

ISSN: 2160-0414

Volume 7, Number 1, January 2017



Atmospheric and Climate Sciences



www.scirp.org/journal/acs

Journal Editorial Board

ISSN 2160-0414 (Print) ISSN 2160-0422 (Online)

<http://www.scirp.org/journal/acs>

Editor-in-Chief

Prof. Shaocai Yu

North Carolina State University, USA

Editorial Board

Dr. Jørgen Brandt

University of Aarhus, Denmark

Prof. Chak K. Chan

City University of Hong Kong, China

Prof. Yoon-Seok Chang

Pohang University of Science and Technology, South Korea

Dr. Ke Du

University of Calgary, Canada

Dr. Jiwen Fan

Pacific Northwest National Laboratory, USA

Dr. Guobin Fu

CSIRO Land and Water, Australia

Dr. Paolo Di Girolamo

Università degli Studi della Basilicata, Italy

Dr. Yanqing Lian

University of Illinois at Urbana-Champaign, USA

Prof. Ioannis Liritzis

University of the Aegean, Greece

Prof. Junbom Park

Seoul National University, South Korea

Dr. Alessandro Pezzoli

Turin Polytechnic, Italy

Prof. Daniel Tong

US NOAA Air Resources Laboratory, USA

Prof. Ying I. Tsai

Chia Nan University of Pharmacy and Science, China

Prof. Julian Wang

US NOAA Air Resources Laboratory, USA

Prof. Tijian Wang

Nanjing University, China

Dr. Jianjun Xu

George Mason University, USA

Prof. Fangqun Yu

State University of New York at Albany, USA

Prof. Qiang Zhang

Sun Yat-sen University, China

Table of Contents

Volume 7 Number 1

January 2017

Emission of Combustible Gases at Traffic and Practising Waste Dumpsite in Freetown, Sierra Leone: A Pilot Study

B. K. Williams, J. M. Beah, E. T. Taylor, T. F. Kamara, D. Kaitibi.....1

The Wetting Behavior of Fresh and Aged Soot Studied through Contact Angle Measurements

Y. Y. Wei, Q. Zhang, J. E. Thompson.....11

Advances in the Research of Yunnan's Arid Climate and Extreme Drought

J. Z. Ren, W. C. Zhang, Y. X. Wan, Y. Chen.....23

Reducing Broadband Shortwave Radiometer Calibration-Bias Caused by Longwave Irradiance in the Reference Direct Beam

I. Reda, A. Andreas, M. Dooraghi, M. Sengupta, A. Habte, M. Kutchenreiter.....36

Historical Phase-Locked El Niño Episodes

D. H. Douglass, R. S. Knox, S. Curtis, B. S. Giese, S. Ray.....48

Validation of General Climate Models (GCMs) over Upper Blue Nile River Basin, Ethiopia

A. S. Bokke, M. T. Taye, P. Willems, S. A. Siyoum.....65

Negative Feedback in the Polar Ice System

P. Stallinga, I. Khmelinskii.....76

Numerical Studies on a Severe Dust Storm in East Asia Using WRF-Chem

X. Yu, T. J. Wang, C. Liu, L. J. Pu.....92

An Analysis of the Spectral Energetics for a Planet Experiencing Rapid Greenhouse Gas Emissions

A. F. Aranha, J. A. P. Veiga.....117

Distribution of Convective Intensities in West Africa Using Reflectivity and Ice Scattering Characteristics from TRMM Precipitation Features

R. A. Balogun, Z. D. Adeyewa.....127

Analysis of Characteristics of the Forecast Jump in the NCEP Ensemble Forecast Products

X. K. Zhang, L. P. Zhang, J. Fu, L. X. Zhang.....151

Atmospheric and Climate Sciences (ACS)

Journal Information

SUBSCRIPTIONS

The *Atmospheric and Climate Sciences* (Online at Scientific Research Publishing, www.SciRP.org) is published quarterly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

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

E-mail: sub@scirp.org

COPYRIGHT

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

Copyright © 2017 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 © 2017 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.

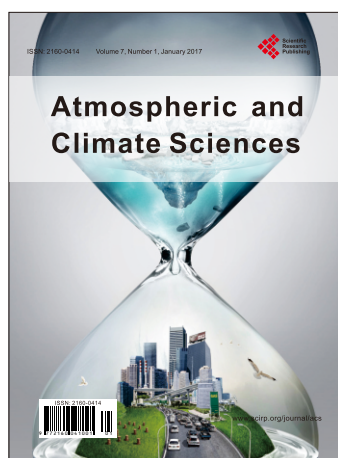
Disclaimer of liability

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: acs@scirp.org



Atmospheric and Climate Sciences (ACS)

ISSN 2160-0414 (Print) ISSN 2160-0422 (Online)

<http://www.scirp.org/journal/acs>

Editor-in-Chief

Prof. Shaocai Yu

North Carolina State University, USA

Subject Coverage

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

ACS aims to rapidly publish original scientific papers in all the fields of applied and/or climate atmospheric science. It covers the latest achievements and developments in the applied climate and atmospheric sciences, including but not limited to the following scopes as well as the theoretical and practical aspects of these disciplines:

- Agricultural climatology
- Air chemistry and the boundary layer, clouds and weather modification
- Air quality, atmosphere & health
- Applied meteorology
- Atmospheric acoustics, electricity, optics, physics, radiation and sounding
- Atmospheric and oceanic physics
- Atmospheric and solar-terrestrial physics
- Atmospheric chemistry
- Atmospheric environment
- Aviation climatology
- Biometeorology
- Building climatology and forestry climatology
- Climate change and broadcast meteorology
- Climate dynamics and variability
- Climate policy
- Clouds and precipitation physics
- Cosmical meteorology
- Dendroclimatology
- Dynamics of atmospheres and ocean
- Hydrology, oceans and atmosphere
- Hydrometeorology
- Marine meteorology and meteorology-associated geophysics
- Medical meteorology and medical climatology
- Meteorological, climatological and atmospheric environmental issues
- Navigation climatology
- Phenology and paleoclimatology
- Polar meteorology
- Radar meteorology and radio meteorology
- Remote sensing
- Satellite meteorology and synoptic meteorology
- Theoretical and applied climatology
- Tropical meteorology
- Weather systems, numerical weather prediction

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 **ACS**.

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/acs>

E-mail: acs@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: <http://www.scirp.org>

Subscription: sub@scirp.org

Advertisement: service@scirp.org