
 Rosak, Alain—FMC3
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 Roy, Sebastien—JWA9
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 Sams, Robert L.—FMA3
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 Sarger, Laurent—FThA5
 Saucier, Philippe—FTuB2, JWA6
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 Sharpe, Steven W.—FMA3
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 Smith, William L.—JMA1, HMC2, FTuA3, FTuA4, FTuA5, FTuA6,
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 Sohn, B. J.—HThB3
 Soucy, Marc-André—FWB2
 Spangler, Lee H.—FWA6
 Spencer, Locke D.—FTuB4
 Stark, Glenn—FTuD2
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 Talbot, Frédéric—FTuB2, JWA6
 Tanii, Jun—FWB2
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Tansock, Joe—FTuA4, FTuA5, FTuA6, JWA17
Taurand, Geneviève—FTuB2
Tayahi, Moncef B.—JWA11
Taylor, Joe K.—FTuA3, FTuA4, FTuA5, FTuA6
Taylor, Jonathan P.—HTuD3
Teare, Scott—JWA20
Thériault, Jean-Marc—FMB3
Thétas, S.—FThB3
Thorne, Anne P.—FTuD2, JWA2
Thurman, Samuel T.—FWA5
Timmermans, Renske—JWA10
Tjemkes, Stephen—JWA10, JWA13
Tobin, David C.—FTuA3, FTuA4, FTuA5, FTuA6, JWA14
Tomosada, Mitsuhiro—FWB3
Toth, Robert A.—FTuD3
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Watson, Mike—FMC4
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Weisz, Elisabeth—HMC1, JWA24, HThB1
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Wendisch, Manfred—HMA, HMA2, HTuB3
Weng, Fuzhong—HTuC3, HThA5, HThB
West, Leanne—FThB2
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Winker, David—HTuC, HTuD1
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Zollinger, L. J.—JWA17