Mohammad **Saeedi**

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Education

2018-2021 **M.Sc. in Water Resources Engineering and Management** - *Islamic Azad University Science and Research Branch, Tehran, Iran.*

- Thesis title : Estimation of rainfall based on water balance equations and net water flux in soil using satellite-based soil moisture data.
- GPA=3.88
- Supervisor : Ahmad Sharafati

2014-2017 **B.Sc. in Civil Engineering** - *Qazvin Islamic Azad University, Qazvin, Iran.*

2012-2014 **A.S. in Civil Engineering** - *Qazvin Islamic Azad University, Qazvin, Iran.*

Publications

2023 | Performance assessment of SM2RAIN-NWF using ASCAT soil moisture via supervised land cover-soil-climate classification, ,

- Authors : **Saeedi, M.**, Nabaee, S., Kim, H., Tavakol, A., Lakshmi, V.
- Journal : Remote Sensing of Environment

ASCAT | SM2RAIN-NWF | Supervised Classification | Rainfall Intensity | National Scale

2022 | A comprehensive assessment of SM2RAIN-NWF using ASCAT and a combination of ASCAT and SMAP soil moisture products for rainfall estimation., ,

- Authors : **Saeedi, M.**, Kim, H., Nabaee, S., Brocca, L., Lakshmi, V., Mosaffa, H.
- Journal : Science of the Total Environment

ASCAT | SMAP | Active and Passive Combination | SM2RAIN-NWF | Discrete Cosine Transform

2022 | Estimating rainfall depth from satellite-based soil moisture data : A new algorithm by integrating SM2RAIN and the analytical net water flux modelse., ,

- Authors : **Saeedi, M.**, Sharafati, A., Brocca, L., Tavakol, A.
- Journal : Journal of Hydrology

Remote Sensing | Hydrological Modeling | SM2RAIN | Net Water Flux | SM2RAIN-NWF | AMSR2

2021 | Evaluation of gridded soil moisture products over varied land covers, climates, and soil textures using in situ measurements : A case study of Lake Urmia Basin., ,

- Authors : **Saeedi, M.**, Sharafati, A., Tavakol, A.
- Journal : Theoretical and Applied Climatology

AMSR2 | SMAP | GLDAS | Soil Moisture | Remote Sensing | Satellite Data Analysis | Validation

Submitted | On the estimation of soil moisture from remote sensing products using an ensemble machine learning model., ,

- Authors : Asadollah, SBHS., Sharafati, A., **Saeedi, M.**, Shahid, S.
- Journal : Applied Water Science

Remote Sensing | Voting Regression | Gradient Boosting | Soil Moisture | Support Vector Regression

Research Interests

- Remote Sensing
- Hydrological Modeling
- Extreme Hydrological Events
- Spatial Downscaling of Remote Sensing Products
- Applications of Machine Learning to Remote Sensing and Hydrology
- Data Assimilation
- Irrigation

Languages

Persian ●●●●●
English ●●●○○

Research Experiences

1 **Satellite soil moisture data analysis, ,**
- Evaluation of the performance of satellite soil moisture products against in-situ soil moisture measurements over the Lake Urmia basin
- Working with large NetCDF and Tiff data

AMSR2 | SMAP | ASCAT | GLDAS | SMOS | Matlab | ArcMap

2 **Developing new hydrological modeling to estimate rainfall based on soil moisture, ,**
- Developing the SM2RAIN-NWF algorithm to estimate rainfall based on the knowledge of soil moisture
- Evaluating the performance of the new developed algorithm in both small and large scale areas
- Evaluating the performance of satellite soil moisture data to estimate rainfall through the developed SM2RAIN-NWF algorithm

SM2RAIN-NWF | Hydrological Modeling | Soil moisture | Rainfall | Net Water Flux

3 **Land cover, soil texture, and climate classifications, ,**
- Classifying the study area based on common environmental characteristics
- Analyzing the impact of soil texture, climate, and land cover on the performance of satellite soil moisture data in the Lake Urmia basin
- Analyzing the potential impact of soil texture, climate, and land cover on the performance of the developed SM2RAIN-NWF algorithm

MODIS | GLDAS | Koppen Geiger | Classification

4 **The SM2RAIN-NWF VS the SM2RAIN, ,**
- Comparing the performance of the newly developed SM2RAIN-NWF algorithm in estimating cumulative rainfall against the performance of the SM2RAIN algorithm in the basin and national scale
- Assessment of the gap-filling method using discrete cosine transform method and its effect on the quality of rainfall estimation

SM2RAIN-NWF | SM2RAIN | Bottom-up Approach

5 **International collaboration and networking, ,**
- Making connections with expert professors in my field of study and exchanging ideas with them for preparing articles

Collaboration | International Relations

Software, Program, and Special Skills

Programming Languages	MATLAB and Python (every aspect of my research)
Data processing	NetCDF, GeoTIFF and HDF
ArcGIS	Used in every aspect of my research
IBM SPSS	SPSS Statistics and SPSS Modeler
Data Science	Statistics and probability in data science; Data mining and problem-solving; The basics of machine learning
Soft Skills	Communication, Teamwork, Organizing projects, Adaptability, Time management, Leadership skills, Work ethic, Attention to details, Problem-solving