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Education

Ph.D. in Analytical Chemistry, University of Colorado Boulder, 2015
B.S. in Chemistry and Mathematics, Dickinson College, 2009

Appointments

Research Scientist II , CIRES, University of Colorado Boulder	<i>May 2019 – present</i>
Research Scientist I , CIRES, University of Colorado Boulder	<i>Jan 2018 – May 2019</i>
Postdoctoral Research Associate , CIRES, University of Colorado Boulder	<i>Oct 2015 – Dec 2017</i>

Publications

Baidar, S., T. Wagner, D. Turner, and W. A. Brewer (2023), Using Optimal Estimation to Retrieve Winds from VAD scans by a Doppler Lidar, *Atmos. Meas. Tech. Discuss.*

Rickly, P., et al. (2023), Influence of Wildfire on Urban Ozone: An Observationally Constrained Box Modeling Study at a Site in the Colorado Front Range, *Environ. Sci. Technol.*, doi:10.1021/acs.est.2c06157

Quinn, P., et al. (2022), Wintertime Observations of Tropical Northwest Atlantic Aerosol Properties During ATOMIC: Varying Mixtures of Dust and Biomass Burning, *J. Geophys. Res. Atmos.*, 127, doi:10.1029/2021JD036253

Langford, A., et al. (2022), The Fires, Asian, and Stratospheric Transport-Las Vegas Ozone Study (FAST-LVOS), *Atmos. Chem. Phys.*, 22, doi:10.5194/acp-22-1707-2022

Turnbull, J., et al. (2022), IG3IS Urban Greenhouse Gas Emission Observation and Monitoring Good Research Practice Guidelines, WMO GAW Report.

Banta, R. M., et al. (2021), Doppler-lidar evaluation of HRRR-model skill at simulating summertime wind regimes in the Columbia River basin during WFIP2, *Wea. Forecasting*, 36, doi:10.1175/WAF-D-21-0012.1

Quinn, P., et al. (2021) Measurements from the RV Ronald H. Brown and related platforms as part of the Atlantic Tradewind Ocean-Atmosphere Mesoscale Interaction Campaign (ATOMIC), *Earth Syst. Sci. Data.*, 13, doi:10.5194/essd-13-1759-2021

Banta, R. M., et al. (2020), Characterizing NWP model errors using doppler-lidar measurements of recurrent regional diurnal flows: Marine-air intrusions into the Columbia River basin, *Mon. Wea. Rev.*, 148, doi:10.1175/MWR-D-19-0188.1

Koenig, T. K., et al. (2020), Quantitative detection of iodine in the stratosphere. *Proc. Natl. Acad. Sci.*, 117, 10.1073/pnas.1916828117

Pichugina, Y., et al. (2020), Evaluating the WFIP2 updates to the HRRR model using scanning Doppler lidar measurements in the complex terrain of the Columbia River Basin, *J. Renewable Sustain. Energy*, 12, doi: 10.1063/5.0009138

Pichugina, Y., et al., (2019), Spatial Variability of Winds and HRRR-NCEP Model Error Statistics at Three Doppler-Lidar Sites in the Wind-Energy Generation Region of the Columbia River Basin. *J. Appl. Meteor. Climatol*, 58, 10.1175/JAMC-D-18-0244.1

- Baidar, S.**, S. C. Tucker, M. Beaubien, and R. M. Hardesty (2018), The Optical Autocovariance Wind Lidar, Part II: Green OAWL (GrOAWL) Airborne Performance and Validation, *J. Tech.*, 35, doi: 10.1175/JTECH-D-18-0025.1.
- Tucker, S. C., **Baidar, S.**, S. C. Tucker, C. Weimer, and R. M. Hardesty (2018), The Optical Autocovariance Wind Lidar, Part I: OAWL Instrument Development and Demonstration, *J. Tech.*, 35, doi: 10.1175/JTECH-D-18-0024.1.
- Wales, P.A., et al. (2018), Stratospheric Injection of Brominated Very Short-Lived Substances: Aircraft Observations in the Western Pacific and Representation in Global Models, *J. Geophys. Res. Atmos.*, 123, doi: 10.1029/2017JD027978.
- Koenig, T.K., et al. (2017), BrO and inferred BrO profiles over the western Pacific: relevance of inorganic bromine sources and a BrO minimum in the aged tropical tropopause layer, *Atmos. Chem. Phys.*, 17, doi:10.5194/acp-17-15245-2017.
- Anderson, D.C., et al. (2017), Formaldehyde in the Tropical Western Pacific: Chemical Sources and Sinks, Convective Transport, and Representation in CAM-Chem and the CCM1 Models, *J. Geophys. Res. Atmos.*, 122, 11, doi:10.1002/2016D026121.
- Kille, N., **S. Baidar**, P. Handley, I. Ortega, R. Sinreich, O. R. Cooper, F. Hase, J. W. Hannigan, G. Pfister, and R. Volkamer (2017), The CU Mobile Solar Occultation Flux Instrument: structure functions and emission rates of NH₃, NO₂ and C₂H₆, *Atmos. Meas. Tech.*, 10, doi:10.5194/amt-10-373-2017.
- Pan, L.L., et al. (2017), The Convective Transport of Active Species in the Tropics (CONTRAST) Experiment, *B. Am. Meteorol. Soc.*, 98, doi:10.1175/BAMS-D-14-00272.1.
- Kim, S.-W., et al. (2016), Modeling the weekly cycle of NO_x and CO emissions and their impacts on O₃ in the Los Angeles-South Coast Air Basin during the CalNex 2010 field campaign, *J. Geophys. Res. Atmos.*, 121, doi:10.1002/2015JD024292.
- Baidar, S.**, N. Kille, I. Ortega, R. Sinreich, D. Thomson, J. Hannigan, and R. Volkamer (2016), Development of a Digital Mobile Solar Tracker, *Atmos. Meas. Tech.*, 9, doi:10.5194/amt-9-963-2016.
- Baidar, S.**, R. M. Hardesty, S.-W. Kim, A.O. Langford, H. Oetjen, C. Senff, M. Trainer, and R. Volkamer (2015), Weakening of the Weekend Ozone Effect over California's South Coast Air Basin, *Geophys. Res. Lett.*, 42, doi: 10.1002/2015JD024292.
- Saiz-Lopez, A., **S. Baidar**, C.A. Cuevas, T.K. Koenig, R.P. Fernandez, B. Dix, D.E. Kinnison, J.-F. Lamarque, X. Rodriguez-Lloveras, T. L. Campos and R. Volkamer (2015), Injection of iodine to the stratosphere, *Geophys. Res. Lett.*, 42, doi: 10.1002/2015GL064796.
- Wang, S.-Y., et al. (2015), Active and Widespread Halogen Chemistry in the Tropical and Subtropical Free Troposphere, *Proc. Natl. Acad. Sci.*, 112, doi: 10.1073/pnas.1505142112.
- Volkamer, R., **S. Baidar**, T. L. Campos, S. Coburn, J. P. DiGangi, B. Dix, T. K. Koenig, I. Ortega, B. R. Pierce, M. Reeves, R. Sinreich, S.-Y. Wang, M. A. Zondlo, and P. A. Romashkin (2015), Aircraft measurements of Bromine Monoxide, Iodine Monoxide, and Glyoxal profiles in the tropics: Comparison with ship-based and in situ measurements, *Atmos. Meas. Tech.*, 8, doi:10.5194/amt-8-2121-2015.
- Spinei, E., A. Cede, J. Herman, G. Mount, E. Eloranta, B. Morley, **S. Baidar**, B. Dix, I. Ortega, T. Koenig, and R. Volkamer (2015), Direct sun and airborne MAX-DOAS measurements of the collision induced oxygen complex, O₂O₂, absorption with significant pressure and temperature differences, *Atmos. Meas. Tech.*, 8, doi: 10.5194/amt-8-793-2015.
- Knote, C., et al (2014), Simulation of Semi-explicit Mechanisms of SOA Formation from Glyoxal in a 3-D Model, *Atmos. Chem. Phys.*, 14, doi: 10.5194/acp-14-6213-2014.
- Witter, A. E., M. H. Nguyen, **S. Baidar**, and P. B. Sak (2014), Coal-tar-based sealcoated pavement: A major PAH source to urban stream sediments, *Environ. Pollut.*, 185, doi: 10.1016/j.envpol.2013.10.015.
- Baidar, S.**, R. Volkamer, R. Alvarez, A. Brewer, F. Davies, A. Langford, H. Oetjen, G. Pearson, C.

- Senff, and R.M. Hardesty (2013), Combining Active and Passive Airborne Remote Sensing to Quantify NO₂ and O_x Production near Bakersfield, CA, British Journal for Environmental and Climate Change, 3, doi: 10.9734/BJECC/2013/5740.
- Oetjen, H., **S. Baidar**, N.A. Krotkov, L.N. Lamsal, M. Lechner, and R. Volkamer (2013), Airborne MAX-DOAS Measurements over California: Testing the NASA OMI Tropospheric NO₂ product, J. Geophys. Res. Atmos., 118, doi: 10.1002/jgrd.50550.
- Baidar, S.**, H. Oetjen, S. Coburn, B. Dix, I. Ortega, R. Sinreich, and R. Volkamer (2013), The CU Airborne MAX-DOAS Instrument: Vertical Profiling of Aerosol Extinction and Trace Gases, Atmos. Meas. Tech., 6, doi: 10.5194/amt-6-719-2013.
- Dix, B., **S. Baidar**, J.F. Bresch, S.R. Hall, K.S. Schmidt, S. Wang, and R. Volkamer (2013), Detection of Iodine Monoxide in the Tropical Free Troposphere, Proc. Natl. Acad. Sci., 110, doi: 10.1073/pnas.1212386110.
- Zaveri, R. A., et al. (2012), Overview of the 2010 Carbonaceous Aerosols and Radiative Effects Study (CARES), Atmos. Chem. Phys., 12, doi: 10.5194/acp-12-7647-2012.

Interdisciplinary Activities, Outreach and Awards

CIRES Innovative Research Program 2018

Demonstration of high spectral resolution lidar (HSRL) measurements of aerosols and clouds using a coherent Doppler wind lidar.

ESRL-CIRES Graduate Fellowship (2009-2013)

Member: CIRES Mentoring Committee (2021-present)

Member: AMS Committee on Laser Atmospheric Studies (CLAS, 2016-2023)

Mentor: CIRES Research Experience for Community College Students (RECCS) program (2018)

Outreach: judge for Colorado State Science Fair, RECCS poster session