

R. BRADLEY PIERCE

Academic Program Director, Space Science and Engineering Center, UW-Madison

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Scientific leader with 20+ years of experience leading large-scale research efforts with multidisciplinary teams. Extensive experience with observation, analysis, and prediction of the chemistry and dynamics of the Earth's atmosphere using a broad range of observational systems and theoretical approaches. Skilled at leading geographically diverse scientific and technical teams while managing research activities and programs to meet national goals and uncovering new research and funding opportunities.

EDUCATION

Doctor of Philosophy (PhD) in Meteorology — University of Wisconsin-Madison, WI, 1988

Master of Science (MS) in Meteorology — University of Wisconsin-Madison, WI, 1986

Bachelor of Science (BS) in Physics — University of Wisconsin-River Falls, WI, 1982

Bachelor of Science (BS) in Mathematics — University of Wisconsin-River Falls, WI, 1982

PROFESSIONAL EXPERIENCE

University of Wisconsin-Madison, Madison, WI

October 2018-Present

Space Science and Engineering Center (SSEC), Madison, WI

Academic Program Director, Space Science and Engineering Center

The Space Science and Engineering Center (SSEC) is a multidisciplinary research and development center at University of Wisconsin-Madison. Its mission is to conduct atmospheric, oceanic, environmental and astronomical research using remote sensing from space borne, airborne, and surface-based platforms to discover and apply physical properties of the universe for the benefit of humanity. Dr. Pierce is responsible for providing scientific vision and leadership for SSEC. His principal duties include:

- Responsible for the overall success of SSEC through leadership of the administrative staff that runs the Center's day-to-day activities. Communicate to SSEC staff on a regular basis the state of the Center, its progress, and its upcoming tasks and opportunities.
- Provide vision and leadership for a research environment that accommodates a diverse range of activities involving world class research in the physical sciences, matching SSEC goals to appropriate national research initiatives.
- Establish policies for short- and long-term research and outreach goals and objectives, address the diverse funding needs of SSEC, and interact with the Center's Principal Investigators and staff in development and review of programs and personnel to ensure clearly defined progress and fulfillment of the SSEC mission and obligations.
- Lead large-scale research programs involving instrument development, data analysis technique development, participation in field campaigns, and new technology definition and implementation.
- Participate in national and international research programs and in professional society affairs. Serve on various committees and advisory boards, and participate in other public activities within the University of Wisconsin and State of Wisconsin.

NOAA/NESDIS, Center for Satellite Applications and Research (STAR), Madison, WI May 2007 – September 2018
Cooperative Institute for Meteorological Satellite Studies (CIMSS)

Physical Scientist, Advanced Satellite Products Branch | Principal Investigator

Lead large-scale scientific research efforts/projects and provide vision for research while accommodating diverse stakeholders, range of activities/research within the physical sciences to match national goals, and research initiatives. Accountable for success of projects and administrative functions of day-to-day activities. Establish and implement policies, procedures, short- and long-term research, and outreach goals; address and manage funding and budgets. Communicate and present to stakeholders progress, activities/tasks, and opportunities.

- Led design, development, and utilization of Real-time Air Quality Modeling System (RAQMS), a global meteorological and chemical modeling system developed for assimilating satellite observations of atmospheric chemical and aerosol composition and predicting global air quality.
 - RAQMS has been used for numerous NASA, NOAA, and NSF airborne field campaigns, regional air quality impact studies, and international assessment activities. RAQMS chemistry is currently being implemented into the NOAA Finite-Volume Cubed-Sphere (FV3) Dynamical Core for operational chemical weather prediction.
- Honored to contribute to operational satellite programs with NOAA Administrator's Award in 2016 for: *"providing robust, real-time, simulated data of the next generation geostationary satellite imagers, reducing risk in post-launch operations."*
 - Oversaw development and delivery of real-time simulated geostationary satellite observations for use in end-to-end testing of the NOAA GOES-R Ground System and National Weather Service Advanced Weather Interactive Processing System (AWIPS) prior to launch of the NOAA GOES-16 satellite.
- Designed, developed, and executed first satellite-based, global chemical and aerosol reanalysis attempted within US; reanalysis provided comprehensive dataset describing global distribution of trace gases and aerosols for assessing global air quality.
 - Served as development path for operational chemical and aerosol assimilation/forecasting within the US by following the path established by the Copernicus Atmosphere Monitoring Service, now operational at European Center for Medium Range Weather Forecasting (ECMWF).
- Served as Lead Scientist/Project Manager on 6 and Co-lead on 2 major projects totaling \$7M+.
- Member of 7 NASA Science Teams, 7 NOAA, EPA Working Groups, and 3 NASA/NOAA Steering Committees.
- Advised 4 PhD students and 2 MS students as Research Advisor, and committee member for PhD students.
- Directed team of 40+scientists from NASA, NOAA, EPA, UW-Madison, University of Iowa, University of Minnesota, Wisconsin Department of Natural Resources (WDNR), and Lake Michigan Air Directors Consortium (LADCO) in planning and execution of 2017 Lake Michigan Ozone Study (LMOS 2017).
 - Designed campaign to collect field measurements to improve LADCO and EPA modeling in support of State Implementation Planning and addressed persistent violations of the ozone National Ambient Air Quality Standard in the coastal communities around Lake Michigan.
- Co-Led team of NASA, NOAA, NSF, and University scientists in conducting chemical Observation System Simulation Experiments (OSSEs); demonstrated impact of assimilation of hyper-spectral geostationary ozone retrievals on regional air quality predictions in support of NASA's GEOstationary Coastal and Air Pollution Events (GEO-CAPE) Mission Studies—one of the earth observation missions recommended by Nat'l Research Council 2007 Decadal Survey.
 - Presented results at international Chemical OSSE workshop hosted by ECMWF.

Major Projects: Served as Scientific Project Lead (Lead) or Scientific Co-Lead (Co-lead).

- **Lead:** Proxy Data for Real-time GOES-R Advanced Baseline Imager (ABI) algorithm testing and ground system validation; 9-member team from UW-Madison SSEC; **Total Funding** (FY10-FY16) \$2.4M; **Funding Source:** NOAA GOES-R Algorithm Working Group.
- **Co-lead:** GEOstationary Coastal and Air Pollution Events (GEO-CAPE) Urban Observation System Simulation Experiment (OSSE) activities; 8-member team geographically dispersed at UW-Madison SSEC, NASA Jet Propulsion Laboratory (JPL), NASA Goddard Space Flight Center, National Center for Atmospheric Research (NCAR), NASA Ames Research Center, and University of Alabama-Huntsville; **Total Funding:** (FY13-FY18) \$1.27M; **Funding Source:** NASA GEOstationary Coastal and Air Pollution Events (GEO-CAPE) Mission Studies.
- **Lead:** 2017 Lake Michigan Ozone Study (LMOS 2017); Team: 40+ participants—principle investigators from NASA, NOAA, EPA, UW-Madison, UW-Eau Claire, University of Iowa, University of Northern Iowa, University of Minnesota, Scientific Aviation; **Stakeholders:** Lake Michigan Air Directors Consortium (LADCO), WI Department of Natural Resources, IL Environmental Protection Agency, MI Department of Environmental Quality, Electric Power Research Institute; **Total Funding:** (FY17) \$1.3M; **Funding Sources:** NOAA GOES-R Program Office, NASA Airborne Science and GEOstationary Coastal and Air Pollution Events (GEO-CAPE) Mission Studies, EPA Office of Research and Development, National Science Foundation (University Research Groups), and Lake Michigan Air Directors Consortium, Electric Power Research Institute.
- **Lead:** Development of reduced troposphere/stratosphere chemistry algorithms for the NOAA Next Generation Global Prediction System (NGGPS); 4-member team from UW-Madison SSEC, NOAA Environmental Modeling Center (EMC) Collaborator and EMC contract support; **Total Funding:** (FY17) \$147K; **Funding Source:** NOAA Office of Oceanic and Atmospheric Research (OAR) Research Transition Acceleration Program (RTAP).
- **Lead:** Aura Chemical Reanalysis in support Air Quality Applications; 2-member team; **Total Funding:** (FY14-FY16) \$424K; **Funding Source:** NASA Applied Science Program.
- **Lead:** High Resolution Trajectory-Based Smoke Forecasts using VIIRS Aerosol Optical Depth and NUCAPS Carbon Monoxide Retrievals; 4-member team: UW-Madison SSEC and Science and Technology Corporation (STC) plus, 4 collaborators at NOAA National Weather Service, NOAA National Environmental Satellite, Data, and Information Service, EPA, and STC; **Total Funding:** (FY15-17) \$390K; **Funding Source:** NOAA Joint Polar Satellite System Proving Ground and Risk Reduction
- **Lead:** Tropospheric Emissions: Monitoring of Pollution (TEMPO) Science Team Air Quality Modeling and Data Assimilation; 2-member team—UW-Madison SSEC; **Total Funding:** (FY13-FY21) \$203K; **Funding Source:** NASA Earth Venture Program
- **Co-lead:** Improved National Emissions Inventory NO_x emissions using OMI Tropospheric NO₂ retrievals and Potential Impacts on Air Quality Strategy Development; 23-member team—principle investigators from UW-Madison Nelson Institute, UW-Madison SSEC, George Mason University, Georgia Tech, US Forest Service, and University of Colorado; **Stakeholders:** NOAA Air Resources Laboratory, NOAA National Weather Service, NOAA Earth Systems Research Laboratory, EPA Office of Air Quality Planning and Standards, Center for Disease Control and Prevention, Lake Michigan Air Directors Consortium; **Total Funding:** (FY17) \$283K; **Funding Source:** NASA Health and Air Quality Applied Science Team (HAQAST)

5-Year CIMSS Funding: Contributed to securing funding and building relations with diverse stakeholders.

- **FY17: \$827K** (NOAA GOES-R3 \$200K, NOAA GOES-R Product Validation \$105K, NOAA JPSS PGRR \$125K, NOAA AC4 FIREX: \$75K, NOAA RTAP: \$147K, NASA GEO-CAPE: \$75K, NASA HAQAST \$100K)
- **FY16: \$979K** (NOAA GOES-R AWG Proxy \$445K, NOAA GOES-R3 \$200K, NOAA JPSS PGRR \$125K, NASA Aura Science Team: \$134K, NASA GEO-CAPE: \$75K)
- **FY15: \$922K** (NOAA GOES-R AWG Proxy: \$593K, NOAA JPSS PGRR \$75K, NASA AQAST: \$44K, NASA Aura Science Team: \$145K, NASA GEO-CAPE: \$65K)
- **FY14: \$850K** (NOAA GOES-R AWG Proxy: \$593K, NASA AQAST: \$42K, NASA Aura Science Team: \$145K, NASA GEO-CAPE: \$70K)
- **FY13: \$766K** (NOAA GOES-R AWG Proxy: \$280K, NOAA GOES-R Cal/Val: \$301K, NASA AQAST: \$135K, NASA GEO-CAPE: \$50K)

NASA Langley Research Center (LaRC), Hampton VA

January 1990 – May 2007

Research Scientist, Atmospheric Science Division

Led and participated in large-scale, national and international research programs. Served on committees and advisory boards, attended professional society affairs, and participated in other public activities representing NASA. Led research projects involving model development, new data analysis techniques, participation in field campaigns, and technology definition and implementation. Established research and outreach goals and objectives.

- Coordinated the development of the LaRC Interactive Modeling Project for Atmospheric Chemistry and Transport (IMPACT) model. The LaRC IMPACT model is a global, three-dimensional general circulation model (GCM) of the troposphere, stratosphere and mesosphere with coupled dynamics, chemistry and radiation, and was developed as a tool for assessing the effects of stratospheric chemical, dynamical, and radiative coupling on the Earth's climate.
- Served in lead role in theory team for numerous NASA field missions, which contributed to being honored with 2003 NASA Exceptional Achievement Medal for *“outstanding contributions to the development of innovative techniques, which enhanced scientific interpretation of airborne measurements of atmospheric constituents.”*
- Developed real-time chemical forecasting system using stratospheric solar occultation trace gas measurements to constrain ensemble Lagrangian photochemical predictions which were used to assist in flight planning and post mission analysis of airborne data.
 - Theory Team PI for the 1994 Airborne Southern Hemisphere Ozone Experiment (ASHOE) airborne mission.
 - Theory team PI for the 1997 Photochemistry of Ozone Loss in the Arctic in Summer (POLARIS) airborne mission.
 - Theory team PI for the 1999-2000 SAGE III Ozone Loss and Validation Experiment (SOLVE) airborne mission.

Selected Individual and Group NASA Awards:

- NASA LaRC Superior Accomplishment Award for outstanding contributions to the success of the MODIS/AIRNow Intensive demonstration project.
- NASA LaRC Superior Accomplishment Award for outstanding success in establishing leadership roles for Langley in Earth Science Enterprise's national applications area of Aviation Safety, Energy Forecasting, and Air Quality Management.
- NASA LaRC Superior Accomplishment Award for outstanding performance in the establishment and development of the Infusing satellite Data into Environmental air quality Applications (IDEA) project.
- NASA LaRC Superior Accomplishment Award for outstanding performance in the development and utilization of the Regional Air Quality Modeling System (RAQMS).

Selected Individual and Group NASA Awards — Continued

- NASA Group Achievement Award for the SOLVE Science Team.
- NASA LaRC Superior Accomplishment Award for outstanding contributions during the Transport and Chemical Evolution over the Pacific (TRACE-P) Mission.
- NASA Group Achievement Award for the INTEX-NA Science Team.
- NASA Group Achievement Award in recognition of exceptional achievement in developing the highly successful air quality, aviation weather, and energy management applications for the earth science enterprise.

SCIENCE TEAMS | COMMITTEES | WORKING GROUP MEMBERSHIPS

- Member of the NASA Health and Air Quality Applied Science Team (HAQAST) (2017-Present)
- Member of the NOAA Next Generation Global Prediction System (NGGPS) Aerosol and Composition Team (2016-Present)
- Collaborator on UW2020 RECORDS: Reserve Energy Co-Optimization with Real-time Data from Satellites (2016-Present)
- Member of the NOAA Fire Influence on Regional and Global Environments Experiment (FIREX) Steering Committee (2015-Present)
- Member of the Lake Michigan Air Directors Consortium (LADCO) 2017 Lake Michigan Ozone Study (LMOS 2017) Steering Group (2015-Present)
- Member of the NOAA Joint Polar Satellite System (JPSS) Proving Ground (2014-Present)
- Member of the NASA Tropospheric Emissions: Monitoring of Pollution (TEMPO) Science Team (2013-Present)
- Member of the Task Force on Hemispheric Transport of Air Pollution Phase 2 (HTAP2) (2012-Present)
- Member of the NOAA Grid-point Statistical Interpolation (GSI) Review Committee (2012-September 2018)
- Member US EPA Stratospheric Intrusion Working Group (2012-Present)
- Member of the NASA/NOAA Joint Center for Satellite Data Assimilation (JCSDA) Atmospheric Composition Working Group (2010-Present)
- Member of the NASA Geostationary Coastal Ocean and Air Pollution Events (GEO-CAPE) Science Working Group (2009-September 2018)
- Member of the NOAA GOES-R Algorithm Working Group (AWG) (2008-September 2018)
- Member of the NASA Air Quality Applied Science Team (AQAAT) (2012-2016)
- Member of the NASA Aura Science Team (2014-2016)
- Member of the NSF Tropical Ocean Troposphere Exchange of Reactive halogen species and Oxygenated VOC (TORERO) Science Team (2012)
- Member of the NOAA Research at the Nexus of Air Quality and Climate Change (CalNex) Science Team (2010)
- Member of the NOAA Volcanic Ash Working Group (VAWG) Science Team (2009)
- Member of the NOAA Aerosol, Radiation, and Cloud Processes affecting Arctic Climate (ARCPAC) Science Team (2008)
- Member of the Committee on Earth Observation Satellites (CEOS) Atmospheric Chemistry Constellation (ACC) Global Fire and Aerosol Forecasting Demonstration (2007-2009)
- Member of the NOAA Texas Air Quality Study (TEXAQS) Science Team (2006)
- Member of the NASA Intercontinental Chemical Transport Experiment (INTEX-NA) Science Team (2004-2006)
- Member of the NASA Transport and Chemical Evolution over the Pacific (TRACE-P) Science Team (2001)

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- Member of the NASA Stratospheric Aerosol and Gas Experiment (SAGE) III Ozone Loss and Validation Experiment (SOLVE) Science Team (2001)
- Member of the NASA Photochemistry of Ozone Loss in the Arctic Region In Summer (POLARIS) Project Team (1997)
- Member of the NASA Airborne Southern Hemisphere Ozone Experiment (ASHOE) and Measurements for Assessing the Effects of Stratospheric Aircraft (MAESA) Experiment Team (1994)

ACADEMIC SERVICE

Post-Doctoral Research Advisor

- Lynn Harvey, 1997-1999, University of Wisconsin-Madison
- Chieko Kittaka, 2001-2003, University of Wisconsin-Madison

Adjunct Faculty

- UW-Madison Department of Atmospheric and Oceanic Sciences (AOS) (2015-Present)
- Ohio University Department of Physics and Astronomy (June 2018-Present)

PhD Research Advisor

- Margaret Bruckner, Second Year Graduate Student, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison
- Burcu Kabatas, 2016, Marine and Climate Sciences, Eurasia Institute of Earth Sciences, Istanbul Technical University, Turkey (Visiting Scholar at UW-Madison CIMSS)
- Barbara Arvani, 2016, High Mechanics and Automotive Design and Technology, University of Modena, Italy (Visiting Scholar at UW-Madison CIMSS)
- David Kuhl, 2009, Atmospheric and Oceanic Science, University of Maryland, College Park

MS Research Advisor

- Kyle Hosley, 2016, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison
- Andrew Wentland, 2015, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison

Senior Thesis Advisor

- Jack Bruno, 2018, Department of Physics and Astronomy, Ohio University, Athens, OH

PhD Committee Member

- Alexander V. Matus, Ph.D., 2017, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison

SEMINARS | INVITED LECTURES

- Lecture "Lake Michigan Ozone Study (LMOS) Turning NOAA Science into Information for Societal Benefit", at NOAA/NESDIS Cooperative Research Program (CoRP), Annual Science Symposium, (2018)
- Lecture "Real-time Air Quality Modeling System (RAQMS) Online global chemical and aerosol assimilation/forecasting system" at CIMSS Symposium, (2018)
- Seminar "Intercontinental Pollution and Atmospheric River Transport Processes during the 2016 NOAA El Niño Rapid Response (ENRR) Field Campaign" NOAA Earth Systems Research Laboratory, Chemical Sciences Division, (2017)

SEMINARS | INVITED LECTURES CONTINUED

- Lecture “The 2017 Lake Michigan Ozone Study (LMOS 2017)” Air Quality Research Subcommittee (AQRS), Committee on Environment, Natural Resources, and Sustainability (CENRS), National Science and Technology Council (NSTC) Meeting (2016)
- Lecture “High-Resolution IDEA-I VIIRS/NUCAPS trajectory forecasts” at Fall AGU (2016)
- Lecture “JPSS Observations of Intercontinental Pollution and Atmospheric River Transport Processes during the 2016 NOAA El Niño Rapid Response (ENRR) Field Campaign” at Fall AGU (2016)
- Lecture “Regional O₃ OSSEs for the GEO-CAPE Mission” at the Second Atmospheric Composition Observation System Simulation Experiments (OSSE) Workshop hosted by ECMWF (2016)
- Lecture “NOAA JPSS and GOES Fire Products” at the WMO International Global Atmospheric Chemistry (IGAC) Interdisciplinary Biomass Burning Initiative (IBBI) workshop (2016)

- Lecture “Development of an Aura Chemical Reanalysis in support Air Quality Applications” at the 2015 AGU Fall meeting (2015)
- Lecture “AQAST NOAA/NESDIS liaison highlights and planning for a future Great Lakes airborne mission” at the 2016 Midwest and Central States Air Quality Workshop (2016)
- Lecture “Satellite data, modeling, and planned field study for better characterising wildfire impacts (FIREX)” at the 2016 Midwest and Central States Air Quality Workshop (2016)
- Lecture “Evaluation of NUCAPS CO Retrieval and High-Resolution Smoke Trajectory Forecasting” at the 2016 NOAA JPSS Annual Meeting (2016)
- Lecture “Real-time aerosol data assimilation experiments during the 2014 FRAPPE/DISCOVER-AQ field mission” at the 2014 AGU Fall meeting (2014)
- Lecture “Real-time depiction of stratospheric intrusions in RAQMS/WRF-Chem” at the Western Region Air Quality Modeling Conference (2014)
- Lecture “Trans-boundary Ozone Pollution: A Global Chemical and Aerosol Data Assimilation Perspective” at the Transboundary Ozone Pollution Conference (2014)
- Lecture “Nested Global and Regional Scale Modeling of the Impacts of Intercontinental Pollution Transport and Stratospheric Intrusion on Surface Air Quality in the Western US” at the Meteorology And Climate Modeling for Air Quality (MAC-MAQ) Conference (2014)
- Lecture “Aerosol/Chemical Data Assimilation” Joint Center for Satellite Data Assimilation Colloquium (2012)
- Seminar “Real-time aerosol data assimilation experiments during the 2014 FRAPPE/DISCOVER-AQ field mission” UW AOS Colloquium (2011)
- Seminar “NOAA ARCPAC field campaign” Valparaiso University Physics Colloquium (2010)
- Seminar “NASA and NOAA airborne field campaigns” for AOS 405 senior student seminar (2010)
- Seminar “Adventures in NASA and NOAA Flight Campaigns” to the AOS 405 Senior Capstone Seminar (2009)
- Seminar “Air quality modeling and aerosol assimilation during the ARCPAC field mission” at the Michigan Technical University Remote Sensing Institute Remote Sensing Seminar Series (2009)
- Lecture “Constituent and Aerosol Assimilation” during the Joint Center for Satellite Data Assimilation Summer Colloquium (2009)
- Seminar “Real-Time Air Quality Modeling (RAQMS) Chemical and Aerosol Assimilation Studies during the 2008 NOAA Aerosol, Radiation and Cloud Processing affecting Arctic Climate (ARCPAC) field mission” at the 6th Annual CoRP Science Symposium (2009)

- Lecture “Forecast Improvement with Solar Occultation and Limb Scatter Data Assimilation” at the 4th International Atmospheric Limb Conference and Workshop (2007)
- Seminar “Global Chemical Data Assimilation Studies During 2006 NASA INTEX-B and NOAA TEXAQS field missions” at NOAA Earth Systems Research Laboratory (2007)
- Seminar “Real-time Air Quality Modeling System” at NOAA Atmospheric Chemical Modeling Workshop (2007)
- Seminar “Chemical data assimilation for air quality forecasting” University of Wisconsin-Madison Department of Atmospheric And Oceanic Science Graduate Student Seminar (2007)

PUBLICATIONS — 101 PUBLICATIONS (H-INDEX 28)

2018

- Judd Laura M., Al-Saadi Jassim A., Valin Lukas C., **Pierce R. Bradley**, Yang Kai, Janz Scott J., Kowalewski Matthew G., Szykman James J., Tiefengraber Martin, Mueller Moritz, The Dawn of Geostationary Air Quality Monitoring: Case Studies From Seoul and Los Angeles, *Frontiers in Environmental Science*, Vol 6, 2018, DOI=10.3389/fenvs.2018.00085
- Kabatas, B.; **Pierce, R.B.**; Unal, A.; Rogal, M.J. and Lenzen, A. . April 2008 Saharan dust event: its contribution to PM10 concentrations over the Anatolian Peninsula and relation with synoptic conditions. *Science of the Total Environment*, Volume 633, 2018, pp.317-328. Reprint # 8308.
- Liang, C.K.; West, J.J.; Silva, R.A.; Bian, H.S.; Chin, M.; Davila, Y.; Dentener, F.J.; Emmons, L.; Flemming, J.; Folberth, G.; Henze, D.; Im, U.; Jonson, J.E.; Keating, T.J.; Kucsera, T.; Lenzen, A.; Lin, M.Y.; Lund, M.T.; Pan, X.H.; Park, R.J.; **Pierce, R.B.**; Sekiya, T.; Sudo, K. and Takemura, T. HTAP2 multi-model estimates of premature human mortality due to intercontinental transport of air pollution and emission sectors. *Atmospheric Chemistry and Physics*, Volume 18, Issue 14, 2018, pp.10497-10520.
- Langford, A. O.; Alvarez, R. J. III; Brioude, J.; Evan, S.; Iraci, L. T.; Kirgis, G.; Kuang, S.; Leblanc, T.; Newchurch, M. J.; **Pierce, R. B.**; Senff, C. J. and Yates, E. L. Coordinated profiling of stratospheric intrusions and transported pollution by the Tropospheric Ozone Lidar Network (TOLNet) and NASA Alpha Jet experiment (AJAX): Observations and comparison to FYSPLIT, RAQMS, and FLEXPART. *Atmospheric Environment*, Volume 174, 2018, pp.1-14.

2017

- Pan, L. L.; Atlas, E. L.; Salawitch, R. J.; Honomichl, S. B.; Bresch, J. F.; Randel, W. J.; Apel, E. C.; Hornbrook, R. S.; Weinheimer, A. J.; Anderson, C. D.; Andrews, S. J.; Baidar, S.; Beaton, S. P.; Campos, T. L.; Carpenter, L. J.; Chen, D.; Dix, B.; Donets, V.; Hall, S. R.; Hanisco, T. F.; Homeyer, C. R.; Huey, L. G.; Jensen, J. B.; Kaser, L.; Kinnison, D. E.; Koenig, T. K.; Lamarque, J.-F.; Liu, C.; Luo, J.; Luo, Z. J.; Montzka, D. D.; Nicely, J. M.; Pierce, R. B.; Riemer, D. D.; Robinson, T.; Romashkin, P.; Saiz-Lopez, A.; Schauffler, S.; Shieh, O.; Stell, M. H.; Ullmann, K.; Vaughan, G.; Volkamer, R. and Wolfe, G. The Convective Transport of Active Species in the Tropics (CONTRAST) experiment. *Bulletin of the American Meteorological Society*, Volume 90, Issue 1, 2017, 106–128.
- Kuang, Shi; Newchurch, Michael J.; Johnson, Matthew S.; Wang, Lihua; Burris, John; **Pierce, Robert B.**; Eloranta, Edwin W.; Pollack, Ilana B.; Graus, Martin; de Gouw, Joost; Warneke, Carsten; Ryerson, Thomas B.; Markovic, Milos Z.; Holloway, John S.; Pour-Blazar, Arastoo; Huang, Guanyu; Liu, Xiong and Feng, Nan. Summertime tropospheric ozone enhancement associated with a cold front passage due to stratosphere-to-troposphere transport and biomass burning: Simultaneous ground-based lidar and airborne measurements. *Journal of Geophysical Research-Atmospheres*, Volume 122, Issue 2, 2017, pp.1293-1311.

- Yates, E. L., Johnson, M. S., Iraci, L. T., Ryoo, J.-M., **Pierce, R. B.**, Cullis, P. D., ... Tanaka, T. (2017). An assessment of ground level and free tropospheric ozone over California and Nevada. *Journal of Geophysical Research: Atmospheres*, 122, 10,089–10,102, <https://doi.org/10.1002/2016JD026266>
- Langford, A. O.; Alvarex, R. J. II; Brioude, J.; Fine, R.; Gustin, M. S.; Lin, M. Y.; Marchbanks, R. D.; **Pierce, R. B.**; Sandberg, S. P.; Senff, C. J.; Weickmann, A. M., and Williams, E. J. Entrainment of stratospheric air and Asian pollution by the convective boundary layer in the southwestern US. *Journal of Geophysical Research-Atmospheres* v.122, no.2, 2017, pp1312-1337.
- Huang, M., Carmichael, G. R., **Pierce, R. B.**, Jo, D. S., Park, R. J., Flemming, J., Emmons, L. K., Bowman, K. W., Henze, D. K., Davila, Y., Sudo, K., Jonson, J. E., Tronstad Lund, M., Janssens-Maenhout, G., Dentener, F. J., Keating, T. J., Oetjen, H., and Payne, V. H. (2017), Impact of intercontinental pollution transport on North American ozone air pollution: an HTAP phase 2 multi-model study, *Atmos. Chem. Phys.*, 17, 5721-5750, <https://doi.org/10.5194/acp-17-5721-2017>, 2017.
- P. Zoogman, X. Liu, R.M. Suleiman, W.F. Pennington, D.E. Flittner, J.A. Al-Saadi, B.B. Hilton, D.K. Nicks, M.J. Newchurch, J.L. Carr, S.J. Janz, M.R. Andraschko, A. Arola, B.D. Baker, B.P. Canova, C. Chan Miller, R.C. Cohen, J.E. Davis, M.E. Dussault, D.P. Edwards, J. Fishman, A. Ghulam, G. González Abad, M. Grutter, J.R. Herman, J. Houck, D.J. Jacob, J. Joiner, B.J. Kerridge, J. Kim, N.A. Krotkov, L. Lamsal, C. Li, A. Lindfors, R.V. Martin, C.T. McElroy, C. McLinden, V. Natraj, D.O. Neil, C.R. Nowlan, E.J. O’Sullivan, P.I. Palmer, **R.B. Pierce**, M.R. Pippin, A. Saiz-Lopez, R.J.D. Spurr, J.J. Szykman, O. Torres, J.P. Veefkind, B. Veihelmann, H. Wang, J. Wang, K. Chance (2017), Tropospheric emissions: Monitoring of pollution (TEMPO), In *Journal of Quantitative Spectroscopy and Radiative Transfer*, Volume 186, 2017, Pages 17-39, ISSN 0022-4073, <https://doi.org/10.1016/j.jqsrt.2016.05.008>.
- Kaldunski, Ben; **Pierce, Brad** and Holloway, Tracey. When stratospheric ozone hits ground-level regulation: Exceptional events in Wyoming. *Bulletin of the American Meteorological Society*, Volume 98, Issue 5, 2017, pp.889-892.

2016

- Baukabara, Sid A.; Zhu, Tong; Tolman, Hendrik L.; Lord, Steve; Goodman, Steven; Atlas, Robert; Goldberg, Mitch; Auligne, Thomas; **Pierce, Bradley**; Cucurull, Lidia; Zupanski, Milija; Zhang, Man; Moradi, Isaac; Otkin, Jason; Santek, David; Hoover, Brett; Pu, Zhaoxia; Zhan, Xiwu; Hain, Christopher; Kalnay, Eugenia; Hotta, Daisuke; Nolin, Scott; Bayler, Eric; Mehra, Avichal; Casey, Sean P. F.; Lindsey, Daniel; Grasso, Louie; Kumar, V. Krishna; Powell, Alfred; Xu, Jianjun; Greenwald, Thomas; Zajic, Joe; Li, Jun; Li, Jinliong; Li, Bin; Liu, Hicheng; Fang, Li; Wang, Pei and Chen, Tse-Chen. S4: An O2R/R2O infrastructure for optimizing satellite data utilization in NOAA numerical modeling systems. A step toward bridging the gap between research and operations. *Bulletin of the American Meteorological Society*, Volume 97, Issue 12, 2016, 2359–2378.
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