PROGRAM

(Last Updated Feb 3, 2017)

Fourth Santa Fe Conference on Global and Regional Climate Change

February 5-10, 2017

Inn and Spa at Loretto

Santa Fe, New Mexico

Registration: Sunday, February 5 between 5:00-7:00 pm

Sponsored by Los Alamos National Laboratory's Center for Earth and Space Science

Co-Sponsored by American Meteorological Society

M-0: Welcome **Monday, February 6, 2017**

1	Nancy Sauer LANL	Associate Director for Chemistry, Life and Earth Sciences	8:00-8:10
2	Chylek Petr LANL	Conference Chair	8:10-8:20

M-I: Climate Sensitivity **Co-Chairs: Jim Bossert, Brad Christoffersen**

M1	Forster, Piers U Leeds	Diagnosing climate sensitivity from the Earth's energy balance: perfect model tests	8:20-8:40
M2	Mauritsen, Thorsten Max Planck Inst	On the iris effect	8:40-9:00
M13	Cathles, Larry Cornell U	How solar cycle and ocean measurements suggest it may be easier than commonly thought to meet a 2C post pre-industrial warming target	9:00-9:20
M5	Schwartz, Steve BNL	Can Global Temperature Rise be Limited to 2 Degrees? What do we need to know and how well do we need to know it?	9:20-9:40

COFFEE BREAK	9:40-10:00

M-II: Successes and Challenges of Climate Modeling #1 **Ken Carslaw, Anastasios Tsonis**

M6	Ramaswamy, V NOAA GFDL	Modeling of the Earth System with Applications to Weather and Climate	10:00-10:20
M7	Von Storch, Hans, Helmholtz Zentrum	Dynamical models - purposes and limits	10:20-10:40
M8	Zeng, Xubin U Arizona	Global value-added climate data development and data-based model for climate projection	10:40-11:00
M9	Tsonis, Anastasios U Wisconsin	A climate model intercomparison at the dynamics level	11:00-11:20
M10	Nigam, Sumant U Maryland	Striking Seasonality in the Secular Warming of the Northern Continents: Structure and Mechanisms	11:20-11:40
M11	Cole, Daniel Indiana U	Polycentric approaches to climate change	11:40-12:00

LUNCH BREAK	12:00-13:30

M-III: Sun, Climate, and Geo-Engineering **Daniel Rosenfeld, Chuck Long**

M12	Irvine, Peter Harvard U	Could solar geoengineering reduce the risks of climate change?	13:30-13:50
M14	Ackerman, Tom, U Washington	A Strategy for the Use of Solar Climate Engineering	13:50-14:10
M15	Zender, Charles UC Irvine	End of the Dark Ages: Artificial Sky Brightness in the Anthropocene	14:10-14:30
M16	Ziniu, Xiao Chinese Aca Sci	The impact of solar activities on climate	14:30-14:50
M17	Maliniemi, Ville U Oulu	Winds of winter: How solar wind driven particle precipitation can affect northern winters	14:50-15:10

COFFEE BREAK	15:10-15:30

M-IV: Aerosol Scattering and Remote Sensing **Zhanqing Li, Steve Love**

M18	Keen, Richard Colorado U	Volcanic Aerosol forcing of the Global Climate from Lunar Eclipse observations	15:30-15:50
M19	Kahn, Ralph NASA GSFC	Global Aerosol Amount and Type Distributions — Putting Space-based and Suborbital Measurements Together with Models for Climate Applications	15:50-16:10
M20	Long, Chuck NOAA	Are the Cloud-Free Skies Getting Whiter? Evidence Using Spectral Radiation Observations	16:10-16:30
M21	Videen, Gorden, ARL	Passive Satellite Remote Sensing of Super-thin Clouds	16:30-16:50
M22	Moosmuller, Hans, Desert Research Inst	Aerosol Optics, Climate Change, and Satellite Remote Sensing	16:50-17:10
M23	Liu, Yinghui U Wisconsin	Using Multiple Satellites to Understand the Role of Arctic Clouds	17:10-17:30

Thomas Ackerman	Discussion: Climate Sensitivity	17:30-18:10

Tuesday, February 7, 2017

T-I: Climate Change, Aridity and Vegetation Thorsten Mauritsen, Keeley Costigan

T1	Mao, Jiafu ORNL	Driving mechanisms and feedbacks of the land greening	8:00-8:20
T2	Fu, Qiang U Washington	Response of Terrestrial Aridity to Anthropogenic Forcing	8:20-8:40
T3	Sevanto, Sanna LANL	Vegetation under changing climate: what determines who survives?	8:40-8:55
T4	Swann, Abby U Washington	Diagnosing drought in a changing climate	8:55-9:15
T5	Vila, Jordi Wageningen U	Evapotranspiration and cloud variability at regional sub-grid scales	9:15-9:35
T6	McDowell, Nathan, LANL	Accelerating ecosystem impacts with climate change	9:35-9:50
T7	Sun, Fubao Chinese Aca Sci	Atmospheric evaporative demand in climate models: an observed element relevant to drought projections	9:50-10:10

COFFEE BREAK	10:10-10:25

T-II: AEROSOLS, CLOUDS, AND CLIMATE, PART 1 TIMOTHY DELSOLE, NICK HENGARTNER

T8	Carslaw, Ken U Leeds	Uncertainties in aerosols and radiative forcing	10:25-10:45
T9	Rosenfeld, Daniel Hebrew U Jerusalem	Is the aerosol cloud mediated climate forcing getting saturated? Uncertain then, highly relevant now.	10:45-11:05
T10	Quaas, Johannes U Leipzig	On the magnitude of the global aerosol effective radiative forcing	11:05-11:25
T11	Soden, Brian U Miami	A Dynamical Cloud Response to Aerosol Forcing	11:25-11:45
T12	Wilson, Kevin LBNL	An interfacial Mechanism for Cloud Droplet Formation on Organic Rich Aerosols	11:45-12:05
T13	Li, Zhanqing U Maryland	Aerosol and Earth's Energy and Water Cycles: A testbed of numerous aerosol climate effects in China"	12:05-12:25
T14	Martin, Scot Harvard U	Anthropogenic influences on the physical state of submicron particulate matter over a tropical forest	12:25-12:45

LUNCH BREAK	12:45-14:00

T-III: Carbon Dioxide and Atmospheric Observations **Ross McKitrick, Adam Collins**

T15	Crisp, David JPL	Measuring Atmospheric CO_2 with the NASA Orbiting Carbon Observatory-2 (OCO-2)	14:00-14:20
T16	Keeling, Ralph UC San Diego	Insights into carbon sinks, land photosynthesis, ocean warming and deoxygenation from long-term measurements of atmospheric CO_2 and O_2	14:20-14:40
T17	McKitrick, Ross U Guelph	Empirically-Constrained Climate Sensitivity and the Social Cost of Carbon	14:40-15:00
T18	Dubey, Manvendra, LANL	Seasonal & Daily Amazon Column CO_2 & CO Observations from Ground & Space Used to Evaluate Tropical Ecosystem Models	15:00-15:15
T19	McConnell, Joe Desert Research Inst	Black carbon and large-scale biomass burning in the Arctic during the past two millennia	15:15-15:35

COFFEE BREAK	15:35-15:50

T-IV: Climate Change and Tropical Cyclones **Philip Klotzbach, Adam Collins**
Session dedicated to William M. Gray 1929-2016

T20	Mock, Cary U South Carolina	Tropical cyclone variations of the last few centuries from historical records	15:50-16:10
T21	Schreck, Carl NC State U	Subseasonal variability of tropical cyclones: The MJO and Kelvin waves	16:10-16:30
T22	Klotzbach, Phil Colorado State U	A global tropical cyclone survey: Revisiting Gray (1968, 1979)	16:30-16:50
T23	Vecchi, Gabe NOAA GFDL	Towards a unified system for prediction and understanding of regional and extreme tropical cyclone activity	16:50-17:10
T24	Leung, Ruby PNNL	A New Mechanism for the Recent U.S. Landfalling Major Hurricane Drought	17:10-17:30
T25	Camargo, Suzana Columbia U	Progress and challenges in understanding how climate change influences tropical cyclones	17:30-17:50
T26	Tippett, Michael Columbia U	Changing statistics of U.S. tornadoes	17:50-18:10

Johaness Quaas	Discussion: Aerosol Radiative Forcing	18:10-18:40

BANQUET	18:50-21:00
Music by Albuquerque Youth Symphony's String Quartet	19:00-19:20 (19:40)
Keynote Address by Dennis Hartmann	19:20-20:00
Free Discussion	20:00-21:00

Wednesday, February 8, 2017

W-I: Successes and Challenges of Climate Modeling 2 V. Ramaswamy, Pinhas Alpert

W1	Magnusdottir, Gudrun, UC Irvine	Multidecadal fluctuations of the North Atlantic Ocean and feedback on the winter climate	8:00-8:20
W2	Delworth, Thomas NOAA GFDL	Atlantic Decadal to Multidecadal Variability – Influence of the North Atlantic Oscillation and Large-Scale Climatic Impacts	8:20-8:40
W3	Chylek, Petr LANL	Hiatus Observation and CMIP5 models: Existence, Causes and Future Prospects	8:40-8:55
W5	Koonin, Steve New York U	Framing a productive review of climate science	8:55-9:15
W6	Grise, Kevin U Virginia	Is climate sensitivity related to dynamical sensitivity?	9:15-9:35

COFFEE BREAK	9:35-9:50

W-II: Global and Regional Temperature Qiang Fu, Ralph A Kahn

W7	Wang, Kaicun Beijing Normal U	Regional climate change study require new temperature datasets	9:50-10:10
W8	Bengtsson, Lennart Max Planck Society	Assessment of temperature change from observations, reanalysis and model ensemble simulations	10:10-10:30
W9	van Wijngaarden, William, York U	Effects of Inhomogeneities on Determination of Australian Temperature Trends	10:30-10:50
W10	Vogelsang, Timothy Michigan State U	Estimation and Inference of Linear Trend Slope Ratios with an Application to Global Temperature Data	10:50-11:10
W11	McNider, Dick U Alabama	An optimal strategy for using surface temperature measurements to detect heat accumulation in the deep troposphere	11:10-11:30
W12	Miksovsky, Jiri Charles U	Global and local imprints of climate forcings in temperature data: a statistical perspective	11:30-11:45
W13	Newman, Matthew U Colorado	Understanding Pacific Regime Shifts	11:45-12:05

LUNCH BREAK	12:05-13:20

W-III: Global and Regional Climate Change, Part 1 **Rong Zhang, Ian Folkins**

W14	Alpert, Pinhas Tel Aviv U	Challenges in Climate Modeling over the Mid-East	13:20-13:40
W15	Asong, Elvis U Saskatchewan	High-resolution projections of future changes in precipitation and temperature characteristics over western Canada using WRF model	13:40-14:00
W16	Lelieveld, Jos Max Planck Inst	Strongly increasing heat extremes in the Middle East and North Africa	14:00-14:20
W17	Hazeleger, Wilco Netherlands eScience Center	Tales of Future Weather	14:20-14:40
W18	Bender, Frida Stockholm U	Aspects of cloud albedo in models and observations	14:40-15:00
W19	Merrifield, Anna UC San Diego	Assessing Northern Hemisphere Land-Atmosphere Hotspots Using Dynamical Adjustment	15:00-15:20
W20	Watanabe, Masahiro U Tokyo	Attribution of recent intensification of the Pacific trade winds	15:20-15:40

COFFEE BREAK	15:40-16:00

W-IV: Aerosols, Clouds and Climate, Part 2 **David Crisp, William Wijngaarden**

W21	Coe, Hugh Manchester	The influence of Biomass Burning Aerosol on the meteorology and regional climate of South America – Results from the South American Biomass Burning Analysis project	16:00-16:20
W22	Delsole, Timothy George Mason U	Inferring Aerosol Cooling from Data	16:20-16:40
W23	Penner, Joyce U Michigan	Climate impact of anthropogenic aerosols on cirrus clouds	16:40-17:00
W25	DeMott, Paul Colorado State U	Land versus ocean production of ice nucleating particles: Expectation for cold cloud influences	17:00-17:20

Poster Session	17:20-18:30

Thursday, February 9, 2017

TH-I: Climate Change in the Arctic **Muyin Wang, Gudrun Magnusdottir**

TH1	Haine, Thomas John Hopkins U	Arctic Freshwater Export: Status, Mechanisms, and Prospects	8:00-8:20
TH2	Zhang, Rong NOAA GFDL	Low Frequency Variability in the North Atlantic-Arctic Sector	8:20-8:40
TH3	Ding, Qinghua UC Santa Barbara	Influence of the recent high-latitude atmospheric circulation change on summertime Arctic sea ice	8:40-9:00
TH4	Jahn, Alexandra U Colorado	Influence of internal variability on Arctic sea ice projections	9:00-9:20
TH5	Wang, Muyin NOAA	Sea Ice Evolution in the Pacific Arctic by Selected CMIP5 Models: the Present and the Future	9:20-9:40
TH6	Trembley, Bruno McGill U	Regional forecast of the minimum sea ice extent: a Lagrangian approach	9:40-9:55
TH7	Andresen, Christian LANL	Wetter or Drier? Uncertainty in Arctic hydrology projections and associated climatic feedbacks	9:55-10:10

COFFEE BREAK	10:10-10:30

TH-II: Sea Level, and Oceans and Climate **Thomas Delworth, Steve Schwartz**

TH9	Fasullo, John NCAR	Understanding climate change and variability through the altimeter record of sea level rise	10:30-10:50
TH10	Krasting, John NOAA GFDL	Enhanced Atlantic sea-level rise relative to the Pacific under high carbon emission rates	10:50-11:10
TH11	Henry, Gene Columbia U	The deep ocean's role in abrupt climate change during the last glaciation	11:10-11:30
TH12	Peltier, Dick U Toronto	Rapid Climate Change and the Dansgaard-Oeschger Oscillation	11:30-11:50
TH13	Kirtman, Ben U Miami	The role of ocean eddies in global climate predictability and prediction from days to decades	11:50-12:10
TH14	Hecht, Matthew LANL	A Reconsideration of Poleward Heat Transport across the Southern Ocean: The Roles of Transient and Standing Eddies.	12:10-12:30

LUNCH BREAK	12:30-13:45

TH-III: Climate and Climate Change in Tropics Charles S. Zender, John Augustine

TH14	Li, Tim U Hawaii	What Controls the Walker Circulation and ENSO Changes under Global Warming?	13:45-14:05
TH15	Hoffman, Forrest ORNL	Development of a tropical ecological forecasting strategy for ENSO based on the ACME modeling framework	14:05-14:25
TH16	Wood Robert U Washington	Ultra-clean Layers and Low Albedo Clouds in the Tropical Marine Boundary Layer	14:25-14:45
TH17	Eddebber, Yassir UC San Diego	Influence of ENSO on Air-Sea Oxygen Exchange: Observations and Mechanisms	14:45-15:05
TH18	Hartmann, Dennis U Washington	Climate Feedbacks Involving Tropical Anvil Clouds	15:05-15:25

COFFEE BREAK	15:25-15:40

TH-IV: Global and Regional Climate Change, Part 2 Robert Wood, Matthew Hecht

TH19	Folkins, Ian Dalhousie U	Accurate simulation of the temperature profile in actively convecting regions of the tropics using a convective parameterization	15:40-16:00
TH20	Essex, Christopher U Western Ontario	Slow Time and Climate Theory	16:00-16:20

	Steve Schwartz	General Climate Related Discussion	16:20-17:20

F-0: LANL Center for Space and Earth Science **Friday, February 10, 2017**

F0	Reinhard, Friedel, Director	The LANL Center for Space and Earth Science	8:00-8:15

F-I: Monsoons, Biomass Burning, etc. **Hans Moosmuller, Gorden Videen**

F1	Wang, Wei-Chyung SUNY Albany	Modeling aerosol-cloud-climate interactions over monsoon Asia	8:15-8:30
F2	Carrico, Kip NM Tech	Climate Relevant Properties of Biomass Smoke from SW US Fuels: Radiative Properties and Variability	8:30-8:45
F3	Allison, Aiken LANL	Reducing Uncertainties in Climate Models with Direct Measurements of Biomass Burning Absorbing Aerosols	8:45-9:00
F4	Ward, Peter US Geol. Survey	The dominant role of ozone depletion in global warming throughout Earth history	9:00-9:15
F5	Xu, Chonggang LANL	Vegetation-Insect Dynamics under Climate Change	9:15-9:30
F6	Carter, Bruce Pasadena College	Interpreting Paleo-flood Records from the Santa Barbara Channel, California	9:30-9:45

COFFEE BREAK	9:45-10:00

F-II: Climate Change in Southwestern US **Sanna Sevanto, Peter Ward**

F7	Silber, Sigmund NMWMA	Identified and Suspected Factors That Might Influence Southwest Climate	10:0-10:15
F8	Middleton, Richard, LANL	Critical watersheds: Climate change, extreme events, and climate-driven disturbances	10:15-10:35
F9	Atchley, Adam LANL	Simulating Climate-induced Changes to Fire Disturbance and Ecohydrology Recovery	10:35-10:50
F10	Bennett, Katrina LANL	Impacts of Climate Change, Climate Extremes, and Climate-driven Disturbances on the Food-Energy-Water Nexus in the Colorado River Basin	10:50-11:05
F11	Jonko, Alexandra LANL	Global sensitivity analysis of changes in macro-scale water balance indicators under future climate in the Colorado River basin	11:05-11:20
F12	Solander, Kurt LANL	Shifts in historical streamflow extremes and its probable cause in the Colorado River Basin, USA	11:20-11:35

THE END	Chylek, Petr	Thank you and see you again in 2022?	11:35-11:45

Poster Presentations Wednesday Night

Chairs: Allison Aiken, Thomas Rahn, Kip Carrico

P1	Collins, Adam LANL	Constraining the utility of Q10 in water-limited environments
P2	Demott, Charlotte CSU	Impact of the Madden-Julian Oscillation on Air-Sea CO_2 fluxes
P3	Ma , Qian Beijing Normal U	Impact of Geolocations of Validation Data on the Evaluation of Surface Incident **Short**wave Radiation from Earth System Models
P4	Shi, Wenjing Chinese Academy of Sciences	Close correlations of the Northern midlatitude air temperat ure with the length of day in qusi-20 years time scale
P5	Yang, Cheng-En U Tennessee	Evaluation of Extratropical Forest Biomass in Earth System Models over the Northern Hemisphere
P6	Mauritsen, Thorsten Max Planck Institute of Meteorology	Committed warming inferred from observations
P7	Lewandowsky, Stephen U Western Australia, Presented by M. Boslough	Bets reveal people's opinions on climate change and illustrate the statistics of climate change
P8	Jung, William Seoul, South Korea	Climate Change and the Timing of the Rainy Season in Cambodia
P9	Sevanto, Sanna LANL	Trait Based Vegetation Modeling for the Arctic
P10	Keen, Richard U Colorado	Volcanic Aerosol Climate Forcing 1979-2015: Global values derived from Lunar Eclipse observations
P11	McConnel, Joe Desert Research Institute	Black carbon, wildfire, and climate linkages in the Southern Hemisphere during the Holocene
P12	Karmalkar, Ambarish U Massachusetts	Characterization of climate model errors using a perturbed parameter ensemble AMIP and Transpose-AMIP experiments
P13	Portmann, Robert NOAA	The Earth's Energy Budget Across CMIP5 Models
P14	Engelbrecht, J. Desert Research Institute Presented by H. Moosmuller	Optical Properties of Suspended Mineral Dusts from Desert Source Regions
P15	Mitchell, David Desert Research Institute Presented by John Mejia	The Seasonal Cycle of Arctic Cirrus Clouds and Its Possible Relevance to Jet Steam Dynamics
P16	Gyawali, Madhu Desert Research Institute Presented by H. Moosmuller	Optical Properties of Aerosols Emitted from Laboratory Peat Combustion
P17	Ward, Peter Jackson, Wyoming	The Footprints of Climate Chnage

P18	Maliniemi, Ville U Oulu, Finland	QBO-dependent relation of geomagnetic activity and northern annular mode during the 20th century.
P19	Jorge R. Urrego-Blanco LANL	Uncertainty Quantification and Global Sensitivity Analysis of the Los Alamos Sea ice Model
P20	Jorge R. Urrego-Blanco LANL	Validation of Sea Ice Models Using an Uncertainty-Based Distance Metric for Multiple Model Variables
P21	Yinrui, Li U Illinois	Sensitivity of Black Carbon Aging to Modeling Assumption in CAMChem
P22	Ian Folkins, Dalhousie University	Variation in the correlation between low cloud fraction and estimated inversion strength with moisture flux
P23	Erica Roesler SNL	Paths Towards Routine High Resolution Atmospheric Modeling of the North Slope of Alaska
P24	Benjamin Hillman SNL	Evaluating Arctic clouds across scales: A comparison of clouds in large-scale and multi-scale models with observations over the north slope of Alaska and beyond