LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	The relationship of physical and mineralogical properties and geochemical compositions of limestone and its implications to the quality as cement raw material in Gunem District, Rembang Regency, Central Java		
Jumlah Penulis	:	3 Orang (T Winarno, **J Marin** and Nurjayanti)		
Status Pengusul	:	Penulis ke-2		
Identitas Prosiding	:	a. Judul Prosiding	:	International Conference on Geological Engineering and Geosciences
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2021, Yogyakarta, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/851/1/012028
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/851/1/012028/pdf

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	2,5	2,5	2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	8,5	8,5	8,5
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	8	8	8
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	8,5	8,5	8,5
Total = (100%)	**27,5**	**27,5**	**27,5**
Nilai Pengusul = (40% x 27,5)/2 = 5,5			

Semarang, 9 Juni 2022

Reviewer 2

Dr. Dian Agus Widiarso, ST, MT
NIP. 197608122010121002
Unit Kerja : Teknik Geologi FT UNDIP

Reviewer 1

Dr.rer.nat. Ir. Thomas Triadi Putranto, S.T., M.Eng., IPU
NIP. 197712112005011002
Unit Kerja : Teknik Geologi FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	The relationship of physical and mineralogical properties and geochemical compositions of limestone and its implications to the quality as cement raw material in Gunem District, Rembang Regency, Central Java		
Jumlah Penulis	:	3 Orang (T Winarno, **J Marin** and Nurjayanti)		
Status Pengusul	:	Penulis ke-2		
Identitas Prosiding	:	a. Judul Prosiding	:	International Conference on Geological Engineering and Geosciences
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2021, Yogyakarta, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/851/1/012028
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/851/1/012028/pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		8,5
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8,5
Total = (100%)	**30,00**		**27,5**
Nilai Pengusul = (40% x 27,5)/2 = 5,5			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
   Paper sudah disusun secara sistematis, dari mulai abstrak, pendahuluan, metodologi, pembahasan, kesimpulan hingga daftar pustaka. Pendahuluan sudah memuat latar belakang dan permasalahan, metodologi yang digunakan sudah tertuang secara jelas, pembahasan berdasarkan data-data yang lengkap. Daftar pustaka maupun sitasi dituliskan dengan kaidah yang baku.

2. **Ruang lingkup dan kedalaman pembahasan:**
   Tulisan sudah sesuai dengan bidang Teknik Geologi yaitu membahas mengenai hubungan antara mineralogi dan geokimia batugamping serta kualitasnya sebagai bahan baku semen. Sehingga ruang lingkup tulisan sudah sesuai dengan bidang keahlian penulis. Pembahasan berdasarkan dari data yang lengkap, terperinci secara baik. Sehingga data-data tersebut dapat dianalisis dan diambil interpretasi yang sesuai. Pembahasan dilakukan secara mendalam sehingga menghasilkan kesimpulan yang menjawab tujuan dan permasalahan.

3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Metode yang digunakan merupakan metode pengambilan data lapangan serta analisis laboratorium. Data lapangan yang diambil meliputi data geologi dan sampel batuan. Analisis laboratorium yang dilakukan antara lain yaitu analisis petrografi dan geokimia X-ray fluorescence. Data lapangan yang diambil maupun analisis laboratorium sudah sangat cukup untuk membahas tujuan dan permasalahan yang telah dirumuskan sesuai standar yang digunakan dalam pemecahan masalah.

4. **Kelengkapan unsur dan kualitas terbitan:**
   Tulisan merupakan Prosiding Internasional Terindeks Scopus yaitu pada ICGoES 2021 yang diterbitkan pada IOP Publishing. Sehingga kualitas terbitan sudah dianggap cukup bagus dan layak dipublikasikan di skala internasional.

Semarang, 9 Juni 2022

Reviewer 1

Dr.rer.nat. Ir. Thomas Triadi Putranto, S.T., M.Eng., IPU
NIP. 197712112005011002
Unit Kerja : Teknik Geologi FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	The relationship of physical and mineralogical properties and geochemical compositions of limestone and its implications to the quality as cement raw material in Gunem District, Rembang Regency, Central Java		
Jumlah Penulis	:	3 Orang (T Winarno, **J Marin** and Nurjayanti)		
Status Pengusul	:	Penulis ke-2		
Identitas Prosiding	:	a. Judul Prosiding	:	International Conference on Geological Engineering and Geosciences
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2021, Yogyakarta, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/851/1/012028
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/851/1/012028/pdf

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		8,5
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8,5
Total = (100%)	**30,00**		**27,5**
Nilai Pengusul = (40% x 27,5)/2 = 5,5			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
   Seminar internasional ICGoES dihadiri oleh beberapa keynote speaker tingkat internasional serta presenter dari beberapa negara. Berbagai paper dipublikasikan tapi masih relevan dengan tema seminar. Paper ini sudah memiliki kelengkapan yang baik dengan unsur-unsur dari abstrak, latar belakang, metode penelitian, pembahasan dan kesimpulan.

2. **Ruang lingkup dan kedalaman pembahasan:**
   Ruang lingkup dari penelitian sudah relevan dengan lingkup publikasi dari seminar. Kedalaman pembahasan sudah
   memberikan gambaran tentang bagaimana kualitas batugamping sebagai bahan baku industry semen sangat bergantung pada karakteristik mineralogi dan kimia batuannya.

3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Riset yang dilakukan menggunakan metode studi pustaka, observasi lapangan, analisis laboratorium. Metode yang digunakan sudah sesuai yaitu dengan pengamatan geologi di lapangan, penentuan mineral dan jenis batuan menggunakan analisis petrografi, dan analisis geokimia XRF untuk mengetahui komposisi oksida utama batuan.

4. **Kelengkapan unsur dan kualitas terbitan:**
   Kualitas terbitan masuk web of conference terindeks scopus yaitu IOP Publishing. Sehingga kualitas terbitan juga berskala internasional.

Semarang, 9 Juni 2022

Reviewer 2

Dr. Dian Agus Widiarso, ST, MT
NIP. 197608122010121002
Unit Kerja : Teknik Geologi FT UNDIP

CERTIFICATE

— of appreciation —

UNIVERSITAS GADJAH MADA
FACULTY OF ENGINEERING
DEPARTMENT OF GEOLOGICAL ENGINEERING

CWMD
Center for Water Cycle, Marine Environment and Disaster Management
Kumamoto University

THIS CERTIFICATE IS AWARDED TO

Tri Winarno

in recognition of his/her active involvement as **Presenter** in the event of

ICGoES
International Conference on
Geological Engineering and Geosciences

"Big City Challenges on Geo-hazard and Geo-resources"

Held by Department of Geological Engineering, Faculty of Engineering,
Universitas Gadjah Mada, on 16-18 March 2021

Yogyakarta, 18 March 2021

Dr.Eng. Ir. Agung Setianto, S.T., M.Si., IPM.
Head of Department
Department of Geological Engineering
Faculty of Engineering, Universitas Gadjah Mada, Indonesia

Hendy Setiawan, S.T., M.Eng., Ph.D.
Conference Chair
International Conference on Geological Engineering and Geosciences

SUPPORTED BY:

SPONSORED BY:

MEDIA PARTNERS:

IOP Conference Series: Earth and Environmental Science • *Open Access* • Volume 851, Issue 1 • 25 October 2021 • Article number 012028 • 2021 International Conference on Geological Engineering and Geosciences, ICGoES 2021 • Yogyakarta, Virtual • 16 March 2021 through 18 March 2021 • Code 173383

Document type
Conference Paper • *Bronze Open Access*

Source type
Conference Proceedings

ISSN
17551307

DOI
10.1088/1755-1315/851/1/012028

View more

The relationship of physical and mineralogical properties and geochemical compositions of limestone and its implications to the quality as cement raw material in Gunem District, Rembang Regency, Central Java

Winarno T. ; Marin J.; Nurjayanti

Save all to author list

[a] Geological Engineering Department, Universitas Diponegoro, Jalan Prof. Soedarto SH, Tembalang, Central Java, Semarang, 50275, Indonesia

Abstract

The increasing development in Indonesia today will require higher portland cement consumption. Good quality cement comes from good quality raw materials. A research was conducted in the Gunem area, Rembang, Central Java which is a limestone quarry of PT Semen Indonesia. The research aims to determine physical properties of the limestone and determine the percentage of CaO and MgO and determine the quality of limestone as raw material for Portland cement. This research uses several methods, which are megascopic analysis, petrographic analysis and XRF (X-Ray Fluorescence) analysis. The results shows that wackestone has the lowest content of CaO and the highest content of MgO, while packstone and grainstone have the highest content of CaO and the lowest content of MgO.

Source details

IOP Conference Series: Earth and Environmental Science

Scopus coverage years: from 2010 to Present

Publisher: Institute of Physics Publishing

ISSN: 1755-1307 E-ISSN: 1755-1315

Subject area: Earth and Planetary Sciences: General Earth and Planetary Sciences

Environmental Science: General Environmental Science

Source type: Conference Proceeding

CiteScore 2021
0.6

SJR 2021
0.202

SNIP 2021
0.409

View all documents > | Set document alert | Save to source list | Source Homepage

CiteScore | CiteScore rank & trend | Scopus content coverage

¡ Improved CiteScore methodology

CiteScore 2021 counts the citations received in 2018-2021 to articles, reviews, conference papers, book chapters and data papers published in 2018-2021, and divides this by the number of publications published in 2018-2021. Learn more >

CiteScore 2021

$$0.6 = \frac{45{,}063 \text{ Citations } 2018 - 2021}{74{,}324 \text{ Documents } 2018 - 2021}$$

Calculated on 05 May, 2022

CiteScoreTracker 2022

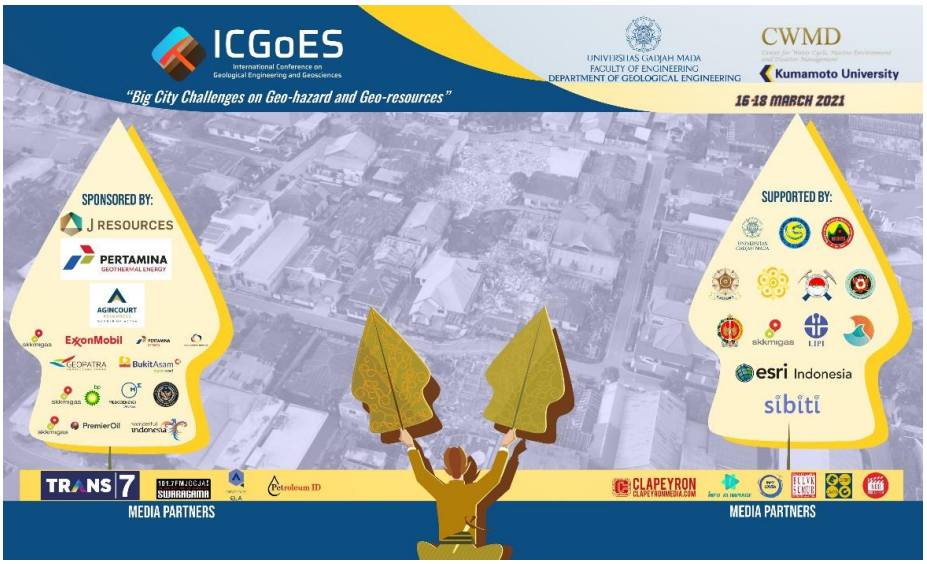
$$0.5 = \frac{37{,}268 \text{ Citations to date}}{68{,}146 \text{ Documents to date}}$$

Last updated on 05 May, 2022 • Updated monthly

CiteScore rank 2021

Category	Rank	Percentile
Earth and Planetary Sciences └ General Earth and Planetary Sciences	#153/191	20th
Environmental Science └ General Environmental	#191/228	16th

View CiteScore methodology > | CiteScore FAQ > | Add CiteScore to your site



Preface
International Conference on Geological Engineering and Geosciences
ICGoES 2021

International Conference on Geological Engineering and Geosciences (ICGoES 2021) presents '*Big City Challenges on Geohazard and Georesources*' as the main conference theme. This conference provides a forum for international researchers, academics, practitioners, policymakers and related communities to discuss, share and exchange their latest research and experience progress associated with the field of geological engineering and geosciences. In addition, this conference also aimed to address a common issue of georesources sustainability, renewable energy sources and climate change-related geohazard and disasters in the development of urban areas. Certainly, those issues require an integrated approach and collaborative efforts in particular to build and enhance resilient cities in the respective countries.

ICGoES 2021 provides opportunities to all participants in expanding their network, as an important step to achieve a coordinated approach and interdisciplinary collaboration at the regional and international level in the field of geological engineering and geosciences. We invited research papers on the topic of geohazard and georesources; but not limited to research papers, recent cases, and in-depth reviews of basic geology, applied geology, geophysics, geochemistry, engineering geology, geo-environmental engineering and any related geoscience.

Due to the COVID-19 pandemic situation during the year, it is not easy to hold a regular conference in a specific place. There were travel restrictions and regulations from the World Health Organization and the Indonesian Government to be complied with to cut the spread of the COVID-19 virus in terms of physical distancing. In this uncertain condition, the ICGoES should not be postponed since participants have arranged to address their research findings at this conference. Thus, the committees of ICGoES have decided to switch the conference format into a virtual meeting using ZOOM.

The ICGoES 2021 is held online from 16 to 18 March 2021 and managed by the Department of Geological Engineering, Faculty of Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia. This virtual international conference invites reputable researchers from all over the world such as Japan, Germany, USA, France, Vietnam, Thailand, Myanmar, Malaysia, Laos, Nepal, UK and the Czech Republic, as our scientific committee and reviewers. As the call of full paper was announced on 15 October 2020, up to 19 February 2021, this conference has attracted more than 70 papers and posters submitted to the EasyChair Submission System. After being reviewed, the scientific committee has selected around 63 papers and posters from diverse countries such as Japan, Germany, Myanmar, France, and Indonesia, to be presented at this conference.

During the plenary session of the conference, we were pleased to welcome five distinguished experts to share their experience and present their insightful keynote speech, that is:

- Prof. Junji Kiyono from Kyoto University, Japan with presentation title '*Toward the construction of a long period earthquake early warning system in Bangkok*',
- Prof. Dwikorita Karnawati, Head of Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), Indonesia with presentation title '*Earthquake and Tsunami Mitigation in Yogyakarta International Airport, Indonesia*',
- Prof. J. Ramon Arrowsmith from Arizona State University, USA with presentation title '*Sharpening our view of active faults*',

- Prof. Koichiro Watanabe from Kyushu University, Japan with presentation title '*Twenty years research collaboration on georesources between UGM and Kyushu University with expansion to Asia-Africa georesources research network*', and
- Prof. Thomas R. Rüde from RWTH Aachen University, Germany with presentation title '*Water for Big Cities – the challenge between local wells and centralized water supply from rural areas.*'

Following the plenary sessions, we held panel discussions with Geohazard Focus of 'The role of academics in building resilient cities' on the first day, and Georesources Focus of 'Academic collaboration for sustainable development of georesources' on the third/last day of the conference. We divided into 15 parallel sessions for participants to present their research covering the following topics: methods and advances in petroleum and coal geology (2 sessions), anthropogenic geology and environmental degradation (1 session), methods and advances in economic geology (1 session), seismic hazards (1 session), advances in geology and geomorphology (1 session), methods and advances in applied geophysics (1 session), applied geophysics for urban areas (1 session), advance methods in hydrogeology (2 sessions), advances in hazard mitigation (1 session), methods in petrology and petrogenesis (1 session), progress in unconventional georesources (1 session), progress in volcanology and geothermal (1 session), and machine learning in geological engineering and geosciences (1 session). Each parallel session consisted of 4-5 presenters, 1 moderator, 1 timekeeper and 1 technician. An allocation time of 12 minutes maximum for presentation followed by 3 minutes for Q&A session was given to each presenter. Presenters were allowed to submit the recording of the presentation 2 days before the actual schedule if they were not sure about the internet connection. However, during the record is play, the presenter must be still attending live for the following Q&A session.

The ICGoES 2021 virtual conference was technically run very well and smoothly via ZOOM online system by Universitas Gadjah Mada, attended by more than 185 participants in total. No major technical issue from the host side, keynote speakers, as well as participants during the conference. Most of the participants did their presentations live, engaged throughout plenary, panel discussion and parallel sessions. Feedbacks, comments and questions from participants in all sessions were very positive and constructive. The post-conference in-depth review was carried out to refine all papers. Authors were asked to revise their paper according to suggestions and comments from reviewers and considering all constructive inputs and feedbacks during the conference. About 52 papers received final decision to be accepted and submitted for publication into the IOP Conference Series: Earth and Environmental Science.

We would like to acknowledge all of those who supported the ICGoES 2021. We would like to express our sincere gratitude to all scientific committees who made in-depth reviews of full papers, to sponsors who give their support, and to each individual and institutional help that is very important for the success of this conference. Thank you to all the organizing committee and related parties who built this virtual conference feasible and successful.

We are hopeful that the proceedings will serve as important references which will lead not only to scientific research and academic purposes but also in practical, industry and policy aspects associated with the field of geological engineering and geosciences.

Best regards,
Hendy Setiawan, Ph.D.
Chairman of the ICGoES 2021
Universitas Gadjah Mada

List of Committees

Editorial Board
Prof. Tsutomu Sato (Hokkaido University, Japan)
Univ.-Prof. Dr. Klaus Reicherter (RWTH Aachen University, Germany)
Prof. Yasuo Miyabuchi (Kumamoto University, Japan)
Prof. Dr. Ir. Subagyo Pramumijoyo, DEA. (Universitas Gadjah Mada, Indonesia)
Prof. Ir. Teuku Faisal Fathani, S.T., M.T., Ph.D. IPU. (Universitas Gadjah Mada, Indonesia)
Prof. Dr. Myo Thant, University of Yangon, Myanmar
Dr. Patrick Lachassagne, Université de Montpellier, France
Pipat Laowattanabandit, Ph.D., Chulalongkorn University, Thailand
Dr. Nguyen Bach Thao, Hanoi University of Mining and Geology, Vietnam
Assoc. Prof. Ir. Dr. Mohd Ashraf Mohamad Ismail, Universiti Sains Malaysia, Malaysia

Advisory Boards
Prof. Dr. Ir. Subagyo Pramumijoyo, DEA. (Universitas Gadjah Mada, Indonesia)
Ir. Muhammad Waziz Wildan, M.Sc., Ph.D. (Universitas Gadjah Mada, Indonesia)
Dr.rer.nat. Ir. Heru Hendrayana, IPU. (Universitas Gadjah Mada, Indonesia)
Dr. Ir. Agung Harijoko, S.T., M.Eng., IPM. (Universitas Gadjah Mada, Indonesia)

Scientific Committee
Prof. Tsutomu Sato (Hokkaido University, Japan)
Prof. Toshifumi Igarashi (Hokkaido University, Japan)
Prof. Klaus Reicherter (RWTH Aachen University, Germany)
Prof. Dr. Ir. Subagyo Pramumijoyo, DEA. (Universitas Gadjah Mada, Indonesia)
Prof. Ir. Teuku Faisal Fathani, S.T., M.T., Ph.D., IPU. (Universitas Gadjah Mada, Indonesia)
Prof. Amanda Clarke (Arizona State University, USA)
Prof. Dr. Myo Thant (University of Yangon, Myanmar)
Prof. Dr. Su Su Kyi (University of Yangon, Myanmar)
Prof. Yasuo Miyabuchi (Kumamoto University, Japan)
Prof. Masahide Matsumura (Kumamoto University, Japan)
Dr. Patrick Lachassagne (University of Montpellier, France)
Assoc.Prof. Dr. Ir. Mohd Ashraf Mohamad Ismail (Universiti Sains Malaysia)
Dr. Nguyen Bach Thao (Hanoi University of Mining and Geology, Vietnam)
Dr. Pipat Laowattanabandit (Chulalongkorn University, Thailand)
Dr. Phetnakhone Xaixongdeth (National University of Laos)
Dr. Rishi Parajuli (University of Bristol, UK)
Dr. Afikah Rahim (Universiti Teknologi Malaysia)
Dr. Basanta Raj Adhikari (Tribhuvan University, Nepal)
Dr. Jan Klimeš (The Czech Academy of Sciences, Czech Republic)
Dr. Has Baator (Asia Air Survey, Co. Jp., Japan)
Claude Thielen, M.Sc. (RWTH Aachen University, Germany)
Sara Pena Castellnou, M.Sc. (RWTH Aachen University, Germany)
Dr. Ir. Sugeng Sapto Surjono, S.T., M.T., IPU, ASEAN.Eng. (Universitas Gadjah Mada, Indonesia)
Dr.rer.nat. Ir. Wayan Warmada, IPM. (Universitas Gadjah Mada, Indonesia)
Dr. Ir. Ferian Anggara, S.T., M.Eng. IPM. (Universitas Gadjah Mada, Indonesia)
Dr.rer.nat. Wiwit Suryanto. (Universitas Gadjah Mada, Indonesia)

NOTICE: Ukraine: Read IOP Publishing's statement.

Table of contents

Volume 851

2021

Previous issue Next issue

International Conference on Geological Engineering and Geosciences 16 - 18 March 2021, Yogyakarta, Indonesia

Accepted papers received: 03 September 2021
Published online: 25 October 2021

Open all abstracts

Preface

Seismic Hazard

A P Astuti, N S Arifuddin, M I Tahir, E M Elsera and M F I Massinai

+ Open abstract View article PDF

Advances in Hazard Mitigation

OPEN ACCESS 012005

Active tectonics of the Yogyakarta area (Central Java, Indonesia): preliminary findings obtained from a tectonic-geomorphic evaluation

S Pena-Castellnou, V Steinritz, G I Marliyani and K Reicherter

+ Open abstract View article PDF

OPEN ACCESS 012006

Spatial modeling of tsunami for evacuation planning in Ciletuh Bay, Sukabumi, West Java

Dinda Z Arifah, Supriatna and Ratna Saraswati

+ Open abstract View article PDF

OPEN ACCESS 012007

GIS-based study of tsunami risk in the Special Region of Yogyakarta (Central Java, Indonesia)

V Steinritz, S Pena-Castellnou, G I Marliyani and K Reicherter

+ Open abstract View article PDF

Advances in Geomorphology and Geology

OPEN ACCESS 012008

The physical characteristics of the small volcanic island of Tidore and Hiri to support disaster management in Maluku

M A Marfai, B W Mutaqin, D S Hadmoko, H Wijayanti, F Lavigne and A Faral

+ Open abstract View article PDF

OPEN ACCESS 012009

Geological structures control on the streamflow orientation pattern in the Cijulang area and its surroundings, Garut, West Java, Indonesia

A Setianto, G Yugamaris, I W Warmada and P Bangun

+ Open abstract View article PDF

OPEN ACCESS 012010

Effect of opening depth of oblique weir with an opening on river bed morphology

H Une, T Ohmoto and K Kuranaga

+ Open abstract View article PDF

Advance Methods in Hydrogeology

OPEN ACCESS 012011

Thornthwaite and Mather water balance method in Indonesian Tropical Area

H Hendrayana, M Widyastuti, I A Riyanto, A Nuha, M Y Widasmara, N Ismayuni and I N Rachmi

+ Open abstract View article PDF

OPEN ACCESS 012012

Comparison of three recurrent neural networks for rainfall-runoff modelling at a snow-dominated watershed

OPEN ACCESS 012028

The relationship of physical and mineralogical properties and geochemical compositions of limestone and its implications to the quality as cement raw material in Gunem District, Rembang Regency, Central Java

T Winarno, J Marin and Nurjayanti

+ Open abstract View article PDF

OPEN ACCESS 012029

Petrogenesis of Botorubuh igneous rocks at Gunungkidul: A preliminary study for paleomagmatism phenomenon in the southern beach of Yogyakarta - Indonesia

Y K Sari, A D Titisari, I W Warmada and F Hakim

+ Open abstract View article PDF

OPEN ACCESS 012030

Textural and mineralogical characteristics of sand grains of Oyo River Deposit at Yogyakarta, Indonesia: implications on sedimentation and origin

I F Lubis, A D Titisari and N S Irsani

+ Open abstract View article PDF

OPEN ACCESS 012031

Preliminary study of the origin of mafic mineral megacrysts in volcanic rocks in the southwestern part of Kulon Progo Mountains, Indonesia

L Aryani, F Hakim, A D Titisari, G Nugraha and C A Mahardika

+ Open abstract View article PDF

Machine Learning in Geological Engineering and Geosciences

OPEN ACCESS 012032

Reconstruction of groundwater level at Kumamoto, Japan by means of deep learning to evaluate its increase by the 2016 earthquake

K Yokoo, K Ishida, T Nagasato, Y Kawagoshi and H Ito

+ Open abstract View article PDF

OPEN ACCESS 012033

Effects of the spatial and temporal resolution of meteorological data on the accuracy of precipitation estimation by means of CNN

T Nagasato, K Ishida, K Yokoo, M Kiyama and M Amagasaki

+ Open abstract View article PDF

OPEN ACCESS 012034

Identification of Paleotsunami Deposits Using XRF and Artificial Intelligence Methods on the Southern Coast of Lebak, Banten

U Rikhasanah, M R Septyandy and Supriyanto

+ Open abstract View article PDF

OPEN ACCESS 012035

Artificial intelligence approach to depositional facies characterization based on electrical log data

G E Putri, A Haris and M R Septyandy

+ Open abstract View article PDF

The relationship of physical and mineralogical properties and geochemical compositions of limestone and its implications to the quality as cement raw material in Gunem District, Rembang Regency, Central Java

T Winarno[1*], J Marin[1] and Nurjayanti[1]

[1]Geological Engineering Department, Universitas Diponegoro, Jalan Prof. Soedarto SH, Tembalang, Semarang, Central Java, Indonesia 50275.
*E-mail: tri.winarno@live.undip.ac.id

Abstract. The increasing development in Indonesia today will require higher portland cement consumption. Good quality cement comes from good quality raw materials. A research was conducted in the Gunem area, Rembang, Central Java which is a limestone quarry of PT Semen Indonesia. The research aims to determine physical properties of the limestone and determine the percentage of CaO and MgO and determine the quality of limestone as raw material for Portland cement. This research uses several methods, which are megascopic analysis, petrographic analysis and XRF (X-Ray Fluorescence) analysis. The results shows that wackestone has the lowest content of CaO and the highest content of MgO, while packstone and grainstone have the highest content of CaO and the lowest content of MgO. Packstone and grainstone are classified as high grade for cement raw material, while wackestone is classified as low grade for cement raw material.

1. Introduction

Limestone is one of the raw materials for the cement manufacture, apart from claystone, gypsum, silica, and iron as additives. In the current development era, cement demand has always increased in line with the pace of development throughout Indonesia [1]. Indonesia has enormous limestone potential, which is spread almost throughout the Indonesian archipelago. In general, the potential of limestone in Indonesia based on its geological map is estimated at around 28.678 billion tons [2].

One of the cement factories in Indonesia is located in Rembang, Central Java, i.e., PT Semen Indonesia Tbk. The cement factory is located in the limestone quarry, which is a member of the Paciran Formation. The Paciran Formation consists of brownish and yellowish white limestone, coral texture and has a layer thickness of ± 25 m [3].

The purpose of this research is to determine the physical characteristics and components of limestone in the limestone quarry based on megascopic and petrographic features. This research also aims to determine the chemical composition of limestone in the limestone quarry based on XRF analysis and to determine the relationship between physical and chemical properties of rock samples to determine the limestone's quality in cement manufacture.

Active tectonics of the Yogyakarta area (Central Java, Indonesia): preliminary findings obtained from a tectonic-geomorphic evaluation

S Pena-Castellnou[1*], V Steinritz[1], G I Marliyani[2] and K Reicherter[1]

[1]Neotectonics and Natural Hazards, RWTH Aachen University, Aachen, Germany
[2]Geological Engineering Department, Universitas Gadjah Mada, Yogyakarta, Indonesia
*E-mail: s.pena-castellnou@nug.rwth-aachen.de

Abstract. Throughout the island of Java, several shallow faults located in the vicinity of densely populated areas accommodate the tectonic strain generated by the subduction of the Indo-Australian Plate beneath the Sunda Plate. These faults are characterized by a poor surface geomorphological expression due to the tropical climate that masks paleoseismological evidence making the identification of active faults in this environment challenging. We present preliminary data of a tectonic-geomorphic study that aims to identify and characterize active faults in the province of Yogyakarta (Central Java) as a basis to improve seismic hazard assessment. Here we focus on the Opak fault by describing its geomorphology and structure, using field data and remote sensing-based observations to contribute to the understanding of its geometry, kinematics, and tectonic activity. We show preliminary data supporting the Opak Fault as an active SW-NE transtensional left-lateral strike-slip reactivated normal fault consisting of several parallel fault strands. Although geomorphological expression of active tectonics is poor and diffuse, we found numerous field evidence of active tectonics ranging from tilted Quaternary fluvial terrace risers, triangular facets, and linear valleys to peculiar drainage patterns that allow us to provide evidence of the Holocene activity of the Opak Fault.

1. Introduction

Identification of active tectonics geomorphological features represents a challenge in slowly broad deforming areas with tropical climates like Java. Heavy rainfall and high humidity foster intense weathering, the development of thick tropical soils, high erosion rates, shallow water tables, and thick vegetation covers (including anthropogenic fertile rice fields) that erode and bury faults and their associative geomorphology. Hence, tectonic geomorphology in tropical areas differs from the conceptual models that we are used to, typical from drier climatic contexts where geomorphic markers are well exposed and preserved. Moreover, the tectonic strain on-shore of Java is accommodated by slow slip rate faults with long earthquake recurrence intervals [1], resulting in inherent poor surface expression.

Java forms part of the volcanic arc in the Sunda Plate adjacent to the Sunda trench, where the Indo-Australian Plate subdues at a rate of 7 cm/yr [2] (Figure 1a). Subduction controls Java's current stress field, leading to a north-south maximum stress direction, which has generated E-W trending thrust belts and re-activated SW-NE structures as slow strike-slip faults [3] that accommodate the tectonic strain generated by the deeper subduction mechanism within the volcanic arc. Inherited N-S structural features in the west and central Java were considered inactive because of a lack of recorded seismicity [4]. However, events such as the well-known M_w 6.3 shallow crustal earthquake in May 2006 in the

The physical characteristics of the small volcanic island of Tidore and Hiri to support disaster management in Maluku

M A Marfai[1], B W Mutaqin[1*], D S Hadmoko[1], H Wijayanti[1], F Lavigne[2], and A Faral[2]

[1]Coastal and Watershed Research Group, Faculty of Geography, Universitas Gadjah Mada, Bulaksumur 55281Yogyakarta, Indonesia
[2]Laboratoire de Géographie Physique (LGP), Center National de la Recherche Scientifique (CNRS), Université Paris 1 Panthéon Sorbonne, France
*E-mail: mutaqin@ugm.ac.id

Abstract. This article presents the characteristics of the small islands of Tidore and Hiri, which are vulnerable to the dangers of volcanic eruptions in Indonesia. The physical condition of the area is very important for carrying out a sustainable disaster risk reduction analysis; therefore, climate and topographic data are important to know. The limited availability of data in the study area causes climate data to be obtained from NASA's Earth Science Data Systems (ESDS) and regional topographical presentation of Indonesia's national DEM data. The results show that in the period 2004 to 2014, the temperature in the study area ranged from 292 K to 309 K. The islands of Tidore and Hiri have monthly precipitation between 50 mm to 500 mm.

1. Introduction

As an archipelagic country, Indonesia has the risk of being exposed to complex disasters, both from the sea and land. The various types of hazards that exist cause a high number of vulnerable groups in Indonesia. On the other hand, the level of community preparedness in facing disasters tends to be low [1,2]. Therefore, it requires a spatial arrangement that is in accordance with the characteristics of the local area, both physically, culturally and minimizing the boundaries of an area in order to increase community resilience. Institutionally this has been regulated in Law Number 26 of 2007 concerning Spatial Planning which makes disaster aspects in spatial planning considerations in Indonesia so that disaster-prone areas are the basis for disaster mitigation to improve the safety and comfort of life and community livelihoods. The objective to be achieved from implementing this rule is the creation of disaster management in Indonesia that supports sustainable development and improves the welfare of the Indonesian people.

Every action taken in a disaster analysis must be in accordance with the characteristics of the area, one of which is the characteristics of small islands. Based on the Law of the Republic of Indonesia Number 27 of 2007, a small island is an island with an area of less than or equal to 2,000 $km^{2,}$ including its ecosystem unity. Volcanic eruption disaster management on a small island (e.g., Ternate, Tidore, and Hiri Island) requires more effort than volcanic eruption disaster management on a larger island (e.g., Java, Sumatra, and Sulawesi). This is due to all the limitations that need to be minimized so that small islands can support their communities to become more resilient to disasters. Some of the limitations they have are as limited of space, limited of natural resources, limited of accessibility, vulnerability to natural disasters, vulnerable to ecosystems damage, difficulties in terms of transportation and communication, limited of internet networks, limited of markets, limited of clean water supply, and high dependence on

Effect of opening depth of oblique weir with an opening on river bed morphology

H Une[1*], T Ohmoto[2] and K Kuranaga[3]

[1]Graduate School of Science and Technology, Kumamoto University, Japan
[2]Civil and Environmental Engineering
[3]Graduate School of Science and Technology, Kumamoto University, Japan
*E-mail: 181d9201@st.kumamoto-u.ac.jp

Abstract. In this study, we focused on the fact that an oblique weir with an opening activates the fluidity of the sediment compared with a conventional continuous fixed one and examined the removal function of the sediment deposited upstream of the weir. Experimental results showed that the weir with the opening increased the fluidity of the sediment deposited upstream of the weir and lowered the riverbed. The scouring section upstream of the weir was divided into a gradually varied flow section and a local flow section based on the bed topography. In the gradual flow section, the descent of water level and riverbed increases linearly as the opening depth increases. In addition, it was shown that the local scour shapes upstream and downstream of the weir were similar to each other as a result of normalization on the representative scale of vertical and transverse shapes. By creating the opening of the oblique weir, the magnitude of the downward flow generated near the left bank was reduced from 45% to 34% of the non-open weir.

1. Introduction

Cross-river structures such as dams and weirs have been installed for diversion to main rivers and tributaries, irrigation, water intake such as hydroelectric power generation, water depth maintenance, and salt damage prevention.

However, around these structures have been pointed out geo-environment degradation due to a discontinuity of sediment transport. For example, the flow velocity decreases upstream of the river crossing structure due to backwater. Moreover, river-bed levels rise because sediment transport is interrupted by these structures. On the downstream side of the fixed weir, physical and biological environments disappear and tend to suppress natural disturbance. The riverbed on the downstream side is eroded because the supply of sediment from upstream of the fixed weir is interrupted by the weir.

In order to solve these problems, the authors [1], [2] proposed to create an opening in the weir. The following effects can be expected by providing an opening and approaching a natural river.

1) The dredging cost can be reduced by flowing sediment accumulated in the upstream area of the weir for many years at the time of flooding.
2) Reduction of sediment accumulation on the upstream side leads to a decrease in water level at the time of flooding, and improvement of flood control safety can be expected.
3) Due to sediment transport from upstream, improvement of environmental functions can be expected on the downstream side due to recovery of physical and biological environment and increase of natural disturbance.