**Eunkyo Seo (DoB:21 February 1990)** Last Update: 30 May 2021

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**Work addresses:**

The Center for Ocean-Land-Atmosphere Studies

George Mason University, Fairfax, Virginia 22030, United States

4400 University Drive, Fairfax, VA 22030 USA

**Research area:**

* Improvement of subseasonal to seasonal (S2S) prediction systems via representing realistic land-atmosphere interaction
* Land data assimilation of microwave soil moisture remote sensing retrievals using Local Ensemble Transform Kalman Filter (LETKF) scheme
* Model benchmarking in temporal and probability dimensions
* Improvement of cumulus convection parameterization in the Global Climate Models (GCMs)

**Employment:**

* 2020-current: Post-Doctoral Research Fellow at the Center for Ocean-Land-Atmosphere Studies, George Mason University, Fairfax, Virginia, USA (worked with Prof. Paul A. Dirmeyer)
* 2019-2020: Post-Doctoral Research Fellow at School of Urban and Environmental Engineering, Ulsan National Institute of Science and Technology (UNIST), South Korea (worked with Prof. Myong-In Lee)

**Education:**

* Ph. D. in Environmental Science and Engineering, August 2019, School of Urban and Environmental Engineering, Ulsan National Institute of Science and Technology (UNIST), South Korea

Thesis: Data Assimilation of Remote Sensing Soil Moisture Retrievals with Local Ensemble Transform Kalman Filter scheme

* B. S. in Environmental Science and Engineering, February 2013, School of Urban and Environmental Engineering, Ulsan National Institute of Science and Technology (UNIST), South Korea

**Experiences:**

* Internship, APEC Climate Center, Busan, South Korea, Jan/2012-Feb/2012
* Internship, NASA Goddard Space Flight Center, Maryland, USA, Jun/2012-Aug/2012 (worked with Dr. Lesley Ott)
* Visiting Scientist, Chonnam National University, Gwangju, South Korea, Mar/2016 (worked with Prof. Jee-Hoon Jeong)
* Visiting Scientist, UK Met Office, Exeter, United Kingdom, Jun/2017 (worked with Prof. Adam Scaife, Craig MacLachlan, and Philip Davis)
* Internship, Institute of Industrial Science, the University of Tokyo, Tokyo, Japan, 08/Jun/2019-07/Aug/2019 (worked with Prof. Hyungjun Kim)

**Honors/Awards:**

* Best paper presentation Award, Korean Meteorological Society, 21/Apr/2014
* Best paper presentation Award, Korean Meteorological Society, 26/Oct/2017

**Computer skills:**

* O.S: Linux, Windows
* Program language: Fortran 9.0, Perl language, C++, NCL, MATLAB
* Visualization tool: GrADS, NCL

**Modeling experiences:**

* UK Met Office Global Seasonal forecast system (GloSea): Initialization experiments (e.g., Land, Ocean, and Sea-Ice), convection parameterization
* Joint UK Land Environment Simulator (JULES): Produce land surface reanalysis via data assimilation system
* Goddard Earth Observing System Model version 5 (GEOS-5): Tropical cyclones (TCs) and diurnal cycle simulation with convection parameterization
* Community Earth System Model (CESM): Tropical cyclones (TCs) and Madden-Julian Oscillation (MJO) simulation with convection parameterization

**Publications (SCI):**

* **(First Author)** Seo, E., Lee, M. I., & Reichle, R. H. (2021). Assimilation of SMAP and ASCAT soil moisture retrievals into the JULES land surface model using the Local Ensemble Transform Kalman Filter. Remote Sensing of Environment, 253, 1122225.
* **(First Author)** Seo, E., Lee, M. I., Schubert, S. D., Koster, R. D., & Kang, H. S. (2020). Investigation of the 2016 Eurasia heat wave as an event of the recent warming. Environmental Research Letters, 15(11), 114018.
* **(First Author)** Seo, E., Lee, M. I., Kim, D., Lim, Y. K., Schubert, S. D., & Kim, K. M. (2019). Inter‐annual variation of tropical cyclones simulated by GEOS‐5 AGCM with modified convection scheme. International Journal of Climatology, 39(10), 4041-4057.
* Kim, D., Lee, M. I., & Seo, E. (2019). Improvement of Soil Respiration Parameterization in a Dynamic Global Vegetation Model and Its Impact on the Simulation of Terrestrial Carbon Fluxes. Journal of Climate, 32(1), 127-143.
* **(First Author)** Seo, E., Lee, M. I., Jeong, J. H., Koster, R. D., Schubert, S. D., Kim, H. M., Kim, D., Kang, H. S., Kim, H. K., MacLachlan, C., & Scaife, A. A. (2019). Impact of soil moisture initialization on boreal summer subseasonal forecasts: mid-latitude surface air temperature and heat wave events. Climate Dynamics, 52(3-4), 1695-1709.
* **(Co-first Author)** Park, S., Seo, E., Kang, D., Im, J., & Lee, M. I. (2018). Prediction of Drought on Pentad Scale Using Remote Sensing Data and MJO Index through Random Forest over East Asia. Remote Sensing, 10(11), 1811.

**Manuscript in preparation and revision:**

* (First Author) Seo, E., & Dirmeyer, P. et al. (2021). Improving the ESA CCI daily soil moisture time series with physically-based land surface model datasets using a Fourier time-filtering method, Journal of Hydrometeorology, In revision.
* (First Author) Seo, E., & Kim, H. et al. (2021). Mathematical strategy for model evaluation in temporal and probability dimensions, In preparation.
* (First Author) Seo, E., & Kim, H. et al. (2021). Intergenerational Benchmarking for the Performance of Surface Temperature and Precipitation in CMIP5 and CMIP6 Models, In preparation.

**Presentation (International):**

* Seo, E., Lee, M. I., Schubert, S. D., Koster, R. D., & Kang, H. S., Investigation of the 2016 Eurasian Heatwave and its Representation by the Seasonal Forecast System, AGU Fall meeting, (Virtual), Dec. 2020
* Seo, E., & Lee, M. I., Global Assimilation of Microwave Soil Moisture Retrievals with Local Ensemble Transform Kalman Filter Scheme, AGU Fall meeting, San Francisco, USA, Dec. 2019
* Seo, E., & Lee, M. I., Land data assimilation with Local Ensemble Kalman Filtering (LETKF) scheme, 100th AGU Fall meeting, Washington D.C., USA, Dec. 2018
* Seo, E., Lee, M. I., Kang, H. S., & Schubert, S. D., Investigation of the 2016 East Asian Heatwave and its representation by GloSea5 system, 2018 GMED workshop in Bureau of Meteorology, Melbourne, Australia, Feb. 2018
* Seo, E., Lee, M. I., Jeong, J. H., Koster, R. D., Schubert, S. D., Kim, H. M., Kim, D., Kang, H. S., Kim, H. K., MacLachlan, C., & Scaife, A. A., Impact of soil moisture initialization on the boreal summer subseasonal forecasts in the GloSea5 prediction system, HESSS4, Tokyo, Japan, May. 2017

**Reviewer for the following professional journals:**

Science, Hydrol. Earth Syst. Sci., Climate Dynamics, J. Hydrology, Rem. Sens., Frontiers in Climate, Asia-Pac. J. of Atm. Sci.