Journal Editorial Board

ISSN: 1945-3094 (Print)  ISSN: 1945-3108 (Online)
http://www.scirp.org/journal/jwarp

Editor-in-Chief
Prof. Jian Shen  College of William and Mary, USA

Editorial Board
Dr. Assad Ahmed Al-Thukair  King Fahd University of Petroleum & Minerals, Saudi Arabia
Prof. Sam F. Atkinson  University of North Texas, USA
Dr. Amitava Bandyopadhyay  University of Calcutta, India
Dr. Helen Bridle  Heriot-Watt University, UK
Prof. Peter Dillon  Trent University, Canada
Prof. Taisheng Du  China Agricultural University, China
Dr. Karina Yew-Hoong Gin  National University of Singapore, Singapore
Prof. Madan Kumar Jha  Indian Institute of Technology, India
Dr. Paul Kay  University of Leeds, UK
Prof. Zhaohua Li  Hubei University, China
Prof. Pan Liu  Wuhan University, China
Dr. Damodhara Rao Mailapalli  Indian Institute of Technology, India
Dr. Arash Massoudieh  The Catholic University of America, USA
Prof. Jiho Min  Chonbuk National University, South Korea
Prof. Ping-Feng Pai  National Chi Nan University, Chinese Taipei
Prof. Mohamed Nageeb Rashed  Aswan University, Egypt
Dr. Dipankar Saha  Ministry of Water Resources Government of India, India
Prof. Vladimir Soldatov  Institute of Physical Organic Chemistry, Belarus
Dr. Matthias Templ  Vienna University of Technology, Austria
Dr. Stijn W. H. Van Hulle  Ghent University, Belgium
Prof. Aswani K. Voley  Florida Gulf Coast University, USA
Dr. Yiping (Rocky) Wu  Earth Resources Observation and Science (EROS) Center, USA
Prof. Muqi Xu  Chinese Academy of Sciences, China
Prof. Xiaohua Yang  Beijing Normal University, China
Dr. Y. Jeffrey Yang  US Environmental Protection Agency, USA
Dr. Jinsheng You  University of Nebraska, USA
Prof. Fan Zhang  Chinese Academy of Sciences, China
Dr. Chunli Zheng  Xi’an Jiaotong University, China
# Table of Contents

**Volume 9  Number 12  November 2017**

## Applicability of Galway River Flow Forecasting and Modeling System (GFFMS) for Lake Tana Basin, Ethiopia
T. A. Dessalegn, M. A. Moges, D. C. Dagnew, A. Gashaw ........................................................................................................... 1319

## Forecasting the Rainfall Pattern on Upstream of Hirakud Reservoir Using L-Moment for Accessing the Inflow
K. K. Gupta, A. K. Kar, J. Jena, D. R. Jena ................................................................................................................................. 1335

## Performance of Twelve Mass Transfer Based Reference Evapotranspiration Models under Humid Climate
K. Djaman, K. Koudahe, M. Sall, I. Kabenge, D. Rudnick, S. Irmak ............................................................................................ 1347

## Sensitivity Analysis of the Penman-Monteith Reference Evapotranspiration to Climatic Variables: Case of Burkina Faso
P. M. Ndiaye, A. Bodian, L. Diop, K. Djaman ............................................................................................................................. 1364

## Physical-Mathematical Foundations of the Penman Equation from the Perspective of the First Law of Thermodynamics and Energy Balance Theory
M. Mundo-Molina, E. De Coss-Gomez ....................................................................................................................................... 1377

## Effect of Transient Acid Spikes on Developmental Stages of *Lepomis* Fishes
W. G. Hagar, Q. Xu, J. P. Ebersole ............................................................................................................................................... 1391

## Rain-Flow Modeling Using a Multi-Layer Artificial Neural Network on the Watershed of the Cavally River (Côte d’Ivoire)
B. L. Alexis, K. K. Lazare, K. K. Séraphin, K. Z. Alex, K. K. Félix, K. Bamory ............................................................................ 1403

## Groundwater Monitoring with Passive Seismic Interferometry
C. Voisin, M. A. Romero Guzmán, A. Réfloch, M. Taruselli, S. Garambois .................................................................................... 1414

## Recharge Estimation of Hard Rock Aquifers under Sahelian Climate Conditions Using Water Table Fluctuation: Case Study of Tougou Catchment, Burkina Faso
M. Koïta, W. J. P. Sandwidi, A. E. Dara ....................................................................................................................................... 1428

## Water-Energy Prototype Model for the NEMS Modeling Platform: Thermoelectric Water Demand and Its Implications on Regional Electricity Market
E. Shuster, A. K. S. Iyengar, L. Goudarzi, D. Keairns, C. Court, C. Zelek ....................................................................................... 1449
Evaluation of Eleven Reference Evapotranspiration Models in Semiarid Conditions

K. Djaman, K. Koudahe, C. O. Akinbile, S. Irmak

Nutrient and Chlorophyll $\alpha$ Variability at a Micro-Scale Level in a Suspended Mussel Culture

A. Moriki, D. Petridis, C. Papadimitriou, I. Fantidou, N. Kapageridis

Water Quality and Ecotoxicity Assessment in Surface Waters from Cubatão River and Surroundings, São Paulo, Brazil


Geo-Electrical and Borehole Investigation of Groundwater in Some Basalts on the South-Eastern Flank of Mount Cameroon, West Africa

A. E. Djieto Lordon, C. M. Agyingi, V. E. Manga, N. N. Bukalo, E. T. Beka

Physico-Chemical and Biological Characteristics of the Nklobisson Artificial Lake in Yaounde, Cameroon


Water Quality Assessment by Measuring and Using Landsat 7 ETM+ Images for the Current and Previous Trend Perspective: Lake Tana Ethiopia

Journal of Water Resource and Protection (JWARP)

http://www.scirp.org/journal/jwarp
ISSN: 1945-3094 (Print), 1945-3108 (Online)

JWARP is an international refereed journal dedicated to the latest advancement of water resource and protection. The goal of this journal is to keep a record of the state-of-the-art research and promote the research work.

Editor-in-Chief

Prof. Jian Shen
College of William and Mary, USA

Editorial Board

Dr. Assad Ahmed Al-Thukair
Prof. Sam F. Atkinson
Dr. Amilava Bandopadhyay
Dr. Helen Bridle
Prof. Peter Dillon
Prof. Taisheng Du
Dr. Karina Yew-Hoong Gin
Prof. Madan Kumar Jha
Dr. Paul Kay
Prof. Zhohua Li

Prof. Pan Liu
Dr. Damodhar Rao Maliapalli
Dr. Arash Massoudieh
Prof. Jiho Min
Prof. Ping-Feng Pai
Prof. Mohamed Nageeb Rashed
Dr. Dipankar Saha
Prof. Vladimir Soldatov
Dr. Matthias Templ

Prof. Aswani K. Volety
Dr. Yuping (Rocky) Wu
Prof. Muqi Xu
Prof. Xiaohua Yang
Dr. Y. Jeffrey Yang
Dr. Jinsheng You
Prof. Fan Zhang
Dr. Chunli Zheng

Subject Coverage

This journal invites original research and review papers that address the following issues in water resource and protection. Topics of interest include, but are not limited to:

- Agricultural Water Management
- Ecological Restoration and Receiving Water Impacts
- Economic, Sociological, and Environmental Considerations of Water Resources
- Freshwater Security
- Groundwater Monitoring & Modeling
- Industrial Ecology and Water Sustainability
- Innovative Technologies and Engineering Solutions for Water Resources Protection
- Marine and Freshwater Conservation
- Mine Water and the Environment
- Monitoring, Modeling and Prediction of Water Pollution
- Remote Sensing for Water Resources Management
- Sea Water Utilization

- Stormwater Management and Low Impact Development
- Surface Runoff and Ground Water Pollution Control
- Urban Water
- Water and Environment
- Water Infrastructure and Life Cycle Assessment
- Water Policy and Governance
- Water Purification and Wastewater Treatment
- Water Quality Management and Ecosystems Modeling
- Water Quality Monitoring and Assessment
- Water Quality, Pollutant Exposure and Health
- Water Research & Education
- Water Resources and Climatic Change
- Water Resources Protection and Management
- Water Resources Restoration and Sustainable Use

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the JWARP.

Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

Website and E-Mail

http://www.scirp.org/journal/jwarp
Email: jwarp@scirp.org
What is SCIRP?
Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

What is Open Access?
All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, worldwide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
- Rigorous peer review of research papers
- Prompt faster publication with less cost
- Guaranteed targeted, multidisciplinary audience

Website: http://www.scirp.org
Subscription: sub@scirp.org
Advertisement: service@scirp.org