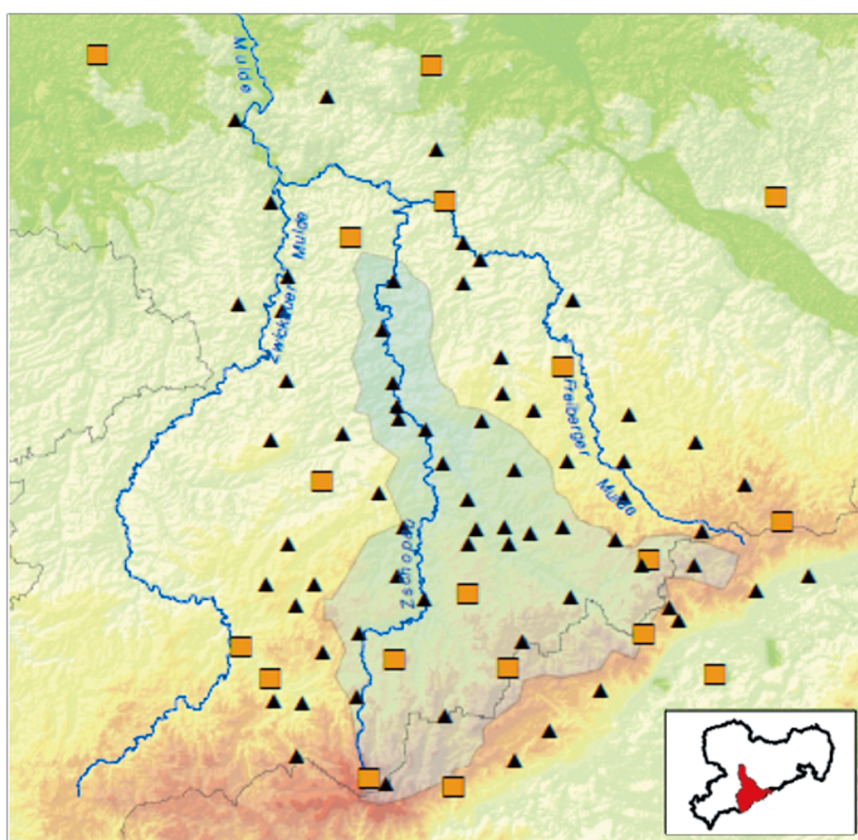




# Atmospheric and Climate Sciences



0 5 10 20  
km

■ Climate station  
▲ Gauging station  
■ Catchment area Zschopau

— Administrative boundaries  
— River

ISSN: 2160-0414



# Journal Editorial Board

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

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

---

## Editor-in-Chief

**Dr. Shaocai Yu**

U.S. Environmental Protection Agency, USA

## Editorial Board (According to Alphabet)

<b>Prof. Viney P. Aneja</b>	North Carolina State University, USA
<b>Dr. Jørgen Brandt</b>	Aarhus University, Denmark
<b>Prof. Chak K. Chan</b>	Hong Kong University of Science and Technology, China
<b>Prof. Yoon-Seok Chang</b>	Pohang University of Science and Technology, South Korea
<b>Dr. Paolo Di Girolamo</b>	Università degli Studi della Basilicata, Italy
<b>Dr. Ke Du</b>	Chinese Academy of Sciences, China
<b>Dr. Jiwen Fan</b>	Pacific Northwest National Laboratory, USA
<b>Dr. Guobin Fu</b>	CSIRO Land and Water, Australia
<b>Dr. Andreas Hofzumahaus</b>	Institute of Energy and Climate Research, Germany
<b>Dr. Daniel A. Knopf</b>	Stony Brook University, USA
<b>Dr. Yanqing Lian</b>	University of Illinois, USA
<b>Prof. Athanasios Nenes</b>	Georgia Institute of Technology, USA
<b>Prof. Junbom Park</b>	Seoul National University, South Korea
<b>Dr. Alessandro Pezzoli</b>	Turin Polytechnic, Italy
<b>Prof. Nicole Riemer</b>	University of Illinois at Urbana-Champaign, USA
<b>Dr. Rajib Shaw</b>	Kyoto University, Japan
<b>Prof. Daniel Tong</b>	US NOAA Air Resources Laboratory, USA
<b>Dr. Krishna Prasad Vadrevu</b>	University of Maryland, USA
<b>Prof. Julian X. L. Wang</b>	US NOAA Air Resources Laboratory, USA
<b>Prof. Tijian Wang</b>	Nanjing University, China
<b>Dr. Jianjun Xu</b>	University of Arizona, USA
<b>Prof. Fangqun Yu</b>	State University of New York at Albany, USA
<b>Prof. Qiang Zhang</b>	Sun Yat-sen University, China

## Guest Reviewer

**Dujuan Kang**

## TABLE OF CONTENTS

**Volume 3    Number 4**

**October 2013**

### **Spatial and Temporal Variation of Normalized Difference Vegetation Index (NDVI) and Rainfall in the North East Arid Zone of Nigeria**

C. F. Olusegun, Z. D. Adeyewa.....421

### **Pollution Characteristics of PM<sub>2.5</sub> during a Typical Haze Episode in Xiamen, China**

F. W. Zhang, J. S. Chen, T. X. Qiu, L. Q. Yin, X. Q. Chen, J. S. Yu.....427

### **Southern and Tropical Indian Ocean SST: A Possible Predictor of Winter Monsoon Rainfall over South India**

R. P. Shukla, S. Rai, A. C. Pandey.....440

### **Analysis of the Meteorological Variables for Puebla City 2011-2012 Applying the Modeling Ion-Wavelets in a Hypothetical Manner**

R. Ramos-Aguilar, P. Máximo-Romero, B. S. Soto-Cruz, S. Alcántara-Iniesta, J. G. Pérez-Luna.....450

### **Gamma-Rays in Association with the Rocket-Triggered Lightning Caused by Neutron Bursts**

G. S. Paiva, C. A. Taft, M. C. Carvalho, N. C. Furtado.....459

### **Model-Measurement Comparison of Ammonia Bi-Directional Air-Surface Exchange Fluxes over Agricultural Fields**

Z. S. He, L. P. Wright, L. Zhang.....465

### **Variation of Total Ozone during 24 August 2005 Magnetic Storm: A Case Study**

G. A. Mansilla.....475

### **The Neutron Flux Variation in the Earth's Atmosphere Depending on the Solar Proton Flux**

M. Poje, B. Vuković, M. V. Pajtler, V. Radolić, I. Miklavčić, J. Planinić.....481

### **Chemical Composition and Sources of Rainwater Collected at a Semi-Rural Site in Ya'an, Southwestern China**

M. Zhao, L. Li, Z. L. Liu, B. Chen, J. Q. Huang, J. W. Cai, S. H. Deng.....486

### **What Controls Recent Changes in the Circulation of the Southern Hemisphere: Polar Stratospheric or Equatorial Surface Temperatures?**

I. Orlanski.....497

### **Air Pollution by Carbon Monoxide (CO) Poisonous Gas in Lagos Area Southwestern Nigeria**

K. S. John, K. Feyisayo.....510

### **Granger Causality Analyses for Climatic Attribution**

A. Attanasio, A. Pasini, U. Triacca.....515

<b>Stable Boundary Layer Height Parameterization: Learning from Artificial Neural Networks</b>	
W. Li.....	523
<b>Surface Temperature Anomalies in the River Niger Basin Development Authority Areas, Nigeria</b>	
J. S. Babatolu, R. T. Akinnubi.....	532
<b>Analysis of Storm Structure over Africa Using the Trmm Precipitation Radar Data</b>	
A. R. Balogun, Z. D. Adeyewa.....	538
<b>On the Downscaling of Meteorological Fields Using Recurrent Networks for Modelling the Water Balance in a Meso-Scale Catchment Area of Saxony, Germany</b>	
R. Kronenberg, K. Barfus, J. Franke, C. Bernhofer.....	552
<b>Source Apportionment of PM<sub>2.5</sub> in the Metropolitan Area of Costa Rica Using Receptor Models</b>	
J. H. Murillo, S. R. Roman, J. F. R. Marín, B. Cardenas.....	562
<b>Determination of Instantaneous Frequencies of Low Plasma Waves in the Magnetosheath Using Empirical Mode Decomposition (EMD) and Hilbert Transform (HT)</b>	
E. U. Nathaniel, N. J. George, S. E. Etuk.....	576
<b>Hans A. Panofsky's Integral Similarity Function—At Fifty</b>	
G. Kramm, D. J. Amaya, T. Foken, N. Mölders.....	581
<b>Rainfall Infiltration Return Frequency Estimates</b>	
T. V. Hromadka II, M. Phillips, P. Rao, B. Espinosa, T. Hromadka III.....	595
<b>Solar Activity, Solar Wind and Geomagnetic Signatures</b>	
J.-L. Zerbo, F. Ouattara, C. A. Mazaudier, J.-P. Legrand, J. D. Richardson.....	610
<b>Effects of Sky Conditions Measured by the Clearness Index on the Estimation of Solar Radiation Using a Digital Elevation Model</b>	
M. de C. Alves, L. Sanches, J. de S. Nogueira, V. A. M. Silva.....	618
<b>The Energy Cycle Associated to the Pacific Walker Circulation and Its Relationship to ENSO</b>	
J. A. P. Veiga, A. B. Pezza, T. Ambrizzi, V. B. Rao, S. H. Franchito, M. C. Yoshida.....	627

The figure on the front cover is from the article published in *Atmospheric and Climate Sciences*, 2013, Vol. 3, No. 4, pp. 552-561 by Rico Kronenberg, Klemens Barfus, Johannes Franke and Christian Bernhofer.



# **Atmospheric and Climate Sciences (ACS)**

## **Journal Information**

### **SUBSCRIPTIONS**

The *Atmospheric and Climate Sciences* (Online at Scientific Research Publishing, [www.SciRP.org](http://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©2013 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

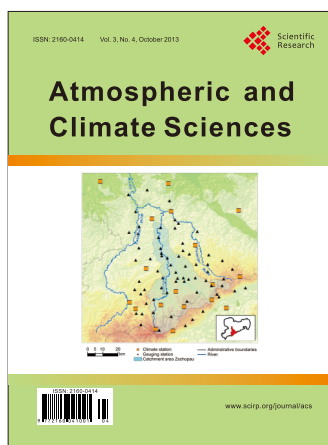
Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

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](mailto: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

**Dr. Shaocai Yu**

U.S. Environmental Protection Agency, 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](mailto: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, by delivering superior scientific publications and scientific information solution provider that enable advancement in scientific research.

## 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, world-wide, 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](mailto:sub@scirp.org)**  
**Advertisement: [service@scirp.org](mailto:service@scirp.org)**