Curriculum Vitae

LAN GAO

Research Scientist
School of Meteorology, University of Oklahoma
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Education:

University of Nevada, Reno (UNR), Desert Research Institute, Reno, NV (DRI)

- Ph.D., Atmospheric Sciences, August 2013 - August 2018

Nanjing University of Information Science and Technology, Nanjing, China (NUIST)

- M.S., Atmospheric Physics and Atmospheric Environment, September 2009 - June 2012

Nanjing University of Information Science and Technology, Nanjing, China

- B.S., Physics, September 2005 - June 2009

Honors and Awards

- Advances in Atmospheric Sciences Editor's Award for the outstanding reviewer, 2022
- NASA Group Achievement Award for outstanding scientific achievements of ORACLES airborne field campaign, 2019
- Graduate Research Assistantship (UNR/DRI), 2013-2018
- Graduate Student Merit Scholarship (UNR), 2013-2014
- Outstanding International Student Scholarship (UNR), 2013, 2014, 2016
- Academic conference award, Gordon Research Conference on Climate and Radiation, 2015
- Graduate Tutor of the Year (NUIST), 2010
- University Outstanding Student Scholarship (NUIST), 2006, 2008

Professional Experience

University of Oklahoma
Research Scientist, 2020 - present

- Develop machine-learning-based algorithms for cloud classification, aerosol typing, and high-level aerosol properties (i.e., cloud condensation nuclei (CCN), aerosol absorption) retrievals from joint polarimeter and lidar measurements.
- Perform aerosol retrieval simulations and assess retrieval uncertainties and quality scores for different instrument architectures for the NASA ACCP/AOS mission.

- Address aerosol and cloud interactions and aerosol radiative effects from airborne and spaceborne remote sensing measurements.
- Investigate the relationships between CCN concentration and lidar observables, and develop a methodology to retrieve CCN from lidar, polarimeter, and reanalysis.

University of Oklahoma
Post-Doctoral Research Associate (advisor: Dr. Jens Redemann), 2018 - 2020

Aerosol-Cloud-Convection-Precipitation Satellite Mission (NASA)
- Created canonical cases for aerosol retrieval activities.
- Developed and optimized aerosol retrieval algorithms from lidar, polarimeter, and their combined measurements.
- Evaluated the performance of different future satellite instruments.

Aerosol-Cloud-Radiation Interactions over the Southeast Atlantic Ocean (NASA)
- Studied aerosol-cloud interactions over the Southeast Atlantic Ocean using aircraft and satellite data from the NASA ORACLES campaign.
- Investigated aerosol direct radiative effect using the ORACLES airborne measurements, satellite retrieval of aerosol and cloud properties, and MERRA-2 aerosol reanalysis product.
- Compared aerosol and cloud properties from multiple remote sensing observations and models.

Desert Research Institute
Graduate Research Assistant (advisor: Dr. Eric M. Wilcox), 2013 - 2018

Aerosol-Cloud-Radiation Interactions Study (NASA)
- Conducted research on aerosol-cloud-radiation interactions in different cloud regimes by utilizing geospatially integrated surface station data, in situ aircraft data, and satellite remote sensing data.
- Investigated the uncertainties in quantifying aerosol-cloud interactions and associated radiative forcing by using observational data and Monte Carlo Radiative Transfer (MCRT) model.

Wildfire Emission and Carbon Cycle Process Study (DRI internal project)
- Evaluated biomass burning emissions by using multiple data from NASA coordinated satellites.
- Investigated transport and diffusion of emissions from wildfire by using the HYSPLIT model.
- Compared spaceborne aerosol and trace gas retrievals against collocated in situ aircraft and surface observation data.

Aerosol-Snow Interaction Study (DRI internal project)
- Developed the MCRT model to assess the variations of snow albedo due to aerosols deposited from wildfire emission.
- Interpolated discrete lab-measured data to expand into a continuous synthetic spectrum and performed aerosol single-scattering properties and particle mixing status parameterization.

Cloud Imager Instrument Development Study (DOE)
- Evaluated the effect of cloud particle inhomogeneous distribution on solar radiation flux by using aircraft observation data and the MCRT model.

- Conducted a comprehensive review of the literature and created a database for cloud microphysical properties in different cloud regimes.
- Examined the climatology of cloud properties by mapping multiple years of satellite data.

Nanjing University of Information Science and Technology
Graduate Research Assistant (advisor: Dr. Yujun Qiu), 2009-2012

Haze and Air Quality Study (NSF)
- Operated and maintained the instruments (Nephelometer, Aethalometer, Condensation Particle Counter, Sun photometer, Micro-pulse Lidar, and Raman lidar) during a long-term field campaign.
- Analyzed data collected from multiple instruments to investigate the seasonal variations of PM2.5 concentration and aerosol optical properties over the Nanjing area.
- Explored the impacts of meteorological conditions on local haze formation.
- Investigated the mechanisms of local haze formation by analyzing data from case studies.

Dust Dry and Wet Deposition Study (NUIST internal project)
- Designed the experiment and instrument to investigate the chemical composition and deposition (dry and wet) flux of dust.

Soil Erosion Study (NSF)
- Conducted wind tunnel experiments to explore the sand-flow characteristics.
- Retrieved dust size distribution by utilizing scanning electron microscope and settling analysis.
- Quantitatively analyzed the factors that influence soil erosion.

Professional Activities and Service

- Graduate Ph.D./Master committee (Emily D. Lenhardt, Abdulamid Fakoya, Taozhong Huang, Benting Chen)
- Science team member, NASA Arctic Radiation-Cloud-Aerosol-Surface Interaction Experiment (ARCSIX) airborne field campaign, 2023-present
- Science team member, aerosol algorithm group, NASA Atmosphere Observing System (AOS) mission, 2022-present
- Science Impact Team (SIT-A) member for aerosol, NASA Aerosol and Cloud, Convection and Precipitation (ACCP) mission, 2019-2022
- Science team member, NASA ObseRvations of Aerosols above CLouds and their intEractionS (ORACLES) airborne field campaign, 2018-2020
- Proposal review panelist for Department of Energy Atmospheric System Research (ASR) program
- Proposal reviewer for Department of Energy Small Business Innovation Research (SBIR) program
- Research topic editor, Multi-Instrument Remote Sensing of Aerosol-Cloud Interactions, Frontiers in Remote Sensing, 2021-2023
- Review editor, Frontiers in Remote Sensing Satellite Mission, 2021-present

- Reviewer for Geophysical Research Letters, Journal of Geophysical Research-Atmosphere, Journal of Quantitative Spectroscopy and Radiative Transfer, Transactions on Geoscience and Remote Sensing, Advances in Meteorology, Scientific Reports, Advances in Atmospheric Sciences, Frontiers in Remote Sensing, Geoscientific Model Development, Journal of Applied Meteorology and Climatology, Atmosphere, Meteorology, Science of the Total Environment, Remote Sensing, Atmospheric Chemistry and Physics, Sustainability
- Member of American Meteorological Society, American Geophysical Union

Teaching and Advising Experience

Graduate Mentor, University of Oklahoma, Norman, OK, August 2019 - present

- Advise Ph.D. student (Emily D. Lenhardt, Abdulamid Fakoya) from the School of Meteorology.
- Guest lecturer for the Atmospheric Radiation course.

Undergraduate Mentor, University of Oklahoma, Norman, OK, May 2023 - present

- Advise undergraduate student (Rachel R. Emery) from the School of Meteorology.

Mentor, NSF-Research Experiences for Undergraduates (REU) Program, Norman, OK, June-July 2022

- Advise undergraduate student Justina Arena for the REU program.

Undergraduate Mentor, Nanjing University of Information Science and Technology, Nanjing, China, September 2009 - June 2010

- Served as a guest lecturer and consultant for undergraduate students from the Physics department.
- Physics lab mentor for undergraduate students.

Undergraduate Assistant Advisor, Nanjing University of Information Science and Technology, Nanjing, China, October 2010 - June 2012

- Served as an assistant advisor for undergraduate students from the School of Atmospheric Physics.
- Advised five undergraduate students with their theses.

Grants

- NASA: AirMSPI2 Imaging and Retrievals of Cloud, Surface, and Aerosol Properties in ARCSIX, May 2022 - April 2028, Co-I.
- NASA: Contributions to the development of AOS science transition plans, algorithms, and suborbital activities; Mar 2023 - May 2026, Co-I.
- NASA: Leadership of Aerosol Investigations in Support of SIT for the A-CCP Designated Observables Study, May 2019-April 2022, collaborator.

Publications

Submitted/under review/revised:

Huang Y., McFarquhar, G., Patil, S., **Gao, L.**, Taszarek, M., Xue, M., Dzambo, A., Wolde, M., Nichman, L., Nguyen, C., Ranjbar, K., Bliankinshtein, N., Bala, K., Kollias, P., Jensen, M., Lawson, P., Mo, Q., Bruintjes, R., Kuang, C., and Subba, T. (2024) Dependence of Convective Cloud Microphysical Properties on Environmental Conditions during the TRACER and ESCAPE Field Campaigns: A Synergistic Approach of Observations, Machine Learning and Numerical Models. Journal of the Atmospheric Sciences. JAS-D-24-0269 (submitted)

Fakoya, A., Redemann, J., Saide, P., **Gao, L.**, Mitchell, L., Howes, C., Dobracki, A., Chang, I., Ferrada, G., Pistone, K., Leblanc, S., Segal-Rozenhaimer, M., Sedlacek A., Eck, T., Holben, B., Gupta, P., Lind, E., Zuidema, P., Carmichael, G., and Flynn, C. (2024) Atmospheric processing and aerosol aging responsible for observed increase in absorptivity of long-range transported smoke over the southeast Atlantic. Atmos. Chem. Phys. egusphere-2024-3197 (submitted)

Hu, X., Qian, T., Li, X., Qin, Q., Xue, M., Novoa, H., Jara, J., **Gao, L**., Martin, E., Huang, Y., and Valdivia, A. (2024) Mountain-Facilitated Lee Slope Transport and Daytime Boundary Layer Mixing of Volcano Plumes Exacerbates Air Pollution over Arequipa, Peru. Journal of Geophysical Research - Atmospheres, 2024JD042905 (submitted)

Chang I., **Gao L**., Adebiyi, A., Doherty, S., Painemal, D., Smith, W., Lenhardt, E., Fakoya, A, Flynn, C, Zheng, J., Yang, Z., Castellanos, P., Silva, A, Zhang, Z, Wood, R., Zuidema, P., Christopher, S., Redemann, J. (2024) Low cloud diurnal cycle drives regional aerosol radiative warming. Nature Geoscience, NGS-2024-06-01329 (revision).

Published:

Redemann, J., and **Gao, L**. (2024) A machine learning paradigm for necessary observations to reduce uncertainties in aerosol climate forcing. Nature Communications, doi.org/10.1038/s41467-024-52747-y.

Zhang, X., Xu, X., Hu, X., **Gao, L**., and Jia, G. (2024) Legacy of aerosol radiative effect predominates daytime dust loading evolution. Atmospheric Research, doi.org/10.1016/j.atmosres.2024.107735.

Patel, P., Jiang, J., Gautam, R., Gadhavi, H., Kalashnikova, O., Garay, M., **Gao, L.**, Xu, F., and Omar, A. (2024), A remote sensing algorithm for vertically resolved cloud condensation nuclei number concentrations from airborne and spaceborne lidar observations, Atmos. Chem. Phys. doi.org/10.5194/acp-24-2861-2024.

Shan, Y., Liu, X., Lin, L., Ke, Z., Lu, Z., Tilmes, S., **Gao, L**. and Yu, P. (2023) The role of in-cloud wet removal in simulating aerosol vertical profiles and cloud radiative forcing. Journal of Geophysical Research: Atmospheres, doi.org/10.1029/2023JD038564.

Lenhardt, E., **Gao, L.**, Redemann, J., Xu, F., Burton, S., Cairns, B., Chang, I., Ferrare, R., Hostetler, C., Saide, P., Howes, C., Shinozuka, Y., Stamnes, S., Kacarab, M., Dobracki, A., Wong, J., Freitag, S., and Nenes, A. (2023) Use of lidar aerosol extinction and backscatter coefficients to estimate cloud condensation nuclei (CCN) concentrations in the Southeast Atlantic. Atmospheric Measurement Techniques. doi.org/10.5194/amt-16-2037-2023.

Chang, I., **Gao, L.**, Flynn, C., Shinozuka, Y., Doherty, S., Diamond, M., Longo, K., Ferrada, G., Carmichael, G., Castellanos, P., da Silva, A., Saide, P., Howes, C., Xue, Z., Mallet, M., Govindaraju, R., Wang, Q., Cheng, Y., Feng, Y., Burton, S., Ferrare, R., LeBlanc, S., Kacenelenbogen, M., Pistone, K., Segal-Rozenhaimer, M., Meyer, K., Ryoo, J., Pfister, L., Adebiyi, A., Wood, R., Zuidema, P., Christopher, S., and Redemann, J. (2023), On the differences in the vertical distribution of modeled aerosol optical depth over the southeast Atlantic, Atmos. Chem. Phys. doi.org/10.5194/acp-23-4283-2023.

Gupta, S., McFarquhar, G. M., O'Brien, J. R., Poellot, M. R., Delene, D. J., Chang, I., **Gao, L**., Xu, F., and Redemann, J. (2022), In situ and satellite-based estimates of cloud properties and aerosol-cloud interactions over the Southeast Atlantic Ocean, Atmos. Chem. Phys. doi.org/10.5194/acp-22-12923-2022.

Zhang, X., Xu, X., Chen, H., Hu, X., **Gao, L**. (2022), Dust-planetary boundary layer interactions amplified by entrainment and advections. Atmospheric Research, doi.org/10.1016/j.atmosres.2022.106359.

Shan, Y., Shi, H., Fan, J., Lin, L., **Gao, L**., He, C., Gao, M., Miao, L., Zhang, L., Xia, X. and Chen, H. (2022), Revealing bias of cloud radiative effect in WRF simulation: Bias quantification and source attribution. Journal of Geophysical Research: Atmospheres, doi.org/10.1029/2021JD036319.

Zhang, X., Cai, C., Hu, X., **Gao, L**., Xu, X., Hu, J., and Chen, H. (2022), Aerosols consistently suppress the convective boundary layer development, Atmospheric Research, doi.org/10.1016/j.atmosres.2022.106032.

Doherty, S., et al., (incl. **Gao L**) (2022), Modeled and observed properties related to the direct aerosol radiative effect of biomass burning aerosol over the Southeast Atlantic, Atmos. Chem. Phys., doi.org/10.5194/acp-22-1-2022.

Huang, T., Xu, F., **Gao, L.,** Flynn, C., and Dubovik, O. (2021), A correlation-based inversion method for aerosol property retrieval from AERONET measurements. Journal of Quantitative Spectroscopy and Radiative Transfer, doi.org/10.1016/j.jqsrt.2021.107808.

Chang, I, **Gao, L**, Burton, P. S., Chen, H., Diamond, M., Ferrare, A. R., Flynn C., Kacenelenbogen, M., Leblanc, E. S., Meyer, K., Pistone, K., Schmidt, S., Segal-Rosenhaimer, S., Shinozuka, Y., Wood, R., Zuidema, P., Redemann, J., and Christopher, A. S (2021), Spatiotemporal heterogeneity of aerosol and cloud properties over the southeast Atlantic: An observational analysis. Geophysical Research Letters, doi.org/10.1029/2020GL091469.

Xu, F., **Gao, L.**, Redemann, J., Flynn, C., Espinosa, R. W., da Silva, M. A., Stamnes, S., Burton S. P., Xu, L., Ferrare, A. R., Cairns, B., and Dubovik, O (2021), A lidar-polarimeter combined inversion approach for aerosol remote sensing. Frontiers in Remote Sensing, doi:10.3389/frsen.2021.620871.

Hu, X., Hu, J., **Gao, L.**, Cai, C., Xue, M., and Zhao, T (2021), Multi-sensor and multi-model monitoring and investigation of an air pollution event ahead of a cold front over eastern China. Journal of Geophysical Research: Atmospheres, doi.org/10.1029/2020JD033538.

Hu, J., Hu, X., **Gao L.**, Cai, C., Zhao, T., and Zhang, X (2021), Impacts of nocturnal cloud-top radiative cooling on surface O3 in Sichuan Basin, southwestern China. Earth and Space Science, doi.org/10.1029/2020EA001541.

Redemann, J., et al., (incl. **Gao L**) (2021), An overview of the ORACLES (ObseRvations of Aerosols above CLouds and their intEractionS) project: aerosol-cloud-radiation interactions in the Southeast Atlantic basin, Atmos. Chem. Phys., doi.org/10.5194/acp-21-1507-2021.

Shan, Y., Wilcox, E.M., **Gao, L.**, Lin, L., Mitchell, D.L., Yin, Y., Zhao, T., Zhang, L., Shi, H. and Gao, M. (2019), Evaluating errors in gamma function representations of the rain drop size distribution: A method for determining the optimal parameter set for use in bulk microphysics schemes. Journal of the Atmospheric Sciences, doi.org/10.1175/JAS-D-18-0259.1.

Gao, L. (2018), Study of aerosol-cloud interactions for shallow warm clouds. Diss.

Gao, L., Qiu, Y. J., & Zhu, B (2013). An observational study of aerosol scattering properties in northern suburbs of Nanjing, Environmental Monitoring of China, 10.3969/j.issn.1002-6002.2013.02.005.

Gao, L., Qiu, Y.J., Zou, X.Y., Wang, R.D. and Zhou, N (2013). Study on soil erosion of semi-arid steppe in Inner Mongolia by using wind tunnel experiment. Advanced Materials Research, 10.4028/www.scientific.net/amr.518-523.4766.

Book

Gao, L., Cai, C. and Hu, X.M. (2022). Air Quality Prediction Using Machine Learning. Machine Learning in Chemical Safety and Health: Fundamentals with Applications, pp.267-288. doi.org/10.1002/9781119817512.ch11

Presentations and Seminars

Gao, L., Redemann, J., Lenhardt, E., Chen, B., Xu, F., Fenn, M., Ferrare, R., Hair, J., and Hostetler, C. Machine Learning Shines a Laser Light on Murky Aerosol Picture-Estimation of CCN Concentration from Lidar Observations Using Neural Networks. American Geophysical Union Fall Meeting, December 11-15, 2023.

Gao, L., and Redemann, J. Unveiling Cloud Condensation Nuclei: Estimation of CCN Concentration from Lidar Observations Using Neural Networks. NASA ACTIVATE Campaign Science Team Meeting, July 21, 2023 (invited).

Gao, L., Redemann, J., Xu, F., Lagerquist, R., Chang, I., Lenhardt, E., Chen, B. A Machine-Learning-Based Algorithm for Cloud Detection and Scene Classification Using Combined Active and Passive Remote Sensors. American Geophysical Union Fall Meeting, December 12-16, 2022.

Lenhardt, E., Redemann, J., **Gao, L**., Xu, F., Burton, S., Cairns, B., Ferrare, R., Hostetler, C., Nenes, A., Stamnes, S., Kacarab, M., and Wong, J. American Geophysical Union Fall Meeting, December 12-16, 2022.

Xu, F., Espinosa, R., Chen, B., Kalashnikova, O., **Gao, L**., Garay, M., Redemann, J., Dubovik, O., and Zeng, Z. A Markov chain model for polarized radiative transfer in the thermal infrared and application in dust particle inversion. American Geophysical Union Fall Meeting, December 12-16, 2022.

Huang, T., Xu, F., Redemann, J., **Gao, L**., Gao, M., and Dubovik, O. A Correlation-based Inversion Method for Aerosol Remote Sensing and Test Using AERONET and POLDER Measurements. American Geophysical Union Fall Meeting, December 12-16, 2022.

Fakoya, A., Redemann, J., Flynn, C., Saide, P., Mitchell, L., and **Gao, L**. Changes in Absorbing Aerosol Properties during Transport in the Southeast Atlantic. American Geophysical Union Fall Meeting, December 12-16, 2022.

Lenhardt, E., Redemann, J., **Gao, L**., Xu, F., Hostetler, C., Burton, S., Ferrare, R., Nenes, A., Cairns, B., Stamnes, S., Kacarab, M., and Wong, J. Relationships Between Lidar Aerosol and Backscatter Coefficients and Cloud Condensation Nuclei (CCN) Number Concentrations for Different Aerosol Types. American Meteorological Society Collective Madison Meeting, August 08-12, 2022.

Lamkin, B., Redemann, J., Chang, I., Flynn, C., **Gao, L**., Kato, S., and Illston, B. Evaluating the CERES Downward Shortwave Surface Radiative Flux Retrievals in the Context of Surface Oklahoma Mesonet Measurements in 2019-2021. American Meteorological Society Collective Madison Meeting, August 08-12, 2022.

Gupta, S., McFarquhar, G., O'Brien, J., Poellot, M., Delene, D., Chang, I., **Gao, L**., Xu, F., and Redemann, J. In-Situ and Satellite-Based Estimates of Cloud Properties and Aerosol-Cloud Interactions over the Southeast Atlantic Ocean: Results from ORACLES. American Meteorological Society Collective Madison Meeting, August 08-12, 2022.

Xu, F., Chen, B., Davis, A., Diner, D., Garay, M., Kalashnikova, O., West, R., Zeng, Z, and **Gao, L.** A Markov Chain Approach for Modeling Radiative Transfer in the Thermal Infrared**.** American Meteorological Society Collective Madison Meeting, August 08-12, 2022.

Fakoya, A., Redemann, J., Flynn, C., Saide, P., and **Gao, L**. Evolution of Biomass Burning Aerosol Properties during Transport in the Southeast Atlantic Region. American Meteorological Society Collective Madison Meeting, August 08-12, 2022.

Redemann, J., et al., (incl. **Gao L.**). Observing and Modeling Atmospheric Aerosol Absorption: Bridging the Complexity Gap. American Meteorological Society Annual Meeting, January 24-27, 2022.

Lenhardt, E., Redemann, J., **Gao, L.**, Xu, F., Burton, S., Cairns, B., Ferrare, R., Hostetler, C., Nenes, A., and Stamnes, S. Relationships between lidar aerosol extinction/backscatter coefficients and CCN number concentrations during the NASA ORACLES campaigns. American Meteorological Society Annual Meeting, January 24-27, 2022.

Nowicki, D., Xu, F., **Gao, L**., McFarquhar, G., Redemann, J., and Flynn, C. Information Content Analysis of Combined Lidar-Polarimeter Retrievals to Improve Aerosol Remote Sensing Accuracy, American Meteorological Society Annual Meeting, January 24-27, 2022.

Gao, L., Lenhardt, E., Xu, F., Redemann, J., Flynn, C., Chang, I., and Dobracki, A. Retrieval of Cloud Condensation Nuclei Number Concentration Profiles from Combined Lidar and Polarimeter Measurements: A Case Study from NASA ORACLES Campaign. American Geophysical Union Fall Meeting, December 13-17, 2021.

Chang, I., **Gao, L**., Burton, S., Chen, H., Diamond, M., Ferrare, R., Flynn, C., Kacenelenbogen, M., LeBlanc, S., Meyer, K., Pistone, K., Schmidt, S., Segal-Rosenhaimer, M., Shinozuka, Y., Wood, R., Zuidema, P., Redemann, J., and Christopher, S. Spatiotemporal heterogeneity of aerosol and cloud properties over the southeast Atlantic: An observational analysis. American Geophysical Union Fall Meeting, December 13-17, 2021.

Lenhardt, E., Redemann J., **Gao, L**., Xu, F., Burton, S., Cairns, B., Ferrare, R., Hostetler, C., Nenes, A., Stamnes, S., Kacarab, M., and Wong, J. Relationships Between Lidar Aerosol Extinction and Backscatter Coefficients with CCN Number Concentrations in the Southeast Atlantic. American Geophysical Union Fall Meeting, December 13-17, 2021.

Redemann, J., Burton, S., Brian, C., Cuesta, J., DaSilva, A., Dubovik, O., Espinosa, R., Ferrare, R., Flynn, C., **Gao, L**., Holz, R., Liu, X., Nowottnick, E., Powell, K., Stamnes, S., Thorsen, T., Toth, T., Vaughan, M., Winker, D., Xu, F., and Yorks, J. Aerosol retrieval simulations in support of the Designated Observable Study for the NASA ACCP (Aerosols, Clouds, Convection, Precipitation) project. American Geophysical Union Fall Meeting, December 13-17, 2021.

Xu, F., Huang, T., Gao, M., Knobelspiesse, K., Diner, D., **Gao, L.**, Flynn, C., Redemann, J., and Dubovik, O. Aerosol Remote Sensing Inversion: Improvement of Retrieval Efficiency. American Geophysical Union Fall Meeting, December 13-17, 2021.

Hu, X., Xue, M., **Gao, L.**, Crowell, S. Impact of 2019 mid-west flood on CO2 and CH4 using yearly WRF-GHG simulations over the contiguous United States. American Geophysical Union Fall Meeting, December 13-17, 2021.

Huang, T., Xu, F., **Gao, L**., Flynn, C., and Dubovik, O. A Correlation-based Inversion Method for Aerosol Property (CIMAP) Retrieval from AERONET Measurements. American Geophysical Union Fall Meeting, December 13-17, 2021.

Xu, F., Huang, T., Diner, D., **Gao, L.**, Flynn, C., Redemann, J., and Dubovik, O. A Correlation-based Inversion Method for Aerosol Property Retrieval from AirMSPI and AERONET Measurements. Electromagnetic and Light Scattering Conference, July 12-16, 2021.

Xu, F., **Gao, L.**, Redemann, J., Flynn, C., Espinosa, R., DaSilva, A., Stamnes, S., Burton, S., Ferrare, R., Cairns, B., and Dubovik, O. A Combined Lidar-Polarimeter Inversion Approach for Aerosol Remote Sensing over Ocean. American Geophysical Union Fall Meeting, December 1-17, 2020.

Redemann, J., et al., (incl. **Gao L.**). Observations of Atmospheric Aerosol Absorption and Their Use to Constrain Models at Various Scales. American Geophysical Union Fall Meeting, December 1-17, 2020.

Lenhardt, E., Redemann, J., **Gao, L.**, and Xu, F. Relationships Between Lidar Aerosol Extinction/Backscatter Coefficients and CCN Number Concentrations During the NASA ORACLES Campaigns. American Geophysical Union Fall Meeting, December 1-17, 2020.

Zhang, X., Cai, C., Hu, X., **Gao, L.**, and Hu, J. Impacts of Aerosol Vertical Distribution and Single Scattering Albedo on Planetary Boundary Layer Structure: WRF SCM simulations. American Geophysical Union Fall Meeting, December 1-17, 2020.

Gao, L., Chang, I., Redemann, J., McFarquhar, G. M., Burton S. P., Ferrare, A. R., Wood, R., Zuidema, P., Wilcox, E.M. Remote Sensing Study of Co-variability Between Biomass Burning Aerosols and Marine Stratocumulus over the Southeast Atlantic Ocean during NASA ORACLES Campaign. NASA ORACLES Science Team Meeting/International Southeast Atlantic Workshop, May 13, 2020.

Gao, L., Chang, I., McFarquhar, G. M., Redemann, J., and Wilcox, M. E. Remote Sensing Study of the Relationships between Biomass Burning Aerosols and Marine Stratocumulus during ORACLES Campaign. American Meteorological Society Annual Meeting: Boston, MA, January 12-16, 2020.

Chang, I., Redemann, J., Burton, P. S., Chen, H., Diamond, S. M., Doherty, J. S., Feng, Y., Ferrare, A. R., Ferrada, G., Flynn, C., **Gao L.**, Kacenelenbogen, M., LeBlanc, E. S., Longo, K., Mallet, M., Meyer, K., Pistone, K., Saide, E. P., Schmidt, S. K., Rozenhaimer, M., Shinozuka, Y., Wood, R., Zuidema, P., and Christopher, S. Assessments of Aerosol and Cloud Properties among Observations and Models during the NASA ORACLES Field Campaign. American Meteorological Society Annual Meeting: Boston, MA, January 12-16, 2020.

Loria-Salazar, S. M., Sayer, M. A., **Gao, L.**, Redemann, J., and Arnott., W., P. Understanding the Symbiotic Relationship Affecting Atmospheric Processes and Aerosols Concentrations in Reno, Nevada, from 2012 to 2019. American Meteorological Society Annual Meeting: Boston, MA, January 12-16, 2020.

Gao, L., Chang, I., Redemann, J., McFarquhar, G. M., Burton S. P., Ferrare, A. R., Wood, R., Zuidema, P., Wilcox, E.M. Remote Sensing Study of Co-variability Between Biomass Burning Aerosols and Marine Stratocumulus over the Southeast Atlantic Ocean during NASA ORACLES Campaign. Bridging Spatial and Temporal Scales in Radiation and Climate, Gordon Research Conference, July 21-26, 2019.

Gao, L., Chang, I., Redemann, J., McFarquhar, G. M., Burton S. P., Ferrare, A. R., Wood, R., Zuidema, P., Wilcox, E.M. Remote Sensing Study of the Relationships Between Biomass Burning Aerosols and

Marine Stratocumulus during NASA ORACLES Campaign. American Geophysical Union Fall Meeting: San Francisco, December 9-13, 2019.

Gao, L. Remote Sensing Study of Interactions between Biomass Burning Aerosols and Marine Stratocumulus during NASA ORACLES Campaign. NASA ORACLES Science Team Meeting, Miami, May 14-16, 2019.

Chang, I, **Gao, L**, Burton, P. S., Chen, H., Diamond, M., Ferrare, A. R., Flynn C., Kacenelenbogen, M., Leblanc, E. S., Meyer, K., Pistone, K., Schmidt, S., Segal-Rosenhaimer, S., Shinozuka, Y., Wood, R., Zuidema, P., Redemann, J., Christopher, A. S. Observational and model inter-comparisons of aerosol and cloud properties during NASA ORACLES. American Geophysical Union Fall Meeting: San Francisco, December 9-13, 2019.

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