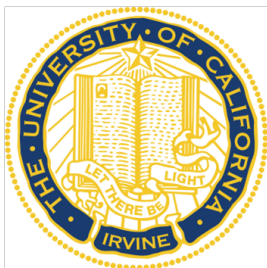


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Saewung Kim, Associate Professor

Education

Doctor of Philosophy, Atmospheric Chemistry, School of Earth and Atmospheric Sciences, Georgia Institute of Technology Atlanta, GA U.S.A. 2003-2007

- Measurement of pernitric acid, hydrogen chloride, and sulfur dioxide during the Intercontinental Chemical Transportation Experiment Campaign, Advised by Prof. L. Gregory Huey

Master of Science, Oceanography, School of Earth and Environmental Sciences, Seoul National University, Seoul South Korea, 1998-2000

- A study on comparing photochemical states in clean and polluted air by measurements of NO, NO₂, O₃, PAN and J_{NO2}, Advised by Prof. Kyung-Ryul Kim

Bachelor of Science, Oceanography, Seoul National University, School of Earth and Environmental Sciences, Seoul South Korea, 1994-1998

Professional Experiences

Assistant Professor, Department of Earth System Science, University of California, Irvine Irvine, CA USA 2012 - 2018

Project Scientist I, Atmospheric Chemistry Division, NCAR, Boulder, CO USA 2011-2012

- *Developing and deploying CIMS system for OH, H₂SO₄ Measurements*
- *PTR-ToF-MS Characterization*
- *OH reactivity measurement system development*

Scientific Visitor, Atmospheric Chemistry Division, NCAR, Boulder, CO USA 2010-2011

- *Developing and deploying CIMS system for OH, H₂SO₄ Measurements*

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- *PTR-ToF-MS Characterization*
- *OH reactivity measurement system development*

Postdoctoral Fellow, Advanced Study Program, NCAR, Boulder, CO USA, 2008-2010

- PTR-MS Characterization for sesquiterpene measurement
- OH reactivity monitoring system for branch enclosure development

Research Assistant, School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA USA 2003-2007

- Airborne Deployment of a CIMS system to measure HO₂NO₂, HCl, and SO₂

Awards, Distinctions and Fellowships

- Kavli Fellow, June 2019
- Group Achievement Award, NASA Headquarter to KORUS-AQ Team, 2017
- Antarctica Service Medal of the United States of America, National Science Foundation, USA, 2011
- ACCESS X (Atmospheric Chemistry Colloquium for Emerging Senior Scientist) Travel Award, August 2009
- Postdoctoral Fellow, Advanced Study Program, National Center for Atmospheric Research (NCAR) U.S.A., 2008-2009.
- John Bradshaw Award, The School of Earth and Atmospheric Sciences, The Georgia Institute of Technology, Atlanta, Georgia, U.S.A., 2007.
- Group Achievement Award, NASA Headquarter to INTEX-B Science Team, 2008.
- Group Achievement Award, NASA Headquarter to INTEX-NA Science Team, 2005.
- Best Poster Presentation Award, Autumn Symposium of KOSAE, 1999.
- Academic Achievement Scholarship, Seoul National University, Seoul, Korea, 1994 – 1997.

Research Interests / Research Profile

- My main research interest is exploring roles of natural and anthropogenic processes in controlling tropospheric oxidation capacity and reactivity. My main research tool is in-situ chemical sensors that can provide snapshots on oxidation capacity and reactivity controlling trace gas lifetimes and secondary product formation such as ozone and aerosols. My research goal is providing quantitative

Last updated August 2021

information for the diagnosis of regional and global air quality, critical for public health and climate change policies.

Peer-Reviewed Publications (Web of Science ResearcherID E-4089-2012 H-Index 28)

- Sarkar, C., G. Wong, A. Mielnik, S. Nagalingam, N. J. Gross, A. B. Guenther, T. Lee, T. Park, J. Ban, S. Kang, J. S. Park, J. Ahn, D. Kim, H. Kim, J. Choi, B. K. Seo, J. H. Kim, J. H. Kim, S. B. Park, and S. Kim (2021), Unexplored volatile organic compound emitted from petrochemical facilities: implications for ozone production and atmospheric chemistry, *Atmospheric Chemistry and Physics*, 21(15), 11505-11518, doi:10.5194/acp-21-11505-2021.
- Sanchez, D., R. Seco, D. S. Gu, A. Guenther, J. Mak, Y. Lee, D. Kim, J. Ahn, D. Blake, S. Herndon, D. Jeong, J. T. Sullivan, T. Mcgee, R. Park, and S. Kim (2021), Contributions to OH reactivity from unexplored volatile organic compounds measured by PTR-ToF-MS - a case study in a suburban forest of the Seoul metropolitan area during the Korea-United States Air Quality Study (KORUS-AQ) 2016, *Atmospheric Chemistry and Physics*, 21(8), 6331-6345, doi:10.5194/acp-21-6331-2021.
- Nguyen, N. T. T., A. Q. K. Nguyen, M. S. Kim, C. Lee, S. Kim, and J. Kim (2021), Degradation of aqueous organic pollutants using an Fe₂O₃/WO₃ composite photocatalyst as a magnetically separable peroxy monosulfate activator, *Sep Purif Technol*, 267, doi:ARTN 118610.10.1016/j.seppur.2021.118610.
- Kim, S., R. Seco, D. Gu, D. Sanchez, D. Jeong, A. B. Guenther, Y. Lee, J. E. Mak, L. P. Su, D. B. Kim, Y. Lee, J. Y. Ahn, T. Mcgee, J. Sullivan, R. Long, W. H. Brune, A. Thames, A. Wisthaler, M. Muller, T. Mikoviny, A. Weinheimer, M. Yang, J. H. Woo, S. Kim, and H. Park (2021), The role of a suburban forest in controlling vertical trace gas and OH reactivity distributions - a case study for the Seoul metropolitan area, *Faraday Discussions*, 226, 537-550, doi:10.1039/d0fd00093k.
- Crawford, J. H., J. Y. Ahn, J. Al-Saadi, L. Chang, L. K. Emmons, J. Kim, G. Lee, J. H. Park, R. J. Park, J. H. Woo, C. K. Song, J. H. Hong, Y. D. Hong, B. L. Lefter, M. Lee, T. Lee, S. Kim, K. E. Min, S. S. Yum, H. J. Shin, Y. W. Kim, J. S. Choi, J. S. Park, J. J. Szykman, R. W. Long, C. E. Jordan, I. J. Simpson, A. Fried, J. E. Dibb, S. Cho, and Y. P. Kim (2021), The Korea-United States Air Quality (KORUS-AQ) field study, *Elementa-Sci Anthropol*, 9(1), doi:10.1525/elementa.2020.00163.
- Rodriguez, B. T., L. Huang, G. M. Santos, W. Zhang, V. Vetro, X. Xu, S. Kim, and C. I. Czimczik (2020), Seasonal Cycle of Isotope-Based Source Apportionment of Elemental Carbon in Airborne Particulate Matter and Snow at Alert, Canada, *Journal of Geophysical Research-Atmospheres*,

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- Park, J., J. Choi, K. Moon, D. Kim, H. J. Kim, J. Ahn, S. Lee, B. K. Seo, J. Kim, S. Park, and S. Kim (2020), Application of Chemical Ionization Mass Spectrometry in Airborne SO₂ Observation on Hanseo Beechcraft 1900 D, *Asian J Atmos Environ*, 14(4), 413-421, doi:10.5572/ajae.2020.14.4.413.
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Teaching Experience

Instructor:

- Winter Quarter 2021: EarthSS 146 Consequences of Air Pollution (Upper Division Elective), UC Irvine, 32 enrolled students
- Spring Quarter 2020: EarthSS 23 Air Pollution and Global Environments (General Education), UC Irvine, 252 enrolled students
- Winter Quarter 2020: EarthSS 5 Atmosphere (General Education), UC Irvine, 264 enrolled students
- Spring Quarter 2019: EarthSS 242 Advanced Atmospheric Chemistry (Graduate Division), UC Irvine, 5 enrolled students
- Fall Quarter 2018: EarthSS 146 Consequences of Air Pollution (Upper Division Elective), UC Irvine, 10 enrolled students
- Winter Quarter 2018: EarthSS 146 Consequences of Air Pollution (Upper Division Elective), UC Irvine, 20 enrolled students
- Fall Quarter 2017: EarthSS 240 Atmospheric Chemistry and Physics (Graduate Division), UC Irvine, 8 enrolled students
- Winter Quarter 2017: EarthSS142 Atmospheric Chemistry (Upper Division Elective), UC Irvine, 43 enrolled students
- Fall Quarter 2016: EarthSS 240 Atmospheric Chemistry and Physics (Graduate Division), UC Irvine, 15 enrolled students
- Winter Quarter 2016: EarthSS 142 Atmospheric Chemistry (Upper Division Elective), UC Irvine, 27 enrolled students
- Fall Quarter 2015: EarthSS 240 Atmospheric Chemistry and Physics (Graduate Division), UC Irvine, 13 enrolled students
- Spring Quarter 2015: EarthSS 142 Atmospheric Chemistry (Upper Division Elective), UC Irvine, 39 enrolled students
- Fall Quarter 2014: EarthSS 23 Air Pollution and Global Environments (General Education), UC Irvine, 122 enrolled students

Last updated August 2021

- Fall Quarter 2013: EarthSS 146 Consequences of Air Pollution (Upper Division Elective), UC Irvine, 5 enrolled students
- Fall Quarter 2013: EarthSS 23 Air Pollution and Global Environments (General Education), UC Irvine, 72 enrolled students
- Winter Quarter 2013: *EarthSS 23 Air Pollution and Global Environments* (General Education), UC, Irvine, 62 enrolled students

Teaching Assistant:

- *Spring Semester 2004: EAS 1600 Introduction to Environmental Science* taught by Prof. Bill Chameides, School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta GA.

Advising:

- Ph.D. Students: Daun Jeong, Dianne Sanchez, Blanca Rodriguez (co-advised with Claudia Czimczik), Gracie Wong, and Julie Devlin
- Post-Doc: Roger Seco and Chinmoy Sarkar
- Research Staff: Roger Seco

Research Funding (at UCI)

2021

- NIER-UCI Atmospheric Observation System, PI, National Institute of Environmental Research – Extension PI NIER-S. Korea (2014-2021, \$ 704,860)
- Determination of Instantaneous Ozone Production Regime in the New York Metropolitan Area During the AEROMMA campaign - PI NOAA (2021 – 2024, \$ 472,137)

2020

- Reconciling Atmospheric OH reactivity Measurements with PTR-ToF-MS observations and Photochemical Box Model Simulation - PI, US NSF (2020 – 2023, \$ 569,101)
- An Airborne Observation Research on the Emission and Oxidation Processes of SO₂ and VOCs, PI, South Korean NRF (2020 – 2022, \$ 210,363)

2019

- UCI Atmospheric Observational System Deployment - PI, Korean NRF (2019 – 2021, \$ 351,209)

Last updated August 2021

- Investigating the Effects of Drought Stress on Biogenic VOC emissions and Tropospheric Air Quality – co PI NASA (2019 – 2022, \$ 298,792)

2016

- Atmospheric Biogenic Organic Emissions: Missing Compounds and Unrepresented Processes – Co-PI NSF ATM (2016 -2019, \$ 531,515)

2015

- Collaborative ground and airborne observations of reactive nitrogen, halogens, and SO₂ during the KORUS-AQ campaign, UCI PI, NASA (2015-202017, between UCI and GaTech (PI Greg Huey) \$ 689,035; the UCI portion 251,945)

2014

- Brazil-USA collaborative research: Modification of the natural atmospheric chemistry and particle microphysics of the tropical rain forest, PI, DOE #DE-SC0011122 (2014-2016, \$ 450,000)
- NIER-UCI Atmospheric Observation System, PI, National Institute of Environmental Research (2014-2015, \$ 291,937)

2013

- Understanding regional oxidation capacity by comprehensive observations to constrain hydroxyl radical sources and sinks during the Southern Oxidant and Aerosol Study (SOAS), PI, EPA STAR Early Career Award # 83540001(2013-2016, \$299,895)