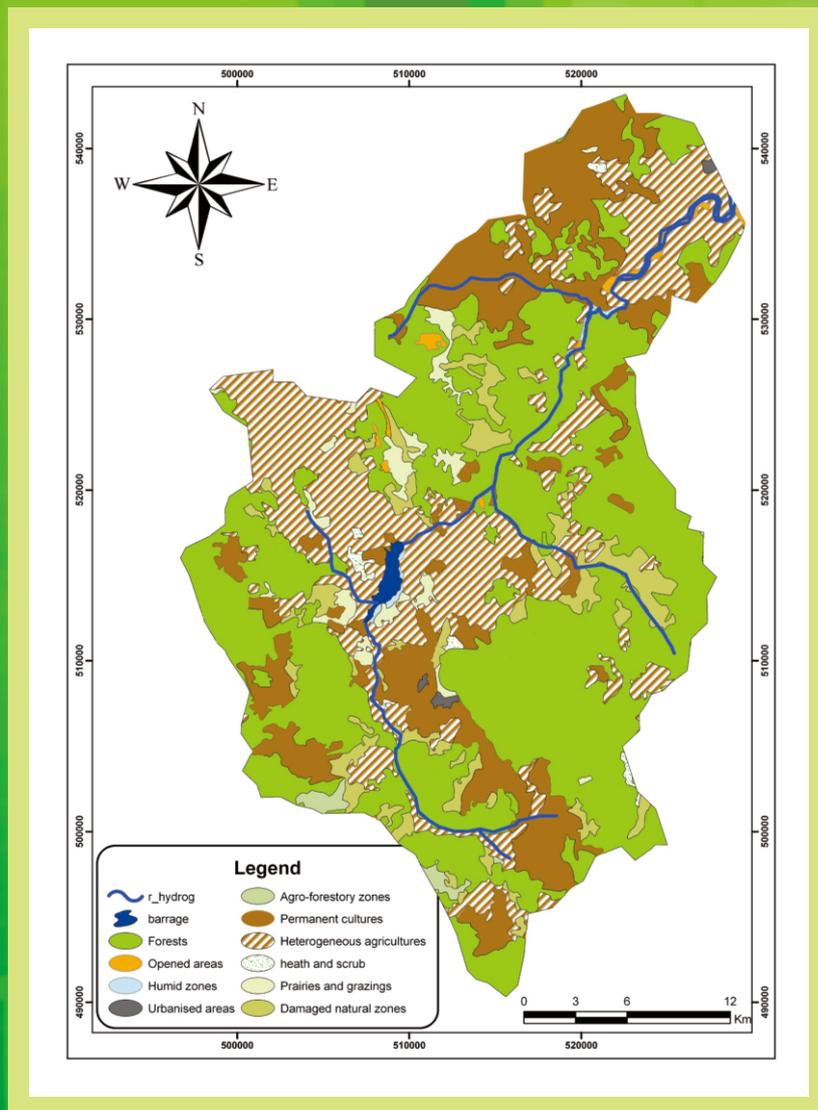




# International Journal of Geosciences



ISSN : 2156-8359



# Journal Editorial Board

ISSN: 2156-8359 (Print) ISSN: 2156-8367 (Online)

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

---

## Editors-in-Chief

Prof. Jacques Bourgois  
Prof. Shuanggen Jin

Université Pierre et Marie Curie, Paris 6, France  
Shanghai Astronomical Observatory, CAS, China

## Editorial Board

Prof. Hema Achyuthan	Anna University, India
Prof. Jong-Jin Baik	Seoul National University, Korea (South)
Prof. Rajasekhar Balasubramanian	National University of Singapore, Singapore
Dr. Peter Bayer	Swiss Federal Institute of Technology Zürich, Switzerland
Dr. Charles E. Button	Central Connecticut State University, USA
Prof. Hangseok Choi	Korea University, Korea (South)
Dr. Dionisios Gasparatos	Agriculture University of Athens, Greece
Dr. Yury G. Gatinsky	Vernadsky State Geological Museum, Russia
Prof. Maofa Ge	Chinese Academy of Sciences, China
Prof. Zhengtang Guo	Chinese Academy of Sciences, China
Dr. Ruixia Hao	Peking University, China
Prof. Jiankun He	Chinese Academy of Sciences, China
Prof. Zhangdong Jin	Chinese Academy of Sciences, China
Prof. Oleg Khavroshkin	Russian Academy of Sciences, Russia
Dr. Charles Lemckert	Griffith University, Australia
Dr. Qi Li	Geological Survey of Japan, Japan
Prof. Hongyan Liu	Peking University, China
Prof. Jun Liu	Chinese Academy of Sciences, China
Dr. Shaofeng Liu	China University of Geosciences (Beijing), China
Prof. Becky P. Y. Loo	The University of Hong Kong, Hong Kong (China)
Dr. Hao Luo	Georgia Institute of Technology, USA
Dr. Ashok K. Mishra	Texas A&M University, USA
Prof. Junbom Park	Seoul National University, Korea (South)
Prof. Cosenza Philippe	Poitiers University, France
Prof. Xianfang Song	Chinese Academy of Sciences, China
Prof. Jimin Sun	Chinese Academy of Sciences, China
Dr. Xuexi Tie	National Center for Atmospheric Research, USA
Prof. George Tsiambaos	National Technical University of Athens, Greece
Prof. Fawu Wang	Shimane University, Japan
Prof. Bernd Wünnemann	Freie Universität Berlin, Germany
Prof. Xinghui Xia	Beijing Normal University, China
Prof. Wenjiao Xiao	Chinese Academy of Sciences, China
Dr. Jianwen Yang	University of Windsor, Canada
Prof. Xiaohuan Yang	Chinese Academy of Sciences, China
Dr. Bin Yu	Environment Canada, Canada
Dr. Lianyang Zhang	University of Arizona, USA
Prof. Ping Zhao	China Meteorological Administration, China
Prof. A-Xing Zhu	University of Wisconsin, USA

## TABLE OF CONTENTS

Volume 3 Number 3

July 2012

### **Contribution of Satellite Altimetry Data in the Environmental Geophysical Investigation of the Northern Egyptian Continental Margin**

H. A. M. Aboulela.....431

### **A Geostatistical Approach to the Seasonal Precipitation Effect on Boro Rice Production in Bangladesh**

A. K. Bhowmik, A. C. Costa.....443

### **Preserved Sm-Nd Isotopic Composition as Useful Provenance Indicators in Neoproterozoic Sandstones in the Voltaian Basin, Ghana**

C. Anani, D. Asiedu, J. Manu, P. Nude, J. Kutu, P. A. Sakyi.....463

### **Terrestrial Ecosystem Carbon Fluxes Predicted from MODIS Satellite Data and Large-Scale Disturbance Modeling**

C. Potter, S. Klooster, V. Genovese, C. Hiatt, S. Boriah, V. Kumar, V. Mithal, A. Garg.....469

### **Synergetic Use of Satellite Image and DEM for Identification of Landforms in a Ridge-Valley Topography**

T. R. Martha, R. Saha, K. V. Kumar.....480

### **Frequency of Cyclonic Disturbances and Changing Productivity Patterns in the North Indian Ocean Region: A Study Using Sea Surface Temperature and Ocean Colour Data**

M. Tripathy, M. Raman, R. Dwivedi, Ajai.....490

### **A New Shrinkage Curve Model, Applied to Moroccan Clayey Soil**

S. Bensallam, L. Bahi, H. Ejjaaouani, V. Shakhirev.....507

### **Sediment Characteristics of Tidal Deposits at Mandvi, Gulf of Kutchh, Gujarat, India: Geophysical, Textural and Mineralogical Attributes**

D. Trivedi, M. C. Raicy, K. Devi, D. Kumar, I. Buynevich, P. Srinivasan, N. R. Iyer, R. Guin, D. Sengupta, R. R. Nair.....515

### **Geochemistry and Geochronology of Peraluminous High-K Granitic Leucosomes of Yaoundé Series (Cameroon): Evidence for a Unique Pan-African Magmatism and Melting Event in North Equatorial Fold Belt**

T. Ngotue, G. Sylvestre, N. J. Paul, S. Bernhard, T. T. Depesquidoux I, S. C. Emmanuel.....525

**Geo-Electrical Investigation of Mullusi Aquifer, Rutba, Iraq**

A. S. Al Dulaymi, E. A. R. Al-Heety, B. M. Hussien.....549

**Characterization and Classification of Rocks with Lamb Modes**

D. El Abassi, B. Faiz, A. Ibhi, I. Aboudaoud.....565

**Improving the Prediction Accuracy of Soil Mapping through Geostatistics**

El. E. Omran.....574

**A Review of Geothermal Type-Curves with Damage Effect: A Case of Practical Apply to a Mexican Geothermal Field**

S. López-Blanco, A. Aragón-Aguilar, V. Arellano-Gómez, G. Izquierdo-Montalvo, S. Santoyo-Gutiérrez,  
A. Hernández-Ochoa.....591

**Prediction of Concrete Faced Rock Fill Dams Settlements Using Genetic Programming Algorithm**

S. M. Marandi, S. M. VaeziNejad, E. Khavari.....601

**GIS-Based Model to Assess Erosion Sensitivity in Northern Morocco. Laou Watershed Case Study**

A. Raissouni, L. K. Issa, A. El Arrim, M. Maâtouk, R. Passalacqua.....610

**Marked Increases in Background Photon Emissions in Sudbury Ontario More than One Week before the Magnitude > 8.0 Earthquakes in Japan and Chile**

M. A. Persinger, G. F. Lafreniere, B. T. Dotta.....627

**Neural Network Approach to Response of Buildings Due to Earthquake Excitation**

S. Chakraborty, P. Kumar, S. K. Chakraborty.....630

**Geoelectric Investigation for Groundwater Exploration in Yaoundé Area, Cameroon**

W. A. Teikeu, T. Ndougsa-Mbarga, P. N. Njandjock, T. C. Tabod.....640

**Mapping Potential Fishing Grounds in Lake Malawi Using AVHRR and MODIS Satellite Imagery**

G. Chavula, H. Sungani, K. Gondwe.....650

---

The figure on the front cover is from the article published in *International Journal of Geosciences*, 2012, Vol. 3, No. 3, pp. 610-626 by Ahmed Raissouni, *et al.*

# **International Journal of Geosciences (IJG)**

## **Journal Information**

### **SUBSCRIPTIONS**

The *International Journal of Geosciences* (Online at Scientific Research Publishing, [www.SciRP.org](http://www.SciRP.org)) is published bimonthly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$39 per copy.

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©2012 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.

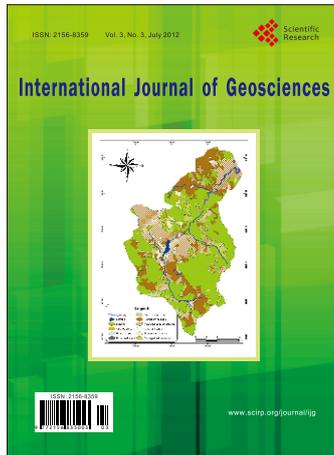
Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

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



# International Journal of Geosciences

ISSN: 2156-8359 (Print) ISSN: 2156-8367 (Online)

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

*International Journal of Geosciences (IJG)* is an international refereed journal dedicated to the latest advancement of geosciences. The goal of this journal is to keep a record of the state-of-the-art research and to promote study, research and improvement within its various specialties.

## Editors-in-Chief

**Prof. Jacques Bourgois**

**Prof. Shuanggen Jin**

Université Pierre et Marie Curie, Paris 6, France

Shanghai Astronomical Observatory, CAS, China

## Subject Coverage

All manuscripts submitted to IJG must be previously unpublished and may not be considered for publication elsewhere at any time during IJG's review period. Additionally, accepted ones will immediately appear online followed by printed in hard copy. Topics to be covered by this journal include, but are not limited to:

- Atmosphere
- Biosphere
- Cartography
- Climate Change
- Earthquake and Seismology
- Earth System Modelling
- Environmental Science
- Estuarine and Coasts
- Geochemistry
- Geodesy and Surveying
- Geographic Information System
- Geography
- Geo-Instrument Developments
- Geology
- Geomechanics
- Geomorphology and Surficial Process
- Geophysics
- Geostatistics
- Glaciology
- Hydrosphere
- Lithosphere or Geosphere
- Marine Resources
- Mineralogy
- NASA Earth Science Enterprise
- Oceanography
- Pedosphere
- Petrology
- Seismology
- Soil Science

We are also interested in: 1) Short Reports—2 to 5 pages where the paper is intended to present either an original idea with theoretical treatment or preliminary data and results; 2) Book Reviews—Comments and critiques of recently published books in Geosciences.

## 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/ijg/>

Email: [ijg@scirp.org](mailto:ijg@scirp.org)

## TABLE OF CONTENTS

**Volume 3 Number 3**

**July 2012**

<b>Contribution of Satellite Altimetry Data in the Environmental Geophysical Investigation of the Northern Egyptian Continental Margin</b> H. A. M. Aboulela.....	431
<b>A Geostatistical Approach to the Seasonal Precipitation Effect on Boro Rice Production in Bangladesh</b> A. K. Bhowmik, A. C. Costa.....	443
<b>Preserved Sm-Nd Isotopic Composition as Useful Provenance Indicators in Neoproterozoic Sandstones in the Voltaian Basin, Ghana</b> C. Anani, D. Asiedu, J. Manu, P. Nude, J. Kutu, P. A. Sakyi.....	463
<b>Terrestrial Ecosystem Carbon Fluxes Predicted from MODIS Satellite Data and Large-Scale Disturbance Modeling</b> C. Potter, S. Klooster, V. Genovese, C. Hiatt, S. Boriah, V. Kumar, V. Mithal, A. Garg.....	469
<b>Synergetic Use of Satellite Image and DEM for Identification of Landforms in a Ridge-Valley Topography</b> T. R. Martha, R. Saha, K. V. Kumar.....	480
<b>Frequency of Cyclonic Disturbances and Changing Productivity Patterns in the North Indian Ocean Region: A Study Using Sea Surface Temperature and Ocean Colour Data</b> M. Tripathy, M. Raman, R. Dwivedi, Ajai.....	490
<b>A New Shrinkage Curve Model, Applied to Moroccan Clayey Soil</b> S. Bensallam, L. Bahi, H. Ejjaouani, V. Shakhirev.....	507
<b>Sediment Characteristics of Tidal Deposits at Mandvi, Gulf of Kutchh, Gujarat, India: Geophysical, Textural and Mineralogical Attributes</b> D. Trivedi, M. C. Raicy, K. Devi, D. Kumar, I. Buynevich, P. Srinivasan, N. R. Iyer, R. Guin, D. Sengupta, R. R. Nair.....	515
<b>Geochemistry and Geochronology of Peraluminous High-K Granitic Leucosomes of Yaoundé Series (Cameroon): Evidence for a Unique Pan-African Magmatism and Melting Event in North Equatorial Fold Belt</b> T. Ngotue, G. Sylvestre, N. J. Paul, S. Bernhard, T. T. Depesquidoux I, S. C. Emmanuel.....	525
<b>Geo-Electrical Investigation of Mullusi Aquifer, Rutba, Iraq</b> A. S. Al Dulaymi, E. A. R. Al-Heety, B. M. Hussien.....	549
<b>Characterization and Classification of Rocks with Lamb Modes</b> D. El Abassi, B. Faiz, A. Ibhi, I. Aboudaoud.....	565
<b>Improving the Prediction Accuracy of Soil Mapping through Geostatistics</b> El. E. Omran.....	574
<b>A Review of Geothermal Type-Curves with Damage Effect: A Case of Practical Apply to a Mexican Geothermal Field</b> S. López-Blanco, A. Aragón-Aguilar, V. Arellano-Gómez, G. Izquierdo-Montalvo, S. Santoyo-Gutiérrez, A. Hernández-Ochoa.....	591
<b>Prediction of Concrete Faced Rock Fill Dams Settlements Using Genetic Programming Algorithm</b> S. M. Marandi, S. M. VaeziNejad, E. Khavari.....	601
<b>GIS-Based Model to Assess Erosion Sensitivity in Northern Morocco. Laou Watershed Case Study</b> A. Raissouni, L. K. Issa, A. El Arrim, M. Maâtouk, R. Passalacqua.....	610
<b>Marked Increases in Background Photon Emissions in Sudbury Ontario More than One Week before the Magnitude &gt; 8.0 Earthquakes in Japan and Chile</b> M. A. Persinger, G. F. Lafreniere, B. T. Dotta.....	627
<b>Neural Network Approach to Response of Buildings Due to Earthquake Excitation</b> S. Chakraborty, P. Kumar, S. K. Chakraborty.....	630
<b>Geoelectric Investigation for Groundwater Exploration in Yaoundé Area, Cameroon</b> W. A. Teikeu, T. Ndougsa-Mbarga, P. N. Njandjock, T. C. Tabod.....	640
<b>Mapping Potential Fishing Grounds in Lake Malawi Using AVHRR and MODIS Satellite Imagery</b> G. Chavula, H. Sungani, K. Gondwe.....	650