CALIPSO & CloudSat Science Team Meeting 2022

Sept. 12th-14th (all times are mountain time – local to Fort Collins)
Hilton, Fort Collins, CO, 425 W Prospect Rd, Fort Collins, CO 80526

Day 1

8:00 Doors open

8:30 Welcome and Programmatic Updates

8:30 (Mission PIs) *Welcome*
8:35 (David Considine) *Headquarters Perspective*
8:45 (Chip Trepte) *CALIPSO status*
9:15 (Deb Vane) *CloudSat status*
9:30 (Barbara Braun) *formation flying and instrument ground track overlap*
9:45 (Heidi Hallowell) *CloudSat ACT-TWO operations*

BREAK (30 min)

10:30 Data Products and Processing

10:30 (Robert Ryan) REMOTE: *Using CALIPSO's New Ocean Derived Column Properties Product*
10:45 (Brian Getzewich) *CALIPSO Data Product Status*
11:00 (Gregg Dobrowalski) *CloudSat's Cloud Profiling Radar: Status, Performance, and latest data product changes*
11:15 (Amy Burzynski) *CloudSat Data Processing Center Status Update*
11:30 (Jason Tacket) *Critical Improvements to CALIOP Boundary Layer Cloud-Clearing in Version 4.5*
11:45 (Willem Marais) *Progress on simultaneously denoising CALIOP images and measuring high image resolution extinction coefficients*

LUNCH (1.5 hours)

1:30 Data Products and Processing Continued

1:30 (Mark Vaughan/pres: Sharon Rodier) *Correcting CALIOP Polarization Gain Ratios for Diurnal Variations*
1:45 (Matt Lebsock) *Using the surface reference technique to derive cloud liquid water path*
2:00 (Zhien Wang) *CloudSat lidar-aux product: CALIOP L1 colocation and cloud detection at the CloudSat footprint*

2:15 Science Reports

2:15 (Robert Wood) *Spatiotemporal transitions in marine low cloud systems using A-Train observations*

2:30 (Kevin Smalley) *A Lagrangian Perspective on the evolution of Pockets of Open Cells and the Surrounding Environment*

2:45 (Ryan Eastman) *Wind, rain, and the transition from closed to open cell stratocumulus*

BREAK (30 min)

3:30 Science Reports

3:30 (Tianle Yuan) *Cloud responses to ship-emitted aerosols viewed from CloudSat-CALIPSO and other sensors*

3:45 (Chen-Kuang (Kevin) Yang) *Near-Cloud Aerosol Retrieval Using A-Train Observations and Machine Learning Techniques*

4:00 (Alexander Marshak) *Analysis of CALIPSO observations of near-cloud changes in atmospheric aerosols*

4:15 (Johnny Luo) *A Satellite-Based Estimate of Convective Mass Flux*

4:30 (Hanii Takahashi) *Revisiting the Entrainment Relationship of Convective Plumes: A Perspective From Global Observations*

4:45 (Rachel Storer) *Entrainment – Core Relationships in Cloud Resolving Simulations of Deep Convection*

Day 2

8:30 Reports from other Programs

8:30 (Gerd-Jan van Zadelhoff) *Overview of the EarthCARE Level 2 Retrievals and Products*

9:00 (Donovan David) *ATLID Algorithms applied to ALADIN*

9:15 (Ellsworth Welton) *The NASA Micro Pulse Lidar Network: Version 3 data release and support of satellite lidar validation*

9:30 (Chip Trepte) *Models, In situ, and Remote sensing of Aerosols (MIRA) International Working Group*

9:45 (Tyler Thorsen) *NASA's Earth System Observatory - The Atmosphere Observing System (AOS) Mission*

BREAK (30 min)

10:45 Science Reports

10:45 (Gan Luo) REMOTE: *Vertical profiles of aerosol mass, number, and cloud droplet number during ATom campaign periods: a view from aircraft measurement, satellite retrieval, and model simulation*

11:00 (Mark Richardson) REMOTE: *Tropical cloud height trends since 2002*

11:15 (David Mitchell) *A Reformulated CALIPSO (IIR) Retrieval for Cirrus Cloud Ice Particle Number Concentration, Effective Diameter and Ice Water Content*

11:30 (Anne Garnier) *Identification of Mixed Phase Clouds Using Combined CALIPSO Lidar and Imaging Infrared Radiometer Observations*

11:45 (Seiji Kato) *Cloud top height of deep convective clouds derived from Cloudsat and CALIPSO observations*

LUNCH (1.5 hours)

1:30 Science Reports

1:30 (Zhibo Zhang) *Using the combination of CALIOP, IIR and other satellite instruments to improve dust remote sensing and direct radiative effect estimate*

1:45 (Jianyu Zheng) *The retrieval of infrared dust optical depth and coarse-mode effective diameter based on collocated MODIS and CALIOP observations*

2:00 (Norm Wood) *Snowfall in elevated terrain: Satellite-borne radar perspectives*

2:15 (Guosheng Liu) *Understanding the sensitivity of solid to total precipitation ratio to temperature change using satellite radar data*

Posters (1.5 hours)

4:00 Science Reports

4:00 (Brian Soden)	REMOTE: *Examining the Role of Cloud Radiative Interactions in Tropical Cyclone Development using CloudSat Measurements and WRF Simulations*
4:15 (Jie Gong)	*A GCM-Oriented Passive Microwave Diurnal Ice/Snow Cloud Retrieval Product using CloudSat/CALIPSO as the Baseline*
4:30 (Xiaomei Lu)	*New applications of CALIPSO data*
4:45 (Kang Yang)	*Characterizing seasonal and interannual variations of tropical deep convective clouds by combining MODIS with CloudSat/CALIPSO measurements*

Day 3

8:30 Science Reports

8:30 (Legras Bernard) REMOTE: *The evolution and dynamics of the Hunga Tonga plume in the stratosphere*

8:45 (Yunqian Zhu) *2022 Hunga-Tonga eruption: stratospheric aerosol evolution in a water rich plume*

9:00 (Dale Allen) *Examining the relationship between aerosols, deep convection, and lightning over the Amazon Basin*

9:15 (Poushali Ghosh) *A CloudSat-CALIPSO view of extratropical cyclone occluded quadrants*

9:30 (Rick Schulte) *Retrieval Yield of the CloudSat Cloud Water Content Products*

9:45 (Joe Kelly) *Retrieving cloud properties in 3D from A-Train observations using radiative transfer emulator and particle flow methods*

BREAK (30 min)

10:30 Science Reports

10:30 (Gregory Cesana) REMOTE: *Observational constraint on a feedback from supercooled clouds reduces projected warming uncertainty*

10:45 (Mark Vaughan/pres: Anne Garnier) *Diurnal Differences in Lidar Ratios for Opaque Water Clouds*

11:00 (Ute Herzfeld) *Detection of Tenuous Cloud and Aerosol Layers in CALIPSO and ICESat-2 Data with the Density-Dimension Algorithm*

11:15 (Yuekui Yang) *Study of Antarctic Boundary Layer Properties under different sky conditions using CALIPSO and surface observations*

11:30 (Anne Sledd) *The Influence of Arctic Clouds on Annual Maximum SST in the Community Earth System Model*

11:45 (Roj Marchand) *Southern Ocean precipitation observed from CloudSat and ground instrumentation at Macquarie Island*

LUNCH (1.5 hours)

1:30 Science Reports

1:30 (Sharon Burton) REMOTE*: Optimization retrievals of backscatter and extinction profiles for space-based HSRL*

1:45 (Lazaros Oreopoulos) *Employing CloudSat-CALIPSO cloud fields in assessments of GCM subcolumn generators*

2:00 (Jay Mace) *Mixed-Phase Clouds Over the Southern Ocean as Observed From Satellite and Surface Based Lidar and Radar*

2:15 (Jean-Pierre Chaboureau) *Acceleration of the southern African easterly jet driven by the radiative effect of biomass burning aerosols and its impact on transport during AEROCLO-sA*

BREAK (30 min)

3:00 Science Reports

3:00 (Ping Yang) *Global distribution of mineral dust load and microphysical properties revealed from synergistic CALIPSO observations and state-of-the-science light-scattering simulations*

3:15 (David Henderson) *Assessing Cloud Optical Depths and Radiative Effects Using CloudSat R05 2b-FLXHR-lidar product*

3:30 (Lazaros Oreopoulos) *Energy exchanges through the prism of Cloud Vertical Structure "active" regimes*

3:45 (Juliet Pilewskie) *A Global Perspective of Deep Convective Clouds, Precipitation, and Radiative Effects with A-Train Observations*

4:00 (Dave Winker) *Limits to CALIOP aerosol retrieval performance*

4:15 (John Haynes) *CloudSat and CALIPSO's Role in Creating NOAA Operational 3D Cloud Products*

4:30 (Rich Ferrare) *Airborne HSRL-2 Measurements of Non-Spherical Sea Salt and Implications for CALIOP Aerosol Retrievals*

POSTERS

1. William Bertrand
   Combined CloudSat+CALIPSO Level 3 Cloud Fraction Data Product
2. Thibault Vaillant de Guélis
   REMOTE*: Assessing the benefits of Imaging Infrared Radiometer observations to the CALIOP version 4 cloud and aerosol discrimination algorithm*
3. Thibault Vaillant de Guélis
   REMOTE*: 2D-CALIOP: A new set of detection, classification, and extinction retrieval algorithms for CALIPSO lidar measurements*
4. Anne Garnier
   The CALIPSO V1.00 IIR Level 3 GEWEX Cloud Product
5. Michael Pitts
   Improved Characterization of PSC Processes Derived from a Third-Generation CALIOP and MLS Detection and Composition Classification Algorithm
6. Hongbin Yu
   Profiling particle properties within the 2020 Godzilla dust plume with CALIPSO lidar observations
7. Chamara Rajapakshe
   Aerosol 3-D distributions around North Pacific cyclones observed by CALIOP and MODIS
8. Catherine Naud
   A CloudSat-CALIPSO view of extratropical cyclone occluded quadrant
9. Kentaroh Suzuki
   REMOTE*: Evaluation of warm rain process in multiple global models with CloudSat and MODIS*
10. Shan Kowalski
    Characterization Of Drizzle in Marine Boundary Layer From CALIOP With Machine Learning Method
11. Mark Smalley
    How can reanalyses contribute to microphysical parameterization development and validation?
12. Meloë Kacenelenbogen
    Effects of Aerosol and Cloud Variability on Satellite-Derived All-skies Direct Aerosol Radiative Effects (DARE) over the North and Southeast Atlantic
13. Brian Getzewich
    CALIPSO Data Product Status
14. Seung-Hee Ham
    Different Features of Cloud Macrophysical Changes Observed by MODIS, CALIPSO, and CloudSat for the 11-Year Period
15. Giovanni Souza
    REMOTE*: SAA Evaluation at SPU Lidar Station: A temporal comparison*
16. Jie Gong
    A Machine Learning Based Approach for Disaggregation of Multi-layer Cloud using Advanced Baseline Imager (ABI) and CloudSat/CALIPSO Observations

17. Jie Gong
    3D Reconstruction of Multilayer cloud mask using CloudSat/CALIPSO and ABI Observations
18. Sean Leister
    Understanding 21st Century Arctic Precipitation: How Does It Change And Is It Observable?
19. Xia Cai
    Comparing 2D and 3D Cloud Occurrences from the CALIOP Level 3 GEWEX and Cloud Occurrence products
20. Huilin Han
    Towards development of a new operational algorithm for detection of tenuous cloud and aerosol layers in CALIPSO data: The CALIOP Density Dimension Algorithm (CALIOP-DDA)
21. Matt Lebsock
    Precipitation effect on droplet spectral width: impact on estimates of cloud droplet number
22. Zhibo Zhang
    Understanding the microphysical control and spatial-temporal variability of warm rain probability using CloudSat and MODIS observations.
23. Anita Rapp
    Increasing deep convection radiative heating efficiency with a moistening and contracting ITCZ
24. Rick Schulte
    Reconciling the Differences between CloudSat and GPM Estimates of Warm Rain
25. Hanii Takahashi
    Detection and Tracking of Tropical Convective Storms Based on Globally Gridded Precipitation Measurements: Algorithm and Survey over the Tropics
26. Kevin Smalley
    Inferring the Sensitivity of Warm Rain Efficiency to Cloud Size and the Environment using A-Train Observations
27. Tao Wang
    Study of the pathways of Antarctic blowing snow from trajectory model
28. Chip Trepte
    CALIOP view of shallow convection