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학력

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주요경력

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논문   [IF-JCR2020/ #Citations]

1. **Kim, S.**, Sharma, A., Liu, Y., & Young, S. I. (2021). Rethinking Satellite Data Merging: From Averaging to SNR Optimization, *IEEE Trans. Geosci. Remote Sens.*, Early Access, 1-15, **[5.600/0]**
2. **Kim S.**, Dong J., Sharma A. (2021) A triple collocation-based comparison of three L-band soil moisture datasets, SMAP, SMOS-IC, and SMOS, over varied climates and land covers, *Front. Water.*, 3, 64, **[–/0]**
3. Kim S., Mehrotra R., **Kim S.(교신)**, Sharma A. (2021) Assessing countermeasure effectiveness in controlling cyanobacterial exceedance in riverine systems using probabilistic forecasting alternatives, *J. Water Resour. Plan. Manag.*, 147(10), 04021062, **[3.054/0]**
4. Kim S., Mehrotra R., **Kim S.**, Sharma A. (2021) Probabilistic forecasting of Cyanobacterial concentration in riverine systems using environmental drivers, *J. Hydrol.*, 593, 125626, **[5.722/1]**
5. Zhang R., **Kim S.(교신)**, Sharma A., Lakshmi V. (2021). Identifying relative strengths of SMAP, SMOS-IC, and ASCAT to capture temporal variability using a model combination approach, *Remote Sens. Environ.*, 252, 112126, **[10.164/3]**
6. **Kim S.**, Anabalón A., Sharma A. (2021) An Assessment of Concurrency in Evapotranspiration Trends Across Multiple Global Datasets, *J. Hydrometeorol.*, 22(1), 231-244, **[4.349/1]**

7. <u>Kim S.</u>, Pham H., Liu Y., Marshall L., Sharma A. (2020). Improving the combination of satellite soil moisture datasets by considering error cross-correlation: A comparison between triple collocation (TC) and extended double instrumental variable (EIVD) alternatives, *IEEE Trans. Geosci. Remote Sens.*, Early Access, 1-11, [5.600/1]

8. Magan B., <u>Kim S.</u>, Wasko C., Barbero R., Moron V., Nathan R., Sharma A. (2020). Impact of atmospheric circulation on the rainfall-temperature relationship in Australia, *Environ. Res. Lett.*, 15(9), 094098, [6.793/3]

9. Kim S., <u>Kim S.</u>(교신), Mehrotra R., Sharma A. (2020). Predicting cyanobacteria occurrence using climatological and environmental controls, *Water Res.*, 175, 115639, [11.236/7]

10. Kim T., Ley T., Kang S., Davis J., <u>Kim S.</u>, Amrollahi P. (2020). Using Particle Composition of Fly Ash to Predict Strength and Resistivity of Concrete, *Cem. Concr. Compos.*, 107, 103493, [7.586/12]

11. <u>Kim S.</u>, Ajami H., Sharma A. (2020). Using remotely sensed information to improve vegetation parameterization in a semi-distributed hydrological model (SMART) for upland catchments in Australia, *Remote Sens.*, 12(18), 3501, [4.848/1]

12. Moradi S., Agostino A., Gandomkar Z., <u>Kim S.</u>, Hamilton L., Sharma A., Henderson R., and Leslie G. (2020). Quantifying natural organic matter concentration in water from climatological parameters using different machine learning algorithms, *H2Open Journal*, 3(1), 328-343, [-/3]

13. <u>Kim S.</u>, Eghdamirad S., Sharma A., Kim J. H. (2020). Quantification of uncertainty in projections of extreme daily precipitation, *Earth and Space Sci.*, 2020, e2019EA001052-T, [2.900/6]

14. Hagan D., Wang G., <u>Kim S.</u>, Parinussa R., Liu Y., Ullah W., Bhatti S., Ma X., Jiang T., Su B. (2020). Maximizing Temporal Correlations in Long-Term Global Satellite Soil Moisture Data Merging, *Remote Sens.*, 12 (13), 2164, [4.848/4]

15. <u>Kim S.</u>, Zhang R., Pham H., Sharma A. (2019). A review of satellite-derived soil moisture and its usage for flood estimation, *Remote Sens. Earth Syst. Sci.*, 2, 225-246, [-/11]

16. Pham H., <u>Kim S.</u>, Johnson F., Marshall L. (2019). Using 3D robust smoothing to fill land surface temperature gaps at the continental scale, *Int. J. Appl. Earth Obs. Geoinf.*, 82, 10879, [5.933/9]

17. <u>Kim S.</u>, Jun H. D., Yoo D. G., Kim J. H. (2019). A framework for improving reliability of water distribution systems based on a segment-based minimum cut-set approach, *Water*, 11(7), 1524, [3.103/4]

18. Zhang R., <u>Kim S.</u>(교신), Sharma A. (2019). A comprehensive validation of the SMAP Enhanced Level-3 Soil Moisture product using ground measurements over varied climates and landscapes, *Remote Sens. Environ.*, 223, 82-94, [10.164/45]

19. <u>Kim S.</u>, Sharma A. (2019). The role of floodplain topography in deriving basin discharge using passive microwave remote sensing, *Water Resour. Res.*, 55(2), 1707-1716, [5.240/9]

20. Khan U., Ajami H., Tuteja N., Sharma A., <u>Kim S.</u> (2018). Catchment Scale Simulations of Soil Moisture Dynamics Using an Equivalent Cross-Section based Hydrological Modelling Approach, *J. Hydrol.*, 564, 944-966, [5.722/12]

21. <u>Kim S.</u>, Paik K., Johnson F., Sharma A. (2018). Building a flood warning framework for ungauged locations using low resolution, open access remotely sensed surface soil moisture, precipitation, soil and topographic information, *IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens.*, 11(2), 375-387, [3.784/17]

22. <u>Kim S.</u>, Balakrishnan K., Liu Y., Johnson F., Sharma A. (2017). Spatial Disaggregation of Coarse Soil Moisture Data by Using High Resolution Remotely Sensed Vegetation Products, *IEEE Geosci. Remote. Sens. Lett.*, 14(9), 1604-1608, [3.966/13]

23. <u>Kim S.</u>, Parinussa R., Liu Y., Johnson F., Sharma A. (2016). Merging Alternate Remotely-Sensed Soil Moisture Retrievals Using a Non-Static Model Combination Approach, *Remote Sens.*, 8 (6), 518, [4.848/10]

24. Silva A., Subasinghe K., Rajapaksha C., Raveenthiran K., <u>Kim S.</u>, Young M., Perera H. N. R., Araki S. (2016). Assessment of Design Alternation via 2D Physical Modelling in the Main Breakwater of Colombo Port Expansion Project. *J. Jpn. Soc. Civ. Eng., Ser. B2 (Coastal Engineering)*, 72(2), I_1129-I_1134, [-/0]

25. <u>Kim S.</u>, Parinussa R., Liu Y., Johnson F., Sharma A. (2015). A framework for combining multiple soil moisture retrievals based on maximizing temporal correlation, *Geophys. Res. Lett.*, 42 (16), 2015GL064981, [4.720/31]

26. <u>Kim S.</u>, Liu Y., Johnson F., Parinussa R., Sharma A. (2015). A global comparison of alternate AMSR2 soil moisture products: Why do they differ? *Remote Sens. Environ.*, 161 (0), 43-62, [10.164/129]

27. Jun H. D., <u>Kim S.</u>, Yoo D. G., Kim J. H. (2009). Evaluation of the reliability improvement of a water distribution system by changing pipe, *J. Korea Water Resour. Assoc.*, 42 (6), 505–511, **[–/5]**

❖ <u>컨퍼런스</u>

1. Young M., Hayman-Joyce J., <u>Kim S.</u> (2012). Use of Single Layer Concrete Armour Units as Toe Reinforcement, *Coast. Eng. Proc.*, 1 (33), 48, **[–/3]**

학술대회 (주발표자)

1. <u>Kim S.</u>, Zhang R., Sharma A., Lakshmi V. Improvements of satellite observations through data merging: status and challenges, *AGU fall meeting 2020*, San Francisco, CA, USA
2. <u>Kim S.</u>, Pham H., Liu Y., Sharma A., Marshall L. Combining geophysical variables for maximizing temporal correlation without reference data, *MODSIM 2019*, Canberra, Australia
3. <u>Kim S.(초청)</u>, Guo Y., Wasko C., Sharma A. On soil moisture, rain and flood extremes in a warming climate – using satellite remote sensing to define future antecedent conditions, *KSCC 2018*, Jeju, Republic of Korea
4. <u>Kim S.</u>, Ajami H., Sharma A. Incorporating an operational satellite-derived leaf area index into a computationally efficient semi-distributed hydrologic modelling application (SMART), *MODSIM 2017*, Hobart, Australia
5. <u>Kim S.</u>, Liu Y., Johnson F., Sharma A. A temporal correlation-based approach for spatial disaggregation of remotely sensed soil moisture, *AGU fall meeting 2016*, San Francisco, CA, USA
6. <u>Kim S.</u>, Liu Y., Johnson F., Parinussa R., Sharma A. Reducing Structural Uncertainty in AMSR2 Soil Moisture Using a Model Combination Approach, *AGU fall meeting 2014*, San Francisco, CA, USA
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