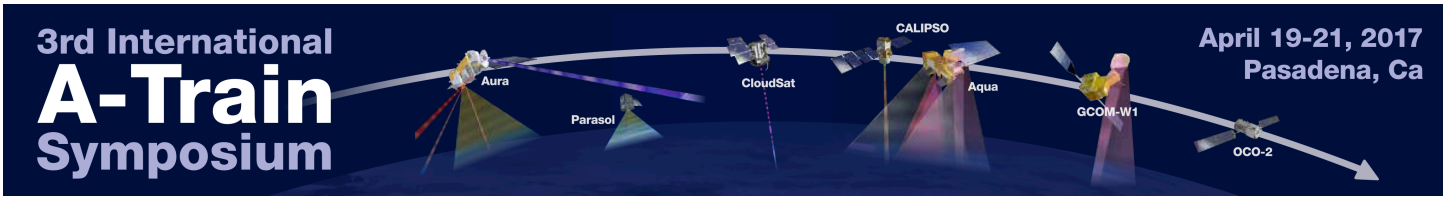

Welcome

For over a decade, the A-Train Constellation has successfully collected a uniquely comprehensive environmental data set. The 3rd International A-Train Symposium will be an opportunity to learn and exchange information about A-Train scientific breakthroughs and to highlight how Earth science has benefitted from the long, continuous, multi-sensor data set. The 3rd Symposium follows on previous A-Train Symposia held in Lille, France in 2007 and in New Orleans in 2010.

The Symposium will emphasize science capabilities and advancements realized from 10+ years' worth of data gathered by the A-Train's multi-sensor system. Particular emphasis will be placed on analyses of climatic trends and inter-annual variability. Morning plenary sessions will include invited keynote talks, while afternoon sessions will include selected oral talks and posters aligned with the four theme areas below:

- Atmospheric composition and chemistry
- Aerosol particles, clouds, radiation, and the hydrological cycle
- Oceanic, terrestrial, and atmospheric components of the carbon cycle
- Weather prediction and other operational applications

Thank you for joining us as we take this opportunity to enhance our understanding of the capabilities of the A-Train and learn of its successes.

Sincerely,

The A-Train Symposium Organizing Committee

Deb Vane, Hal Maring, Chip Trepte, Steven Platnick, Matthew Lebsock, Graeme Stephens, David Crisp, Didier Tanre, Pierre Tabary, Jerome Riedi, Jacques Pelon, Lazaros Oreopoulos, Bryan Duncan, Howard Barker, Tobias Wehr, Liz Juvera

3rd International A-Train Symposium, 2017
Pasadena Convention Center
Pasadena, California, USA

https://atrain2017.org/

DAY 1 – 19 APRIL		
0730-0815	**REGISTRATION**	
0815-0845	***WELCOMING REMARKS AND LOGISTICS***	
	A-Train Program Scientist view	Hal Maring
	NASA Earth Science Directorate view	Jack Kaye
	Logistics	Liz Juvera
0845-0915	***OPENING REMARKS***	***GRAEME STEPHENS***
SESSION 1 - CLOUDS, RADIATION AND HYDROLOGY (PART 1)		***PIERRE TABARY and MATT LEBSOCK – SESSION LEADERS***
0915-0930	Influence of Ice Cloud Microphysics on Imager-Based Estimates of Earth's Radiation Budget	Norman G. Loeb, Fred G. Rose, Gang Hong - SSAI / NASA LaRC, Sunny Sun-Mack - SSAI / NASA LaRC, Seiji Kato, Patrick Minnis - NASA LaRC, Bill Smith, Jr., Ping Yang, Seeing-Hee Ham
0930-0945	The Role of Cloud Phase in Modulating Global Cloud Radiative Effects	Tristan L'Ecuyer – Uni Wisc, Alexander Matus – Uni Wisc, Yun Hang – Uni Wisc, Kristof van Tricht – KU Leuven
0945-1000	Rethinking How Cirrus Clouds Impact Climate – Lessons Learned from CALIPSO and MPLNET	James R. Campbell-NRL, Simone Lolli-UMBC, Jasper R. Lewis-UMBC, Ellsworth J. Welton-GSFC, Yu Gu-UCLA, Anthony Bucholtz-NRL, Jerome M. Schmidt-NRL, Mayra I. Oyola - ASEE/Naval Research Laboratory, Anne Garnier - SSAI, Jason L. Tackett-SSAI, Mark A. Vaughan-NASA Langley, Jared W. Marquis – Univ. North Dakota, Jianglong Zhang – Univ. North Dakota
1000-1030	**BREAK**	
1030-1045	Direct atmosphere opacity observations from CALIPSO provide new constraints on cloud-radiation interactions	Rodrigo Guzman - LMD, Helene Chepfer - LMD, Vincent Noel - LA, Thibault Vaillant de Guélis - LMD, Jennifer Kay - CIRES/ATOC, Patrick Raberanto - LMD, Gregory Cesana - JPL, David Winker– NASA LaRC
1045-1100	Toward reducing surface and atmospheric energy balance residual	Seiji Kato - NASA LaRC, Kuan-man Xu - NASA LaRC, Takmeng Wong - NASA LaRC, Norman G. Loeb - NASA LaRC, Fred G. Rose NASA - LaRC, Kevin E. Trenberth - NCAR, Tyler J. Thorsen - NASA LaRC
1100-1115	Testing climate sensitivity using CERES data	Andrew Dessler - Texas A&M
1115-1130	Understanding the cloud lifetime effect using meteorological and thermodynamic regimes	Alyson Douglas – Uni Wisc, Tristan L'Ecuyer - Uni Wisc
1130-1145	Cloud and environmental regime dependence of precipitating cloud radiative impact parameters using CloudSat/CALIPSO	Anita D. Rapp - Texas A&M University, Lu Sun - Texas A&M University, Tristan L'Ecuyer - Uni Wisc
1145-1200	Status of GCOM-W/AMSR2 and its Contribution to Climate and Water Studies	Misako Kachi - JAXA, Takashi Maeda - JAXA, Hiroyuki Tsutsui - JAXA, Marehito Kasahara - JAXA, Masaaki Mokuno - JAXA, Taikan Oki - JAXA, Univ. of Tokyo
1200-1330	**LUNCH**	

DAY 1 – 19 APRIL – continued		
SESSION 2 - ATMOSPHERIC COMPOSITION AND CARBON (PART 1)		***KEVIN BOWMAN – SESSION LEADER***
1330-1345	An integrated view of North American biosphere carbon flux inter-annual variability: from satellite CO2, phenology, to eddy covariance observations	Junjie Liu, Kevin Bowman, Dave Schimel, Nick Parazoo, Anthony Bloom, Meemong Lee, Kevin Gurney, Dimitris Menemenlis
1345-1400	Using A-Train observations to examine resilience and vulnerability of Arctic and boreal ecosystems to climate change	Nicholas C. Parazoo (JPL)
1400-1415	Combining CALIOP and OCO2 for improved XCO2 retrieval	Aronne Merrelli - University of Wisconsin-Madison, Ralf Bennartz - University of Wisconsin - Madison, Chris O'Dell - Colorado State University
1415-1430	Synergistic Observations from OCO-2 and Other A-Train Sensors	David Crisp - JPL, Annmarie Eldering - JPL, for the OCO-2 Science Team
1430-1445	GEOS-Chem adjoint inversion of aerosol source emissions with multi-sensor (MODIS, MISR, and OMI) datasets over east Asia	Jun Wang - UIowa, Xiaoguang Xu - Uiowa, Yi Wang - UIowa, Daven Henze – U Colorado, Zheng Qu-U Colorado, Yuxuang Wang-U Houston
1445-1500	CALIOP-based Biomass Burning Smoke Plume Injection Height: The Reality	Amber Soja - NIA / NASA LaRC, Hyun-Deok Choi - NIA / NASA LaRC, Duncan Fairlie – NASA LaRC, George Pouliot – EPA, David Winker– NASA LaRC, Charles Trepte – NASA LaRC, James J Szykman – EPA
1500-1630	***POSTER SESSION 1 – Clouds, Radiation, Hydrology***	
SESSION 3 - AEROSOLS (PART 1)		***JACQUES PELON – SESSION LEADER***
1630-1645	Use of A-train observations to characterize the physical properties of the Asian Tropopause Aerosol Layer (ATAL) and links to deep convection in the Asian Summer Monsoon	T. Duncan Fairlie - NASA LaRC, Jean-Paul Vernier - SSAI, Melody Avery - NASA Langley, Kristopher Bedka - NASA LaRC, Murali Natarajan - NASA laRC, Hongyu Liu - NIA
1645-1700	Use of A-Train aerosol observations to constrain direct aerosol radiative effects (DARE) – comparisons with AeroCom models and uncertainty assessments	Jens Redemann - NASA ARC, Yohei Shinozuka - BAERI/NASA ARC, Meloe Kacenelenbogen - BAERI/NASA ARC, Michal Segal-Rozenhaimer - BAERI/NASA ARC, Samuel LeBlanc - BAERI/NASA ARC, Mark Vaughan - NASA LARC, Philip Stier - Oxford University, Nick Schutgens - Oxford University
1700-1715	Use A-Train, SEVIRI and WRF to understand the influence of biomass burning smoke aerosols on regional radiative energy budget of SE Atlantic region	Zhibo Zhang - JCET UMBC, Hongbin Yu, Kerry Meyer – NASA GSFC, Xiaohong Liu, Zheng Lu, Steven Platnick - NASA, Lazaros Oreopoulos - NASA
1715-1745	Applying MISR's 17-year Global Record of Aerosol Observations	R.A. Kahn and the MISR Team
1745-1800	***DISCUSSION***	
1800	***ADJOURN***	

DAY 2 - 20 APRIL		
SESSION 4 - CLOUDS, RADIATION AND HYDROLOGY (PART 2)		***LAZAROS OREOPOULOS – SESSION LEADER***
0800-0815	On the use of A-Train observations to study convective processes and convective dynamics	Johnny Luo
0815-0830	Tropical Convective Clouds and Cloud Feedback	Dennis L Hartmann, Sara E Berry
0830-0845	A-Train Observations of the Unusual 2015/2016 El Nino in the Tropical Pacific	Melody Avery - NASA Langley, Sean Davis - CIRES/NOAA, Karen H Rosenlof - NOAA, Mark A. Vaughan-NASA Langley, Brian J. Getzewich-SSAI/NASA Langley, Mark R. Schoeberl - STC
0845-0900	Deep convective cloud system size and structure: thermodynamic forcing and modification by aerosols	Eric Wilcox - DRI
0900-0915	Tightening of Hadley ascent key to radiative control on precipitation change in a warmer climate	Hui Su-JPL, Jonathan Jiang-JPL, David Neelin-UCLA, Janice Shen-JPL, Chengxing Zhai-JPL, Qing Yue-JPL, Zhien Wang-U. Wyoming, Lei Huang-JIFRESSE,Y.-S. Choi-Ewha Womans Univ., Graeme Stephens-JPL, Yuk Yung-Caltech
0915-0930	TropIcal Upper tropospheric cloud systems from AIRS, in synergy with AMSR-E, CALIPSO and CLOUDSAT: properties and feedbacks	Sofia Protopapadaki -LMD, Claudia Stubenrauch - LMD, Artem Feofilov - LMD
0930-0945	Aerosols, clouds and precipitation in extratropical cyclones: relationships as observed with the A-train	Catherine Naud - Columbia University/NASA GISS, James F Booth - CUNY-CCNY, Susan C van den Heever - CSU, Derek J Posselt - JPL, Anthony D Del Genio - NASA-GISS
0945-1045	***POSTER SESSION 2 – AEROSOLS AND ATMOSPHERIC CHEMISTRY AND CARBON***	
SESSION 5 - WEATHER		***JOAO TEIXEIRA – SESSION LEADER***
1045-1100	A-Train Impact on Global Satellite Measurements Used for Numerical Weather Prediction	Mayra I. Oyola -ASEE/Naval Research Laboratory, Jared W. Marquis – Univ. North Dakota, James R. Campbell – Naval Research Laboratory, Benjamin Ruston - Naval Research Laboratory, Nancy Baker - Naval Research Laboratory, Jianglong Zhang – Univ. North Dakota, Edward J. Hyer - Naval Research Laboratory, Douglas L. Westphal - Naval Research Laboratory
1100-1115	Validation of RTTOV ice cloud and aerosol parameterization using the A-Train	Jerome Vidot - CMS, Pascal Brunel - CMS
1115-1130	Advancing drought monitoring and prediction using A-train data	Yixin Wen, Ali Behrangi - JPL, Steve Licata - JPL, Stephanie Granger - JPL, Tsegave Tadesse, Ying Sun
1130-1145	Atmospheric Boundary Layer from Space: AIRS and the A-Train	Q. Yue - JPL, E. Fetzer - JPL, J. Teixeira - JPL, B. Kahn - JPL, P. Kalmus - JPL, M. Schreier - JPL, H. Xiao – PNNL, S. Wong – JPL
1145-1200	Tornadogenesis: View from the A-Train. Part II: Model	Sean Freeman – CSU, Susan C van den Heever - CSU, Brian H. Kahn - JPL, Peter Kalmus - JPL
1200-1215	Seasonal and Latitudinal Variability of Boundary Layer Cloud and Precipitation Properties in the Southern Ocean as Diagnosed from A-Train Data	Jay Mace
1215-1230	Assessing a high-resolution NWP model's ability to predict high ice water content conditions using data from A-Train satellites and in situ aircraft	Zhipeng Qu - ECCC, Alexei Korolev - ECCC, Howard Barker - ECCC, Mengistu Wolde - NRC, Alfons Schwarzenboeck - CRNRS, Delphine Leroy - CNRS, J. Walter Strapp - MAI, Jason Milbrandt - ECCC, Stephane Belair - ECCC, Jason Cole - ECCC
1230-1400	***LUNCH – CASH AND CARRY***	***INVITED TALK: Economic Value of a New Climate Observing System – Bruce Wielicki, NASA/LaRC***

DAY 2 - 20 APRIL - continued		
SESSION 6 - SPECIAL SESSION		***HAL MARING – SESSION LEADER***
1400-1415	EarthCARE - The Earth Cloud, Aerosol and Radiation Profiling Satellite Mission	Michael Eisinger - ESA, Tobias Wehr - ESA, Alain Lefebvre - ESA,Dulce Lajas - ESA, Arnaud Heliere - ESA, Kotska Wallace - ESA, Damien Maeusli - ESA, Jerzy Lemanczyk - ESA, Rob Koopman - ESA
1415-1430	Observing clouds from the Multi-Viewing Multi-Channel Multi-Polarization Imager Mission of the EUMETSAT Polar System - Second Generation (EPS-SG)	Jérôme Riédi - LOA, Laurent C.-Labonnote - LOA, Celine Cornet - LOA, Nicolas Ferlay - LOA, François Thieuleux - LOA, Frederic Parol - LOA, Philippe Dubuisson - LOA, Fabien Contaut - LOA, Guillaume Merlin - LOA
1430-1445	The CubeSat Infrared Atmospheric Sounder (CIRAS). Reducing the cost of future A-train-like measurements	Thomas Pagano
1445-1500	Scientific requirements for AMSR2 follow-on	Haruhisa Shimoda, Tokai University
1500-1515	Spaceborne Cloud and Precipitation Radars: state of the art and new concepts	Simone Tanelli - JPL, Stephen L. Durden - JPL, Gregory Sadowy - JPL, Eva Peral - JPL, Ziad S. Haddad - JPL, Ousmane O. Sy - JPL, Eastwood Im - JPL, F. Joseph Turk-JPL, Graeme Stephens - JPL
1515-1645	***POSTER SESSION 3 – SPECIAL SESSION, WEATHER & APPLICATIONS, DATA AND OTHER TOPICS***	
SESSION 7 - ATMOSPHERIC COMPOSITION AND CARBON (PART 2)		***DAVID CRISP – SESSION LEADER***
1645-1700	A tropospheric chemistry reanalysis based on an assimilation of the A-Train's multi-sensor system	Kazuyuki Miyazaki - JAMSTEC/JPL- CalTech, Henk Eskes, Folkert Boersma, Kengo Sudo - Nagoya Univ/JAMSTEC, Kevin Bowman
1700-1715	Retrieval of aerosol height from a combination of OMI and MODIS using a neural network approach	Julien Chimot - TU Delft, Pepijn Veefkind - KNMI / TU Delft, Tim Vlemmix - TU Delft
1715-1730	Profiles of Tropospheric Ozone, Carbon Monoxide and Methane Retrieved from Multiple Satellites	Dejian Fu, Kevin W. Bowman, Susan S. Kulawik, John R. Worden, Helen M. Worden, Kazuyuki Miyazaki - JAMSTEC/JPL-CalTech, Vivienne H. Payne, Jessica Neu, Ming Luo, Vijay Natraj - JPL, Pepijn Veefkind - KNMI / TU Delft, Ilse Aben, Jochen Landgraf, Lawrence E. Flynn, Han Yong, Lawrence L. Strow, Xiong Liu
1730-1745	Emergent constraints in chemistry-climate interactions: a Bayesian Approach	Kevin Bowman - JPL/Caltech, Noel Cressie, Le Kuai, Helen M. Worden, Jeff Jewell
1745-1800	***DISCUSSION - FUTURE CONSTELLATIONS: CHALLENGES AND OPPORTUNITIES***	***GRAEME STEPHENS - DISCUSSION LEADER***
1800	***ADJOURN***	

DAY 3 – 21 APRIL		
SESSION 8 - CLOUDS, RADIATION AND HYDROLOGY (PART 3)		***JEROME RIEDI AND NORMAN LOEB – SESSION LEADERS***
0800-0815	Cloud properties retrieved from OCO-2	Mark Richardson, Heather Cronk - CSU/CIRA, Tommy Taylor - CSU/CIRA, Anthony Davis - JPL, James McDuffie - JPL, Graeme Stephens - JPL
0815-0830	O2 A-band measurements from MERIS, OLCI, GOSAT and OCO-2 to assess cloud vertical structures	Florian Tornow - Freie Universität Berlin, Jürgen Fischer - Freie Universität Berlin, Ulrich Kuester - FUB, Cintia Carbajal - FUB, Rene Preusker - FUB
0830-0845	A-Train over the Arctic: a humble success story	Abhay Devasthale - SMHI, Tristan L'Ecuyer - Uni Wisc, Linette Boisvert - NASA GSFC, Brian H. Kahn - JPL, Eric J. Fetzer - JPL
0845-0900	The Atmospheric Infrared Sounder and the Arctic: What have we learned?	Linette Boisvert - NASA GSFC, Dong L. Wu - GSFC, Chung-Lin Shie - GSFC, Thorsten Markus - GSFC, Julienne Stroeve - GSFC, Alek Petty - GSFC, Timo Vihma - FMI
0900-0915	Advances from the A-Train and challenges for the future	Dave Winker
0915-0930	Estimation of the ice crystal number concentration from CALIPSO/CloudSat observations	Odran Sourdeval - LIM, Edward Gryspeerdt - Imperial College London, Julien Delanoë - LATMOS, Friederike Hemmer - LOA, Johannes Quaas - LIM
0930-0945	CloudSat Guided Global Snowfall Estimation from Multiple Satellites	Guosheng Liu - FSU, Elizabeth Sims - FSU, Mengtao Yin - FSU
0945-1000	Advancing global precipitation measurement in light of A-train observations	Ali Behrangi - JPL, Robert Adler -UMD, George Huffman -NASA, Mark Richardson -JPL, Mathew Lebsock - JPL
1000-1030	**BREAK**	
1030-1045	Passive microwave and visible/near infrared retrievals of boundary layer cloud physical properties	Ralf Bennartz - University of Wisconsin - Madison
1045-1100	Ultra-clean Layers and Low Albedo Clouds in the Marine Boundary Layer	Robert Wood - University of Washington, Paquita Zuidema - University of Miami, Chris Bretherton - University of Washington, Bruce Albrecht - University of Miami, Virendra Ghate - Argone National Lab, Mampi Sarkar - University of Miami, Susanne Glienke - Michigan Technological University, Kuan-ting O - University of Washington, Johannes Mohrmann - University of Washington, Raymond Shaw - Michigan Technological University, Jacob Fugal - Mainz University
1100-1115	A Lagrangian Analysis of the Subtropical Stratocumulus PBL	Ryan Eastman, Robert Wood - University of Washington
1115-1130	Seasonal and Internal-annual Cloud Type Variations as Revealed by 10-year CloudSat and CALIPSO Measurements and Its Implications	Zhien Wang-U. Wyoming, Tao Luo-U. Wyoming, Kang Yang- U. Wyoming, Min Deng-U. Wyoming
1130-1145	Bayesian Retrievals of Vertically Resolved Cloud Properties	Derek J. Posselt - JPL, Zhuocan Xu - University of Utah, Jay Mace - University of Utah
1145-1200	***DISCUSSION***	
1200-1330	**LUNCH**	

DAY 3 – 21 APRIL - continued		
SESSION 9 - AEROSOLS		***CHIP TREPTE – SESSION LEADER***
1330-1345	Consistency of aerosols above clouds characterization from active and passive A-Train sensors	Lucia Deaconu - LOA, Fabien Waquet - LOA, Damien Josset-USNRL, Nicolas Ferlay - LOA, Nicolas Pascal - HYGEOS AERIS/ICARE DATA AND SERVICES CENTER, Philippe Goloub - LOA, Fabrice Ducos - LOA, François Thieuleux - LOA, Fanny Peers - CEMPS University of Exeter UK, Didier Tanré – LOA, Pierre Tabary-CNES
1345-1400	Light absorption by aerosols from A-Train satellite data and global model	Mian Chin, Huisheng Bian, Hiren Jethva, Omar Torres, Tom Kucsera - NASA GSFC, USA; Oleg Dubovik, Pavel Litvinov, Tatyana Lapyonok, Fabrice Ducos, David Fuertes, Cheng Chen - University of Lille/GRASP, France
1400-1415	9 years of PARASOL/POLDER observations reprocessed : a unique dataset for retrieving atmospheric properties	Pierre Tabary-CNES , Didier Tanré - LOA, Anne Lifermann - CNES, Bertrand Fougnie – CNES
1415-1430	Influence of long-range anthropogenic transport on arctic cloud phase transitions	Quentin Coopman - LOA, Douglas P. Finch - University of Edinburgh, Jérôme Riédi – LOA, Timothy J. Garrett - University of Utah
1430-1445	Vertically resolved CALIPSO-CloudSat aerosol extinction coefficient in the marine boundary layer and its co-variability with MODIS cloud retrievals	David Painemal - SSAI/NASA LaRC, Richard Ferrare-NASA LaRC, Marian Clayton-SSAI/NASA LaRC, Sharon Burton-NASA LaRC, Patrick Minnis - NASA LaRC, Yan Feng-ANL, Damien Josset-USNRL
1445-1500	Aerosol properties in partly cloudy conditions	Alexander Marshak – NASA/GSFC, Tamás Várnai – UMBC/JCET, Weidong Yang – USRA/GESTAR
1500-1530	**BREAK**	
1530-1545	The Direct Radiative Effect of Aerosols (DREA) from the A-train based on synergistic use of PARASOL, OMI, and MODIS.	Otto Hasekamp - SRON Carlo Lacagnina - SRON Omar Torres-NASA GSFC
1545-1600	Interannual variations of early winter Antarctic polar stratospheric cloud formation and nitric acid observed by CALIOP and MLS	Alyn Lambert - JPL/CalTech MIchelle L. Santee - JPL/Cal Tech Nathaniel J. Livesey - JPL/Cal Tech
1600-1615	Towards quantifying global aerosol direct radiative effects using lidar: detection sensitivity	Tyler Thorsen (NASA LARC) Rich Ferrare (NASA LARC) Chris Hostetler (NASA LARC) Mark Vaughan (NASA LARC) John Hair (NASA LARC) Q. Fu (University of Washington)
1615-1700	***DISCUSSION***	
1700	***ADJOURN***	