

International Journal of GEOMATE

(Geotechnique, Construction Materials and Environment)



THE GEOMATE INTERNATIONAL SOCIETY

https://www.geomatejournal.com

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

International Journal of GEOMATE is Abstracted/Indexed in SCOPUS, Web of Science Emerging Sources Citation Index (ESCI), EBSCO, Global Impact Factor (GIF), Gale (a Cengage Learning Company), Ulrichsweb, Global Serials Directory, etc.

Impact Factor by SCOPUS (SJR)	Paper Acceptance Rate
2020: 0.270	2020: 53.84%
2019: 0.300	2019: 43.45%
2018: 0.302	2018: 46.60%
2017: 0.251	2017: 41.09%
2016: 0.284	2016: 41.31%
2015: 0.250	2015: 35.28%
2014: 0.248 2013: 0.143 2012: 0.115	2014: 37.50% 2013: 38.71% 2012: 46.66% 2011: 61.53%

Editor-in-Chief:

Prof. Dr. Zakaria Hossain, Mie University, Japan

Associate Editors:

Prof. Dr. Fumio Tatsuoka, Tokyo University of Science, Japan

Prof. Dr. Sai Vanapalli, University of Ottawa, Canada

Prof. Dr. Ian Jefferson, University of Birmingham, United Kingdom

Prof. Dr. Mounir Bouassida, National School of Engineering of Tunis

Prof. Dr. Bujang B.K. Huat, University Putra Malaysia, Malaysia

Prof. Dr. Nemy Banthia, University of British Columbia, Canada

Prof. Dr. Toshinori Sakai, Mie University, Japan

Prof. Dr. Valeriy Perminov, Tomsk Polytechnic University, Russia

Prof. Dr. Jing-Cai Jiang, University of Tokushima, Japan

Prof. Dr. Lilia Robles Austriaco, Angles University Foundation, Philippines

Prof. Dr. Muhammad Ibn Ibrahimy, International Islamic University, Malaysia

Prof. Dr. Shamsul I. Chowdhury, Roosevelt University, USA

Prof. Dr. Isabel Pinto, University of Coimbra, Portugal

Prof. Dr. Mark Jaksa, University of Adelaide, Australia

Prof. Dr. Kaneco Satoshi, Mie University, Japan

Prof. Dr. Junichiro Takeuchi, Kyoto University, Japan

Prof. Dr. Ranjith Pathegama Gamage, Monash University, Australia

Prof. Dr. Kingshuk Roy, Nihon University, Japan

Prof. Dr. Md. Shahin Hossain, Islamic University of Technology, Bangladesh

Prof. Dr. Pedro Arrua, Universidad Tecnológica Nacional, Argentina

Prof. Dr. Miguel A. Pando, University of North Carolina, USA

Prof. Dr. Suksun Horpibulsuk, Suranaree University of Technology, Thailand

Prof. Dr. Musharraf Zaman, University of Oklahama, USA

Prof. Dr. Rafiqul Tarefder, University of New Mexico, USA

A/Prof. Dr. John Victor Smith, RMIT University, Australia

Prof. Dr. Basir Mir, National Institute of Technology Srinagar, India

Prof. Dr. Lily Surayya Eka, State Islamic University Syarif Hidayatullah Jakarta, Indonesia

A full list of sub-editors and editorial assistants is given on the web page.

Copyright @ International Journal of GEOMATE

All rights reserved. In principle, no part of this publication or the information contained herein may be reproduced in any form or by any means, translated in any language, stored in any database or retrieval system, or transmitted in any form or by any means without prior permission in writing from the publisher.

Disclaimer: The editors and the publisher have tried their best effort to ensure integration and the quality of this publication and information herein. However, they give no warranty of any kind, expressed or implied with regard to the material contained in this journal, and will not be liable in any event for the consequences of its use.

Publisher: The GEOMATE International Society

Place of publication: Tsu city, Mie, Japan

Contact: Editor-in-Chief, Dr. Zakaria Hossain, Professor, Graduate School of Bioresources,

Mie University, 1577 Kurimamachiya, Tsu city, Mie 514-8507, Japan

E-mail: editor@geomatejournal.com, URL: http://www.geomatejournal.com/

Tel & Fax: +81-59-231-9578

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

Founded in 2011, *The "International Journal of GEOMATE*" is a Scientific Journal of the GEOMATE International Society that encompasses a broad area in Geotechnique, Construction Materials, and Environment. The key objective of this journal is to promote interdisciplinary research from various regions of the globe. The editorial board of the journal is comprised of extensively qualified researchers, academicians, scientists from Japan, and other countries of the world. It is a peer-reviewed journal that is published quarterly. All articles published in this journal are available online. Contributors may download the manuscript preparation template for submitting the paper or contact the Editors-in-Chief [editor@geomatejournal.com].

Aims and Scopes:

The journal aims to become an efficient means of publishing and distributing high-quality information from researchers, scientists, and engineers. The main scopes are as follows:

- Advances in Composite Materials
- Computational Mechanics
- Foundation and Retaining Walls
- Slope Stability
- Soil Dynamics
- Soil-Structure Interaction
- Pavement Technology
- Tunnels and Anchors
- Site Investigation and Rehabilitation
- Ecology and Land Development
- Water Resources Planning
- Environmental Management
- Earthquake and Tsunami Issues
- Safety and Reliability
- Geo-Hazard Mitigation
- Case History and Practical Experience
- Others

Review Policy:

- The paper which meets the editorial criteria will be assigned to at least two anonymous reviewers for peer review.
- Authors may recommend some reviewers however, Editors are entitled to consider them or not.
- The Editorial Board consists of an outstanding group responsible for the review process of the submitted manuscripts and will guarantee the quality of the publication.
- The manuscript will be published as soon as accepted, and all the modifications recommended by the reviewers are made.
- The review procedure is as strict as in the most prestigious journals, but publication time is minimized.
- Based on the reviewers' comments, the Editors will decide on a paper as one of the following four conditions:
- 1. Accept without revision
- 2. Accept with minor revision
- 3. Encourage to resubmit with major revision
- 4. Reject

In case of acceptance with minor or major revisions, the authors will be advised to revise the manuscript according to the reviewers' comments.

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

Instruction to Author:

The manuscript to be submitted should be prepared using the manuscripts submission template.

Download the manuscript formatting template from the download files menu.

The manuscript to be submitted adheres to the rules and guidelines given in the manuscript template.

The manuscript should be written in English. A list of references must be translated into English if other languages (both should be noted).

The page limit is 8 pages for an ordinary manuscript and 10 pages for the invited manuscript.

The references inside the text and in the bibliographic list should follow the formats as per the manuscript template.

All figures, graphs, and tables must follow the font style of the text. Ensure clear and good-quality pictures in the first submission.

Selected manuscripts from "GEOMATE Conference Presentation" will be reprinted in the journal with nominal charges (40% discount of regular fees) based on the agreement of the authors.

Accepted papers which were not presented in the "GEOMATE Conference" need publication charges of 800 USD as regular fees. Any page or fraction exceeding the page limit will be charged 100 USD per page. The extra author fee is 100 USD/author if exceeding 5 authors.

This is required for its maintenance, such as managing article submission and peer review, typesetting, tagging and indexing of articles, hosting articles on dedicated servers, supporting sales and marketing costs to ensure global dissemination via different databases, and permanently preserving the published journal article.

Copyright: GEOMATE is required to obtain copyright of papers from authors for the term of copyright by signing and returning the publishing agreement.

Submission Method:

Submit full manuscript online using the "Submission" menu. We accept online submissions only.

Copyright release form to be E-mailed separately along with the manuscript submission. Download it from the "Download Files Menu".

Abolition of the printed version: Considering environmental conservation, the paper version has been discontinued since June 2016.

For any questions: Contact us [editor@geomatejournal.com].

Membership Fees: Regular Member 100USD/year; Life Member 900USD only.

Membership Benefits:

- Receive Membership ID/Card
- Use M.G. or L.M.G. after your name (M=Member, G=Geomate, L=Life)
- Be involved in GEOMATE technical committees and activities
- Be up-to-date on the current development in the field
- Priority right to participate in international conferences with 20% discount
- 20% discount for Journal paper publication
- Vote in the election of GEOMATE officers
- Access to the Journal webpage

Membership Application (send the related items below using the online form):

- Full Name:
- Title/Position (check one): □ Prof. □ A/Prof. □ Dr. □Mr. □Ms.
- Membership Category (check one): □ Regular Member □ Life Member □ Others
- Address:
- Tel & Fax:
- E-mail (co-authors e-mail separated by comma):
- Research Area (check one): □ Geotechnique □ Construction Materials □ Environment □ Others

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

STATEMENT ON PUBLICATION ETHICS AND PUBLICATION MALPRACTICE (1/2)

The International Journal of GEOMATE is a double-blind peer-reviewed journal. All parties involved in publishing an article for this journal, i.e., the editors, the author, the peer-reviewers, and the publisher, must follow the ethical behavior indicated in the COPE's Best Practice Guidelines for Journal Editors. In order to warrant high-quality scientific publications, public trust in scientific findings, and that people receive credit for their ideas, the ethical standards for publication are followed.

DUTIES OF EDITORS

<u>A decision on the Publication of Article</u>: Based on the double-blind peer review of a paper, the Chief Editor and the Associate Editor are responsible for deciding which articles are accepted for publication. Neither the Chief Editor nor the Associate Editor has the authority to influence the reviewers who are conducting the blind review of the articles submitted for peer review. The Chief Editor and the Associate Editor may be guided by the policies of the journal's Editorial Board and subjected to such legal requirements regarding libel, copyright infringement, and plagiarism.

<u>Honest Play:</u> Manuscripts submitted to GEOMATE shall be exclusively evaluated based mainly on their intellectual quality and significance. GEOMATE will not consider authors' race, gender, sexual orientation, religious beliefs, ethnic origin, citizenship, or political philosophy.

<u>Confidentiality:</u> The Chief Editor, the Associate Editor, and any editorial staff must not disclose any information about a submitted manuscript to anyone other than the corresponding author, reviewers, potential reviewers, other editorial advisers, and the publisher.

<u>Disclosure and Conflicts of Interest:</u> Unpublished materials disclosed in a submitted manuscript must not be used by anyone who has a view of the manuscript (while handling it) in his or her own research without the express written consent of the author.

DUTIES OF REVIEWERS

<u>The contribution of Double-Blind Peer Review:</u> Any identifying information will be stripped out from the submitted paper so that the reviewers do not know any information about the authors and vice versa, i.e., reviewers' comments to the editors are confidential and before passing on to the authors, it will be made anonymous. The Double-Blind Peer review assists the reviewers in making editorial decisions, while editorial communications with the author may also assist the author in improving the manuscript. The names of the reviewers are known only to the Chief Editor and the Associate Editor, and it remains strictly confidential to authors.

<u>Punctuality:</u> Any selected referee who feels unqualified to review the assigned manuscript or unable to provide a prompt review should notify the Chief Editor and the Associate Editor and excuse themselves from the review process.

<u>Confidentiality:</u> Private information or ideas obtained through double-blind peer review must be kept confidential and not used for personal advantage. Manuscripts received for review must be treated as confidential documents. Without any authorization by the Chief Editor and the Associate Editor, the information of the submitted manuscript must not be shown to or discussed with others.

<u>Standards of Objectivity:</u> There shall be no personal criticism of the author. Reviewers should express their views clearly with supporting arguments, and reviews should be conducted objectively.

<u>Acknowledgment of Sources:</u> Authors should cite relevant references and corresponding citations if any statement in the submitted paper had been previously published or reported elsewhere. Reviewers should identify relevant published work that the authors have not cited. If a reviewer finds any substantial similarity or overlap between the submitted manuscript and any other published works, s/he should inform the Chief Editor/Associate Editors.

<u>Conflict of Interest:</u> In any reviewers find that the submitted manuscript has conflicts of interest resulting from competitive, collaborative, or other relationships or connections with any of the authors, companies, or institutions, s/he should not review that manuscripts and notify the Chief Editor/Associate Editors prompt.

DUTIES OF AUTHORS

<u>Reporting Standards:</u> Authors of papers of original research should present an accurate account of the work performed and an objective discussion of its significance. Underlying data should be represented accurately in the paper. A manuscript should contain sufficient detail and references to permit others to replicate the work. Fraudulent or knowingly inaccurate statements constitute unethical behavior and are unacceptable.

<u>Data Access and Retention</u>: Authors may be asked to provide the raw data in connection with a paper for editorial review and should be prepared to provide such data for public access or access to the journal's readers.

<u>Originality and Plagiarism:</u> The authors should ensure that they have written entirely original works. If the authors have used the work and words of others, this must be appropriately cited or quoted. All papers published by the International Journal of GEOMATE are committed to publishing only original material, i.e., material that has neither been published elsewhere nor is under review elsewhere. The paper that is found to have been plagiarized from a manuscript by other authors, whether published or unpublished, will incur plagiarism sanctions.

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

STATEMENT ON PUBLICATION ETHICS AND PUBLICATION MALPRACTICE (2/2)

<u>Acknowledgment of Sources:</u> Proper acknowledgment of the work of others must always be given. Authors should cite publications that have been influential in determining the nature of the reported work.

<u>Manipulation of Citations</u>: Submitted papers that are found to include citations whose primary purpose is to increase the number of citations to a given author's work or to articles published in a particular journal will incur sanctions for manipulating citations.

Falsification and Fabrication. Submitted papers that are found to have either falsified or fabricated numerical/experimental results, including the manipulation of images, will incur data fabrication and falsification sanctions.

<u>Authorship:</u> The authorship of a paper should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where there are others who have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors.

<u>Scientific Contribution</u>: All listed authors must have made a significant scientific contribution to the research in the manuscript and approved all its claims. It is important to list everyone who made a significant scientific contribution, including students and laboratory technicians

<u>Corresponding Author</u>: Corresponding Author is the author responsible for communicating with the journal for publication. The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included in the paper. All co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

Acknowledgment of Funding Sources: Funding sources for the research reported in the manuscript should be duly acknowledged after the conclusion and before the list of references.

<u>Disclosure and Conflicts of Interest:</u> All sources of financial support for the project or any substantive conflict of interest that might be interpreted to influence the results of the paper should be disclosed.

Fundamental Errors in Published Works: The author must promptly notify the Chief Editor/Associate Editor if s/he discovers a significant error or inaccuracy in their published work to retract or correct the paper.

<u>Redundant, Concurrent, or Multiple Publications:</u> An author should not, in general, publish manuscripts describing essentially the same research in more than one journal or primary publication. Manuscripts that are found to have been published elsewhere, or to be under review elsewhere, will incur duplicate submission/publication sanctions. If authors have used their own previously published work or work that is currently under review as the basis for a submitted manuscript, they are required to cite the previous work and indicate how their submitted manuscript offers novel contributions beyond those of the previous work. Submitting the same manuscript to more than one journal concurrently constitutes unethical publishing behavior and is unacceptable. Redundant publications involve the inappropriate division of study outcomes into several articles.

SANCTIONS

In the event that there are documented violations of any of the above-mentioned policies in any journal, regardless of whether or not the violations occurred in a journal published by GEOMATE, the following sanctions will be applied:

- ${\bf \cdot} Immediate\ rejection\ of\ the\ infringing\ manuscript.$
- •Immediate rejection of every other manuscript submitted to GEOMATE by any of the authors of the infringing manuscript.
- •The prohibition against all of the authors for any new submissions to GEOMATE, either individually or in combination with other authors of the infringing manuscript, as well as in combination with any other authors. This prohibition will be imposed for a minimum of five years.
- •Prohibition against all of the authors from serving on the Editorial Board of the International Journal of GEOMATE

 In cases where the violations of the above policies are found to be particularly outrageous, the publisher reserves the right to impose additional sanctions beyond those described above.

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

Volume 22, Issue 93

A COMPARISON BETWEEN EXPERIMENTAL AND NUMERICAL STUDIES FOR REINFORCED CONCRETE SLABS UNDER BLAST LOADING Duy Hoa Pham and Ba Danh Le	
MANUFACTURE OF CONCRETE PAVER BLOCK USING WASTE MATERIALS AND BY-PRODUCTS: A REVIEW Habib Musa Mohamad, Nurmin Bolong, Ismail Saad, Lillian Gungat, Janus Tioon, Rosman Pileh and Mark Delton	9-19
HORIZONTAL MOVEMENT OF PILE FOUNDATION DUE TO COMBINED LOADS Sumiyati Gunawan, Niken Silmi Surjandari , Bambang Setiawan and Yusep Muslih Purwana	20-27
DEVELOPMENT OF SOIL TYPE REFERENCE OF METROPOLITAN MANILA USING GENETIC ALGORITHM Jonathan R. Dungca and Izzhar Christian P. Sumagaysay	28-35
TEMPORAL CHANGES IN THE INDOOR RADON CONCENTRATION AS AN EARTHQUAKE PRECURSOR Jae Wook Kim, Han Young Joo, Young Seo Kim, So Yun Jeong and Joo Hyun Moon	36-43
AN IN SITU VOLCANIC GASEOUS EMISSIONS CONCENTRATION MEASUREMENT SYSTEM: A CASE STUDY FOR WELIRANG VOLCANO, MALANG, INDONESIA Arinto Yudi Ponco Wardoyo, Hari Arief Dharmawan, Muhammad Nurhuda, Arif Budianto, and Azarine Aisyah Widhowati	44-51
OFF-CENTER TETRAHEDRAL WEDGES John Victor Smith	52-59
SOIL RETENTION TESTS FOR DETERMINING DISPERSION OF CLAYEY SOILS Saad Farhan Ibrahim Alabdullah, Yar Hassab, Zaman Teama, and Suha Aldahwi	60-66
METROPOLITAN MANILA SEISMIC HAZARD MAP USING MIDORIKAWA & HORI SITE AMPLIFICATION MODEL Jonathan R. Dungca and Mariamae Francia G. Montejo	67-74
FLEXURAL BEHAVIOR OF RC COMPOSITE BEAMS WITH ULTRAHIGH PERFORMANCE FIBER REINFORCED CONCRETE LAYER USING FINITE ELEMENT MODELING Hany A. Dahish and Mudthir Bakri	75-82
OPTIMAL COST OF SLOPE STABILIZATION WITH RETAINING WALL Fathol Bari, Julita Andrini Repadi, Andriani, Febrin Anas Ismail and Abdul Hakam	83-90
COMPRESSIBILITY AND STRENGTH DEVELOPMENT OF SOFT SOIL BY POLYPROPYLENE FIBER Khalid W. Abd Al-Kaream , Mohammed Y. Fattah, Mudhafar K. Hameedi	91-97
INFLUENCE OF SALT DISSOLUTION RATE ON THE HYDRAULIC CONDUCTIVITY OF SABKHA AND DUNE SAND ARID SOIL DEPOSIT SAMPLES FROM KUWAIT Fahad A. Al-Otaibi	98-105
FLOOD DAMAGE ASSESSMENT: A REVIEW OF MULTIVARIATE FLOOD DAMAGE MODELS Sumiliana Sulong and Noor Suraya Romali	106-113
INFLUENCE OF PREFABRICATED FOAM CONCRETE AS INFILL WALL ON THE STRENGTH DUE TO CYCLIC LOADING A. Arwin Amiruddin, Herman Parung, M. W. Tjaronge, Rita Irmawaty, Mansyur and M. Tumpu	114-121

(Geotechnique, Construction Materials & Environment) ISSN: 2186-2982(Print), 2186-2990(Online)

Volume 22, Issue 94

SOURCE EXTRACTION OF ROCKFALL BY MICROTOPOGRAPHY HIGHLIGHT MAP VIA HIGH-DENSITY AERIAL LASER SURVEY Koki Sakita, Teruyuki Kikuchi and Satoshi Nishiyama	
SLOPE DEFORMATION MONITORING USINGWIRELESS SENSOR NETWORK AND EVALUATION OF MECHANICAL STABILITY BY FDM SIMULATION Satoshi Sugimoto and Yoichi Ishizuka	13-20
GROUNDWATER FLUORIDE HAZARD ZONATION IN THE VOLCANOGENIC POLLUTED AREA, EAST JAVA, INDONESIA Dhandhun Wacano, Minoru Yoneda, Lutfia Isna Ardhayanti, Suphia Rahmawati, Ihsan Diyahulhaq Fadhlurahman, Mawarti Sekar Ratri Nastiti and Auniatul Aulia	21-28
SPATIAL DISTRIBUTION OF VS30 BASED ON MASW AND MICROTREMOR INVERSION IN GUNUNGKIDUL, YOGYAKARTA, INDONESIA Wijayanto, Djati Mardiatno, Daryono, Udo Nehren, Muh Aris Marfai and Sigit Pramono	29-38
SEISMIC FRAGILITY FUNCTION FOR SINGLE STOREY MASONRY WALL RC BUILDING IN PADANG CITY, INDONESIA Eka Juliafad, and Hideomi Gokon	39-46
BEHAVIOR OF REINFORCED SAND SLOPE WITH A SOFT POCKET— EXPERIMENTAL AND NUMERICAL STUDY Mostafa Abd Ellatif Elsawwaf , Waseim Rajab Azzam and Engy Mohamed Kassem	47-58
ASSESSING BENTHIC ANIMAL AND WATER PLANT USE IN ESTIMATING RIVER AL AND CR CONTAMINATION IN THE KINOKAWA RIVER CATCHMENT Takuma Kubohara and Hiroyuki Ii	59-65
PREDICTION OF SURFACE SETTLEMENT DUE TO TWIN TUNNEL CONSTRUCTION IN SOFT GROUND OF HANOI METRO LINE 03 Thai Do Ngoc, Kien Dang Van, Vi Pham Van and Quang Nguyen Van	66-72
LATERITE GRAINS AS A LOW-COST ADSORBENT TO TREAT HEAVY METAL-CONTAMINATED WATER: A REVIEW Arachchillage Buddhika Priyadarshani Bandara and Ken Kawamoto	73-82
SANDSTONE RESERVOIR DELINEATION USING MACHINE LEARNING-BASED SPECTRAL ATTRIBUTE ANALYSIS IN "G" FIELD JAMBI SUB-BASIN, SOUTH SUMATRA BASIN Gabriella Eka Putri, Abdul Haris and Muhammad Rizqy Septyandy	83-92
TOPOGRAPHY INDUCED STRESS AND ITS INFLUENCE ON TUNNEL EXCAVATION IN HARD ROCKS – A NUMERICAL APPROACH Wahid Ali, Hafeezur Rehman, Rini Asnida Abdullah, Qiang Xie and Yuxin Ban	93-101
SLOPE STABILITY AND SOIL LIQUEFACTION ANALYSIS OF EARTH DAMS WITH A PROPOSED METHOD OF GEOTEXTILE REINFORCEMENT Samar Abdulhameed Aude, Nabeel Shakir Mahmood, Sadeq Oleiwi Sulaiman, Hasan Hussain Abdullah and Nadhir Al Ansari	102-112
READINESS ANALYSIS OF PUBLIC BUILDINGS IN PADANG CITY FOR TSUNAMI TEMPORARY EVACUATION SHELTER Taufika Ophiyandri, Bambang Istijono, Benny Hidayat and Rezko Yunanda	113-120
STUDY OF DISTANCE AND NUMBER OF REBARS ON VELOCITY MEASUREMENT USING NON-DESTRUCTIVE TEST Christin Remayanti Nainggolan, Indradi Wijatmiko, Hendro Suseno and Ananda Insan Firdausy	121-127
INFLUENCE OF FREEZING AND THAWING CONDITIONS AT INITIAL AGE ON THE STRENGTH DEVELOPMENT OF MORTARS Peter Kaba, Shushi Sato, Masahiro Yamamoto and Keikichi Takahashi	128-134
OPTIMIZATION OF COMPRESSIVE STRENGTH OF WASTED SOFT DRINK CAN FIBER NON-LOAD BEARING CONCRETE HOLLOW BLOCKS Johnson P. Sambrano and Gilford B. Estore	135-142