Last updated August 29th 2013

Department of Earth System Science
University of California at Irvine
3216 Croul Hall
Irvine CA, 92697-3100
saewungk@uci.edu
949-824-4531

Saewung Kim, Assistant 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, NO_2, O_3, 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 Experience

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

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*
- *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 SO_2

Awards, Distinctions and Fellowships

- 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-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 environmental factors in controlling tropospheric oxidation capacity that is controlling secondary photochemical products such as ozone and aerosols. My main research tool is in-situ observation chemical analysis techniques that can provide valuable information on current status of photochemistry in the atmosphere. Finally, my research goal is providing precise information to diagnose regional and global air quality, critical for public health and climate change policies.

Publications (acting as a corresponding author, ResearcherID*

http://www.researcherid.com/rid/E-4089-2012*)*

Kim, S.-Y., Jiang, X., Lee, M., Turnipseed, A., Guenther, A., Kim, J.-C., Lee, S.-J., and Kim, S.*: Impact of biogenic volatile organic compounds on ozone production at the Taehwa research forest near Seoul, South Korea, Atmospheric Environment, 70, 447-453, 10.1016/j.atmosenv.2012.11.005, 2013.

Kim, S., Wolfe, G. M., Mauldin, L., Cantrell, C., Guenther, A., Karl, T., Turnipseed, A., Greenberg, J., Hall, S. R., Ullmann, K., Apel, E., Hornbrook, R., Kajii, Y., Nakashima, Y., Keutsch, F. N., DiGangi, J. P., Henry, S. B., Kaser, L., Schnitzhofer, R., Graus, M., Hansel, A., Zheng, W., and Flocke, F. F.: Evaluation of hox sources and cycling using measurement-constrained model calculations in a 2-methyl-3-butene-2-ol (MBO) and monoterpene (MT) dominated ecosystem, Atmospheric Chemistry and Physics, 13, 2031-2044, 10.5194/acp-13-2031-2013, 2013.

Kim, S.-Y., Lee, M., Kim, S., Choi, S., Seok, S., and Kim, S.*: Photochemical characteristics of high and low ozone episodes observed in the Taehwa Forest Observatory (TFO) in June 2011 near Seoul, South Korea, Asia-Pacific Journal of Atmospheric Sciences, 49, 325-331, 10.1007/s13143-013-0031-0, 2013.

Kim, S.*, Guenther, A., and Apel, E.: Quantitative and qualitative sensing techniques for biogenic volatile organic compounds and their oxidation products, Environmental Science-Processes & Impacts, 15, 1301-1314, 10.1039/c3em00040k, 2013.

Brown, S. S., Thornton, J. A., Keene, W. C., Pszenny, A. A. P., Sive, B. C., Dube, W. P., Wagner, N. L., Young, C. J., VandenBoer, T. C., Bahreini, R., Ozturk, F., Middlebrook, A. M., Kim, S., Hubler, G., and Wolfe, D. E.: Nitrogen, aerosol composition, and halogens on a tall tower (NACHTT): Overview of a wintertime air chemistry field study in the front range urban corridor of Colorado, Journal of Geophysical Research-Atmospheres, 118, DOI: 10.1002/jgrd.50537, 2013.

Mauldin, R. L., Berndt, T., Sipila, M., Paasonen, P., Petaja, T., Kim, S., Kurten, T., Stratmann, F., Kerminen, V. M., and Kulmala, M.: A new atmospherically relevant oxidant of sulphur dioxide, Nature, 488, 193-196, 10.1038/nature11278, 2012.

DiGangi, J. P., Henry, S. B., Kammrath, A., Boyle, E. S., Kaser, L., Schnitzhofer, R., Graus, M., Turnipseed, A., Park, J. H., Weber, R. J., Hornbrook, R. S., Cantrell, C. A., Maudlin, R. L., Kim, S., Nakashima, Y., Wolfe, G. M., Kajii, Y., Apel, E. C., Goldstein, A. H., Guenther, A., Karl, T., Hansel, A., and Keutsch, F. N.: Observations of glyoxal and formaldehyde as metrics for the anthropogenic impact on rural photochemistry, Atmospheric Chemistry and Physics, 12, 9529-9543, 10.5194/acp-12-9529-2012, 2012.

Kim, S.*, Guenther, A., Karl, T., and Greenberg, J.: Contributions of primary and secondary biogenic VOC to total oh reactivity during the CABINEX (community atmosphere-biosphere interactions experiments)-09 field campaign, Atmospheric Chemistry and Physics, 11, 8613-8623, 10.5194/acp-11-8613-2011, 2011.

DiGangi, J. P., Boyle, E. S., Karl, T., Harley, P., Turnipseed, A., Kim, S., Cantrell, C., Maudlin, R. L., III, Zheng, W., Flocke, F., Hall, S. R., Ullmann, K., Nakashima, Y., Paul, J. B., Wolfe, G. M., Desai, A. R., Kajii, Y., Guenther, A., and Keutsch, F. N.: First direct measurements of formaldehyde flux via eddy covariance: Implications for missing in-canopy formaldehyde sources, Atmospheric Chemistry and Physics, 11, 10565-10578, 10.5194/acp-11-10565-2011, 2011.

Slusher, D. L., Neff, W. D., Kim, S., Huey, L. G., Wang, Y., Zeng, T., Tanner, D. J., Blake, D. R., Beyersdorf, A., Lefer, B. L., Crawford, J. H., Eisele, F. L., Mauldin, R. L., Kosciuch, E., Buhr, M. P., Wallace, H. W., and Davis, D. D.: Atmospheric chemistry results from the ANTCI 2005 Antarctic plateau airborne study, Journal of Geophysical Research-Atmospheres, 115, D07304 10.1029/2009jd012605, 2010.

Oppenheimer, C., Kyle, P., Eisele, F., Crawford, J., Huey, G., Tanner, D., Kim, S., Mauldin, L., Blake, D., Beyersdorf, A., Buhr, M., and Davis, D.: Atmospheric chemistry of an Antarctic volcanic plume, Journal of Geophysical Research-Atmospheres, 115, D04303 10.1029/2009jd011910, 2010.

Kim, S., Karl, T., Guenther, A., Tyndall, G., Orlando, J., Harley, P., Rasmussen, R., and Apel, E.: Emissions and ambient distributions of biogenic volatile organic compounds (BVOCs) in a ponderosa pine ecosystem: Interpretation of PTR-MS mass spectra, Atmospheric Chemistry and Physics, 10, 1759-1771, 2010.

McNaughton, C. S., Clarke, A. D., Kapustin, V., Shinozuka, Y., Howell, S. G., Anderson, B. E., Winstead, E., Dibb, J., Scheuer, E., Cohen, R. C., Wooldridge, P., Perring, A., Huey, L. G., Kim, S., Jimenez, J. L., Dunlea, E. J., DeCarlo, P. F., Wennberg, P. O., Crounse, J. D., Weinheimer, A. J., and Flocke, F.: Observations of heterogeneous reactions between Asian pollution and mineral dust over the Eastern North Pacific during INTEX-B, Atmospheric Chemistry and Physics, 9, 8283-8308, 2009.

Kim, S.*, Karl, T., Helmig, D., Daly, R., Rasmussen, R., and Guenther, A.: Measurement of atmospheric sesquiterpenes by proton transfer reaction-mass spectrometry (PTR-MS), Atmospheric Measurement Techniques, 2, 99-112, 2009.

Fried, A., Olson, J. R., Walega, J. G., Crawford, J. H., Chen, G., Weibring, P., Richter, D., Roller, C., Tittel, F., Porter, M., Fuelberg, H., Halland, J., Bertram, T. H., Cohen, R. C., Pickering, K., Heikes, B. G., Snow, J. A., Shen, H., O'Sullivan, D. W., Brune, W. H., Ren, X., Blake, D. R., Blake, N., Sachse, G., Diskin, G. S., Podolske, J., Vay, S. A., Shetter, R. E., Hall, S. R., Anderson, B. E., Thornhill, L., Clarke, A. D., McNaughton, C. S., Singh, H. B., Avery, M. A., Huey, G., Kim, S., and Millet, D. B.: Role of convection in redistributing formaldehyde to the upper troposphere over north America and the north Atlantic during the summer 2004 INTEX campaign, Journal of Geophysical Research-Atmospheres, 113, D17306 10.1029/2007jd009760, 2008.

Kim, S., Huey, L. G., Stickel, R. E., Tanner, D. J., Crawford, J. H., Olson, J. R., Chen, G., Brune, W. H., Ren, X., Lesher, R., Wooldridge, P. J., Bertram, T. H., Perring, A., Cohen, R. C., Lefer, B. L., Shetter, R. E., Avery, M., Diskin, G., and Sokolik, I.: Measurement of NO_2NO_2 in the free troposphere during the intercontinental chemical transport experiment - north america 2004, Journal of Geophysical Research-Atmospheres, 112, D12s01,10.1029/2006jd007676, 2007.

Hennigan, C. J., Sandholm, S., Kim, S., Stickel, R. E., Huey, L. G., and Weber, R. J.: Influence of Ohio river valley emissions on fine particle sulfate measured from aircraft over large regions of the eastern United States and Canada during INTEX-NA, Journal of Geophysical Research-Atmospheres, 111, D24s04, 10.1029/2006/jd007282, 2006.

Teaching Experience

Instructor:

- *Winter Quarter 2013: EarthSS 23 Air Pollution and Global Environments* (General Education), University of California, 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.

Research Funding (at UCI)

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)