

Daun Jeong

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EDUCATION

- University of California, Irvine (UCI), Irvine, CA** 10/2014 – present
Doctor of Philosophy, Department of Earth System and Science
 Dissertation: Halogen Chemistry in the Boundary Layer from Polluted to Pristine Environments
Adviser: Prof. Saewung Kim
- Pohang University of Science and Technology (POSTECH), Pohang, South Korea** 3/2011 - 2/2013
Master of Science, Environmental Science and Engineering
 Dissertation: Enhanced Dissolution of Iron Oxides Trapped in Ice Under Dark Condition
Adviser: Prof. Wonyong Choi
- Ewha Womans University (EWha), Seoul, South Korea** 3/2007 - 2/2011
Bachelor of Science, Environmental Science and Engineering
 Dissertation: Dissolution of Magnetite and Calcite Generated from Mineral Carbonation
Adviser: Prof. Yong Pyo Kim

RESEARCH EXPERIENCE

- University of California, Irvine, Dept. of Earth System and Science** 2014 – present
- **Measurements**
 - Measured N₂O₅, ClNO₂, ClONO₂, HONO, Cl₂, and PANs using chemical ionization mass spectrometry (CIMS) during **KORUS-AQ 2016** (KORea-United States Air Quality) and **CROUL 2017** (local campaign in Irvine, CA).
 - Measured halogen reservoir species (e.g., I₂ and HOI) near the Antarctic peninsula during **ARAON 2018**
 - Calibration of the CIMS with synthesized ClNO₂ and ClONO₂ and perm tubes (e.g., Br₂, Cl₂, I₂)
 - Additional experiences of measurements during field campaigns include, cartridge sampling for VOC analysis, NO₂ with a LGR cavity ring down spectroscopy, NO-NO_y with a Thermo-42i analyzer, single particle analysis with the Michigan MPS, particle size distribution with a SMPS
 - **Data analysis**
 - Analysis of airborne and ground-based data, collected during field campaigns (i.e., GoAmazon2014/5, KORUS-AQ2016, CROUL2017, and ARAON 2018), using Igor and Matlab.
 - Boxmodel analysis using a Matlab based FOAM v 3.1 (Framework for 0-D Atmospheric Modeling) and the NCAR BOXMOX (BOX Modeling eXtensions to KPP).
- Pohang University of Science and Technology, Dept. of Environmental Science and Engineering** 2011 – 2013
- Understanding freeze-enhanced dissolution of iron oxides and its implications on bioavailable iron in atmospheric ice particles
 - Quantification of dissolved metal ions (e.g., Fe²⁺, Fe³⁺, Cr⁶⁺, As⁵⁺ etc.) using a UV-vis (UV-Visible Spectrophotometer)
 - Analysis of ζ-potential and hydrodynamic diameter of metal oxide particles using an electrophoretic light-scattering spectrophotometer. Crystallite sizes using XRD (X-ray diffraction analysis). BET specific surface area using nanoPorosity-XQ analyzer. Particle aggregation analysis with a TEM (Transmission Electron Microscopy).

AWARDS and FELLOWSHIPS

- Group Achievement Award** (NASA): For outstanding achievements of the KORUS-AQ (2017)
- Jenkins Family Graduate Fellowship** (UCI): selected based on academic record and compelling research (2014)
- Best Paper Award** (POSTECH): Competitive award for academic excellence and promising research (2013)
- Honor Scholarship** (EWha): Competitive University-wide award for academic excellence (2010)

PUBLICATIONS

- Jeong, D.;** Seco, R.; Guenther, A. B.; Park, K.; Kim, K.; Yoon, Y. J.; Kim, S. Significant levels of I₂ in the Pristine Coastal Antarctic Peninsula during Austral Fall, *in preparation*
- Jeong, D.;** Seco, R.; Emmons, L.; Schwantes, R.; Liu, Y.; McKinney, K. A.; Martin, S. T.; Keutsch, F. N.; Gu, D.; Guenther, A. B.; Vega, O.; Tota, J.; Souza, R. A. F.; Springton, S. R.; Watson, T. B.; Kim, S. Reconciling observed and predicted tropical rainforest OH concentrations using a Chemical Ionization Mass Spectrometer during the GoAmazon2014/5 field campaign, *to be submitted*
- Menacherry, S. P.; **Jeong, D.;** Aravindakumar, C. T.; Lee, W.; Choi, W. Halide-Induced Dissolution of Lead(IV) Oxide in Frozen Solution, *Journal of Hazardous Materials (2019)*, **submitted**
- Sullivan, J. T.; McGee, T. J.; Stauffer, R. M.; Thompson, A. M.; Weinheimer, A.; Knute, C.; Janz, S.; Wisthaler, A.; Long, R.; Szykman, J.; Park, J.; Lee, Y.; Kim, S.; **Jeong, D.;** Sanchez, D.; Twigg, L.; Sunnicht, G.; Knepp, T.; Schroeder, J. R. Taehwa Research Forest: A receptor site for severe domestic pollution events in Korea during 2016. *Atmospheric Chemistry and Physics (2019)*, 19, 5051-5067
- Kim, K.; Menacherry, S.; Kim, J.; Chung, H. Y.; **Jeong, D.;** Saiz-Lopez, A.; Choi, W. Simultaneous and Synergic Production of Bioavailable Iron and Reactive Iodine Species in Ice. *Environmental Science & Technology (2019)*
- Jeong, D.;** Seco, R.; Gu, D.; Lee, Y.; Nault, B. A.; Knute, C. J.; McGee, T.; Sullivan, J. T.; Jimenez, J. L.; Campuzano-Jost P.; Blake, D. R.; Sanchez, D.; Guenther, A. B.; Tanner, D.; Huey, L. G.; Long, R.; Anderson, B. E.; Hall, S. R.; Ullmann, K.; Shin, H.; Herndon, S. C.; Lee, Y.; Kim, D.; Ahn, J.; Kim, S. Integration of Airborne and Ground Observations of Nitryl Chloride in the Seoul Metropolitan Area and the Implications on Regional Oxidation Capacity During KORUS-AQ 2016. *Atmospheric Chemistry and Physics Discussions (2018)*, **in review**
- Kim, S.; Guenther, A.; Seco, R.; Gu, D.; Sanchez, D.; **Jeong, D.;** Lee, Y.; Mak, J.; Su, L.; Kim, D.; Ahn, J.; Lee, Y.; McGee, T.; Sullivan, J.; Long, R.; Brune, W.; Thames, A.; Wisthaler, A.; Muller, M.; Milkoviny, T.; Weinheimer, A.; Yang, M.; Woo, J.; Kim, S.; Park, H. Fast oxidation of reactive gases in the lower troposphere above a forest downwind of an Asian megacity. *Environmental Science & Technology (2018)*, **in review**
- Kim, S.; **Jeong, D.;** Sanchez, D.; Wang, M.; Seco, R.; Blake, D.; Meinardi, S.; Barletta, B.; Hughes, S.; Jung, J.; Kim, D.; Lee, G.; Lee, M.; Ahn, J.; Lee, S.; Cho, G.; Sung, M.; Lee, Y.; Park, R. The controlling factors of photochemical ozone production in Seoul, South Korea. *Aerosol and Air Quality Research (2018)*, 18, 2253 - 2261
- Sanchez, D.; **Jeong, D.;** Seco, R.; Wrangham, I.; Park, J.; Brune, W. H.; Koss, A.; Gilman, J.; Gouw, J.; Misztal, P.; Goldstein, A.; Baumann, K.; Wennberg, P. O.; Keutsch, F. N.; Guenther, A.; Kim, S. Intercomparison of OH and OH reactivity measurements in a high isoprene and low NO environment during the Southern Oxidant and Aerosol Study (SOAS). *Atmospheric Environment (2018)*, 174, 227-236.
- Kim, S.; Sanchez, D.; Wang, M.; Seco, R.; **Jeong, D.;** Hughes, S.; Barletta, B.; Blake, D. R.; Jung, J.; Kim, D.; Lee, G.; Lee, M.; Ahn, J.; Lee, S.-D.; Cho, G.; Sung, M.-Y.; Lee, Y.-H.; Kim, D. B.; Kim, Y.; Woo, J.-H.; Jo, D.; Park, R.; Park, J.-H.; Hong, Y.-D.; Hong, J.-H. OH reactivity in urban and suburban regions in Seoul, South Korea - an East Asian megacity in a rapid transition. *Faraday Discussions (2016)*, 189, 231-251.
- Jeong, D.;** Kim, K.; Min, D. W.; Choi, W. Freezing-Enhanced Dissolution of Iron Oxides: Effects of Inorganic Acid Anions, *Environmental Science & Technology (2015)*, 49, 12816-12822.
- Jeong, D.;** Kim, K.; and Choi, W. Accelerated Dissolution of Iron Oxides in Ice. *Atmospheric Chemistry and Physics (2012)*, 12, 11125-11133

PRESENTATIONS

- (oral) **Jeong, D.;** Seco, R.; Gu, D.; Lee, Y.; Nault, B. A.; Knute, C. J.; McGee, T.; Sullivan, J. T.; Jimenez, J. L.; Campuzano-Jost, P.; Blake, D. R.; Sanchez, D.; Guenther, A. B.; Tanner, D.; Huey, L. G.; Long, R.; Anderson, B. E.; Hall, S. R.; Ullmann, K.; Shin, H. J.; Herndon, S. C.; Lee, Y.; Kim, D.; Ahn, J.; Kim, S., “Nitryl Chloride in the Seoul Metropolitan Area during KORUS-AQ 2016”, *AirUCI Internal Symposium*, Irvine, 9 May (2019)
- (poster) **Jeong, D.;** Seco, R.; Gu, D.; Lee, Y.; Nault, B. A.; Knute, C. J.; McGee, T.; Sullivan, J. T.; Jimenez, J. L.; Campuzano-Jost, P.; Blake, D. R.; Sanchez, D.; Guenther, A. B.; Tanner, D.; Huey, L. G.; Long, R.; Anderson, B. E.; Hall, S. R.; Ullmann, K.; Shin, H. J.; Herndon, S. C.; Lee, Y.; Kim, D.; Ahn, J.; Kim, S., “Integration of Airborne and Ground Observations of Nitryl Chloride in the Seoul Metropolitan Area”, *UCI School of Physical Sciences Alumni Day*, Irvine, 6 April (2019)

- (oral) **Jeong, D.;** Seco, R.; Guenther, A.; Park, K.; Kim, K.; Yoon, Y.; Kim, S., “Preliminary Results from the 2018 ARAON-Antarctic Cruise: Halogen Reservoir Species in the Pristine Coastal Antarctic Peninsula during Fall”, **American Geophysical Union (AGU)**, Washington D.C., 11 – 14 Dec. (2018)
- (oral) **Jeong, D.;** Seco, R.; Gu, D.; Lee, Y.; Knote, C.; Mcgee, T.; Sullivan, J.; Nault, B; Jimenez, J. L.; Campuzano-Jost, Pedro.; Blake, D.; Sanchez, D.; Guenther, A.; Tanner, D.; Huey, G.; Ahn, J.; Long, R.; Anderson, B. E.; Hall, S. R.; Kim, S., “Exploring the Impact of Nitryl Chloride (ClNO₂) on the Tropospheric Oxidation Capacity in South Korea During KOURS-AQ 2016”, **American Geophysical Union (AGU)**, New Orleans, Louisiana, 11 - 15 Dec. (2017)
- (poster) **Jeong, D.;** Guenther, A.; Seco, R.; Gu, D; Lee, Y.; Sanchez, D.; Tanner, D.; Huey, G.; Knote, C.; Ahn, J.; Kim, S., “Preliminary Diagnosis of the Roles of Nitryl Chloride (ClNO₂) in the Regional Oxidation Capacity” **KORUS-AQ Science Team Meeting**, Jeju, Korea 27 Feb – 3 Mar. (2017)
- (poster) **Jeong, D.;** Sanchez, D.; Blake, D. R.; Kim, D.; Lee, G.; Lee, M.; Jung, J.; Ahn, J.; Cho, G.; Guenther, A.; Hong, Y.; Hong, J.; Kim, S., “Evaluation of the Relative Importance of Radical Sources in Determining the Regional Tropospheric Oxidation Capacity in the Seoul Metropolitan Area”, **American Geophysical Union (AGU)**, San Francisco, CA, 14-18 Dec. (2015)
- (poster) **Jeong, D.;** Choi, W., “Enhanced Release of Bioavailable Iron in Ice”, The 112th **General Meeting of the Korean Chemical Society**, Changwon, South Korea, 16-18 Oct. (2013)
- (poster) **Jeong, D.;** Choi, W., “The Production of Dissolved Iron from Iron Oxides in Ice”, The 109th **General Meeting of the Korean Chemical Society**, Ilsan, South Korea, 25-27 Apr. (2012)

INTERNSHIPS, STUDY ABROAD, VISITOR, WORKSHOPS, and RETREATS

- UCAR Visitor (ACOM Lab)**, *Research adviser: Louisa Emmons* **8/2018**
 - Comparison between simulated and observed OH, during the GoAmazon 2014/5, using the NCAR BOXMOX
- Fundamentals of Atmospheric Chemistry and Aerosol Modeling 2018 (NCAR)** **8/2018**
- Graduate Student Retreat (NCAR)** **8/2018**
- Air UCI Retreat (UCI)** **9/2014**
- Summer internship (POSTECH)**, *Research adviser: Wonyong Choi* **6/2010 - 7/2010**
 - Laboratory studies on the enhanced reduction of chromium in ice phase in the presence of various organic and inorganic reductants to understand its toxicity in frozen soil and aerosols
- Winter internship (KIGAM)** **1/2010 - 2/2010**
 - Modeling study (preeqc model) of CO₂ degassing from magnesite and calcite acidification to understand implications on mineral carbonation of CO₂
- Study Abroad**, State University of New York in Stony Brook, New York **1/2009 - 5/2009**

TEACHING EXPERIENCE

- **Winter Quarter 2019** (teaching assistant): *ESS 15 Climate Change* taught by Dr. Pritchard, Department of Earth System and Science, UC Irvine, Irvine, CA.
- **Fall Quarter 2018** (teaching assistant): *ESS 114 Field Methods* taught by Dr. Guenther, Department of Earth System and Science, UC Irvine, Irvine, CA.
- **Winter Quarter 2017 & 2018** (teaching assistant): *ESS 23 Air Pollution* taught by Dr. Guenther, Department of Earth System and Science, UC Irvine, Irvine, CA.
- **Fall Quarter 2015 & 2017** (teaching assistant): *ESS 1 Introduction to Earth System Science* taught by Dr. Furguson, Department of Earth System and Science, UC Irvine, Irvine, CA.
- **Winter Quarter 2016** (teaching assistant): *ESS 7 Physical Geology* taught by Dr. Crook, Department of Earth System and Science, UC Irvine, Irvine, CA.