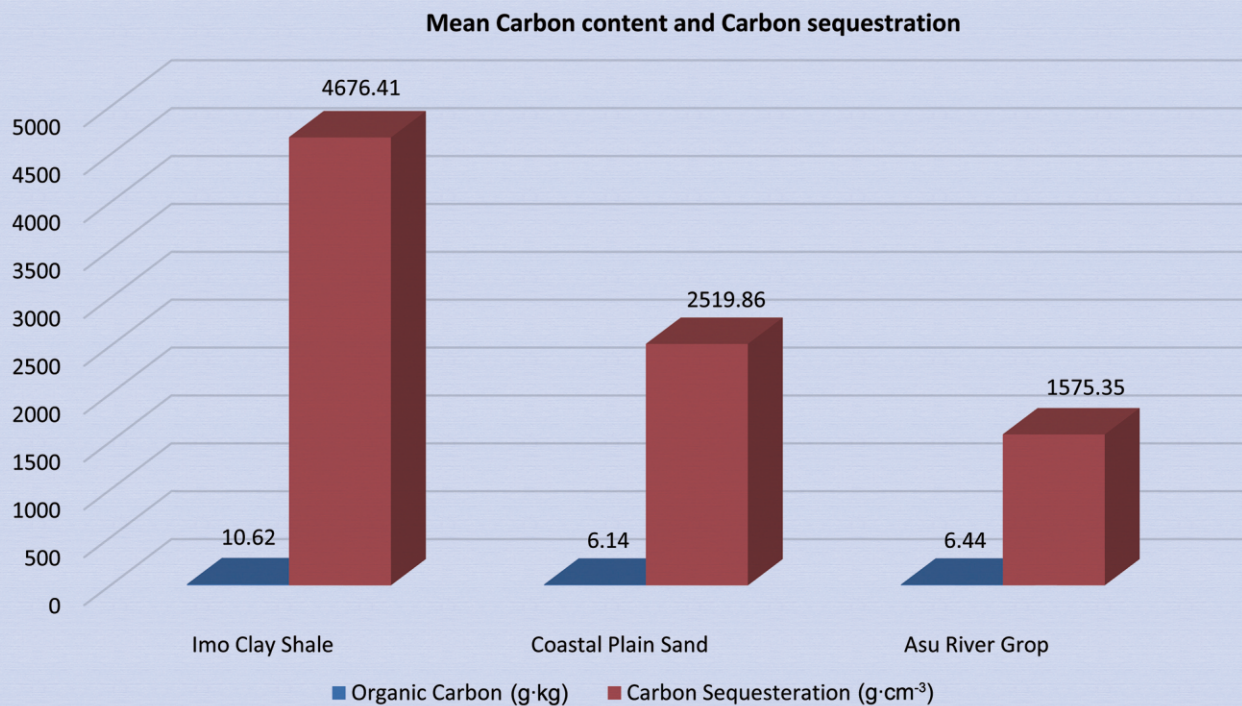


# American Journal of Climate Change



ISSN: 2167-9495



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

# Journal Editorial Board

ISSN: 2167-9495 (Print)      ISSN: 2167-9509 (Online)

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

---

## Editors-in-Chief

**Prof. Michael James C. Crabbe**

University of Oxford & University of Bedfordshire, UK

**Prof. Zhihua Zhang**

Shandong University, China

## Editorial Board

**Prof. Pinhas Alpert**

Tel Aviv University, Israel

**Prof. Franco Biondi**

University of Nevada, USA

**Prof. Shankar Gargh**

Environmental Disasters Research Institute, India

**Prof. Donald Huisin**

University of Tennessee, USA

**Prof. Amithirigala Widhanelage Jayawardena**

The University of Hong Kong, China

**Dr. Svetlana Jevrejeva**

National Oceanography Centre, UK

**Prof. Ola M. Johannessen**

University of Bergen, Norway

**Prof. A. D. Karathanasis**

University of Kentucky, USA

**Prof. Steven L. Forman**

University of Illinois at Chicago, USA

**Prof. Michael Laar**

Lutheran University of Brazil, Brazil

**Dr. Yuri Ya. Latypov**

Russian Academy of Sciences, Russia

**Prof. Monique Leclerc**

University of Georgia, USA

**Prof. María Dolores Ruiz Medina**

University of Granada, Spain

**Prof. Terrence Nathan**

University of California at Davis, USA

**Prof. Andreas Oberheitman**

Rheinisch-Westfälisches Institut für Wirtschaftsforschung, Germany

**Prof. Soon-Ung Park**

Seoul National University, South Korea

**Dr. Annette Rinke**

Alfred Wegener Institute for Polar and Marine Research, Germany

**Prof. Francisco J. Rodríguez-Tovar**

University of Granada, Spain

**Prof. Patrik Söderholm**

Lulea University of Technology, Sweden

**Prof. Can Wang**

Tsinghua University, China

**Prof. Qiang Zhang**

Sun Yat-sen University, China

# Table of Contents

**Volume 9      Number 4**

**December 2020**

## Recipients of 2020 AJCC Most Influential Paper Award

AJCC Editorial Board.....355

## Impact of Variegated Temperature, CO<sub>2</sub> and Relative Humidity on Survival and Development of Beet Armyworm *Spodoptera exigua* (Hubner) under Controlled Growth Chamber

J. Jaba, S. P. Mishra, N. Arora, R. Munghate.....357

## Assessing the Correlation between Forest Degradation and Climate Variability in the Oluwa Forest Reserve, Ondo State, Nigeria

F. N. Buba, E. N. Gajere, F. F. Ngum.....371

## Improvement of Rainfall Prediction Model by Using Fuzzy Logic

M. A. Rahman.....391

## Soil Carbon Sequestrations in Forest Soils in Relation to Parent Material and Soil Depth in South-Eastern Nigeria

C. M. Chris-Emenyonu, E. U. Onweremadu, J. D. Njoku, C. M. Ahukaemere, B. N. Aririguzo.....400

## Assessment of Rainfall Variations in South Region, Cameroon

S. Mbog Mbog, B. V. Bot, O. T. Sosso, L. Nsobih, D. Bitondo.....410

## Effect of Climate Variability on Yams (*Dioscorea spp.*) Production in Central and Northern Benin

F. H. Adifon, G. Atindogbé, D. O. Bello, I. Balogoun, I. Yabi, J. Dossou, L. Ahoton, A. Saïdou.....423

## Impact of Extreme Precipitation Intensity on Tea Production in the North-East of Bangladesh

M. A. Farukh, Md. A. Rahman, S. Sarker, Md. A. Islam.....441

## Dagupan River Basin Exposure and Vulnerability Assessment of Buildings Extracted from LiDAR Derived Datasets

A. M. Paz-Alberto, J. A. A. Espiritu, K. Mapanao.....454

## International Cooperation in Adaptation to Climate Change: Foreign Agendas or Local Necessities?

P. Virues-Contreras, L. R. Monjardin, B. D. Valle-Cárdenas.....480

The figure on the front cover is from the article published in American Journal of Climate Change, 2020, Vol. 9, No. 4, pp. 400-409 by Chinonso Millicent Chris-Emenyonu, Emmanuel Uzoma Onweremadu, John Didacus Njoku, Chioma Mildred Ahukaemere, Benarden Ngozi Aririguzo.

# American Journal of Climate Change (AJCC)

## Journal Information

### SUBSCRIPTIONS

The *American Journal of Climate Change* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published quarterly by Scientific Research Publishing, Inc., USA.

#### Subscription rates:

Print: \$59 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 © 2020 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 © 2020 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.

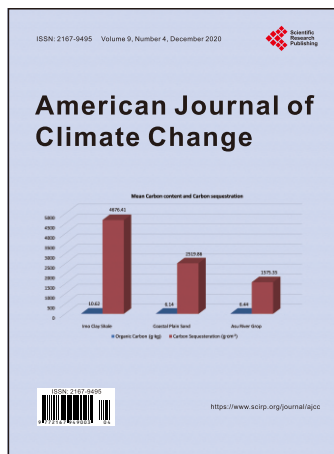
#### Disclaimer of liability

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: [ajcc@scirp.org](mailto:ajcc@scirp.org)



# American Journal of Climate Change(AJCC)

ISSN: 2167-9495 (Print)      ISSN: 2167-9509 (Online)  
<https://www.scirp.org/journal/ajcc>

American Journal of Climate Change (AJCC) is an international scientific journal dedicated to the publication of high-quality research articles, short communications and review papers on all aspects of climate change and related areas. The objectives of this journal are to chronicle the important publications in the rapidly growing field of climate change and to stimulate research in the area.

## Subject Coverage

All manuscripts must be prepared in English, and are subject to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by printed hard copy. Topics to be covered by this journal include, but are not limited to the following fields:

- ◆ Advanced Statistical Tools and Methods in Climate Change
- ◆ Air Pollution and Climate Change
- ◆ Atmospheric and Marine Sciences
- ◆ Boundary-Layer Meteorology
- ◆ Climate and Earth System Modeling
- ◆ Climate Change Economics
- ◆ Climate Dynamics
- ◆ Climate Policy
- ◆ Earth Observation and Data Assimilation
- ◆ Environmental and Resource Science
- ◆ Global Change Ecology
- ◆ Hurricanes and Other Extreme Events
- ◆ Hydrology and Limnology
- ◆ Impacts of Climate Change on the Cryosphere
- ◆ Meteorology and Atmospheric Physics
- ◆ Natural and Anthropogenic Climate Forcing Attribution
- ◆ Numerical Methods in Climate Research
- ◆ Paleoclimate Analysis and Interpretation
- ◆ Remote Sensing & Geoinformatics
- ◆ Renewable Energy
- ◆ Sustainable Agriculture, Forestry, and Soil Science
- ◆ Sustainable Development
- ◆ Theoretical and Applied Climatology
- ◆ Volcanology

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

## 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/ajcc>

E-mail: [ajcc@scirp.org](mailto:ajcc@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: <https://www.scirp.org>**

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

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