

# KARSTEN BAUMANN

kbaumann@picarro.com • +1-919-599-5789 • www.linkedin.com/in/k-baumann

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Environmental Engineer • Lab Director • Air Quality Scientist/Consultant • Atmospheric Researcher

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## QUALIFICATIONS

Aerosol Measurements • Sensor Development • Instrument Testing • Infectious Aerosol Experiments  
TD autoGC (Markes-Agilent) • PAMS Operation • Spectroscopy (IR, Vis, UV) • Chemiluminescence  
LIDAR Ceilometer • Sample Collection • Chemical Analysis (IC, WSOC, XRF, ACSM, QToFMS, ICPMS)  
Lab Operations • Methods Development • SOPs • QAQC • Source Characterization • Biomass Burning  
Source Apportionment • Project Management • Organization • International Collaboration • Atmospheric  
Dispersion • HYSPLIT • Aerosol Transformation • Multiphase Chemistry • Human Exposure • Health Risks  
• Public Speaking & Outreach • Awareness Building • Mentoring • Teaching • Team Building • Diligence

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## PROFESSIONAL EXPERIENCE

- PICARRO Morrisville NC  
Environmental Research & Network 12/2021-present  
**Field Application Scientist**  
•Develop procedures for reliable operation of real-time HCHO and C2H4O monitors at highest accuracy.
- UNIVERSITY OF NORTH CAROLINA Chapel Hill NC  
Gillings School of Global Public Health 07/2017-11/2021  
**Research Assistant Professor**  
•Collaborate with Max Planck Institute for Chemistry (Mainz, Germany) investigating health risks of nitro- and oxy-PAH upon inhalation •Develop capacity to measure PFAS in gas and particle phases of ambient aerosol  
•Lead emissions characterization from wood stoves used in LMICs to determine toxic effects on human lung cells •Design/Conduct experiments to study viability of infectious aerosols and effective inactivation methods.
- ATMOSPHERIC RESEARCH & ANALYSIS Morrisville NC  
South-Eastern Aerosol Research and Characterization (SEARCH) 01/2007-01/2017  
**Senior Scientist & Lab Director**  
•Build, staff and direct laboratory for advanced chemical analysis of aerosol samples •Manage investigative research-driven lab operations and AQ projects •Implement continuous VOC measurements and analyze their changing role in SEUS air pollution •Investigate BL dynamics at rural and urban sites via LIDAR ceilometer  
•Manage SOAS ground site involving over 100 scientists to better understand climate and AQ •Develop and lead AQ program within DoD funded Defense Coastal-Estuarine Research Program (DCERP).
- RTI INTERNATIONAL & U.S. EPA Durham NC  
Center for Aerosol Technology 04/2005-01/2007  
**Senior Research Engineer**  
•Develop and support research projects in air quality management, emissions control, receptor modeling, exposure measurements, sensor development, testing, and QC •Contribute to projects that improve *i)* nanoPM delivery for tox studies, *ii)* policies for mercury risk management, *iii)* receptor modeling application guidelines.
- GEORGIA INSTITUTE OF TECHNOLOGY Atlanta GA  
School of Earth & Atmospheric Sciences 05/1998-03/2005  
**Senior Research Engineer**  
•Direct the Air Resources Engineering Center and the Southern Center for the Integrative Study of Secondary Air Pollutants •Conduct research driven field and lab experiments investigating atmospheric aerosol chemistry, physics and AQ in rural and urban environs of the US and China •Lead GIT's contribution to EPA-sponsored Atlanta Super Site Experiment advancing aerosol measurement technologies •Support development of Aerodyne's AMS, while leading Georgia Fall-Line and Texas AQ studies.

## CITATIONS

**Google Scholar** Citations: 5707 h-index: 45 i10-index: 63 01/2022  
**Research Gate** Citations: 5521 h-index: 43 RG score: 38.52, >95% of RG members' 01/2022

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## HONORS / AWARDS

Career Author Award, RTI International, Durham NC  
Advanced Study Program (ASP) Postdoctoral Fellowship, NCAR, Boulder CO  
CIRES Postdoctoral Fellowship, University of Colorado, Boulder CO  
Study Abroad Scholarship, German Academic Exchange Program

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## EDUCATION

**Postdoc**, NOAA & National Center for Atmospheric Research, Boulder CO  
**PhD** (German equivalent), Energy Engineering, University of Stuttgart, Germany  
**MS** (German equivalent), Mechanical Engineering, University of Stuttgart, Germany  
**BS** (German equivalent), Mechanical Engineering, University of Stuttgart, Germany

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## CERTIFICATES

SAS Programming II: Manipulating Data with the DATA Step, improved proficiency. 09/2006  
SAS Statistics I: Introduction to ANOVA, Regression, and Logistic Regression. 12/2006  
Microsoft Excel 2013 Pivot Tables workshop, Fred Pryor Seminars and Career Track. 05/2014  
UAS Piloting License according to German aviation law § 21a Abs.4 LuftVO. 12/2017

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## COMPUTER SKILLS

•Apple MacOS •NI-LabVIEW •Wavemetrics IGOR •SAS •Windows10Pro: Word.Excel.PowerPoint.Visio

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## PROFESSIONAL ASSOCIATIONS / SERVICES

• American Solar Energy Society (2007) • Sierra Club (2006) • Air & Waste Management Association (2006)  
• Union of Concerned Scientists (2005) • American Association for the Advancement of Science (2004)  
• Environmental Defense Fund (2003) • American Chemical Society (2002) • American Association for Aerosol Research (1999) • National Resources Defense Council (1999) • American Geophysical Union (1993)

**Peer Reviewer** *Aerosol Sci Technol, Atmos Env, Env Monit Assmt, Env Sci Technol, Geophys Res Letters, J Geophys Res, J Air Waste Manag Assoc, Sci Total Env, NASA, NOAA, DOE, JFSP proposals.* 1993 to date

**Subject Editor** for European journal Environmental Science and Pollution Research (ESPR) in Subject Area 3 *Atmos. Chem. Physics Health*, Springer Berlin/Heidelberg. 2006 to 2009

**Conference Session Chair** Air Quality and Climate in the Southeast US, Session 6AQ, *Insights from Recent Measurement Campaigns*, AAAR, Orlando FL. 10/2014

Local and Regional Aerosols and Their Influence on Rural and Urban PM Levels, Session 8B, *PM Supersites Program & Related Studies*, AAAR, Atlanta GA. 02/2005

**Book Reviewer** *Chemistry of the Natural Atmosphere*, 2<sup>nd</sup> edition. Edited by Peter Warneck. IGS, Academic Press, San Diego, CA. 71:927, 2000. ISBN 0-12-735632-0. 06/2000

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## VOLUNTEER SERVICES

**Member** Morrisville Smart City Steering Committee. Advise Town Council on smart city initiatives and technology innovation towards sustainable development. 2020 to present

**Co-Chair** Morrisville Environmental & Recycling Committee. Advise Town Council on recycling and resources conservation. 2009 to 2018

**Co-Founder & VP** Morrisville Community Garden. Non-profit community service in partnership with NC State Cooperative Extension: gardening, composting, organic weed/pest control, nutrition. 2010 to 2018

**Licensed Coach** Capital Area Soccer League. One of largest public soccer organizations in the Southeast. Taught recreational teen soccer players how to play as a *Mannschaft*. 2006 to 2013