Shengli Zhu

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RESEARCH INTERESTS

- Hydrology and Water Resources
- Large-Scale Hydrologic Simulation and Prediction;
- Rainfall-Runoff Modelling;
- Remote Sensing;
- Cold Regions Hydrological Processes;
- Deep Learning;

EDUCATION BACKGROUND

Sep. 2022-Now   **M.S.**   *GPA*: 3.87/4

- Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China;

  Majoring in Hydrology and Water Resources;

  Core courses: Modern Hydrology and Water Resources, Geospatial Statistics and Modelling, Remote Sensing Science;

  Supervisor: Prof. Zhaofei Liu

Sep.2018-Jun.2022   **B.S.**   *GPA*: 3.91/5

- College of Geography and Environment, Shandong Normal University, China;

  Majoring in Geographic Science;

  Core courses: Physical Geography, Geographic Information System, Hydrology;

  Supervisor: Prof. Houfeng Liu

  Thesis: "*Spatial Characteristics and Influence of Topography and Synoptic Systems on PM2.5 in the Eastern Monsoon Region of China*".

PUBLICATIONS

- ***Zhu, S.***, Liu, Z., 2024. Comprehensive quantitative assessment of the performance of fourteen satellite precipitation products over Chinese mainland. Climate Dynamics. DOI: 10.1007/s00382-024-07237-8.
- Yang, H., Yang, F., Sun, L., Ye, Y., ***Zhu, S.***, 2023. Relationship between the North Atlantic sea surface temperature and the summer extreme high temperature in the Beijing-Tianjin-Hebei region, China. Urban Climate, 52:101683. DOI: 10.1016/j.uclim.2023.101683.
- ***Zhu, S.***, Wang, Z., Qu, K., Xu, J., Zhang, J., Yang, H., Wang, W., Sui, X., Wei, M., Liu, H., 2023. Spatial Characteristics and Influence of Topography and Synoptic Systems on PM2.5 in the Eastern Monsoon Region of China. Aerosol and Air Quality Research, 23:220393. DOI: 10.4209/aaqr.220393.

RESEARCH PROJECTS

- The hydrological processes of the alpine river-lake connected basin, National Natural Science Foundation of China (42171029); *RMB 0.7 million.* **(Co-investigator, secretary and student co-author)**

  ‒ Combined with stable isotope, remote sensing and snowmelt runoff model, the process of snow melt water at different time scales was analyzed to clarify the influence mechanism of snow melt factors on snowmelt runoff;

  ‒ Combined with remote sensing inversion and time stability methods, the soil water content at point scales was upscaled to that at basin scales;

  ‒ Clarified the influence mechanism of environmental factors on lake water evaporation, based on the energy balance, water balance, satellite altimetry and aerodynamics methods;

- *Analyzed the actual land evapotranspiration process at the river-lake connected basin, based on the hydrological simulation inversion method.*

➢ Fundamental investigation and carrying capacity assessment of water resources in the South-Asia channel, Second Tibetan Plateau Scientific Expedition and Research Program (2019QZKK1006); *RMB 0.3 million.* **(Co-investigator, secretary and student co-author)**
   - *Conducted fundamental investigations and potential assessments of water resources in the South-Asia channel;*
   - *Revealed quantitatively the regional differences and changing trends in the carrying capacity of water resources in the South-Asia channel;*
   - *Proposed enhancement paths and regional adaptation strategies for the carrying capacity of water resources in the South-Asia channel.*

➢ Disaster risk assessment of mountain ecological and hydrological changes under climate change conditions, Strategic Priority Research Program of the Chinese Academy of Sciences (XDA23090302); *RMB 3.3 million.* **(Co-investigator and student co-author)**
   - *Delineated the digital boundaries of the Hengduan Mountains region with scientific basis;*
   - *Clarified the technical route for climate ecological and hydrological zoning in the Hengduan Mountains;*
   - *Achieved hydrological zoning and climate ecological zoning in the Hengduan Mountains region;*
   - *Extracted key environmental disaster causing factors in the Hengduan Mountain area and analyzed the spatial differences of disaster environmental factors based on three-level hydrological zoning.*

➢ Spatial Characteristics and Influence of Topography and Synoptic Systems on PM2.5 in the Eastern Monsoon Region of China, *Undergraduate Thesis*. (**Principle-investigator**)
   - *Revealed urban air pollution characteristics in the eastern monsoon region of China based on the K-Means algorithm combined with the HYSPLIT backward trajectory clustering analysis;*
   - *Clarified the possibility of inter-regional transport of pollutants in eastern China, and provided a reference for the joint prevention and control of regional haze under different synoptic weather.*

SKILLS

➢ Modelling: Rainfall-Runoff Simulation for Alpine Regions;
➢ Programming: Python, MATLAB, R;
➢ Software: ArcGIS, Endnote, GeoDa, SPSS, Origin, GitHub.

ACADEMIC HONORS, FELLOWSHIPS & MEMBERSHIP

➢ European Geosciences Union (EGU) Student Membership	2024-present
➢ American Geophysical Union (AGU) Student Membership	2024-present
➢ The Second prize of the 2023 IGSNRR director's scholarship, CAS	2023-2024
➢ The Third Prize of the 18th SuperMap GIS Contest	11/2020
➢ The Second-Class Fellowships of Shandong Normal University	2019-2020
➢ The Honorary Title of "Outstanding Student" of Shandong Normal University	2019-2020
➢ The Third-Class Fellowships of Shandong Normal University	2018-2019