

Kim, Seung Hee

Research Assistant Professor, Associate Director
Center of Excellence in Earth Systems Modeling and Observations (CEESMO)
Schmid College of Science and Technology
Chapman University
One University Dr., Orange, CA 92866
Phone: 714-289-3113; E-mail: sekim@chapman.edu

Education

- 2010 Ph.D. University of California at Los Angeles, Los Angeles, CA, *Dept. of Atmospheric and Oceanic Sciences*
Dissertation: Convective initiation upstream of squall lines over small-scale terrain features
- 2004 M.S. University of California at Los Angeles, Los Angeles, CA, *Dept. of Atmospheric Sciences*
- 2002 B.S. Yonsei University, Seoul, Korea, *Dept. of Atmospheric Sciences*

Appointments

- 2014.04 – Present **Research Assistant Professor**, Chapman University, Orange, CA
- 2012.04 – 2014.03 **Post-Doctoral Research Associate**, Chapman University, Orange, CA
- 2011.02 – 2012.03 **Postdoctoral Fellow**, Yonsei University, Seoul, Korea
- 2010.06 – 2011.01 **Postdoctoral Fellow**, University of California at Los Angeles, Los Angeles, CA
- 2002.09 – 2010.05 **Research Assistant**, University of California at Los Angeles, Los Angeles, CA

Teaching Experiences

- Spring 2016 Earth Systems Modeling and cryosphere (CS629), Chapman University
- Spring 2015 Earth Systems Modeling (CS770), Chapman University
- Spring 2014 MESA program - Climate impact assessment using satellite observations, Chapman University
- Fall 2012, 2013 Global Climate Change (HGEC540), Chapman University
- Fall 2006 Introduction to the atmospheric environment (Teaching assistant in AOS3), University of California at Los Angeles

Professional Services

Service to University

- 2019 – Present Associate Director of CEESMO
- 2015 – 2018 Assistant Director of Operations at CEESMO
- 2020 Panelist at "Ask the Experts Virtual Town Hall - OC Annual Survey: Public Perceptions of Climate Change"
- 2019 Judge at the Graduate Student Research Showcase
- 2019 Development of student exchange program between Ewha Womans University and CEESMO at Chapman University
- 2017 Board member of task force on supporting international scholarly & creative activities

Presented at research-related events at Chapman University (Faculty Research & Creative Activity Expo, Graduate Research Salon, Computational and Data Sciences Graduate Conference, Keck Lab Open House, Schmid virtual research open house)

Supported memoranda of understanding (MOUs) processes with multiple international universities and institutes (Kongju National University, Vietnam National Space Center, Ewha Womans University, and Kyungpook National University)

Organized multiple meetings and workshops for collaborative research with national and international team members

Service to Community

2020 – Present Chairperson of Korean Atmospheric Scientists in America (KASA)

2021 – Present Topic Board Editor of journal *Sustainability*

2020 – Present Reviewer Board Member of journal *Universe* (atmospheres)

2019 – Present Editorial Advisory Board Member of the Korean Society of Climate Change Research

2017 – 2020 Primary convener and session chair for American Geophysical Union (AGU) Fall meetings

2017 Judge for Outstanding Student Paper Award (OSPA) program at AGU Fall Meeting

2016 Judge at AGU Fall Meeting for the Virtual Poster

2016 and 2020 Session chair at the Asia Oceania Geosciences Society (AOGS) Annual Meetings

2014 Engaged with community college students through a collaborative project between CEESMO and Santa Ana College supported by the California Space Grant Consortium

Served as a reviewer for grant proposals for national and international funding agencies

- The National Science Foundation (NSF) and the U.S. Department of Agriculture's National Institute of Food and Agriculture (USDA/NIFA) (2014)
- The Asia-Pacific Network for Global Change Research (2017)
- The National Marine Fisheries Service (NMFS), and the National Oceanic and Atmospheric Administration (NOAA) (2017)

Publications

Fovell, Robert G., Gretchen L. Mullendor and **Seung-Hee Kim**, 2006: Discrete Propagation in Numerically Simulated Nocturnal Squall Lines *Monthly Weather Review*, 134, 3735-3752

Kim, Seung Hee and Robert G. Fovell 2011: Some aspects of heavy precipitation relating to topography: *Book chapter in The Global Monsoon System: Research and Forecast*, edited by C.-P. Chang et al., published by World Scientific.

Kim, Seung Hee, Hye-Yeong Chun and Wook Jang 2014: Horizontal Divergence of Typhoon-Generated Gravity Waves in the Upper Troposphere and Lower Stratosphere (UTLS) and Its Influence on Typhoon Evolution. 14, 1-8, *Atmospheric Chemistry and Physics*.

Myoung, Boksoon, **Seung Hee Kim***, Jinwon Kim, and Menas C. Kafatos 2015: On the relationship between the North Atlantic Oscillation and early warm season temperatures in the southwestern US. 28, 5683-5698, *Journal of Climate*.

David Medvigy, **Seung Hee Kim**, Jinwon Kim, Menas C. Kafatos 2016: Dynamically downscaling predictions for deciduous tree leaf emergence in California under current and future climate. 7, 935-944. *International Journal of Biometeorology*.

- Myoung, Boksoon, **Seung Hee Kim***, Jinwon Kim, and Menas C. Kafatos 2016: Regional Variations of Optimal Sowing Dates for the Southwestern US. *Transactions of the ASABE*. 59(6): 1759-1769.
- Kim, Seung Hee**, Boksoon Myoung, David H. Stack, Jinwon Kim, and Menas C. Kafatos 2016: Sensitivity of simulated maize crop yields to regional climate in the Southwestern United States, *Transactions of the ASABE*. 59(6): 1745-1757.
- Myoung, Boksoon, **Seung Hee Kim**, Jinwon Kim, and Menas C. Kafatos 2017: On the Relationship between Spring NAO and Snowmelt in the Upper Southwestern US. 30, 5141-5149, *Journal of Climate*. <http://dx.doi.org/10.1175/JCLI-D-16-0239.1>
- Chul-Hee Lim, **Seung Hee Kim**, Yuyoung Choi, Menas C. Kafatos and Woo-Kyun Lee 2017: Estimation of the Virtual Water Content of Main Crops on the Korean Peninsula Using Multiple Regional Climate Models and Evapotranspiration Methods. 9, 1172, *Sustainability*. doi:10.3390/su9071172
- Menas C. Kafatos, **Seung Hee Kim***, Chul-Hee Lim, Jinwon Kim and Woo-Kyun Lee 2017: Responses of Agroecosystems to Climate Change: Specifics of Resilience in the Mid-Latitude Region. 9, 1361, *Sustainability*. doi:10.3390/su9081361
- Myoung, Boksoon., **Seung Hee Kim***, Son V. Nghiem, Shen Yue Jia, Kristen Whitney, and Menas C. Kafatos, 2018: Estimating Live Fuel Moisture from MODIS Satellite Data for Wildfire Danger Assessment in Southern California USA, *Remote Sens.*, 10(87), doi:10.3390/rs10010087.
- Chul-Hee Lim, **Seung Hee Kim**, Jong Ahn Chun, Menas C. Kafatos and Woo-Kyun Lee 2019: Assessment of Agricultural Drought Considering the Hydrological Cycle and Crop Phenology in the Korean Peninsula. *Water*, 11(5), 1105; <https://doi.org/10.3390/w11051105>
- Shen Yue Jia, **Seung Hee Kim***, Son V. Nghiem and Menas C. Kafatos 2019: Estimating Live Fuel Moisture Using SMAP L-Band Radiometer Soil Moisture for Southern California, USA. *Remote Sens.*, 11(13), 1575
- Kwang Nyun Kim, **Seung Hee Kim**, Myoung Soo Won, Keun Chang Jang, Won Jun Choi and Yun Gon Lee, 2019: A Feasibility Study on the Application of TVDI on Accessing Wildfire Danger in the Korean Peninsula. *Korean Journal of Remote Sensing*, 35(6-3), 1197-1208
- Shen Yue Jia, **Seung Hee Kim***, Son V. Nghiem, Paul Doherty, and Menas C. Kafatos 2020: Patterns of population displacement during mega-fires in California detected using Facebook Disaster Maps. *Environ. Res. Lett.* 15, 074029
- Mijin Kim, **Seung Hee Kim***, Woogyung Vincent Kim, Yun Gon Lee, Jhoon Kim, and Menas C. Kafatos 2021: Assessment of Aerosol Optical Depth Under Background and Polluted Conditions Using AERONET and VIIRS Datasets. *Atmos. Environ.* 245, 117994
- Rackhun Son, Hyungjun Kim, Simon S-Y. Wang, Jee-Hoon Jeong, Sung-Ho Woo, Ji-Yoon Jeong, Byung-Doo Lee, **Seung Hee Kim**, Matthew LaPlante, Chun-Geun Kwon, Jin-Ho Yoon 2021: Changes in climate-driven wildfire risk under 1.5°C and 2.0°C warming, *Environ. Res. Lett.* 16, 034058
- Francis M. Fujioka, David R. Weise, Shyh-Chin Chen, **Seung Hee Kim***, and Menas C. Kafatos 2021: Reaction Intensity Partitioning: A New Perspective of Fire Danger. *International Journal of Wildland Fire*. 30, 351-364
- Rackhun Son, Simon S-Y Wang, **Seung Hee Kim**, Hyungjun Kim, Jee-Hoon Jeong, and Jin-Ho Yoon, 2021 Recurrent pattern of extreme fire weather in California, *Environ. Res. Lett.* 16, 094031

Conference and Proceedings (past 3 years)

- Kim, Seung Hee, and Menas Kafatos. 2016 Application of Crop Modeling in Mid-Latitude Region. *The 3rd IIASA-KU Workshop for Mid-Latitude R/D Network*. Seoul, South Korea.

- Kim, Seung Hee, Chul-Hee Lim, Boksoon Myoung, Jinwon Kim, Woo-Kyun Lee, Menas Kafatos. 2016 Assessments of Future Maize Yield Potential Changes in The Korean Peninsula Using Multiple Crop Models. *Asia Oceania Geosciences Society Annual Meeting, Beijing China*.
- Menas C. Kafatos, Seung Hee Kim, Jinwon Kim, Francis Fujioka, and Boksoon Myoung. 2016 Assessing Climate Changes in Early Warm Season and Its Impacts on Wildfire Potential in the Southwestern United States. *American Geophysical Union Fall Meeting San Francisco, CA*.
- Kim, Seung Hee, Chul-Hee Lim, Jinwon Kim, Woo-Kyun Lee, and Menas Kafatos. 2016 Assessments of Future Maize Yield Potential Changes in the Korean Peninsula Using Multiple Crop Models. *American Geophysical Union Fall Meeting San Francisco, CA*.
- Eric G. Strauss, Menas C. Kafatos, Sung Hee Kim, Son V. Nghiem, and Jeremy Pal. 2017 Applying Remote Sensing to Urban Ecosystem Dynamics: Opportunities for Understanding and Managing the Ballona Wetland System in Los Angeles. *IEEE Geoscience and Remote Sensing Society, Fort Worth Texas*.
- Kim, Seung Hee. 2017 Assessing Relationship Between Climate Variability and Drought using Multiple Indices. *Climate Change and Drought: Agriculture and Forest sector; MOTIVE Project Advisory Seminar, Seoul Korea*.
- Kim, Seung Hee, Jinwon Kim, Woo-Kyun Lee, Chul-Hee Lim, Myoung-Seok Suh, Seok-Geun Oh, Marcus Chong and Menas C. Kafatos. 2017 Assessing Climate Change Impacts on Wildfire Potential in the Korean Peninsula. *Asia Oceania Geosciences Society Annual Meeting, Singapore*.
- Menas C. Kafatos, Seung Hee Kim, Chul-Hee Lim, and Woo-Kyun Lee. 2017 Responses to Climate Change, Resilience in the MLRN and Specifics for Agro-ecosystems. *Asia Oceania Geosciences Society Annual Meeting, Singapore*.
- Menas C. Kafatos, Seung Hee Kim, and Shenyue Jia. 2017 Relationship between Climate Variability, Wildfire Risk, and Wildfire Occurrence in Wildland-Urban Interface of the Southwestern United States. *American Geophysical Union Fall Meeting New Orleans, LA*.
- Seung Hee Kim, S. Jia, K. Whitney, and M. C. Kafatos. 2018 Assessing Wildfire Danger in Southern California's Chaparral Ecosystem Using MODIS Satellite Data. *NASA Land Use Status, Change and Impacts in Vietnam, Cambodia and Laos International Science Team Meeting and Field Work, Hanoi Vietnam*.
- Seung Hee Kim, Shenyue Jia, Son V. Nghiem, Kristen Whitney, and Menas C. Kafatos. 2018 Recent Trend of Drying-Down Period of Live Fuel Moisture and Wildfires in Southern California USA. *Asia Oceania Geosciences Society Annual Meeting Honolulu, HI*.
- Shenyue Jia, Seung Hee Kim, Son V. Nghiem, Kristen Whitney, Boksoon Myoung and Menas C. Kafatos. 2018 Assessing Wildfire Danger and Post-Fire Damages in Southern California USA. *38th EARSeL Symposium 2018 & 3rd Joint EARSeL LULC/NASA LCLUC Workshop, Chania Greece*.
- Menas C. Kafatos, Seung Hee Kim, Shenyue Jia, and Jinwon Kim. "Effects of the high resolution sea surface temperature data on simulating warm-season climate and crop productivity over the Southwestern United States" *The 7th International Conference on Agro-Geoinformatics August 2018 Hangzhou, China*
- Menas C Kafatos and Seung Hee Kim. "Multi-Model Regional Simulation of Climate Change Impacts on Agroecosystems for Semi-arid Regions" *The 7th International Conference on Agro-Geoinformatics August 2018 Hangzhou, China*
- Kristen Whitney, Seung Hee Kim, Shenyue Jia, and Menas C. Kafatos. "Estimation of the relationship between satellite-derived vegetation indices and live fuel moisture towards wildfire risk in Southern California" *The 7th International Conference on Agro-Geoinformatics August 2018 Hangzhou, China*

- S. Jia, S. H. Kim, S. V. Nghiem, W. Cho, and M. C. Kafatos. "Estimating Live Fuel Moisture in Southern California Using Remote Sensing Vegetation Water Content Proxies," *2018 IEEE International Geoscience and Remote Sensing Symposium*, p. 5587-5890, 2018.
- Shenyue Jia, Seung Hee Kim, Son V Nghiem, and Menas Kafatos. 2018 Near-Real Time Population Movement during an Emergency: A Case Study on the Mendocino Complex Fire with Disaster Maps by Facebook. *American Geophysical Union Fall Meeting Washington DC*.
- Shenyue Jia, Seung Hee Kim, Son V Nghiem, Kristen L. Whitney and Menas Kafatos. 2018 Change of Vegetation Health inside Fire Perimeters in Southern California: An Analysis of Drought and Fire Interactions since 2000. *American Geophysical Union Fall Meeting Washington DC*.
- Yun Gon Lee, Kwang Nyun Kim, Seung Hee Kim, and Menas Kafatos. 2018 Assessments of Factors Influencing Large Wildfires Using Remote Sensing Data in South Korea. *American Geophysical Union Fall Meeting Washington DC*.
- Menas Kafatos, Seung Hee Kim, Shenyue Jia, Kristen L. Whitney, Francis Fujioka, and Son V. Nghiem. 2018 Live Fuel Moisture and Large Wildfire Trends in Southern California. *American Geophysical Union Fall Meeting Washington DC*.
- Kristen L. Whitney, Seung Hee Kim, Shenyue Jia, and Menas Kafatos. 2018 Relationship of In-situ Live Fuel Moisture Measurement and MODIS data in Los Angeles County, California USA. *American Geophysical Union Fall Meeting Washington DC*.
- Francis Fujioka, Shyh Chen, John Benoit, Charles Jones, and Seung Hee Kim. 2018 The Fire Climate that Preceded the Largest Fire in California History: A Statistical Anomaly or Wave of the Future? *American Geophysical Union Fall Meeting Washington DC*.
- Menas Kafatos and Seung Hee Kim. 2019 Remote Sensing and Modeling for Hazards. *Joint Workshop: Earth Observation Data applications on Land Use Land Cover Change and Disaster Risk in Mid-Latitude Region and Southeast Asia, Seoul Korea*
- Menas Kafatos, Seung Hee Kim, Shenyue Jia, and Kristen L. Whitney. 2019 Earth System Science Research at CEESMO. *Earth Science and Applications of Satellite X-Band Synthetic Aperture Radars in Synergy with Multi-Frequency Sensors, Surface Networks, and Modeling, International Science and Applications Meeting and Field Work Hanoi, Vietnam*
- Seung Hee Kim and Menas Kafatos. 2019 Assessing Drought Impact on Agriculture using Seasonal to Subseasonal (S2S) data. *Earth Science and Applications of Satellite X-Band Synthetic Aperture Radars in Synergy with Multi-Frequency Sensors, Surface Networks, and Modeling, International Science and Applications Meeting and Field Work Hanoi, Vietnam*
- Seung Hee Kim, Jinwon Kim and Menas Kafatos. 2019 Assessing Agricultural Productivity of Subseasonal to Seasonal Timescale and Decade to Century Timescale Using Agricultural Model. *Satellite Observations of Environmental Changes from Rural to Mega Urban Areas - Impacts and Implications, Ho Chi Minh City, Vietnam*.
- Shenyue Jia, Seung Hee Kim, Menas Kafatos. Fleeing pattern revealed in a space-time cube: the case of Woolsey Fire, Esri User Conference 2019, San Diego, USA, July 8-12, 2019
- Kristen Whitney, Seung Hee Kim, Menas Kafatos. Modeling Live Fuel Moisture with MODIS Satellite Data *Earth Science Information Partners (ESIP) Summer Meeting*, July 16-19, 2019, Tacoma, WA
- Shenyue Jia, Seung Hee Kim, Son V. Nghiem, Menas Kafatos. Live fuel moisture estimation using SMAP soil moisture and MODIS vegetation indices in Southern California, USA, *IEEE 2019 International Geoscience and Remote Sensing Symposium (IGARSS 2019)*, Yokohama, Japan, July 28-August 2, 2019.

- Seung Hee Kim. 2019 Assessing Agricultural Productivity of Subseasonal to Seasonal Timescale and Decade to Century Timescale Using Agricultural Model. National Institute of Meteorological Sciences (NIMS) Jeju, Republic of Korea.
- Seung Hee Kim and Menas C. Kafatos. 2019 Agricultural Modelling. Horizon 2020 EOPEN Project Special Session, *40th Asian Conference on Remote Sensing*, Daejeon, Republic of Korea.
- Mijin Kim, Jhoon Kim, Seung Hee Kim, Woogyung Vincent Kim, Yun Gon Lee and Menas C. Kafatos. 2019 Assessment of Global Distribution and Temporal Changes of Background Aerosol Optical Depth. *American Geophysical Union Fall Meeting, San Francisco CA*
- Wonhee Cho, Seung Hee Kim, Mijin Kim, Yun Gon Lee, Kwang Nyun Kim and Menas C. Kafatos. 2019 PM10 Estimation using Applying Time Variation and recurrent neural network. *American Geophysical Union Fall Meeting, San Francisco CA*
- Kristen L. Whitney, Seung Hee Kim and Menas C. Kafatos. 2019 Modeling Live Fuel Moisture with MODIS and VIIRS Satellite Data in Los Angeles County, California. *American Geophysical Union Fall Meeting, San Francisco CA*
- Shenyue Jia, Seung Hee Kim, Son V Nghiem and Menas C. Kafatos. 2019 A New Method for Plant Flammability Estimation Using SMAP Soil Moisture. *American Geophysical Union Fall Meeting, San Francisco CA*
- Shenyue Jia, Son V. Nghiem, Seung Hee Kim, Andrea Gaughan, Forest Stevens, and Menas C. Kafatos. 2020 Investigating the "Pitaya Rush" in Southern Vietnam, *ESRI 2020 user conference*
- Shenyue Jia, Seung Hee Kim, Son V. Nghiem, K. H. S. Yang and Menas Kafatos. 2020 Investigating the Lagged Relationship between Smap Soil Moisture and Live Fuel Moisture in California, USA. *IGARSS 2020 - 2020 IEEE International Geoscience and Remote Sensing Symposium, Waikoloa, HI, USA, 2020*, pp. 4485-4488
- Seung Hee Kim and Menas C Kafatos. 2021 Assessment of wildfire danger under warming climate. *The workshop on Bringing Land, Ocean, Atmosphere and Ionosphere Data to the Community for Hazard*.