

KYUNG-EUN MIN

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Education

2012. 05. Ph. D. **University of California, Berkeley, CA, U.S.A.** Advisor: Dr. Ronald C. Cohen
Department of Earth and Planetary Science
Thesis: Eddy-covariance observations of the atmosphere-biosphere exchange of nitrogen oxides
2004. 05. M.S. **Korea University, Seoul, Korea** Advisor: Dr. Meehye Lee
Master of Science-Environmental Applied Geology
Thesis: Development of tropospheric OH measuring systems using laser-induced fluorescence
2002. 02. B.S. **Korea University, Seoul, Korea**
Department of Earth and Environmental Sciences

Research Interest

Tropospheric photochemistry
Interactions of the atmosphere, biosphere and the oceans
Instrument development for trace gases and particles
Secondary organic aerosols formation and its impact on climate

Professional Appointment

- Assistant Professor*, School of Environmental Science & Engineering, 2015.01-Present
Gwangju Institute of Science and Technology, Gwangju, Korea
- Post-Doctoral Research Fellow*, NOAA, ESRL, Chemical Science Division, 2012.07 – 2014.12
Fellowship supported by CIRES Visiting Fellows program, 2012
- Post-Master Researcher*, Korea Research Institute of Standards and Science 2006.03-2006.06
- Research Associate*, Korea University 2004.09-2005.08
Fellowship supported by Ministry of Science and Technology, Government of Korea
- Research Director (high school student mentoring project)* Korea University 2004.05-2004.12
Supported by Ministry of Commerce, Industry and Energy, Government of Korea

Journal Editorial Activities

2015.05-present Associate Editor, Atmospheric Chemistry & Physics (ACP)

Honors and Awards

2017. NASA Group Achievement Award for KORUS-AQ
2017. 젊은 우수과학자상, ALTA(Advanced Lasers and Their Applications)
2016. NASA appreciation award for KORUS-AQ 2016 mission
2014. Awards for Excellent Presentation, Korean Society for Atmospheric Environment
2013. ACESS (Atmospheric Chemistry Colloquium for Emerging Senior Scientists) XII member
2012. Fellowship for postdoctoral researcher (CIRES Visiting Fellows program, 2 years)
2009. NASA Group Achievement Award for ARCTAS
2004. Early Career Scientist Fellowship (Ministry of Science and Technology, Korea, 1year)
2003. 11. Award for Excellent Poster, The Korean Society for Environmental Analysis

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| 2001. Fall | Earth and Environology Alumni Scholarship |
| 2000. Fall | Honors Scholarships, Korea University |
| 2000. Spring | Best Honors Scholarship, Korea University |
| 1999. Fall –2001. Spring | Semester High Honors award (3 times), Korea University |

Professional Membership

Member, ACCESS XII
 Member, American Geophysical Union
 Member, American Chemical Society
 Member, Korea Society of Atmospheric Environment

Teaching and Mentoring Experiences

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| 2016. Fall | Air pollution monitoring techniques , GIST |
| 2016. Fall | Air Quality Research Trend and Its Applications , GIST |
| 2015- Present. Spring | Earth and environmental science , GIST |
| 2010.09-2011.12 | Undergraduate students mentoring project , University of California, Berkeley Project: Leaf scale evidence of NO ₂ compensation points |
| 2009. Spring | Graduate Student Instructor , University of California, Berkeley Course: The Planets |
| 2008. Spring | Graduate Student Instructor , University of California, Berkeley Course: Atmospheric Physics and Chemistry Laboratory |
| 2004.05-2004.12 | High school student mentoring project , Korea University Project: The ambivalence of ozone- harmful and beneficial effects |
| 2003. Spring | Teaching Assistant , Korea University Course: Atmospheric Environment and Experiment |
| 2002. Fall | Laboratory Assistant , Korea University Course: Earth and Environmental Science II |

Technical Skills and Certificates

Teaching Certificate of Science at Secondary School, Korea, 2002.02.

Level A+B Laser Operating Certificate, Lambda Physik, Germany, 2004. 02.

Programming MATLAB/DOASIS/LabView

Building instruments (HO_x, NO_x, NO_y and oxygenated halogen compounds)

- LIF (Laser-Induced Fluorescent) system
- coil-enzyme fluorescence instruments (HPLC - UVD /FD)
- CEAS (Cavity Enhanced Absorption Spectrometer) system
- NO₂ photolytic convertor

Research Experiences

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| 2016.05-2016.06 | KORea US – Air Quality study (KORUS-AQ 2016) |
| 2015.05-2015.06 | Megacity Air Pollution Studies (MAPS2015) |
| 2014.06-2014.07 | CARE-Beijing-NCP 2014 |
| 2014.01-2014.02 | Uinta Basin Winter Ozone Study (UBWOS2014) |
| 2013.06-2013.07 | Southeast Nexus (SENEX 2013): Studying the Interactions Between Natural and |

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| | Anthropogenic Emissions at the Nexus of Climate Change and Air Quality |
| 2013.02 | Uinta Basin Winter Ozone Study (UBWOS2013) |
| 2010.05-2010.07 | CalNex2010; Research at the Nexus of Air Quality and Climate Change |
| 2009.06-2009.07 | Biosphere Effects on Aerosols and Photochemistry Experiment (BEARPEX2009) |
| 2008.06-2008.07 | Arctic Research of the Composition of the Troposphere from Aircraft and Satellites (ARCTAS) |
| 2007.08-2007.09 | Biosphere Effects on Aerosols and Photochemistry Experiment (BEARPEX2007) |
| 2005.01-2005.08 | ABC Gosan Campaign: East Asia Regional Experiment 2005 (ABC-EZREX2005) |
| 2002.03-2005.08 | Studies that use Jeodo, Ocean Research Station |
| 2002.02-2004.05 | Core Environmental Technology Development Project for Next Generation; Development of tropospheric HO _x radicals using laser-induced fluorescence technique |
| 2002.02-2004.08 | Investigation of photochemical pollution processes |
| 2002.09-2004.08 | BK21(Brain Korea for 21) Project; Measuring and modeling atmospheric hydrogen peroxide and formaldehyde |
| 2002.10-2004.08 | Advanced Basic Research Laboratory (ABRL) project; Analyzing the atmospheric changing effect on geosphere |
| 2002.02-2003.08 | Program for Women Scientists; Investigation of photochemical oxidant's role in atmospheric pollutions in Seoul |

Publications

- K. J. Zarzana, **K.-E. Min** et al.,: Emissions of Glyoxal and Other Carbonyl Compounds from Agricultural Biomass Burning Plumes Sampled by Aircraft, *Environ. Sci. & Tech.*, doi: 10.1021/acs.est.7b03517, 2017
- S. S. Brown, ... **K.-E. Min**: Cavity Enhanced Spectroscopy for Measurement of Nitrogen Oxides in the Anthropocene: Results from the Seoul Tower during MAPS 2015, *Faraday Discuss.*, doi: 10.1039/C7FD00001D, 2017
- H. Fuchs, ..., **K.-E. Min** et al., : OH reactivity at a rural site (Wangdu) in North China Plain: Contribution from OH reactants and experimental OH budget, *Atmos. Chem. Phys.*, 17, 645-661, doi:10.5194/acp-17-645-2017, 2017
- J. Li, ..., **K.-E. Min** et al., : Observational constraints on glyoxal production from isoprene oxidation and its contribution to organic aerosol over the Southeast United States, *Jour. Geophys. Res. Atmos.*, 121, 9849-9861, 25331, 2016
- J. A. Neuman, ..., **K.-E. Min** et al., : HONO emission and production determined from airborne measurements over the southeast U.S., *Jour. Geophys. Res. Atmos.*, 121, 9237-9250, doi:10.1002/2016JD025197, 2016
- C. Warneke, ..., **K.-E. Min** et al., : Instrumentation and measurement strategy for the NOAA SENEX aircraft campaign as part of the Southeast Atmosphere Study 2013, *Atmos. Meas. Tech.*, 9, 3063-3093, doi:10.5194/amt-9-3063-2016, 2016
- K.-E. Min**, et al.,: A broadband cavity enhanced absorption spectrometer for aircraft measurements of glyoxal, methylglyoxal, nitrous acid, nitrogen dioxide and water. *Atmos. Meas. Tech.*, 9, 423-440, 10.5194/amt-9-423-2016, 2016
- J.A. de Gouw, ..., **K.-E. Min** et al.,: Airborne measurements of the atmospheric emissions from a fuel ethanol refinery, *Jour. Geophys. Res. Atmos.* 10.1002/2015JD023138, 2015
- J. Kaiser, ..., **K.-E. Min** et al.,: Reassessing the ratio of glyoxal to formaldehyde as an indicator of hydrocarbon precursor speciation, *Atmos. Chem. Phys.*, 15, 7571-7583, 2015
- K.-E. Min**, et al.,: Eddy-covariance fluxes and vertical concentration gradient measurements of NO and NO₂ over a ponderosa pine ecosystem: observational evidence for within canopy removal of NO_x, *Atmos. Chem. Phys.* 14, 5495-5512, 2014
- E. C. Browne, ..., **K.-E. Min** et al.,: On the role of monoterpene chemistry in the remote continental boundary layer, *Atmos. Chem. Phys.*, 14, 1225-1238, 2014
- S. E. Pusede, ... **K.-E. Min** et al.,: On the temperature dependence of organic reactivity, nitrogen oxides, ozone production and the impact of emission controls in San Joaquin Valley California, *Atmos.*

Chem. Phys. 14, 3373-3395, 2014

- A. W. Rollins, **K.-E. Min** et al.,: Gas/Particle partitioning of total alkyl nitrates observed with TD-LIF in Bakersfield, *Jour. Geophys. Res. Atmos.* 10.1002/jgrd.50522, 2013
- E. C. Browne, **K.-E. Min** et al.,: Observations of total RONO₂ over the boreal forest: NO_x sinks and HNO₃ source, *Atmos. Chem. Phys.* 13, 4543-4562, 2013
- A. W. Rollins, ..., **K.-E. Min** et al.,: Evidence for NO_x Control over Nighttime SOA Formation. *Science*, 337, 1210-1212, doi:10.1126/science.1221520, 2012
- K.-E. Min** et al.,: Observations of atmosphere biosphere exchange of total and speciated peroxy nitrates: nitrogen fluxes and biogenic sources of peroxy nitrates. *Atmos. Chem. Phys.*, 12, 9763-9773, doi: 10.5194/acp-12-9763-2012, 2012
- M. R. Beaver, ... **K.-E. Min** et al.,: Importance of biogenic precursors to the budget of organic nitrates: observations of multifunctional organic nitrates by CIMS and TD-LIF during BEARPEX 2009. *Atmos. Chem. Phys.* 12 (5785), 5773 pp, doi: doi:10.5194/acp-12-9763-2012, 2012
- X. Ren, ..., **K.-E. Min** et al.,: A relaxed eddy accumulation system for measuring vertical fluxes of nitrous acid, *Atmos. Meas. Tech.*, 4, 2091-2103, 2011
- A.R. Russell, ..., **K.-E. Min** et al.,: A high spatial resolution retrieval of NO₂ column densities from OMI: Method and Evaluation, *Atmos. Chem. Phys. Disc.* 11, 12411-12440, 2011
- G. M. Wolfe, ..., **K.-E. Min** et al.,: The Chemistry of Atmosphere-Forest Exchange (CAFE) Model, Part II: Validation and Application to BEARPEX-2007 observation, *Atmos. Chem. Phys.* 11, 1269-1294, 2011
- M. J. Alvarado, ..., **K.-E. Min** et al.,: NO_x and PAN in boreal fire smoke plumes observed during ARCTAS-B and their impact on Arctic ozone: an integrated analysis of aircraft and satellite observations, *Atmos. Chem. Phys.*, 10, 9739-9760, 2010
- B.W. LaFranchi, ..., **K.-E. Min** et al.,: Closing the Peroxy Acetylnitrate Budget: Observations of Acyl Peroxy Nitrates (PAN, PPN, and MPAN) During BEARPEX 2007, *Atmos. Chem. Phys.* 9, 7623-7641 2009
- G. M. Wolfe, ..., **K.-E. Min** et al.,: Eddy covariance fluxes of acyl peroxy nitrates above a ponderosa pine forest, *Atmos. Chem. Phys.* 9, 515-634, 2009

Conference Presentations (*International*)

- K.-E. Min.**, et al.,: Fast in-situ measurements of glyoxal (CHOCHO) and nitrous acid (HONO) in northern Chinese plane during CAREBEIJING-NCP2014, *AGU 2014 Fall meeting, San Francisco, USA* [Oral]
- M. Marvin, ..., **K.-E. Min.**, et al.,: Evaluating the isoprene oxidation mechanism using aircraft observations from SENEX2013, *AGU 2014 Fall meeting, San Francisco, USA*
- P. Veres, ..., **K.-E. Min.**, et al.,: Observations of nitrous acid (HONO) and peroxy nitric acid (HO₂NO₂) made during the 2013 and 2014 Uintah Basin Winter Ozone Study (UBWOS), *AGU 2014 Fall meeting, San Francisco, USA*
- J. De Gouw, ..., **K.-E. Min.**, et al.,: Airborne measurements of the atmospheric emissions from a fuel ethanol refinery, *AGU 2014 Fall meeting, San Francisco, USA* [Oral]
- J. Gilman, ..., **K.-E. Min.**, et al.,: Primary emissions and secondary formation of volatile organic compounds from natural gas production in five major U.S. Shale play, *AGU 2014 Fall meeting, San Francisco, USA* [Oral]
- K.-E. Min.**, et al.,: Regional distribution of glyoxal over the southeastern U.S.: first high resolution, in-situ airborne measurements., 2014, *13th IGAC Science Conference on Atmospheric Chemistry, Natal, Brazil*
- K.-E. Min.**, et al.,: Aircraft measurement of glyoxal (CHOCHO) over southeast U.S. during SENEX2013., *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- J. Mao, ..., **K.-E. Min**, et al.,: Simulation of ozone and its precursors over the southeast US with a high-resolution chemistry-climate model, *AGU 2013 Fall meeting, San Francisco, USA* [Poster]
- S.S. Brown, ..., **K.-E. Min**, et al.,: Nighttime aircraft measurements of power plant plumes in the Southeast U.S., *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- P.M. Edwards, ..., **K.-E. Min**, et al.,: Nocturnal oxidation chemistry from night flights in the Southeastern US during SENEX, *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- J. Kaiser, ..., **K.-E. Min**, et al.,: Photochemical Formaldehyde Production in Anthropogenic Plumes during

- SENEX 2013, *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- G.M. Wolfe, ..., **K.-E. Min**, et al.; Contrasting Formaldehyde Sources in High and Low-NO_x Regions, *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- S.E. Pusede, ..., **K.-E. Min**, et al.; On the Temperature Dependence of Organic Reactivity, Ozone Production, and the Impact of Emissions Controls in San Joaquin Valley California, *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- B. Yuan, ..., **K.-E. Min**, et al.; Measurement of Organic and Inorganic Acids in the Uintah Basin, Utah during UBWOS 2012 and 2013, *AGU 2013 Fall meeting, San Francisco, USA* [Oral]
- P.M. Edwards, ..., **K.-E. Min**, et al.; Sensitivities of winter ozone pollution events in oil and gas producing regions to VOCs, NO_x and radicals, *AGU 2013 Fall meeting, San Francisco, USA* [Invited oral presentation]
- J.M. Roberts, ..., **K.-E. Min**, et al.; Radical Sources in the Uintah Basin during 2013 Winter Ozone Episodes, *AGU 2013 Fall meeting, San Francisco, USA* [Poster]
- K.-E. Min**, et al.; Aircraft measurement of glyoxal (CHOCHO) and nitrous acid (HONO) over southeast U.S. during SENEX 2013, *YSSAR (Young Scientist Symposium on Atmospheric Research) 2013, CSU, Fort Collins, USA* [Poster]
- K.-E. Min**, et al.; Eddy-covariance observations of the atmosphere-biosphere exchange of nitrogen oxides, *ACCESS XII 2013, New York, USA* [Oral]
- K.-E. Min**, et al.; Eddy-covariance observations of the atmosphere-biosphere exchange of nitrogen oxides (NO_y), *GRC Atmospheric Chemistry 2013, West Dover, USA* [Poster]
- K.-E. Min**, et al.; Constraints on the abundances of radical precursors from airborne measurements: developing an airborne cavity enhanced spectrometer (ACES) for glyoxal (CHOCHO) and nitrous acid (HONO) measurements, *KOSAE 2013 Fall meeting, Busan, Korea* [Invited oral presentation]
- K.-E. Min**, et al.; Airborne measurements of glyoxal (CHOCHO) and nitrous acid (HONO) during SENEX 2013 using an airborne cavity enhanced spectrometer (ACES), *Korea University, Yonsei University, Seoul National University, and Hankuk University of Foreign Studies, Aug. 28- Sep. 4, 2013, Korea* [Invited seminar]
- K.-E. Min**, et al.; Developing an Airborne Cavity Enhanced Spectrometer (ACES) for simultaneous measurement of nitrogen dioxides (NO₂), glyoxal (CHOCHO) and nitrous acid (HONO), *CIRES Rendezvous 2013, Boulder, USA* [Poster]
- K.-E. Min**, et al.; Eddy-covariance observations of the atmosphere-biosphere exchange of nitrogen oxides, *Korea University and Korea Polar Research Institute, May 22 & June 4, 2012, Korea* [Invited seminar]
- K.-E. Min**; Eddy-covariance observations of the atmosphere-biosphere exchange of nitrogen oxides, *Exit talk, Department of Earth and Planetary Science, University of California, Berkeley, 2011, Berkeley, USA* [Oral]
- K.-E. Min**, et al.; Evidence for unusual peroxy nitrates and their atmosphere-biosphere exchange, *AGU 2011 Fall meeting, San Francisco, USA* [Poster]
- K.-E. Min**, et al.; Flux measurements evidence unexpected within canopy peroxy nitrate formation., *ACS 2011 Fall meeting., Denver., USA* [Poster]
- K.-E. Min**, et al.; Flux-gradient relationships of nitrogen oxides over a ponderosa pine plantation during BEARPEX-2009, *AGU 2010 Fall meeting, San Francisco, USA* [Poster]
- M.R. Beaver, ..., **K.-E. Min**, et al.; Organic Nitrates from Isoprene during BEARPEX-2009, *AGU 2010 Fall meeting, San Francisco, USA* [Poster]
- S.E. Pusede, ..., **K.-E. Min**, et al.; Ozone Production in the Southern San Joaquin Valley: A NO_x Perspective, *AGU 2010 Fall meeting, San Francisco, USA* [Poster]
- J.A. Thornton, ..., **K.-E. Min**, et al.; The Role of Chemistry in Atmosphere-Forest Exchange, *AGU 2010 Fall meeting, San Francisco, USA* [Invited oral presentation]
- M.J. Alvarado, ..., **K.-E. Min**, et al.; Nitrogen oxides and PAN in plumes from boreal fires during ARCTAS and their impact on ozone: An integrated analysis of aircraft and satellite observations, *AGU 2010 Fall meeting, San Francisco, USA* [Poster]
- K.-E. Min**, et al.; Nitrogen oxide fluxes over a ponderosa pine plantation during BEARPEX-2009, *AGU 2009*

Fall meeting, San Francisco, USA [Poster]

S.E. Pusede, ..., **K.-E. Min**, et al.; Gradient Measurements of NO, NO₂, Total Peroxy Nitrates, Total Alkyl Nitrates, and Nitric Acid during BEARPEX-2009, *AGU 2009 Fall meeting, San Francisco, USA [Poster]*

E.C. Browne, ..., **K.-E. Min**, et al.; Observations of Alkyl Nitrates during ARCTAS: Investigation of the low NO_x Chemistry of Isoprene Nitrates, *AGU 2009 Fall meeting, San Francisco, USA [Poster]*

G.M. Wolfe, ..., **K.-E. Min**, et al.; Chemical Contribution to the Flux of Acyl Peroxy Nitrates (PAN, PPN, MPAN) Measured Above a Ponderosa Pine Forest During BEARPEX-2007, *AGU 2008 Fall meeting, San Francisco, USA [Poster]*

B.W. LaFranchi, ..., **K.-E. Min**, et al.; Closing the Peroxy Acetyl (PA) Radical Budget: Observations of Acyl Peroxy Nitrates (PAN, PPN, and MPAN) During BEARPEX 2007, *AGU 2008 Fall meeting, San Francisco, USA [Poster]*

K.-E. Min and M. Lee, A LIF (Laser-Induced Fluorescence) system measuring tropospheric HO_x (OH, HO₂), *AGU2004 Western Pacific Geophysics Meeting, Hawaii, USA.*, [Poster]

K.-E. Min, et al.; Tropospheric OH measurement using LIF, *The International Conference for Environmental Analysis for 21C, The Korea Society for Environmental Analysis, 2004, Seoul, Korea*, [Poster]

K.-E. Min, et al.; Development of an Laser-Induced Fluorescence system for measuring atmospheric HO_x radical, *EGS-AGU-EUG Joint Assembly 2003, Nice, France* [Poster]

K.-E. Min, et al.; Measurement of tropospheric hydroxyl radicals (OH) and hydroperoxyl radical (HO₂) by Laser-Induced Fluorescence (LIF) technique, *4th International symposium on advanced environmental monitoring, 2002, Jeju, Korea* [Poster]