



NASA Joint AIRS/Sounder Science Team Meeting

Hotel Dena, Pasadena, California

September 24-27, 2024

(Times indicated are Pacific Time)

Tuesday, September 24, 2024

Introduction

Time (PDT)	Name	Affiliation	Title
8:00	Check In		Arrival and Registration
8:30	Vivienne Payne	NASA JPL	Introduction to the AIRS/Sounder STM
8:50	Will McCarty Justin Stachnik	NASA HQ NASA HQ	Perspective from HQ

Session 1: TOA Radiation and Climate

Chairs: Joao Teixeira (NASA JPL) & Maria Hakuba (NASA JPL)

9:10	Tristan L'Ecuyer	U. Wisconsin-Madison	PREFIRE: Mission Overview and First Light
9:30	Norman Loeb	NASA LaRC	Tracking Changes in Earth's Radiation Budget with CERES
9:50	Peter Pilewski	U. Colorado, Boulder	Libera Mission Summary and Status
10:10	Maria Hakuba	NASA JPL	Libera ERB Science and EEI Research

AM Break: 10:30 AM - 11:00 AM

11:00	Lazaros Oreopoulos	NASA GSFC	A high order cloud classification to study the radiative impacts of clouds
11:20	Xianglei Huang	U. Michigan	An observation-based decomposition of the trend of Earth's spectral OLR from 2013 to 2022: how AIRS, CrIS, and CERES depict a consistent story
11:40	David Tobin	U. Wisconsin-Madison	OLR estimates from CrIS and AIRS
12:00 PM	Brian Kahn	NASA JPL	Clouds and weather viewed from PREFIRE
12:20 PM	Discussion		

Lunch: 1:00 PM - 2:00 PM

2:00 PM	Joao Teixeira	NASA JPL	Direct Observational Evidence from Space of the Effect of CO2 Increase on Longwave Spectral Radiances
2:20 PM	Chanyoung Park Brian Soden	U. Miami U. Miami	Negligible Contribution from Aerosols to Recent Trends in Earth's Energy Imbalance
2:40 PM	Ryan Kramer	GFDL	Towards routine evaluation of global radiative changes in climate models and observations using sounder data
3:00 PM	Xiang Zhong	U. Arizona	The sensitivity analysis of TOA spectral SW flux to water vapor and surface reflectance
3:20 PM	Seiji Kato	NASA LaRC	Use of dual-regression with the average-then-retrieve approach in producing radiation budget climate data products
3:40 PM	Sergio De Souza-Machado	UMBC	Spectral and Geophysical Trends and Anomalies (2002-2024)

PM Break: 4:00 PM - 4:30 PM

4:30 PM	Shiv Priyam Raghuraman	U. Illinois	Greenhouse gas forcing and climate feedback signatures identified in hyperspectral infrared satellite observations
4:50 PM	Xiuhong Chen	U. Michigan	Reviving AIRS visible and near-IR channel radiances: long-term drift assessment and potential usage for a split-SW flux product
5:10 PM	Jonah Shaw	U. Colorado, Boulder/CIRES	Direct Radiance Comparisons between Satellite Records and Global Climate Models: Applications for the AIRS and PREFIRE Missions
5:30 PM	George Aumann	NASA JPL	Changes in the clouds in 20 years of AIRS data

Session 2: Planetary Boundary Layer

Chairs: Qing Yue (NASA JPL) & Joao Teixeira (NASA JPL)

5:50 PM	Heidar Thrastarson	NASA JPL	Global PBL Temperature and Water Vapor Products from Merged GNSS-RO, IR, and MW Satellite Observations: The SNWG PBL Project
6:10 PM	M. Pieper Adam Milstein Qing Yue	MIT Lincoln Lab, NASA JPL	Resolving PBL for real-world extreme event monitoring using hyperspectral IR sounder neural network retrievals
Adjourn: 6:30 PM			
 NASA Joint AIRS/Sounder Science Team Meeting Hotel Dena, Pasadena, California September 24-27, 2024			
Wednesday, September 25, 2024 Session 2: Planetary Boundary Layer (continued) <i>Chairs: Qing Yue (NASA JPL) & Joao Teixeira (NASA JPL)</i>			
8:30	Joao Teixeira Amin Nehrir	NASA JPL NASA LaRC	NASA's Decadal Survey Incubation for an Integrated PBL Observing System
8:50	Xubin Zeng	U. Arizona	What does sounders' information content mean?
9:10	Derek Posselt	NASA JPL	Exploring the Trade Space for Measurements of the Global Planetary Boundary Layer
9:30	Ryan Wade	NASA MSFC	Infusing Co-Development and Research-to-Operations/Applications into Satellite Sounder Science for Boundary Layer Applications
9:50	Qing Yue	NASA JPL	Using clustering to determine the regimes of the PBL thermodynamic vertical structures for satellite infrared sounding
10:10	Adam Milstein	MIT Lincoln Lab	Generative AI Techniques to Improve IR Retrievals in the Boundary Layer
AM Break: 10:30 AM - 11:00 AM			
11:00	Bjorn Lambrigtsen	NASA JPL	Observing the cloudy PBL with GeoSTAR
11:20	David Loveless	U. Wisconsin-Madison	On the Importance of Vertical Grid Selection for Thermodynamic Retrievals from a Synergy of Ground-based and Space-based Sounders
11:40	Bill Irion	NASA JPL	PBL temperature and water vapor by joint retrieval of AIRS and OCO2
12:00 PM	Yanqiu Zhu	NASA GSFC	Capturing capping inversion in PBL data assimilation in GEOS
12:20 PM	Discussion		
Lunch: 1:00 PM - 2:00 PM			
Session 3: Atmospheric Composition <i>Chairs: Madison Shogrin (Colorado State University) and Vivienne Payne (JPL)</i>			
2:00 PM	Tao Wang	NASA JPL	The interannual variability of CO observed by sounder instruments
2:20 PM	Leonid Yurganov	UMBC	Rapid evaluation of recent wildfires in Canada using TROPOMI and AIRS CO data
2:40 PM	Elyse Pennington	NASA JPL	Quantification and evaluation of TROPES tropospheric ozone trends using CrIS, AIRS, and OMI satellite products
3:00 PM	Mukesh Rai	NASA JPL	Long range pollution transport and air quality events in Los Angeles: Case studies illustrated using TROPES-CrIS products and TCR-2 reanalysis
3:20 PM	Elva Kuai	NASA JPL	Satellite Observed Ammonia Emissions Related to The Southern California Wildfires During 2020, September
3:40 PM	Ira Leifer	Bubbleology Research International	GHG Emissions from the Ports of Los Angeles and Long Beach: A Port CMS
PM Break: 4:00 PM - 4:30 PM			
4:30 PM	Seungwon Lee	NASA JPL	Carbon Cycle Anomalies Arising from the 2023 Canadian Wildfire Season Studied with TROPES-CRIS CO Retrieval Data
4:50 PM	Karen Cady-Pereira	AER	Ammonia retrievals from AIRS
5:00 PM	Madison Shogrin	Colorado State University	Evolution of ammonia (NH ₃) and peroxyacyl nitrates (PANs) in wildfire smoke plumes from space

5:20 PM	Dylan Millet	U. Minnesota	Volatile organic compound measurements from CrIS: Retrieval updates and applications for characterizing emissions and atmospheric oxidation
5:40 PM	Julieta Juncosa	U. Minnesota	Evaluating Cross track Infrared Sounder (CrIS) retrievals of Volatile Organic Compounds (VOCs) in wildfire smoke plumes using aircraft observations and GEOS-Chem model output
6:00 PM	Karen Cady-Pereira	AER	CrIS Methanol: Optimal Estimation vs Machine Learning
6:10 PM	Discussion		

Adjourn: 6:30 PM



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Thursday, September 26, 2024

Session 3: Atmospheric Composition (continued)

Chairs: Madison Shogrin (Colorado State University) and Vivienne Payne (NASA JPL)

8:30	Frank Werner (alternative presenter will show in person)	NASA JPL	Using Machine Learning to Predict Column Concentrations and Retrieval Diagnostics of the TROPES Atmospheric Composition Profiles
8:50	Josh Laughner	NASA JPL	Progress towards an AIRS PAN product consistent with CrIS PAN
9:10	David Moroni	NASA JPL	TROPES Dissemination: Datasets and Open-Source Software Tutorials
9:30	Discussion		

Session 4: Retrievals, Validation & Calibration

Chair: Bjorn Lambrigtsen (NASA JPL)

9:50	Bill Irion	NASA JPL	Single-footprint science from AIRS
10:10	Sergio DeSouza-Machado	UMBC	Evaluation of Allsky Single Footprint retrievals using Artificial Intelligence methods and Optimal Estimation methods

AM Break: 10:30 AM - 11:00 AM

11:00	Nadia Smith	STC	CLIMCAPS upgrades and science
11:20	Mathias Schreier	NASA JPL	Three ATMS orbiting the World : Comparisons, Continuity, and Observational Possibilities
11:40	Igor Yanovsky	NASA JPL	Uncertainties in Atmospheric Infrared Sounder (AIRS) spatial response functions
12:00 PM	Igor Yanovsky	NASA JPL	Quantifying Uncertainty in Atmospheric Winds Retrieved from Feature Tracking: Dependence on Weather Regime, Time Interval, Pressure Level, and Analysis with Independent Lidar Data
12:20 PM	Discussion		


Lunch: 1:00 PM - 2:00 PM

2:00 PM	Joe Taylor	U. Wisconsin-Madison	Status of the CrIS NASA L1B Products and Project
2:20 PM	Tom Pagano	NASA JPL	AIRS L1B/L1C V8 Radiometric Calibration
2:40 PM	George Aumann	NASA JPL	AIRS L1B/L1C V8 Spectral Calibration

Session 5: Weather and Climate

Chair: Greg Elsaesser (NASA GISS) & Eric Fetzer (NASA JPL)

3:00 PM	Oreste Reale	NASA GSFC	Progress on AI-driven adaptive thinning of CrIS radiances in the analysis of Tropical Cyclones
3:20 PM	Changyong Cao	NOAA	Progress in the Synergistic Use of High Resolution Imager with Infrared and Microwave sounders for NWP and Geophysical Retrievals

3:40 PM	Erica McGrath-Spangler	NASA GSFC	Complementarities of GEO and LEO sounders for NWP
PM Break: 4:00 PM - 4:30 PM			
4:30 PM	Mark Richardson	NASA JPL	Mesoscale air motion and thermodynamics predict heavy hourly U.S. precipitation
4:50 PM	Lance Wilson	GDIT	Pyroconvulimbus Early Warnings from NUCAPS Thermodynamic Profiles
5:10 PM	Gregory Elsaesser	Columbia University & NASA GISS	Single Field of View and Standard Level 2 Product Views of the Mesoscale Environments Before and After Deep Convection Initiates
5:30 PM	Kathleen Schiro	U. Virginia	Thermodynamic controls on tropical mesoscale convective system lifecycle and evolution
5:50 PM	Sun Wong	NASA JPL	Applications of HAMSr during NASA CPEX field campaigns for tropical convection
6:10 PM	Discussion		
Adjourn: 6:30 PM			
 NASA Joint AIRS/Sounder Science Team Meeting Hotel Dena, Pasadena, California September 24-27, 2024 Friday, September 27, 2024 Session 5: Weather and Climate (continued) Chair: Greg Elsaesser (NASA GISS) & Eric Fetzer (JPL)			
8:30	Tim Schmit	NOAA	GeoXO's Sounder: The Instrument and Potential Uses
9:00	John Forsythe	CIRA	Satellite Water Vapor Products at the Weather / Climate Interface
9:30	Michael Wallace	Michael Wallace and Associates	The Solar Driven Hydrospheric Manifold: Satellite and ocean reanalysis products map solar contributions to the global climatologically scaled circulation of water, energy, ozone, and carbon dioxide
9:50	Likun Wang	U. Maryland	New Stratospheric Temperature Climate Data Records by Merging SSU with AIRS
10:10	Baijun Tian	NASA JPL	Assessing the tropospheric temperature and humidity simulations in CMIP3/5/6 models using the AIRS Obs4MIPs V2.1 data
AM Break: 10:30 AM - 11:00 AM			
11:00	Xu Liu	NASA LaRC	Recent Algorithm updates on Generating Weather and Climate Products from More Than 20 Years of Hyperspectral Sounders Data
11:20	Alireza Farahmand	CSU LA	Recent Advancements and Future Directions in AIRS-Derived Drought Products
11:40	Sun Wong	NASA JPL	Pyro-atmosphere infrared sounder (PIRS) for wildland fire and weather interaction
12:00 PM	Derek Posselt	NASA JPL	The NASA Investigation of Convective Updrafts (INCUS) Mission: Tropics-Wide Observations of Convective Vertical Mass Flux
12:20 PM	Andrey Savtchenko	NASA GSFC	AIRS version 7 Night Surface Temperatures in the past four years – are the patterns right?
12:40 PM	Discussion		
End of Meeting: 1:00 PM			