Siwei He

Personal Data

Affiliation:	1. National Academy of Sciences, USA 2. Earth System Research Laboratory, National Oceanic and Atmospheric Administration (NOAA)
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Field of Specialization

Hydrologic cycle, including: land surface processes, snow hydrology, sub-grid variability, subsurface processes.

Work Experience

Sep 2014 - May 2018	Research Assistant at the University of Wyoming, Laramie, USA *Numerical modeling* My research mainly focuses on the sub-grid variability of hydrologic modeling, especially on snow processes. In addition, I also study surface-subsurface interactions by coupled modeling of the surface and subsurface hydrological processes.
Feb 2018 - May 2018	Teaching Assistant at the University of Wyoming, Laramie, USA *CE3300 Hydraulic Engineering (Junior level course)*
Jun 2017 - Jul 2017	Summer Institute Student Research Fellow at the National Water Center, National Oceanic and Atmospheric Administration (NOAA), Tuscaloosa, USA *Numerical modeling* Comparison of coarse and high-resolution hydrologic modeling in mountainous areas.
Jul 2013 - Jul 2014	Internship at the Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China *Numerical modeling* My work mainly contains the following aspects (include work during exchange student period): (1) integrating Noah Land Surface Model (LSM) and Biome-BGC model, (2) evaluating the accuracy of two precipitation datasets, and (3) investigating adaptability of Variable Infiltration Capacity (VIC) model in alpine regions.

Education

Sep 2014 - May 2018	PhD, **University of Wyoming**, Laramie, USA Major: *Hydrologic Science*
Sep 2010 - Jun 2013	Master, **Sichuan University**, Chengdu, China Major: *Hydrology and Water Resources Engineering*
Sep 2006 - Jun 2010	Bachelor, **Xi'an University of Technology**, Xi'an, China Major: *Hydraulic and Hydro-power Engineering*
Sep 2011 - Mar 2013	Visiting student, **Cold and Arid Regions Environmental and Engineering Research Institute, CAS**, Lanzhou, China

Publications

(By Mar 20, 2019)

1. **He, S.** and Ohara, N. (2019). Modeling sub-grid variability of snow depth using the Fokker-Planck equation approach, Water Resources Research, https://doi.org/10.1029/2017WR022017
2. **He, S.**, Ohara, N., and Miller S. (2019), Understanding sub-grid variability of snow depth at 1-km scale using Lidar measurements, Hydrological Processes. 1-14. https://doi.org/10.1002/hyp.13415
3. **He, S.** and Ohara, N. (2017). A new formula for estimating the threshold wind speed for snow movement, Journal of Advances in Modeling Earth Systems (JAMES), 9(7), 2514-2525. https://doi.org/10.1002/2017MS000982
4. **He, S.**, Nan, Z., and Hou, Y. (2015). Accuracy evaluation of two precipitation datasets over upper reach of Heihe River Basin, north-western China. Sciences in Cold and Arid Regions, 7(2), 157-169.
5. **He, S.**, Nan, Z., Zhang, L. et al. (2015). Modeling spatial-temporal distribution of water and energy fluxes in the upper reaches of the Heihe River simulated with VIC model. Journal of Glaciology and Geocryology, 37(1), 211-225.(in Chinese)
6. **He, S.** and Nan, Z. (2013). Application of rank set pair method to predict groundwater dynamics. Journal of Sichuan University: Engineering Science Edition, 45(S2), 55-60. (in Chinese)
7. **He, S.**, Nan, Z., and Wang, S. et al. (2012). Application and comparative analysis of four conceptual hydrological models over the upper reach of Heihe River Basin. Journal of China Hydrology, 32(3), 13-19. (in Chinese)
8. **He, S.**, Shao, J., Chen, G. et al. (2009). Research on bubble imaging mechanism and its influence on imaging measurement precision. Proceedings of the 9th National Congress on Hydrodynamics and 22th Conference on Hydrodynamics Chengdu, China, Aug. 2009, 466-472. (in Chinese)
9. Garousi-Nejad, I., **He, S.**, and Tang, Q. Comparison of coarse and high-resolution hydrologic modeling in mountainous area, National Water Center Innovators Program Summer Institute Report (NOAA, OWP, CUAHSI), 2017
10. Chang, J., Garousi-Nejad, I., Grimley, L., **He, S.**, and Tang, Q. ADHydro Introduction and Workflow, National Water Center Innovators Program Summer Institute Report (NOAA, OWP, CUAHSI), 2017

Presentations

(By Mar 20, 2019)

1. **He, S.** and Ohara, N. Modeling of sub-grid variability for snow redistribution and ablation processes using Fokker-Planck Equation, AGU fall meeting, San Francisco, CA. (Poster, 2015)
2. **He, S.** and Ohara, N. A physical based formula for calculating the critical stress of snow movement, AGU fall meeting, San Francisco, CA. (Poster, 2016)
3. Garousi-Nejad, I., **He, S.**, and Tang, Q. et al. A Study on the Effects of Spatial Scale on Snow Process in Hyper-Resolution Hydrological Modelling over Mountainous Areas, AGU fall meeting, New Orleans, LA. (Poster, 2017)

4 **He, S.**, Simirnova T., and Benjamin S., Integrating snow model into the Rapid Update Cycle (RUC) LSM for considering effects of subgrid variability of snow: Preliminary results from offline ESM-SnowMIP site simuations, AGU fall meeting, Washington, DC. (Poster, 2018)

5 **He, S.**, Simirnova T., and Benjamin S., Integrating snow model into the Rapid Update Cycle (RUC) LSM for considering effects of subgrid variability of snow: Preliminary results from offline ESM-SnowMIP site simuations, AMS annual meeting, Phoneix, AZ. (Poster, 2019)

Training Workshops

1 The Community **WRF-Hydro** Modeling System, May 2-4, 2017, NCAR, Boulder

2 Watershed modeling with **GSSHA**, Jun 20-22, 2017, US Army Watershed Modeling Support Center, Tuscaloosa

3 The National Water Center Innovators Program **Summer Institute**, Jun 12 through Jul 28, 2017, National Water Center, Tuscaloosa

Awards

2018 Paul A Rechard Fellowship, University of Wyoming

2009 Excellent Student Scholarship of Hydro-power, Shaanxi Society for Hydro-power Engineering

2009 First Prize for Innovation, Xi'an University of Technology (XAUT)

2008 National Encouragement Scholarship

2008 Second Prize of China Undergraduate Mathematical Contest in Modeling (CUMCM)

2007 Second Prize Scholarship, XAUT

2007 Merit Student Title

2007 Third Prize in Physics Experimental Contest, XAUT

Skills

Fortran, Python, MATLAB, C, Linux shell, HPC user