

ISSN: 2162-5360

Volume 13, Number 9, September 2023



# Open Journal of Soil Science



ISSN: 2162-5360



9 772162 536000 09

<https://www.scirp.org/journal/ojss>



# Journal Editorial Board

ISSN: 2162-5360 (Print) 2162-5379 (Online)

<https://www.scirp.org/journal/ojss>

---

## Editor-in-Chief

**Prof. Haiyan Chu**

Chinese Academy of Sciences, China

## Editorial Board

**Prof. Wael Abdel Kawy**

Cairo University, Egypt

**Dr. Daniel J. Ashworth**

University of California, USA

**Dr. Thomas John Aspray**

Heriot Watt University, UK

**Prof. Jie Chen**

Shanghai Jiao Tong University, China

**Dr. Wilfredo Jr., Arellano Dumale**

The University of Tokyo, Japan

**Prof. Thomas E. Fenton**

Iowa State University, USA

**Prof. W. G. Dilantha Fernando**

University of Manitoba, Canada

**Dr. Bente Foereid**

Bioforsk Soil and Environment, Norway

**Dr. Bin Gao**

University of Florida, USA

**Dr. Michael B. Jenkins**

United States Department of Agriculture-Agricultural  
Research Service, USA

**Dr. Antonio Jordán López**

University of Seville, Spain

**Prof. Mehmet Rüstü Karaman**

Gaziosmanpasa University, Türkiye

**Prof. Tasios Karathanasis**

University of Kentucky, USA

**Prof. Usama F. A. Karim**

University of Twente, Netherlands

**Prof. Arno Kleber**

Dresden University of Technology, Germany

**Dr. Sandeep Kumar**

South Dakota State University, USA

**Prof. Dar-Yuan Lee**

National Taiwan University, Chinese Taipei

**Dr. Ana Teresa Lima**

Utrecht University, Netherlands

**Dr. Guodong (David) Liu**

University of Florida, USA

**Prof. Francisco Jose Martín Peinado**

University of Granada, Spain

**Dr. Julia Martínez Fernández**

University of Murcia, Spain

**Dr. Maren Oelbermann**

University of Waterloo, Canada

**Prof. Kenneth Ray Olson**

College of ACES, USA

**Dr. Shambhu Prasad Sah**

University of Helsinki, Finland

**Dr. Yang-Hsin Shih**

National Taiwan University, Chinese Taipei

**Prof. Abdou Abdou Soaud**

Cairo University, Egypt

**Dr. A. K. Srivastava**

National Research Centre for Citrus, India

**Prof. Berrin Tansel**

Florida International University, USA

**Dr. Gang Wang**

China Agricultural University, China

**Dr. Xinhua (Frank) Yin**

University of Tennessee-Knoxville, USA

**Prof. Kefeng Zhang**

Zhejiang University, China

# Table of Contents

**Volume 13    Number 9**

**September 2023**

## **Re-Examining Field-Surveyed Variations in Elevation and Soil Properties with a 1-m Resolution LiDAR-Generated DEM**

K. Lemieux, P. A. Arp.....371

# Open Journal of Soil Science (OJSS)

## Journal Information

### SUBSCRIPTIONS

The *Open Journal of Soil Science* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published monthly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$69 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### SERVICES

#### **Advertisements**

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### **Reprints (minimum quantity 100 copies)**

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### COPYRIGHT

#### **Copyright and reuse rights for the front matter of the journal:**

Copyright © 2023 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

#### **Copyright for individual papers of the journal:**

Copyright © 2023 by author(s) and Scientific Research Publishing Inc.

#### **Reuse rights for individual papers:**

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

#### **Disclaimer of liability**

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

### PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: [ojss@scirp.org](mailto:ojss@scirp.org)





# Open Journal of Soil Science

ISSN: 2162-5360 (Print) ISSN: 2162-5379 (Online)  
<https://www.scirp.org/journal/ojss>

*Open Journal of Soil Science (OJSS)* is an international journal dedicated to the latest advancements of soil science. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of soil science.

## Editor-in-Chief

Prof. Haiyan Chu

Chinese Academy of Sciences, China

## Editorial Board

Prof. Wael Abdel Kawy  
Dr. Daniel J. Ashworth  
Dr. Thomas John Aspray  
Prof. Jie Chen  
Dr. Wilfredo Jr., Arellano Dumale  
Prof. Thomas E. Fenton  
Prof. W. G. Dilantha Fernando  
Dr. Bente Foereid  
Dr. Bin Gao  
Dr. Michael B. Jenkins  
Dr. Antonio Jordán López

Prof. Mehmet Rüstü Karaman  
Prof. Tasios Karathanasis  
Prof. Usama F. A. Karim  
Prof. Arno Kleber  
Dr. Sandeep Kumar  
Prof. Dar-Yuan Lee  
Dr. Ana Teresa Lima  
Dr. Guodong (David) Liu  
Prof. Francisco Jose Martín Peinado  
Dr. Julia Martínez Fernández  
Dr. Maren Oelbermann

Prof. Kenneth Ray Olson  
Dr. Shambhu Prasad Sah  
Dr. Yang-Hsin Shih  
Prof. Abdou Abdou Soaud  
Dr. A. K. Srivastava  
Prof. Berrin Tansel  
Dr. Gang Wang  
Dr. Xinhua (Frank) Yin  
Prof. Kefeng Zhang

## Subject Coverage

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

- Soil and Global Change
- Soil Biology and Biochemistry
- Soil Chemistry
- Soil Ecology
- Soil Environment
- Soil Fertility and Plant Nutrition
- Soil Geography
- Soil Improvement Studies
- Soil Microbiology
- Soil Physics
- Soil Remediation
- Soil Resources and Use
- Soil Science in Other Disciplines
- Soil Survey and Evaluation
- Soil Taxonomy
- Soil Tillage

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 *OJSS*.

## 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

<https://www.scirp.org/journal/ojss>

E-mail: [ojss@scirp.org](mailto:ojss@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



**Scientific  
Research  
Publishing**

**Website: <https://www.scirp.org>**

**Subscription: [sub@scirp.org](mailto:sub@scirp.org)**

**Advertisement: [service@scirp.org](mailto:service@scirp.org)**