# 김 석 현



- 직책: Research Associate, Ph.D., M.Eng.
- 소속: <u>Water Research Centre</u>, School of Civil and Environmental Engineering, UNSW Sydney, NSW 2052, Australia
- 이메일: seokhyeon.kim@unsw.edu.au; seokhyn.kim@gmail.com
- 웹페이지: https://steelpl.github.io/

#### 학력

- 2013 년 7 월 2017 년 11 월 UNSW Sydney\* 공학박사 (수자원공학/원격탐사)
  - \* QS (종합): 43 위; QS (토목): 12 위; ARWU (수자원): 8 위
  - · 학위논문: Improvements and applications of satellite-derived soil moisture for flood forecasting
  - · 지도교수: <u>Ashish Sharma</u>, <u>Fiona Johnson</u> (joint), <u>Yi Liu</u> (co)
- 2006 년 3 월 2008 년 2 월 **고려대학교** 사회환경시스템공학과 공학석사 (수자원공학)
  - 화위논문: Study for improving water distribution system reliability (영문)
  - · 지도교수: <u>김중훈</u>
- 1997 년 3 월 2001 년 2 월 **고려대학교** 토목환경공학과 공학사

#### 주요경력

-	2017 년 4월 - 현재	UNSW Water Research Centre 박사후 연구원
•	2013 년 7 월 - 2017 년 3 월	UNSW Sydney 박사과정 (논문제출: 2017/3; 학위수여: 2017/11)
•	2008 년 1 월 - 2013 년 7 월	<b>현대건설</b> 대리 토목설계실 수자원/환경 설계담당
버어지를		

#### 병역사항

■ 2001 년 10 월 - 2004 년 9 월 **대한민국육군** (중위 만기전역)

### 수상 및 장학금

-	2021 년 10 월	UNSW Sydney Early Career Academic Seed Grants (AUD 1,000)
•	2021 년 5월	UNSW Sydney Strategic Research Fund (AUD 4,000)
•	2017년 5월 - 2017년 8월	UNSW Sydney Postgraduate Writing Fellowship (AUD 6,500)
•	2013 년 7월 - 2017년 1월	UNSW Sydney Tuition fee, Stipend and Top-up Scholarship
•	2007 년 - 2007 년	고려대학교 조교장학금; GS 건설 장학금; 한국연구재단 BK21 2 단계 장학금

## 논문

[IF-JCR2020/#Citations



- 1. <u>Kim, S.</u>, 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. <u>Kim S.</u>, 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., <u>Kim S.(교신)</u>, 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., <u>Kim S.</u>, Sharma A. (2021) Probabilistic forecasting of Cyanobacterial concentration in riverine systems using environmental drivers, *J. Hydrol.*, 593, 125626, [5.722/1]
- 5. Zhang R., <u>Kim S.(</u>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. <u>Kim S.</u>, 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.(교신)</u>, 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.(교신)</u>, 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]
- 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]
- Kim S., 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]

#### ❖ 컨퍼런스

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.(</u>조청), 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
- 7. <u>Kim S.</u>, Liu Y., Johnson F., Parinussa R., Sharma A. Improvement of Soil Moisture Dataset Combining AMSR2 Soil Moisture Products, *OzEWEX 2014*, Canberra, ACT, Australia

# 자격증

■ Professional Engineer - Skill Level 1 Civil Engineer (Engineers Australia); 토목기사 (한국산업인력공단)

# 전문분야 및 보유기술

수문학/수자원공학, 인공위성 원격탐사, MATLAB, Python, ArcGIS/QGIS

#### 연구경력

■ 2017 년 4월 - 현재

UNSW Water Research Centre 박사후 연구원

- · 기후변화-환경 민감도 분석
- · 원격탐사 데이터 검증, 개선 및 수문학적 활용
- · 녹조발생 예측 모형 개발
- 2013 년 7월 2017 년 3월 UNSW Sydney 박사과정
  - · 원격탐사 데이터 검증, 개선 및 수문학적 활용
- 2006 년 3 월 2008 년 2 월 **고려대학교** 석사과정
  - · 상수관망 신뢰도 개선 및 최적화

### 교육경력

- 2017 년 4 월 2020 년 3 월 UNSW Sydney Post-doctoral teaching assistant
  - · 과목: Catchment and Water Resources Modelling (UG), Water Resources Engineering (PG)
  - · 코디네이팅 및 컨설팅 (620 명), 강의, 강의 및 평가자료 준비, Moodle(수업관리시스템) 관리
  - · 석사(연구) 연구지도 (1 명): 논문 3 편 게재 (논문번호 3, 4, 9)
  - · 석사(코스워크) 및 학부(honour) 논문 지도 (22 명): 논문 3 편 게재 (논문번호 5, 8, 18)
- 2013 년 7월 2017 년 3월 UNSW Sydney 조교
- 2006 년 3 월 2007 년 12 월 **고려대학교** 조교

### 학술활동

- 학술지 리뷰: Remote Sensing of Environment, Journal of Hydrology, Environmental Research Letters, KSCE Journal of Civil Engineering 등
- 학회 세션 주관: AOGS 2020; MODSIM 2021
- 저널: MDPI Remote Sensing (topic editor, volunteer reviewer)
- **학회:** 대한원격탐사학회 (정회원), 한국수자원학회 (정회원), 대한토목학회 (정회원), Engineers Australia (정회원); Australian Water Association (정회원)

### 참여프로젝트

- 박사후 연구원
  - · 2020 년 4 월 현재: Assessing Water Supply Security in a Nonstationary Environment (<u>DP200101326</u>) funded by Australian Research Council (ARC)
  - · 2019 년 5월 2020 년 4월: A Fourier approach to address low-frequency variability bias in hydrology (DP180102737) funded by ARC
  - · 2017 년 4 월 2019 년 5 월: Adapting catchment monitoring and portable water treatment to climate change (LP160100620) funded by ARC
- 박사과정
  - · 2013 년 7월 2017 년 3월: Reducing Flood Loss -Data Assimilation Framework for Improving Forecasting Capability in Sparsely Gauged Regions (DP140102394) funded by ARC
  - · 2015 년 5월 2015 년 5월: NASA SMAP 토양습윤 데이터 검증 캠페인 (현장 데이터 측정)/Soil Moisture Active Passive Experiment the 4<sup>th</sup> campaign (SMAPEx-4)

### 참고인

- **Prof. Ashish Sharma** (박사과정 및 박사후 과정 지도교수): School of Civil and Environmental Engineering, UNSW Sydney, <u>a.sharma@unsw.edu.au</u>
- A/Prof. Fiona Johnson (박사과정 지도교수, joint supervisor): School of Civil and Environmental Engineering, UNSW Sydney, f.johnson@unsw.edu.au
- **Dr. Yi Liu** (박사과정 지도교수, co-supervisor): School of Civil and Environmental Engineering, UNSW Sydney, Australia, yi.liu@unsw.edu.au
- **Dr. Raj Mehrotra** (연구실 선임 연구원): School of Civil and Environmental Engineering, UNSW Sydney, Sydney, raj.mehrotra@unsw.edu.au
- **Dr. Robert Parinussa** (연구실 前선임 연구원): Cycling Sports Group/Cannondale, Amsterdam, North Holland, Netherlands, r\_parinussa@hotmail.com
- Prof. Joong Hoon Kim (김중훈) (석사과정 지도교수): 고려대학교 건축사회환경공학과, jaykim@korea.ac.kr