



JAMBURA

GEOSCIENCE REVIEW



PUBLISHER

JURUSAN ILMU DAN TEKNOLOGI KEBUMIHAN
UNIVERSITAS NEGERI GORONTALO

Jambura Geoscience Review



English title:

Jambura Geoscience Review

ISSN:

2623-0682, 2656-0380

GICID:

n/d

DOI:

10.34312

Website:

<http://ejurnal.ung.ac.id/index.php/jgeosrev/index> (<http://ejurnal.ung.ac.id/index.php/jgeosrev/index>)

Publisher:

n/d

Country:

ID

Language of publication:

EN ID

Deposited publications: 5 > Full text: 0% | Abstract: 100% | Keywords: 100% | References: 0%

[Issues and contents](#)

[Journal description \(\)](#)

[Details \(\)](#)

[Scientific profile \(\)](#)

[Editorial office \(\)](#)

[Publisher \(\)](#)

[Metrics \(\)](#)

As part of our website we use cookies to provide you with services at the highest level , including in a manner tailored to individual needs . Using the site without changing the settings for cookies results in saving them in your device . You can change cookies' settings any time you want in your web browser. More details in our [Cookies Policy](#)

Jambura Geoscience Review (JGeosREV, P-ISSN: 2623-0682, E-ISSN: 2656-0380) is a peer-reviewed journal published by Department of Earth Science and Technology, Faculty of Mathematics and Natural Science, Universitas Negeri Gorontalo. JGeosREV provides open access to the principle that research published in this journal is freely available to the public to support the exchange of knowledge globally. JGeosREV published two issue articles per year namely January and July. JGeosREV provides a place for academics, researchers, and practitioners to publish scientific articles. The scope of the articles listed in this journal relates to various topics, including: Geology, Geodesy, Geography, Hydrology, Geophysics, Biogeography, Environment, Remote Sensing, Meteorology and Climatology, Geographic Information System. This journal is available in print and online and highly respects the ethics of publication and avoids all types of plagiarism.

Non-indexed in the ICI Journals Master List 2019

Not reported for evaluation

Archival ratings [▶](#)

Citations

Reports 2010-2019

n/d - Number of journal citations

Included auto-citations - n/d

Main page (<http://iml.indexcopernicus.com>)

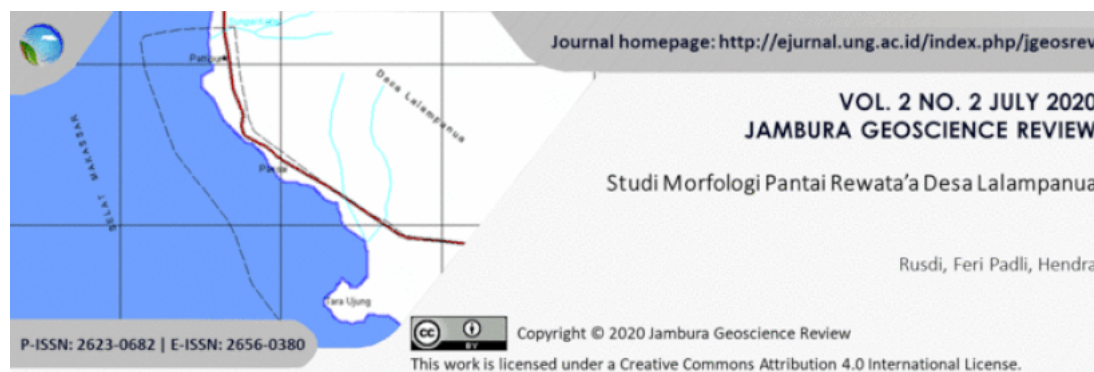
© Index Copernicus 2017



As part of our website we use cookies to provide you with services at the highest level , including in a manner tailored to individual needs . Using the site without changing the settings for cookies results in saving them in your device . You can change cookies' settings any time you want in your web browser. More details in our Cookies Policy

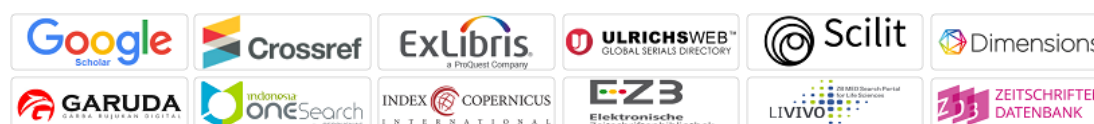
Home > Vol 2, No 2 (2020): Jambura Geoscience Review (JGEOSREV)

Jambura Geoscience Review



Jambura Geoscience Review (JGEOSREV, P-ISSN: 2623-0682, E-ISSN: 2656-0380) is a peer-reviewed journal published by Department of Earth Science and Technology, Universitas Negeri Gorontalo. JGEOSREV provides open access to the principle that research published in this journal is freely available to the public to support the exchange of knowledge globally. JGEOSREV published two-issue articles per year namely January and July. JGEOSREV provides a place for academics, researchers, and practitioners to publish scientific articles. Each text sent to the JGEOSREV editor is reviewed by peer review. Starting from Vol. 1 No. 1 (January 2019), all manuscripts sent to the JGEOSREV editor are accepted in Bahasa Indonesia or English. The scope of the articles listed in this journal relates to various topics, including: Geology, Geodesy, Geography, Hydrology, Geophysics, Biogeography, Environment, Remote Sensing, Meteorology and Climatology, Geographic Information System. This journal is available in print and online and highly respects the ethics of publication and avoids all types of plagiarism. JGEOSREV has been identified in crossref with a DOI number: 10.34312/jgeosrev. This journal collaborates with Ikatan Geograf Indonesia (IGI) / Indonesian Geographical Society.

indexed by 



[View full indexing services](#)

Announcements

Call for paper Vol. 3 No. 1 January 2021

CALL For Paper
JGEOSREV 2021

Forthcoming publication schedules which are still open for submission is **Vol 3 No. 1 January 2021**, and Other forthcoming issues. Before submission please make sure that your paper is prepared using the journal paper template JGEOSREV Template.doc

Posted: 2020-06-01

[More Announcements...](#)

Vol 2, No 2 (2020): Jambura Geoscience Review (JGEOSREV)

Jambura Geoscience Review (JGEOSREV) Volume 2 Number 2 July 2020 has been officially published and its full-texts are open access. This issue contains 5 articles from 5 affiliations. The published articles discuss Geomorphology (1), Geography (1), Geographic Information System (1), Geophysics (1), and Natural Hazards and Risk (1).

JOURNAL PROFILE

Last update: 8 September 2020
Number of documents: 20
Number of citations: 15
IF Google Scholar: 15/20 = 0.75
h-Index: 3, i10-Index: 0
Google Scholar URL: [Click here](#)
Most Cited Articles: [Click here](#)

ADDITIONAL MENU

[Submit an Article](#)

[Author Guidelines](#)

[Article Template](#)

[Editorial Team](#)

[Reviewers](#)

[Author\(s\) Fee](#)

[Peer Review Process](#)

[Submission Guidelines](#)

[Order JGEOSREV Hardcover](#)

[Copyright Transfer Agreement](#)

USER

Username
Password
☐ Remember me

COLLABORATE WITH



DIRECT CHAT



ADDITIONAL TOOLS

Table of Contents

Articles



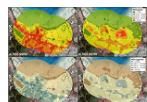
Studi Morfologi Pantai Rewata'a Desa Lalampunua
 DOI : 10.34312/jgeosrev.v2i1.4039 | Abstract views : 258 times
Rusdi Rusdi, Feri Padli, Hendra Hendra

PDF
58-68



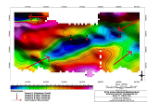
Estimasi Produksi Jagung (Zea Mays L.) Menggunakan Pendekatan Ekologi Spasial Di Kabupaten Jeneponto
 DOI : 10.34312/jgeosrev.v2i2.4773 | Abstract views : 158 times
Laode Muhamad Irsan, Rahma Musyawarah, Amniar Ati

PDF
69-77



Estimasi Perubahan Kualitas Udara Berbasis Citra Satelit Penginderaan Jauh Di Sekitar PLTU Cirebon
 DOI : 10.34312/jgeosrev.v2i2.5951 | Abstract views : 326 times
Moh. Dede, Millary Agung Widiawaty, Nurhanifah Nurhanifah, Arif Ismail, Ajeng Randhita Prabatiwaky Artati, Amniar Ati, Yanuar Rizky Ramadhan

PDF
78-87



Potensi Timah Primer Daerah Nyelanding Berdasarkan Analisis Data Geomagnet
 DOI : 10.34312/jgeosrev.v2i2.5787 | Abstract views : 146 times
Nandito Andrian, Mardiah Mardiah, Irvani Irvani

PDF
88-93



Disaster Risk On Review Scale And Spatial Planning Archipelago Region: The Risk Based Island Cluster In Moluccas Province
 DOI : 10.34312/jgeosrev.v2i2.4366 | Abstract views : 151 times
Ferad Puturuhu, Restia Christianty

PDF
94-105

Editorial Office of Jambura Geoscience Review:

Department of Earth Science and Technology, Universitas Negeri Gorontalo
 Jenderal Sudirman Street No.6, Kota Gorontalo, Provinsi Gorontalo 96128, Indonesia
 Tel. +62-822-59506768 , +62-822-92284121 (Call/SMS/WA)
 E-mail: geosrev@ung.ac.id



Follow us on:



Jambura Geoscience Review (P-ISSN: 2623-0682, E-ISSN: 2656-0380) is licensed under a Creative Commons Attribution 4.0 International License.
 Copyright © 2019 Universitas Negeri Gorontalo. Powered by Public Knowledge Project OJS

AUXILIARY TOOLS



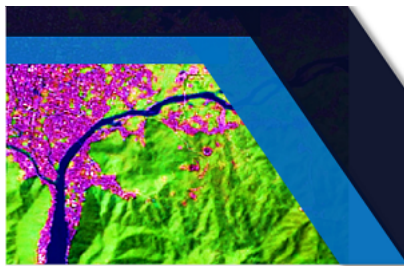
KEYWORDS

Cliffed Coast Climate Parameters Dis
 Erosion Gorontalo City Igneous Roc
 Land Characteristics La
 Productivity Land Suitability
 Landslide Morphology Risk S
 Temperature Distribution Tin Wate

VISITOR

ID	10544	US
IN	84	RU
IE	40	DE
SG	27	FR
JP	20	NL
MY	15	KR
GB	13	CA
AU	9	CL
GR	8	CN
Newest:	NG You:	
Today:		1
Month:		10
Total:		1277
		Supercounters.com

00009762
 View JGEOSREV S



[Home](#) > [About the Journal](#) > [Editorial Team](#)

Editorial Team

Editor-in-Chief

Sri Maryati, (Scopus ID: 57170892400) Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia

Managing Editor

Syahrizal Koem, (Scopus ID: 57200088470) Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia

Editorial Board

Lisa Tanika, (Scopus ID: 57194183678) ICRAF World Agroforestry Centre, Bogor, Indonesia
Ginting Jalu Kusuma, (Scopus ID: 54961219700) Department of Mining Engineering, Institut Teknologi Bandung, Indonesia
Yayu Indriati Arifin, (Scopus ID: 56829342800) Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia
Hartono Hartono, (Scopus ID: 57201323236) Remote Sensing Study Program, Faculty of Geography, Universitas Gadjah Mada, Indonesia
Sugeng Wahyudi, (Scopus ID: 57189367784) Department of Earth Resources Engineering, Faculty of Engineering, Kyushu University, Japan
Adi Maulana, (Scopus ID: 55912515600) Department of Geological Engineering, Faculty of Engineering, Universitas Hasanuddin, Indonesia
Yopi Ilhamsyah, (Scopus ID: 36458356300) Department of Marine Sciences, College of Marine and Fisheries, Universitas Syiah Kuala, Indonesia
Gunawan Widiyasmoko, Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia

Editor Assistant

Rakhmat Jaya Lahay, (Sinta ID: 6713766) Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia
M Iqbal Liayong Pratama, Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia

Administration Board

Febriyanti Tue, Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia

Editorial Office of Jambura Geoscience Review:

Department of Earth Science and Technology, Universitas Negeri Gorontalo
Jenderal Sudirman Street No.6, Kota Gorontalo, Provinsi Gorontalo 96128, Indonesia
Tel. +62-822-59506768, +62-822-92284121 (Call/SMS/WA)
E-mail: geosrev@ung.ac.id



Follow us on:



Jambura Geoscience Review (P-ISSN: 2623-0682, E-ISSN: 2656-0380) is licensed under a Creative Commons Attribution 4.0 International License.
Copyright © 2019 Universitas Negeri Gorontalo. Powered by Public Knowledge Project OJS

JOURNAL PROFILE

Last update: 8 September 2020
Number of documents: 20
Number of citations: 15
IF Google Scholar: 15/20 = 0.75
h-Index: 3, i10-Index: 0
Google Scholar URL: [Click here](#)
Most Cited Articles: [Click here](#)

ADDITIONAL MENU

[Submit an Article](#)

[Author Guidelines](#)

[Article Template](#)

[Editorial Team](#)

[Reviewers](#)

[Author\(s\) Fee](#)

[Peer Review Process](#)

[Submission Guidelines](#)

[Order JGEOSREV Hardcopy](#)

[Copyright Transfer Agreement](#)

USER

Username

Password

☐ Remember me

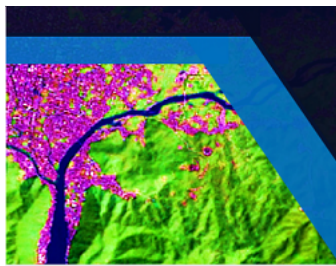
COLLABORATE WITH



DIRECT CHAT



ADDITIONAL TOOLS



[Home](#) > [About the Journal](#) > **People**

People

Reviewers Acknowledgement

Uca Sideng, (Scopus ID: 57192422541) Department of Geography, Universitas Negeri Makassar, Indonesia

Aang Panji Permana, (Scopus ID: 57212864216) Department of Earth Science and Technology, Universitas Negeri Gorontalo, Indonesia

Ulva Ria Irfan, (Scopus ID: 56964494400) Department of Geological Engineering, Universitas Hasanuddin, Indonesia

Deasy Arisanty, (Scopus ID: 57200093656) Geography Education, Universitas Lambung Mangkurat, Indonesia

Sawaluddin Sawaluddin, (Sinta ID: 6649238) Department of Geography, Universitas Halu Oleo, Indonesia

Guruh Samodra, (Scopus ID: 55053491600) Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada, Indonesia

Arif Ismail, (Sinta ID: 5974521) Department of Geography Education, Universitas Pendidikan Indonesia, Indonesia

I Made Susmayadi, (Scopus ID: 57210991985) Center for Natural Disasters Studies, Universitas Gadjah Mada, Indonesia

Cahyadi Setiawan, (Scopus ID: 57202300561) Department of Educational Geography, Universitas Negeri Jakarta, Indonesia

Ilham Alimuddin, (Scopus ID: 54407971400) Department of Geological Engineering, Universitas Hasanuddin, Indonesia

Rosalina Kumalawati, (Sinta ID: 5992080) Geography Education Study Program, Universitas Lambung Mangkurat, Indonesia

Lalu Muhamad Jaelani, (Scopus ID: 55953435300) Department of Geomatics Engineering, Institut Teknologi Sepuluh Nopember, Indonesia

Nurwita Mustika Sari, (Scopus ID: 57207713842) Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia

Danang Eko Nuryanto, (Scopus ID: 56237657100) Indonesian Agency for Meteorology Climatology and Geophysics (BMKG), Indonesia

Iswari Nur Hidayati, (Scopus ID: 57196221238) Geography Study Program, Faculty of Geography, Universitas Gadjah Mada, Indonesia

Edy Irwansyah, (Scopus ID: 55669431700) Department of Computer Science, Faculty of Engineering, Bina Nusantara University, Indonesia

Sukristiyanti Sukristiyanti, (Scopus ID: 57201064642) Geotechnology Research Center, Indonesian Institute of Sciences (LIPI), Indonesia

Agus Didit Haryanto, (Scopus ID: 57200855468) Department of Geology, Faculty of Engineering Geology, Universitas Padjadjaran, Indonesia

Nugroho Christanto, (Scopus ID: 57202457584) Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada, Indonesia

Editorial Office of Jambura Geoscience Review:

Department of Earth Science and Technology, Universitas Negeri Gorontalo

Jenderal Sudirman Street No.6, Kota Gorontalo, Provinsi Gorontalo 96128, Indonesia

Tel. +62-822-59506768, +62-822-92284121 (Call/SMS/WA)

E-mail: geosrev@ung.ac.id



Follow us on:



Jambura Geoscience Review (P-ISSN: 2623-0682, E-ISSN: 2656-0380) is licensed under a Creative Commons Attribution 4.0 International License. Copyright © 2019 Universitas Negeri Gorontalo. Powered by Public Knowledge Project OJS

JOURNAL PROFILE

Last update: 8 September 2020
Number of documents: 20
Number of citations: 15
IF Google Scholar: 15/20 = 0.75
h-Index: 3, i10-Index: 0
Google Scholar URL: [Click here](#)
Most Cited Articles: [Click here](#)

ADDITIONAL MENU

[Submit an Article](#)

[Author Guidelines](#)

[Article Template](#)

[Editorial Team](#)

[Reviewers](#)

[Author\(s\) Fee](#)

[Peer Review Process](#)

[Submission Guidelines](#)

[Order JGEOSREV Hardcopy](#)

[Copyright Transfer Agreement](#)

USER

Username
Password
☐ Remember me

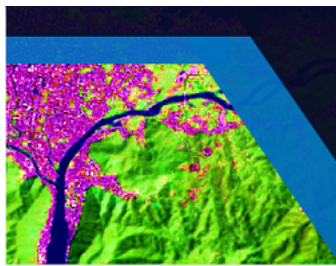
COLLABORATE WITH



DIRECT CHAT



ADDITIONAL TOOLS



Editorial Policies

- [Focus and Scope](#)
- [Section Policies](#)
- [Peer Review Process](#)
- [Publication Frequency](#)
- [Open Access Policy](#)
- [Archiving](#)
- [Digital Archiving](#)
- [Publication Ethics](#)
- [Indexing](#)
- [Article Processing Charge](#)
- [Policy of Screening for Plagiarism](#)

Focus and Scope

Jambura Geoscience Review (JGEOSREV, P-ISSN: 2623-0682, E-ISSN: 2656-0380) is an open-access journal, which publishes original papers about all aspects of the Earth and Geosciences. This comprises the solid earth, the atmosphere, the hydrosphere, and the biosphere. In addition, it provides a particular place, and an advanced forum, for contributions on natural hazards, geoscience-related environmental problems. The scope of the articles listed in this journal relates to various topics, including:

Geography; The subject related to physical process and spatial patterns at the earth's surface, physio-geographical elements and their interaction, global change and its regional response, characters and management of natural resources, landscape ecology and environmental construction, remote sensing, geographic information system and their applications in geographical research.

Geology; The subject covers variety of topics including geodynamics, sedimentology and stratigraphy, volcanology, engineering geology, environmental geology, hydrogeology, geo-hazard and mitigation, mineral resources, energy resources, medical geology, geo-archaeology.

Hydrology; The subject related to research addressing issues in integrated water management, surface water hydrology, groundwater hydrology, ecohydrology, hydrometeorology, water quality.

Meteorology and Climatology; The research includes topics such as weather modification, satellite meteorology, radar meteorology, boundary layer processes, physical meteorology, air pollution meteorology, agricultural and forest meteorology, mountain meteorology, and applied meteorological numerical models. Climatological research includes the use of climate information in impact assessments, seasonal climate forecast applications and verification, climate risk and vulnerability, development of climate monitoring tools, and urban and local climates.

Biogeography; Appropriate topics include innovative applications or methods of species distribution modeling or identifying the agents of global change, including how climate change, land-use change, and invasive species affect the abundance, distribution, and range boundaries of native species.

Geodesy; The Subject covers the whole range of geodetic and reports on theoretical and applied studies in research areas such as positioning, reference frame, geodetic networks, modeling and quality control, gravity fields

Geophysics; The subject covers variety of topics including earthquakes and seismology, size and structure of the earth, gravity, geomagnetism, mineral physics.

Remote Sensing; The subjects related to research on remote sensing include: remotely sensed data collection, surveying from space, imaging and related sensors, image processing, use of remotely sensed data, drones section: remote sensing with unmanned aerial systems.

Geographic Information System; The subject research covers innovations in GIScience and novel applications of GIScience in natural resources and the built environment, as well as relevant developments in computer science, cartography, surveying, geography.

Geomorphology; The subject related to fluvial sequences, fluvial processes and landforms, hillslopes and soil erosion, weathering, karst and soils, coastal dunes and arid environments; coastal and marine processes, estuaries and lakes, modelling, theoretical and quantitative geomorphology.

Natural Hazards and Risk; Approaches and case studies using geospatial and remote sensing techniques to study monitoring, mapping, risk mitigation, risk vulnerability, and early warning of natural hazards.

Environment; The subject covering several topics of environmental studies including environmental policy and management, disaster mitigation, regional planning, land resources evaluation, systems modelling and sciences, water pollution, air pollution, environmental technology.

JOURNAL PROFILE

Last update: 8 September 2020
Number of documents: 20
Number of citations: 15
IF Google Scholar: 15/20 = 0.75
h-Index: 3, i10-Index: 0
Google Scholar URL: [Click here](#)
Most Cited Articles: [Click here](#)

ADDITIONAL MENU

[Submit an Article](#)

[Author Guidelines](#)

[Article Template](#)

[Editorial Team](#)

[Reviewers](#)

[Author\(s\) Fee](#)

[Peer Review Process](#)

[Submission Guidelines](#)

[Order JGEOSREV Hardcopy](#)

[Copyright Transfer Agreement](#)

USER

Username
Password
☐ Remember me
[Login](#)

COLLABORATE WITH



DIRECT CHAT



ADDITIONAL TOOLS

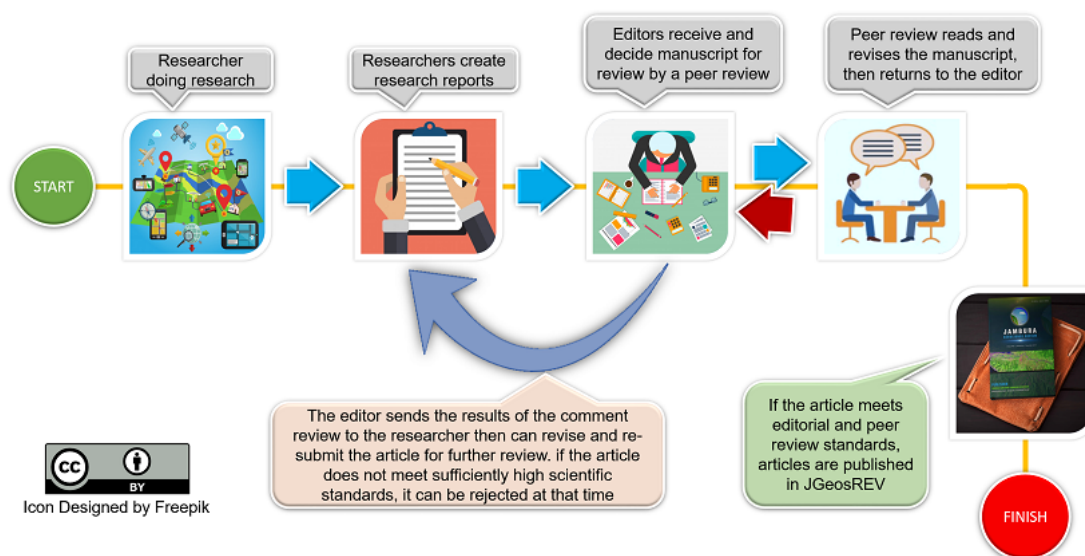
Section Policies

Articles

☒ Open Submissions ☒ Indexed ☒ Peer Reviewed

Peer Review Process

Jambura Geoscience Review (JGEOSREV) publishes articles following JGeosREV [guidelines](#) and [templates](#). All manuscript sent will go through a **double-blind peer-review** process, the duration of review is between 2-3 weeks. Pre-review of the manuscript was conducted by an editorial team to review the suitability of the text with the focus and scope and style of the journal and JGEOSREV writing guidelines. Manuscripts will be sent to a minimum of two reviewers based on their field of specialization. Reviewers provide script assessments that include originality, scientific contributions, and presentation clarity. Based on the comments and suggestions from the editorial board reviewer made a decision on the reviewer's comments and suggestions. JGEOSREV has four types of decisions including: accepted, accepted by minor revisions, accepted by major revisions, and rejected. Plagiarism examination is performed using Plagiarism Checker X software. The limit of the indications for plagiarism applied in JGEOSREV is a maximum of 10%.



AUXILIARY TOOLS



KEYWORDS

Cliffed Coast Climate Parameters Dis
Erosion Gorontalo City Igneous Roc
Land Characteristics La
Productivity Land Suitability
Landslide Morphology Risk S
Temperature Distribution Tin Wate

VISITOR

ID	10544	US
IN	84	RU
IE	40	DE
SG	27	FR
JP	20	NL
MY	15	KR
GB	13	CA
AU	9	CL
GR	8	CN
Newest:	NG You:	
Today:		1
Month:		10
Total:		1277
Supercounters.com		

00009762
View JGEOSREV S

Publication Frequency

JGEOSREV is scheduled for publication in January and July (2 issue a year). It is electronically published via journal website (<http://ejurnal.lung.ac.id/index.php/jgeosrev>). Each published article will be assigned a DOI (digital object identifier).

Open Access Policy

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

All articles published Open Access will be immediately and permanently free for everyone to read and download. We are continuously working with our author communities to select the best choice of license options, currently being defined for this journal as follows:

[Creative Commons Attribution \(CC BY\)](#)

Archiving

This journal utilizes the LOCKSS system to create a distributed archiving system among participating libraries and permits those libraries to create permanent archives of the journal for purposes of preservation and restoration. [More...](#)

Digital Archiving

Distribute journal content at participating libraries via [Indonesian One Search \(IOS\)](#), Indonesian Scientific Journal Database (ISJD), and [GARUDA](#) system to create a distributed archiving system among participating libraries and permits those libraries to create permanent archives of the journal for purposes of preservation and restoration.

Publication Ethics

Jambura Geoscience Review (JGEOSREV) is a peer-reviewed journal published by Department of Earth Science and Technology, Universitas Negeri Gorontalo. This journal is available in print and online and highly respects the publication ethic and avoids any type of plagiarism. This statement explains the ethical behavior of all parties involved in the act of publishing an article in this journal, including the author, the editor in chief, the editorial board, the peer-reviewers and the publisher (Department of Earth Science and Technology). This statement is based on [COPE's Best Practice Guidelines for Journal Editors](#).

Ethical Guideline for Journal Publication. The publication of an article in a peer-reviewed journal of JGEOSREV is an essential building block in the development of a coherent and respected network of knowledge. It is a direct reflection of the quality of the work of the authors and the institutions that support them. Peer-reviewed articles support and embody the scientific method. It is therefore important to agree upon standards of expected ethical behavior for all parties involved in the act of publishing: the author, the journal editor, the peer reviewer, the publisher and the society.

Department of Earth Science and Technology as publisher of JGEOSREV takes its duties of guardianship over all stages of publishing seriously and we recognize our ethical behavior and other responsibilities. We are committed to ensuring that advertising, reprint or other commercial revenue has no impact or influence on editorial decisions. In addition, Jurusan Ilmu dan Teknologi Kebumihan and Editorial Board will assist in communications with other journals and/or publishers where this is useful and necessary.

Publication decisions. The editor of the Jambura Geoscience Review is responsible for deciding which of the articles submitted to the journal should be published. The validation of the work in question and its importance to researchers and readers must always drive such decisions. The editors may be guided by the policies of the journal's editorial board and constrained by such legal requirements as shall then be in force regarding libel, copyright infringement and plagiarism. The editors may work with other editors or reviewers in making this decision.

Fair play. The editor at any time evaluate manuscripts for their intellectual content without regard to race, gender, sexual orientation, religious belief, ethnic origin, citizenship, or political philosophy of the authors.

Confidentiality. The 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, as appropriate.

Disclosure and conflicts of interest. Unpublished materials disclosed in a submitted manuscript must not be used in an editor's own research without the express written consent of the author.

Duties of Editors

The editor is responsible for deciding which of the articles submitted to the journal should be published. The validation of the work in question and its importance to researchers and readers must always drive such decisions. The editors may be guided by the policies of the journal's editorial board and constrained by such legal requirements as shall then be in force regarding libel, copyright infringement and plagiarism. The editors may confer with other editors or reviewers in making this decision.

Fair play. The editor at any time evaluates manuscripts for their intellectual content without regard to race, gender, sexual orientation, religious belief, ethnic origin, citizenship, or political philosophy of the authors.

Confidentiality. The 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, as appropriate.

Disclosure and conflicts of interest. Unpublished materials disclosed in a submitted manuscript must not be used in an editor's own research without the express written consent of the author.

Duties of Reviewers

Contribution to Editorial Decisions. Peer review assists the editor in making editorial decisions and through the editorial communications with the author may also assist the author in improving the paper.

Promptness. Any selected referee who feels unqualified to review the research reported in a manuscript or knows that its prompt review will be impossible should notify the editor and excuse himself from the review process.

Confidentiality. Any manuscripts received for review must be treated as confidential documents. They must not be shown to or discussed with others except as authorized by the editor.

Standards of Objectivity. Reviews should be conducted objectively. Personal criticism of the author is inappropriate. Referees should express their views clearly with supporting arguments.

Acknowledgement of Sources. Reviewers should identify relevant published work that has not been cited by the authors. Any statement that an observation, derivation, or argument had been previously reported should be accompanied by the relevant citation. A reviewer should also call to the editor's attention any substantial similarity or overlap between the manuscript under consideration and any other published paper of which they have personal knowledge.

Disclosure and Conflict of Interest. Privileged information or ideas obtained through peer review must be kept confidential and not used for personal advantage. Reviewers should not consider manuscripts in which they have conflicts of interest resulting from competitive, collaborative, or other relationships or connections with any of the authors, companies, or institutions connected to the papers.

Duties of Authors

Reporting standards. Authors of reports of original research should present an accurate account of the work performed as well as an objective discussion of its significance. Underlying data should be represented accurately in the paper. A paper should contain sufficient detail and references to permit others to replicate the work. Fraudulent or knowingly inaccurate statements constitute unethical behaviour and are unacceptable.

Data Access and Retention. Authors are asked to provide the raw data in connection with a paper for editorial review, and should be prepared to provide public access to such data (consistent with the ALPSP-STM Statement on Data and Databases), if practicable, and should in any event be prepared to retain such data for a reasonable time after publication.

Originality and Plagiarism. The authors should ensure that they have written entirely original works, and if the authors have used the work and/or words of others that this has been appropriately cited or quoted.

Multiple, Redundant or Concurrent Publication. An author should not in general publish manuscripts describing essentially the same research in more than one journal or primary publication. Submitting the same manuscript to more than one journal concurrently constitutes unethical publishing behaviour and is unacceptable.

Acknowledgement of Sources. 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.

Authorship of the Paper. Authorship 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. The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper, and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

Disclosure and Conflicts of Interest. All authors should disclose in their manuscript any financial or other substantive conflict of interest that might be construed to influence the results or interpretation of their manuscript. All sources of financial support for the project should be disclosed.

Fundamental errors in published works. When an author discovers a significant error or inaccuracy in his/her own published work, it is the author's obligation to promptly notify the journal editor or publisher and cooperate with the editor to retract or correct the paper.

=====

Dr. Eng. Sri Maryati

Editor-in-Chief,

Jambura Geoscience Review

Indexing

Articles published in Jambura Geoscience Review (JGEOSREV, P-ISSN: 2623-0682, E-ISSN: 2656-0380) have appeared in the following indexes:

International Indexing: Google Scholar, Crossref, Ex Libris (Proquest Company), UlrichsWEB, PKP Index, MDPI Scilit, Dimensions, WorldCat-OCLC, Index Copernicus, Academic Resource Index, BASE (Bielefeld Academic Search Engine), EZB (Elektronische Zeitschriftenbibliothek), Livivo, ZDB (Zeitschriftendatenbank), Mendeley

National Indexing: Garuda, Moraref, Neliti, IOS (Indonesia Onesearch)

Article Processing Charge

Jambura Geoscience Review (JGEOSREV, P-ISSN: 2623-0682, E-ISSN: 2656-0380) is a free and open access journal. Author submission, as well as article processing and publishing, is **free of charge**. Readers can read and download any full-text articles for **free of charge**.

Policy of Screening for Plagiarism

Plagiarism screening will be conducted by Jambura Geoscience Review Editorial Team using Plagiarism Checker X, before the paper will be review by the reviewer, the editorial will check the level of percentage of plagiarism, if the plagiarism checker detects the similarity more than 10%, than the author must be revised the article. And also, after the paper was finally checked by the reviewer, then the final process is checking the similarity content of the papers before published the papers.

Editorial Office of Jambura Geoscience Review:

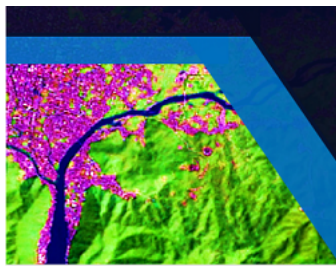
Department of Earth Science and Technology, Universitas Negeri Gorontalo
Jenderal Sudirman Street No.6, Kota Gorontalo, Provinsi Gorontalo 96128, Indonesia
Tel. +62-822-59506768 , +62-822-92284121 (Call/SMS/WA)
E-mail: geosrev@ung.ac.id



Follow us on:



Jambura Geoscience Review (P-ISSN: 2623-0682, E-ISSN: 2656-0380) is licensed under a Creative Commons Attribution 4.0 International License. Copyright © 2019 Universitas Negeri Gorontalo. Powered by Public Knowledge Project OJS



Studi Fasies Formasi Endapan Danau Untuk Menentukan Lingkungan Pengendapan Danau Limboto

Abd Kadir Mubarak A Amin, Yuyu Indriati Arifin, Noviar Akase

Abstract

The research area located in the lowland zone and the corrugated hilly zone which is dominated by sedimentary rocks. Therefore, this study aims to determine the geological features of the research area and the study of depositional environmental facies of the Lake Deposits Formation as an analysis of the depositional environment of Limboto Lake. The research method used is the surface geological mapping, measuring a section of stratigraphic and laboratory analysis. Field data consists of stratigraphical features of the research area. Laboratory analysis consists of petrography and stratigraphy-sedimentology analysis. It can be concluded facies and stratigraphy of research from older to youngest, consists of clastic limestones unit formed in Late Miocene-late Early Pliocene age, reef limestones formed in Late Miocene-early Late Pliocene age, sandstones unit formed in Late Pliocene-Pleistocene age, clay unit, and sandy clay unit are deposited in Holocene. Overall the study site consisted of marine, transitional and terrestrial deposition environment with Lake Deposits Formation facies is lake margin clastic deposits and meandering-stream environment deposits.

Keywords

Deposits Formation; Formation Facies Lake; Geological Mapping; Sedimentation

Full Text:

[PDF](#)

References

- Apandi, T. & Bachri, S., 1997. Geological map of the Kotamobagu sheet. Sulawesi Map.
- Bawono, S., S., Partoyo, E., Wirosujono, S., Situmorang, R., I., & Spandjojo R., J., B. 1990 Peta geologi Lembar Limboto, Sulawesi skala 1:100.000. . Pusat Penelitian dan Pengembangan Geologi. Bandung.
- [BIG] Badan Informasi Geospasial. 2013. Peta Rupa Bumi Indonesia, lembar 2216-621 Dan Lembar 2216-622 Limboto skala 1:25.000. Indonesia.
- Blow, H., 1969. The Late Middle Eocene to Recent Planktonic Foraminiferal Biostratigraphy. International Conference Planktonic Microfossil. 1967. Proceeding., Bull Vol 1
- [BWS] Balai Wilayah Sungai Sulawesi II. 2018a. Analisis Seismic Hazard : DD dan Sertifikasi Desain Bendungan Bolango Ulu (MYC). Tidak diterbitkan. Laporan Internal. Kementerian Pekerjaan Umum dan Perumahan Rakyat. Jakarta.
- [BWS] Balai Wilayah Sungai Sulawesi II. 2018b. Desain Penataan Kawasan Danau Limboto. Laporan Internal. Kementerian Pekerjaan Umum dan Perumahan Rakyat. Jakarta.
- Embry, R.J., & Klovan, J.E., 1971. A Late Devonian Reef Tract on Northeastern Bank Island, N.W.T. Bulletin of Canadian Petroleum Geology 19(4):730-781.
- Nugraha, A., M., S., & Hall, R., 2018. Late Cenozoic paleogeography of Sulawesi, Indonesia. Paleogeography, Paleoclimatology, Paleogeology, 3. 490:191-209
- Pettijohn, F.J., 1975. Sedimentary Rocks 3rd ed. Harper and Row. New York
- Putra, S., S., Hassan C., Djudi, Suryatmojo, H., 2012. Reservoir Saboworks Solutions in Limboto Lake Sedimentations, Northern Sulawesi, Indonesia. The 3rd International Conference on Sustainable Future for Human Security SUSTAIN 2012. Procedia Environmental Sciences. 17(2013):230-239.
- Rudyawan, A., Hall, R., & White, L., 2014. Neogene Extension of the Central North Arm of Sulawesi, Indonesia. American Geophysical Union, Fall Meeting. December 2014. San Fransisco.
- Satyana A. H., Faulin T., & Mulyati S., N., 2011. Tectonic Evolution Of Sulawesi Area: Implications For Proven And Prospective

ARTICLE TOOLS

- Print this article
- Indexing metadata
- How to cite item
- Finding References
- Email the author (Login r

ABOUT THE AUTHORS

Abd Kadir Mubarak A Amin
Geological Engineering M
Science and Technology I
Faculty Mathematics ar
Science, Universitas Negeri
Indonesia

Yuyu Indriati Arifin
Geological Engineering M
Science and Technology I
Faculty Mathematics ar
Science, Universitas Negeri
Indonesia

Noviar Akase
Geological Engineering M
Science and Technology I
Faculty Mathematics ar
Science, Universitas Negeri
Indonesia

JOURNAL PROFILE

Last update: 8 September 2
Number of documents: 20
Number of citations: 15
IF Google Scholar: 15/20 =
h-Index: 3, i10-Index: 0
Google Scholar URL: Click
Most Cited Articles: Click h

ADDITIONAL MENU

[Submit an Article](#)

[Author Guidelines](#)

[Article Template](#)

[Editorial Team](#)

[Reviewers](#)

[Author\(s\) Fee](#)

[Peer Review Process](#)

[Submission Guidelines](#)

[Order JGEOSREV Hard](#)

[Copyright Transfer Agr](#)

Petroleum Plays. Proceedings JCM Makassar 2011. The 36th HAGI and 40th IAGI Annual Convention and Exhibition. Makassar.

Tipsword, H.J., Setzer, F.M., & Smith, Jr., F.L., 1966. Interpretation of Depositional Environment in Gulf Coast Petroleum Exploration from Paleocology and Related Stratigraphy: Transactions of the Gulf Coast. Association of Geological Societies 16:119-130

Van Leeuwen, T. M. & Muhardjo. 2005. Stratigraphy and tectonic setting of the Cretaceous and Paleogene volcanic-sedimentary successions in northwest Sulawesi, Indonesia: implications for the Cenozoic evolution of Western and Northern Sulawesi. Journal of Asian Earth Sciences 25:481-511.

DOI: <https://doi.org/10.34312/jgeosrev.v1i2.2056>



Copyright (c) 2019 Jambura Geoscience Review



This work is licensed under a Creative Commons Attribution 4.0 International License.

Editorial Office of Jambura Geoscience Review:

Department of Earth Science and Technology, Universitas Negeri Gorontalo
Jenderal Sudirman Street No.6, Kota Gorontalo, Provinsi Gorontalo 96128, Indonesia
Tel. +62-822-59506768 , +62-822-92284121 (Call/SMS/WA)
E-mail: geosrev@ung.ac.id



Follow us on:



Jambura Geoscience Review (P-ISSN: 2623-0682, E-ISSN: 2656-0380) is licensed under a Creative Commons Attribution 4.0 International License. Copyright © 2019 Universitas Negeri Gorontalo. Powered by Public Knowledge Project OJS

USER

Username

Password

☐ Remember me

Login

COLLABORATE WITH



DIRECT CHAT



AUXILIARY TOOLS



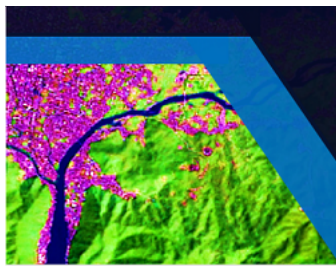
KEYWORDS

Cliffed Coast Climate Parameters Dis
Erosion Gorontalo City Igneous Roc
Land Characteristics La
Productivity Land Suitability
Landslide Morphology Risk Si
Temperature Distribution Tin Wate

VISITOR

ID	10544	US
IN	84	RU
IE	40	DE
SG	27	FR
JP	20	NL
MY	15	KR
GB	13	CA
AU	9	CL
GR	8	CN
Newest:	NG You:	
Today:	1	
Month:	10	
Total:	1277	
Supercounters.com		

00009762
View JGEOSREV S



Home > Archives > Vol 1, No 2 (2019): Jambura Geoscience Review (JGEOSREV)

Vol 1, No 2 (2019): Jambura Geoscience Review (JGEOSREV)

DOI: <https://doi.org/10.34312/jgeosrev.v1i2>

Jambura Geoscience Review (JGEOSREV) Volume 1 Number 2 Year 2019 (July 2019) has been officially published and its full-texts are open access. This issue contains 5 articles from 2 affiliations. The published articles discuss Geography (1), Geographic Information System (1), and Geology (3).

Table of Contents

Articles

Interaksi Spasial Kondisi Sosial-Ekonomi Terhadap Kerawanan Kejahatan Di Kota Bandung (Studi Kasus Sumur Bandung)

PDF
40-49

DOI : [10.34312/jgeosrev.v1i2.1756](https://doi.org/10.34312/jgeosrev.v1i2.1756) | Abstract views : 794 times
Moh. Dede, Dede Sugandi, Iwan Setiawan

Studi Fasies Formasi Endapan Danau Untuk Menentukan Lingkungan Pengendapan Danau Limboto

PDF
50-67

DOI : [10.34312/jgeosrev.v1i2.2056](https://doi.org/10.34312/jgeosrev.v1i2.2056) | Abstract views : 440 times
Abd Kadir Mubarak A Amin, Yayu Indriati Arifin, Noviar Akase

Potensi Batugamping Untuk Bahan Baku Industri Semen Daerah Biluhu Timur Dan Sekitarnya

PDF
68-76

DOI : [10.34312/jgeosrev.v1i2.2380](https://doi.org/10.34312/jgeosrev.v1i2.2380) | Abstract views : 232 times
Destira Handayani Eksan, Ahmad Zainuri, Muhammad Kasim

WebGIS Based Poverty Level Analysis (Case Study Of Wonosari Sub-District Boalemo Regency)

PDF
77-86

DOI : [10.34312/jgeosrev.v1i2.2349](https://doi.org/10.34312/jgeosrev.v1i2.2349) | Abstract views : 330 times
Irwan Muis, Sunarty Suly Eraku, Syahrizal Koem

Analisis Tingkat Kerentanan Longsor Daerah Muara Sungai Bone Kota Gorontalo

PDF
87-101

DOI : [10.34312/jgeosrev.v1i2.2474](https://doi.org/10.34312/jgeosrev.v1i2.2474) | Abstract views : 372 times
Muhammad Iqbal Asiki, Sri Maryati, Noviar Akase

Editorial Office of Jambura Geoscience Review:

Department of Earth Science and Technology, Universitas Negeri Gorontalo
Jenderal Sudirman Street No.6, Kota Gorontalo, Provinsi Gorontalo 96128, Indonesia
Tel. +62-822-59506768, +62-822-92284121 (Call/SMS/WA)
E-mail: geosrev@ung.ac.id



Follow us on:



Jambura Geoscience Review (P-ISSN: 2623-0682, E-ISSN: 2656-0380) is licensed under a Creative Commons Attribution 4.0 International License. Copyright © 2019 Universitas Negeri Gorontalo. Powered by Public Knowledge Project OJS

JOURNAL PROFILE

Last update: 8 September 2019
Number of documents: 20
Number of citations: 15
IF Google Scholar: 15/20 = 0.75
h-Index: 3, i10-Index: 0
Google Scholar URL: [Click here](#)
Most Cited Articles: [Click here](#)

ADDITIONAL MENU

[Submit an Article](#)

[Author Guidelines](#)

[Article Template](#)

[Editorial Team](#)

[Reviewers](#)

[Author\(s\) Fee](#)

[Peer Review Process](#)

[Submission Guidelines](#)

[Order JGEOSREV Hardcopy](#)

[Copyright Transfer Agreement](#)

USER

Username
Password
☐ Remember me
[Login](#)

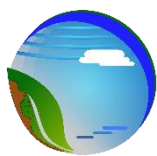
COLLABORATE WITH



DIRECT CHAT



ADDITIONAL TOOLS



STUDI FASIES FORMASI ENDAPAN DANAU UNTUK MENENTUKAN LINGKUNGAN PENGENDAPAN DANAU LIMBOTO

Abd Kadir Mubarak A Amin^a, Yuyu Indriati Arifin^a, Noviar Akase^a

^a *Jurusan Ilmu dan Teknologi Kebumihan, Program Studi Teknik Geologi, F.MIPA, Universitas Negeri Gorontalo, Jl. Jenderal Sudirman No. 6, Dulalowo Timur, Kota Tengah, Gorontalo 96128, Indonesia.*

INFO ARTIKEL

Status artikel:

Diterima: 18 Februari 2019

Disetujui: 9 Juli 2019

Tersedia online: 11 Juli 2019

Kata kunci:

Deposits Formation; Formation Facies Lake; Geological Mapping; Sedimentation

Penulis korespondensi:

Abd Kadir Mubarak A Amin
Jurusan Ilmu dan Teknologi
Kebumihan, Program Studi Teknik
Geologi, F.MIPA, Universitas Negeri
Gorontalo, Gorontalo, Indonesia.
Email: mubarrack95@gmail.com

ABSTRACT

The research area located in the lowland zone and the corrugated hilly zone which is dominated by sedimentary rocks. Therefore, this study aims to determine the geological features of the research area and the study of depositional environmental facies of the Lake Deposits Formation as an analysis of the depositional environment of Limboto Lake. The research method used is the surface geological mapping, measuring section of stratigraphic and laboratory analysis. Field data consists stratigraphical features of research area. Laboratory analysis consists of petrography and stratigraphy-sedimentology analysis. It can be concluded facies and stratigraphy of research from older to youngest, consists of clastic limestones unit formed in Late Miocene-late Early Pliocene age, reef limestones formed in Late Miocene-early Late Pliocene age, sandstones unit formed in Late Pliocene-Pleistocene age, clay unit and sandy clay unit are deposited in Holocene. Overall the study site consisted of marine, transitional and terrestrial deposition environment with Lake Deposits Formation facies is lake margin clastic deposits and meandering-stream environment deposits.

Copyright © 2019 JGeosREV-UNG
This open access article is distributed under a
Creative Commons Attribution (CC-BY) 4.0 International license

1. Pendahuluan

Danau Limboto yang terletak di Provinsi Gorontalo memiliki fungsi yang sangat penting bagi ekosistem yang ada disekitar danau, baik flora maupun fauna serta masyarakat disekitaran danau yang saat ini keberadaannya terancam hilang dikarenakan pendangkalan danau yang signifikan serta berbagai potensi masalah lingkungan yang akan dihasilkan. Secara geologi, Danau Limboto merupakan sebagian tempat dimana tersingkapnya berbagai jenis batuan salah satunya batuan sedimen serta berbagai deformasi tektonik (Satyana et al., 2011). Menurut Putra et al., (2012) berdasarkan genesis formasi Danau Limboto merupakan cekungan rendah atau laguna yang juga termasuk dalam tipe danau dangkal atau tipe paparan banjir (dataran banjir).

Cekungan atau Depresi Limboto terbentuk dimulai dari adanya Ekstensi Neogen yang menyebabkan tumbukan serta penyebaran zona sesar yang besar dan pembalikan subduksi (*subduction roll back*) di Busur Banda sekitar awal hingga pertengahan Miosen. Pada akhir Miosen kembali terjadi Ekstensi besar yang menyebabkan pengangkatan dan penurunan cepat di Cekungan Gorontalo dan Sekitarnya (Rudyawan et al., 2014). Pengaruh aktivitas tektonik khususnya di lengan utara Sulawesi mempengaruhi lingkungan pengendapan dikaitkan pada variasi litologi yang tersingkap (Van Leeuwen & Muhandjo, 2005). Hal tersebut menjadikan daerah Danau Limboto menarik untuk dilakukan penelitian terhadap studi lingkungan pengendapan danau.

Tujuan dari penelitian ini untuk mengetahui tatanan geologi daerah Dungaliyo hingga Danau Limboto dan sekitarnya secara rinci yang meliputi geomorfologi, litologi, struktur geologi, stratigrafi dan secara khusus untuk mendeskripsikan fasies Formasi Endapan Danau dan menafsirkan lingkungan pengendapannya serta hubungannya dengan aktivitas tektonik terhadap pembentukan cekungan danau.

2. Metodologi

2.1. Lokasi Penelitian

Daerah penelitian secara berada pada $0^{\circ}34'30''$ - $0^{\circ}37'30''$ LU dan $122^{\circ}52'5''$ - $122^{\circ}58'20''$ BT tepatnya terletak pada sebagian besar di Kecamatan Dungaliyo, Tabongo, Kecamatan Limboto, Kecamatan Limboto Barat, sebagian kecil Kecamatan Tibawa dan Kecamatan Batudaa (Gambar 1). Kabupaten Gorontalo, Provinsi Gorontalo. Luas daerah $\pm 66 \text{ Km}^2$, dengan keseluruhan daerah dilakukan pemetaan geologi dan studi khusus dilakukan di sepanjang aliran sekitar hulu DAS Alopohu hingga Danau Limboto.

2.2. Tahapan Penelitian

Metode penelitian yang digunakan adalah metode pemetaan geologi dan pengukuran penampang stratigrafi (*measuring section*) permukaan. Metode yang dilakukan telah melalui beberapa tahap, yaitu tahapan persiapan, studi pendahuluan, pengambilan data, analisis dan pengolahan data serta penyajian data.

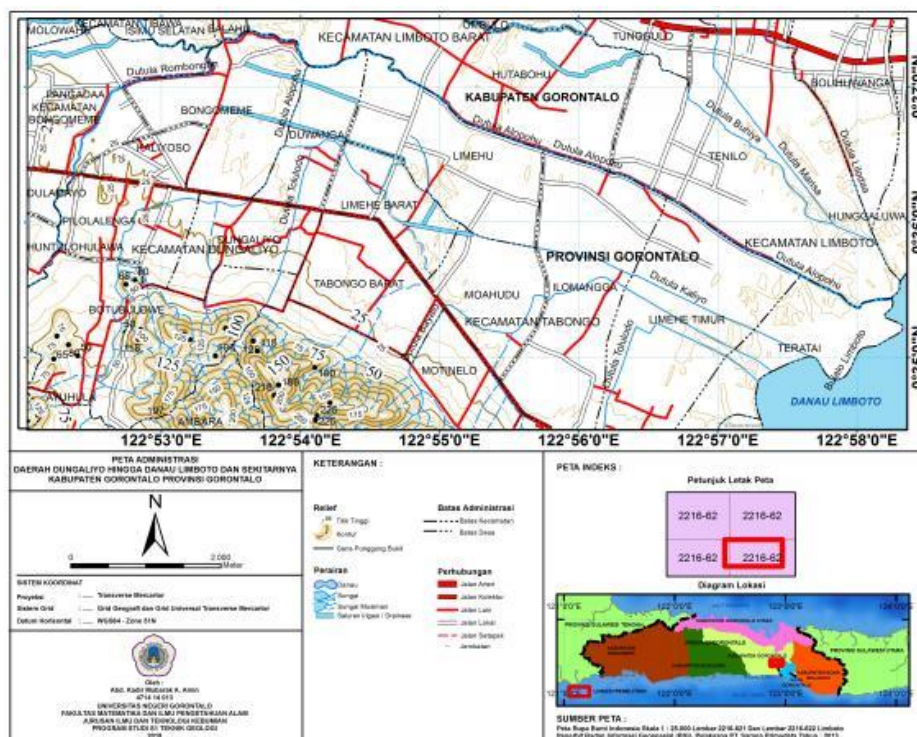
Pada tahap analisis dan pengolahan data dengan studi sedimentologi dan stratigrafi detail, terdiri atas tahapan preparasi sampel, tahapan analisis data serta tahapan pembuatan hasil analisa profil dilakukan di laboratorium dan studio. Tahap ini didukung dengan studi pustaka. Preparasi Sampel terdiri atas preparasi sampel untuk keperluan analisa petrografi, keperluan analisis mikrofossil dan sampel.

Tahapan Analisis terbagi atas analisis geomorfologi berdasarkan data dekomentasi geomorfologi lapangan dikolaborasi bersama data citra *Worldview* dan foto udara. Analisis petrografi dengan batuan diklasifikasikan yang dikembangkan oleh Pettijohn (1975), Embry & Klovan (1971). Analisis struktur geologi berdasarkan pendekatan geometri yang meliputi analisis deskriptif, Analisis stratigrafi dan sedimentologi dilakukan untuk rekonstruksi stratigrafi dan diklasifikasikan menurut fasies pengendapan sedimen seperti yang dikembangkan Tipsword et al., (1966), Analisis ini didasarkan pada hasil pengukuran penampang stratigrafi terukur (*measuring section*). Analisis umur satuan berdasarkan zonasi keterdapatan mikrofossil yang dikembangkan oleh Blow (1969) serta data *carbon dating*.

3. Hasil dan Pembahasan

3.1. Formasi dan Lingkungan Pengendapan

Berdasarkan hasil pengamatan lapangan dan pengambilan data stratigrafi, daerah penelitian terdiri atas beberapa formasi, berupa Formasi Non-Endapan Danau dan Formasi Endapan Danau. Formasi-formasi tersebut dibedakan berdasarkan ciri litologi dan mekanisme lingkungan pengendapannya.



Gambar 1. Peta Lokasi Penelitian (Digambar kembali dari BIG, 2013)

3.2. Formasi Non-endapan Danau

3.2.1. Satuan batugamping klastik

Litologi penyusun satuan ini terutama grainstone dan tufa. Grainstone menunjukkan ciri-ciri dengan warna segar putih kecokelatan, tekstur klastik, agak kompak, struktur berlapis dengan kenampakan sisa hasil pertumbuhan terumbu karang dan terdapat fosil dari filum moluska pada klas *gastropoda*, karbonatan, sehingga dinamakan batugamping klastik, namun setempat dijumpai tufa setempat telah mengalami alterasi (Gambar 2f, g, h).

Tuf berwarna segar putih, lapuk coklat kekuningan, secara umum berukuran < 2 mm yang tersusun atas butiran kristal terutama plagioklas, kuarsa, mineral opak dan litik yang diwakili oleh fragmen tufa yang berubah menjadi mineral lempung. Semen setempat karbonatan, matriks gelas, setempat membentuk *cusate* akibat gelas terelaskan secara kuat (*densely welded*) berukuran abu (< 2 mm), pemilahan buruk, kemas terbuka, *matriks supported*, kekompakan sedang, porositas tinggi. Teramati di lapangan berlapis baik dengan ketebalan ± 40 cm tetapi tidak ditemukan kemenerusan lapisan di beberapa lokasi pengamatan sehingga diinterpretasikan batuan ini hanya sebagai sisipan.

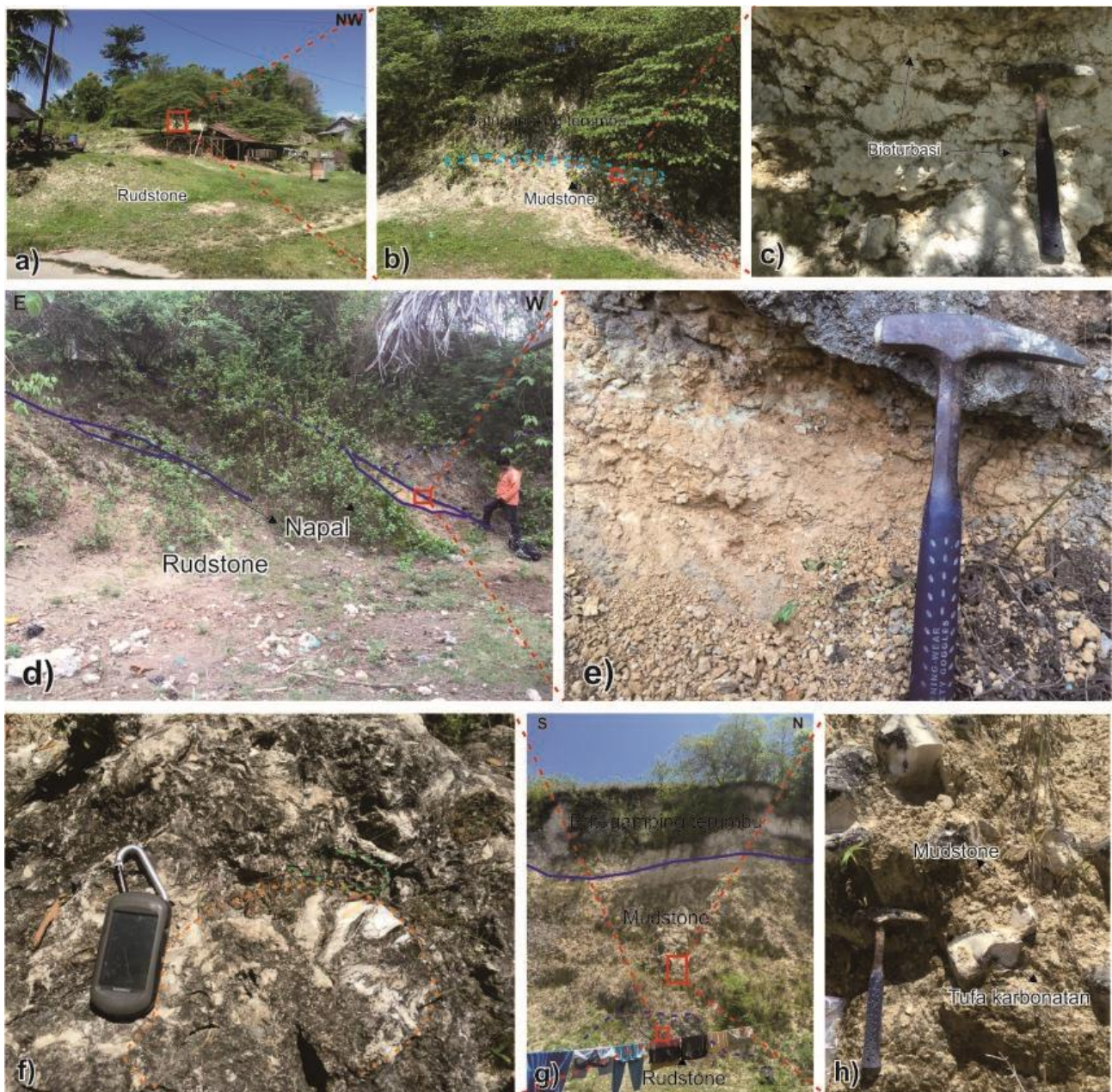


Gambar 2. Pengamatan lapangan pada satuan batugamping klastik, a), b) dan c) perlapisan grainstone terlihat banyak pecahan terumbu dan moluska (stasiun BR007), d) dan e) kontak antara satuan batugamping klastik, satuan batugamping terumbu dan satuan batupasir (biru putus-putus:tidak selaras, biru tegas:selaras) (stasiun BR041), f), g) dan h) kenampakan tuff dilapangan pada perlapisan satuan batugamping klastik (stasiun BR007).

3.2.2. Satuan batugamping terumbu

Litologi penyusun satuan ini terutama rudstone, napal, mudstone dan tufa. Terumbu berwarna putih keabu-abuan, bio-klastik, umumnya berupa terumbu dan moluska besar, masif, komposisi karbonat sehingga dinamakan batugamping terumbu yang merupakan batugamping bio-klastik (Gambar 3). Rudstone menunjukkan ciri-ciri dengan warna segar putih kecokelatan, warna lapuk kehitaman, tekstur tumbuh, kompak, setempat berlapis dengan kenampakan sisa hasil pertumbuhan terumbu karang dan terdapat fosil dari filum moluska pada klas *gastropoda* dan *bivalvia*, karbonatan, setempat dijumpai berlapis dengan sisipan mudstone dan tufa karbonatan serta napal dengan banyak kandungan mikrofosil. Mudstone berwarna putih kecokelatan, tekstur klastika dengan komponen dominan lumpur karbonat, setempat mengandung pecahan koral, cangkang moluska yang tertanam dalam lumpur karbonat, kurang kompak setempat dijumpai fragmen tufa gampingan.

Tufa berwarna segar putih, lapuk coklat kekuningan, secara umum berukuran < 2 mm yang tersusun atas fragmen kristal plagioklas, kuarsa dan gelas, yang sebagian tersemankan oleh kalsit. Butiran kristal dominan kalsit yang dicirikan dengan kenampakan *mosaic* diantara *shards* gelas memperlihatkan bias



Gambar 3. Pengamatan lapangan pada satuan batugamping bio-klastik, a), b) dan c) perlapisan batugamping mudstone dan rudstone (stasiun BR004), d) dan e) kontak antara satuan batugamping terumbu dengan napal (stasiun BR033), f), g) dan h) perlapisan batugamping mudstone, rudstone dan tufa (stasiun BR005).



Gambar 4. a), b) dan c) Kontak keselarasan antara breksi, batulempung dan batupasir (stasiun BR042), d) kontak ketidakselarasan antara satuan batugamping terumbu dengan satuan batupasir (stasiun BR039), e) dan f), kontak selaras antara batulempung dan batupasir serta kenampakan pecahan-pecahan terumbu dan moluska pada batulempung (stasiun BR064), g) dan h), kenampakan batupasir dengan vein kalsit yang terbentuk (stasiun BR047), i) kenampakan sisa jejak tempat cangkang bivalvia pada litologi batulempung (stasiun BR041).

rangkap tinggi, kuarsa berukuran 0.05 mm – 0.1 mm, hadir setempat diantara gelas dan kalsit. Teramati di lapangan sebagai pecahan fragmen besar pengisi *mudstone* dengan ketebalan ± 12 cm tetapi tidak ditemukan kemenerusan lapisan di beberapa lokasi pengamatan sehingga diinterpretasikan batuan ini hanya sebagai sisipan. Satuan batugamping terumbu merupakan kelompok litologi yang berkembang di wilayah perbukitan selatan daerah penelitian. Satuan ini menempati luas kurang lebih 9 Km² atau 13.3 % daerah penelitian

3.2.3. Satuan batupasir

Litologi penyusun satuan ini berupa batupasir, batulempung dan breksi. Batupasir berwarna abu-abu kecokelatan, fragmen berupa litik, kuarsa dan plagioklas, berukuran pasir sedang hingga pasir sangat kasar, angular-subangular, terpilah sedang, matrik pasir sangat halus, semen bersifat silika setempat gampingan, setempat terdapat vein-vein kalsit, kekompakan sedang, porositas baik, kemas terbuka (*clast supported*) (Gambar 4).

Breksi berwarna abu-abu kecokelatan, fragmen litik berupa andesit, diorit, grandiorit dan fosil kayu, matrik pasir sedang hingga kasar, semen bersifat silika, kekompakan sedang, porositas baik serta kemas terbuka (*clast supported*). Batulempung warna kecokelatan hingga hitam, setempat banyak mengandung pecahan fosil moluska berupa *gastropoda* dan *bivalvia* serta pecahan terumbu, padat setempat pecah-pecah (Gambar 4a dan 4b).

3.3. Formasi Endapan Danau

3.3.1. Satuan lempung

Litologi penyusun satuan ini berupa perselingan lempung dan pasir yang termampatkan lemah didasarkan pada data lapangan dan data bor oleh BWS II Sulawesi (2018b). Pasir berwarna abu-abu, lepas, berbutir halus-sedang, dapat diuraikan dengan tangan, memperlihatkan tekstur menghalus keatas, pemilahan baik setempat banyak mengandung pecahan terumbu dan fosil moluska.

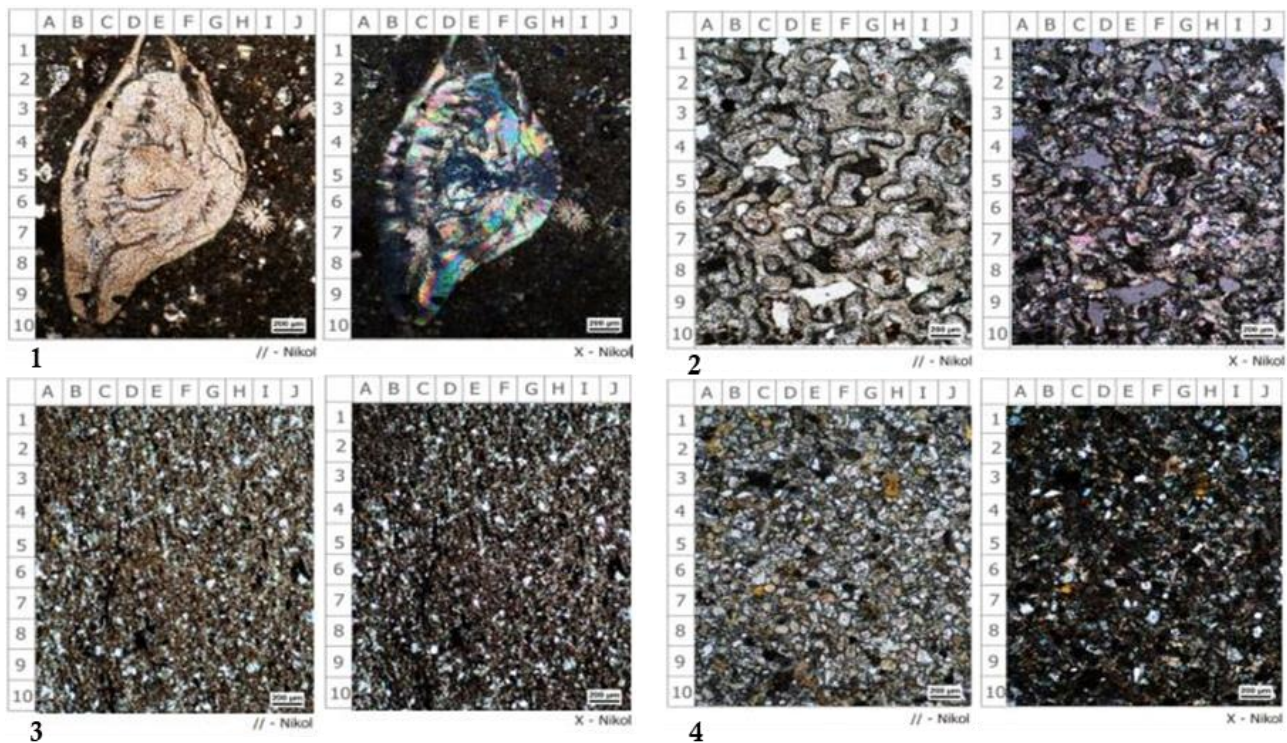
Lempung abu-abu terang, lembut, dapat diuraikan dengan tangan, plastisitas tinggi, kaya akan endapan organik berupa akar, pecahan terumbu serta fosil. Batupasir berwarna abu-abu kocokelatan, fragmen berupa litik, kuarsa dan plagioklas, berukuran pasir sedang hingga pasir sangat kasar, angular-subangular, terpilah sedang, matrik pasir sangat halus, semen bersifat silika setempat gampingan, setempat terdapat vein-vein kalsit, kekompakan sedang, porositas baik, kemas terbuka (*clast supported*). Setempat banyak mengandung pecahan fosil moluska berupa *gastropoda* dan *bivalvia* serta pecahan terumbu, padat setempat pecah-pecah (Gambar 5).

3.3.2. Satuan lempung pasir

Litologi penyusun satuan ini merupakan endapan fluvial. Terdiri atas umumnya berupa material lepas yang berukuran lempung, pasir serta kerikil yang berukuran kerikil hingga kerakal berbentuk angular



Gambar 5. Kontak antara satuan lempung dan satuan lempung Pasiran a) dan b) (stasiun BR002) c) dan d) (stasiun BR071).

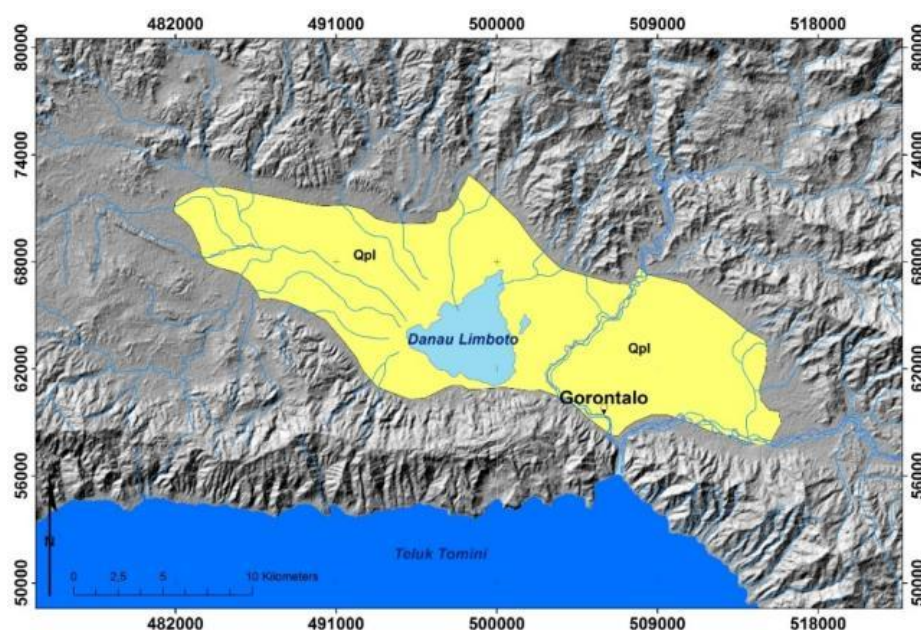


Gambar 6. Kenampakan cangkang dan mikrit pada sayatan tipis grainstone (BR007) (1), Kenampakan tufa pada sayatan tipis (BR007) (2), Kenampakan batulempung pada sayatan tipis (BR007) (3) dan Kenampakan pasir pada sayatan tipis (Stasiun BR003) (4)

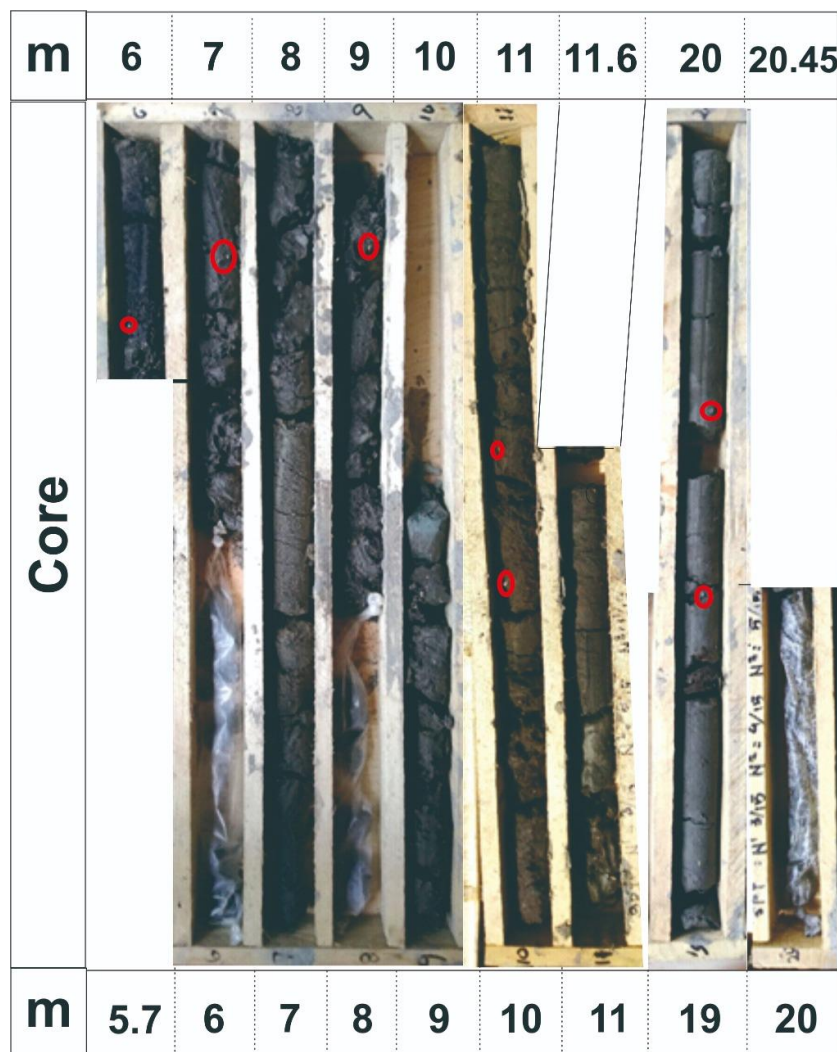
hingga membulat tersusun atas pecahan batuan, mineral mafik, kuarsa, plagioklas, ortoklas serta sebagian pasir bersifat besian (Gambar 6).

3.4 *Fasies Formasi Endapan Danau*

Berdasarkan beberapa peneliti terdahulu bahwa Formasi Endapan Danau terdiri atas batupasir, batulempung dan kerikil. Formasi ini merupakan hasil dari endapan aliran gravitasi di lingkungan danau darat. Sebagian anggota satuan formasi Endapan Danau merupakan endapan teras (Bawono et al., 1999). Berdasarkan data lapangan meliputi litologi, geometri lapisan, struktur sedimen, iknofasies, dan data bor serta kesebandingan geologi regional lembar Limboto skala 1:100.000 (Bawono et al., 1999) secara keseluruhan lokasi penelitian terdiri dari zona pengendapan laut, transisi serta teresterial (Gambar 7).



Gambar 7. Penyebaran Formasi Endapan Danau di Cekungan Limboto, dimodifikasi dari Bawono et al., (1999); Apandi & Bachri (1997)



Gambar 8. Kenampakan fosil moluska pada core box 1 ditandai oleh warna merah (BWS Sulawesi II, 2018b)

Aktivitas tektonisme pada daerah penelitian dimulai pada Miosen hingga Plistosen, dimana pada kala ini adalah proses pembentukan cekungan Limboto hingga terpisah dengan muka air laut. Juga didasarkan pada keadaan paleogeografi Sulawesi yang dimodelkan oleh Nugraha & Hall (2018) dimana muka air laut pada akhir plistosen mencapai cekungan-cekungan darat yang ada pada Lembah Paguyaman dan Lembah Limboto.

Berdasarkan data lapangan serta Peta Geologi Regional Lembar Limboto skala 1:100.000 (Bawono et al., 1999) dan data lapangan serta pengeboran geologi oleh BWS Sulawesi II (2018b) Formasi Endapan Danau tersebar merata hampir di seluruh cekungan Limboto dan dapat disimpulkan Formasi Endapan Danau terendapkan pada fasies dan lingkungan teresterial dimana terdiri atas lingkungan *lake margin clastic deposit* dan *meandering-stream deposit*.

3.4.1 *Fasies lake margin clastic deposits*

Fasies *Lake Margin Clastic Deposits* berdasarkan hasil pengukuran penampang stratigrafi terukur terdiri atas subfasies rawa danau dan menurut BWS Sulawesi II (2018b) yaitu hasil pengeboran juga terdiri atas subfasies berupa deltaik danau dan pantai danau (Gambar 8). Pada daerah penelitian, fasies ini dicirikan oleh dominasi endapan-endapan rawa danau (*lacustrine swamp*) yang cukup intensif. Litologi yang ditemukan berupa lempung dan pasir berukuran butir dari lempung hingga pasir sangat halus serta ditemukan banyak fosil moluska yang tersebar umumnya pada litologi lempung juga banyak ditemukan struktur bioturbasi dari jejak jejak akar ataupun makhluk hidup. Fasies ini merupakan fasies tertua dari Formasi Endapan Danau dan berlangsung hingga saat ini.

3.4.2 *Fasies meandering-stream deposits*

Fasies *Meandering* terdiri atas subfasies berupa fasies dataran banjir, *natural levee*, dan channel sungai. Fasies ini dicirikan oleh dominasi endapan-endapan channel yang cukup intensif. Litologi yang



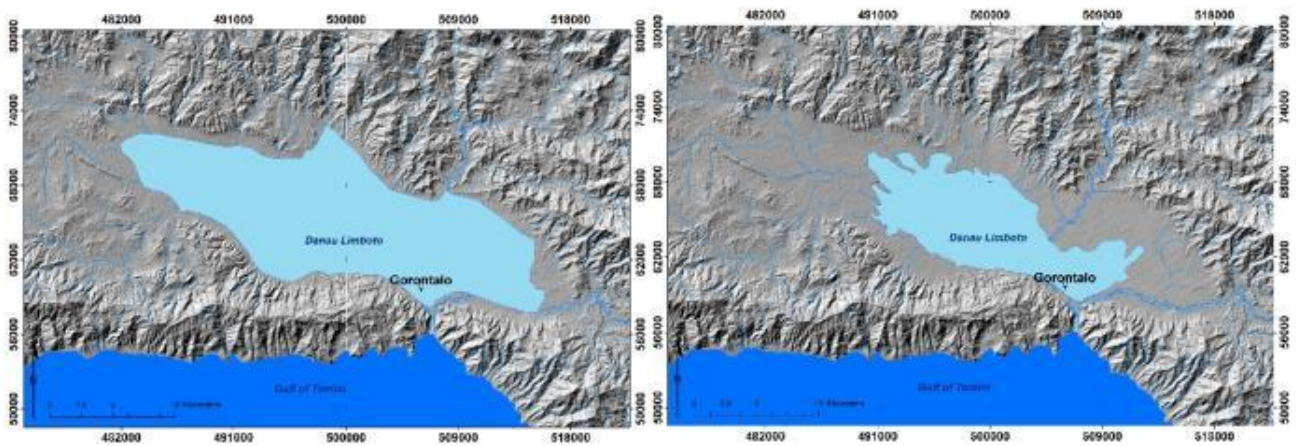
Gambar 9. Subfasies rawa danau, dataran banjir dan endapan *channel*, a) kenampakan kontrol morfologi terhadap fasies pengendapan; b) dan c) fasies *clastic lake deposits* dan *meandering-channel system* (BR001 dan BR002); d) dan e) kenampakan fosil moluska air tawar berupa gastropoda (BR017).

ditemukan didominasi oleh pasir dan setempat lempung bersifat lepas serta banyak ditemukan sisa-sisa akar dan aktivitas-aktivitas antropogenik berupa limbah manusia. Pada fasies ini juga ditemukan banyak distribusi perlapisan laminasi silang-siur dan paralel (Gambar 9).

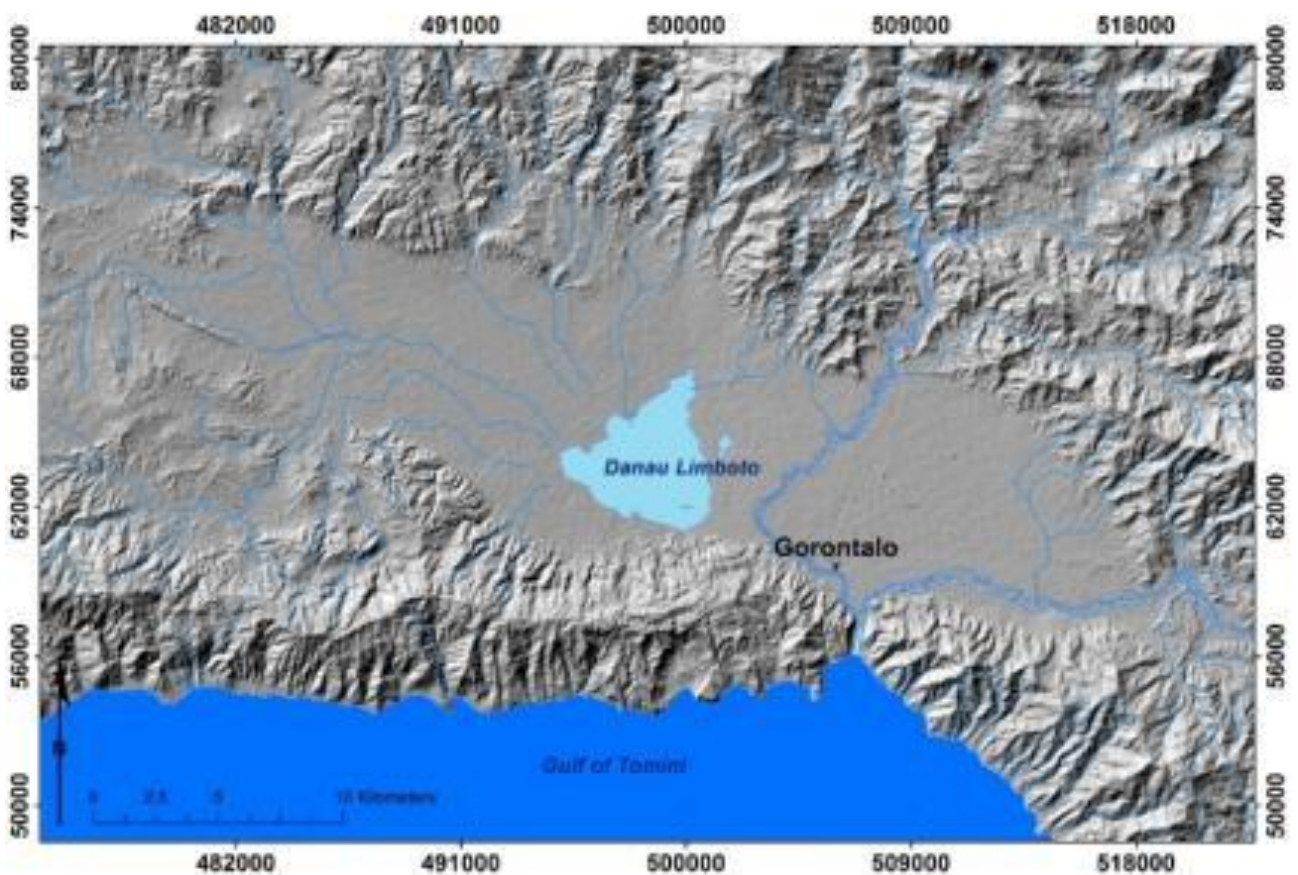
3.5 Penyebaran Fasies Pada Daerah Penelitian

Keberadaan Danau Limboto dimulai pada Holosen tepatnya terpisah dari muka air laut (Nugraha & Hall, 2018). Tersebar hampir secara keseluruhan pada daerah cekungan Limboto (Bawono et al., 1999), dimana cakupan danau ini berkisar pada 10.000 tahun lalu dikarenakan aktivitas pendangkalan yang cukup tinggi sehingga membuat perubahan luas Danau (Putra et al., 2012).

Pada sekitar <2500 tahun lalu dari tinggi aktivitas erosi dan pendangkalan dari Danau Limboto menyebabkan luas danau berkurang hingga sekitar 50% dari luas danau pada 10.000 tahun lalu. Hal tersebut berdasarkan dari data pengeboran dan *carbon dating* pada endapan-endapan disekitar cekungan Limboto yang dilakukan oleh BWS Sulawesi II (2018a), serta di interpolasikan dari data *DEM SRTM*. Pada saat ini juga dapat terlihat keadaan Danau Limboto yang mengalami perubahan luas danau



Gambar 10. Danau Limboto pada <10.000 tahun lalu (Bawono et al., 1999) (Kiri); Danau Limboto pada <2.500 tahun dari interpolasi DEM SRTM dengan Carbon Dating oleh BWS Sulawesi II (2018a) (Kanan).

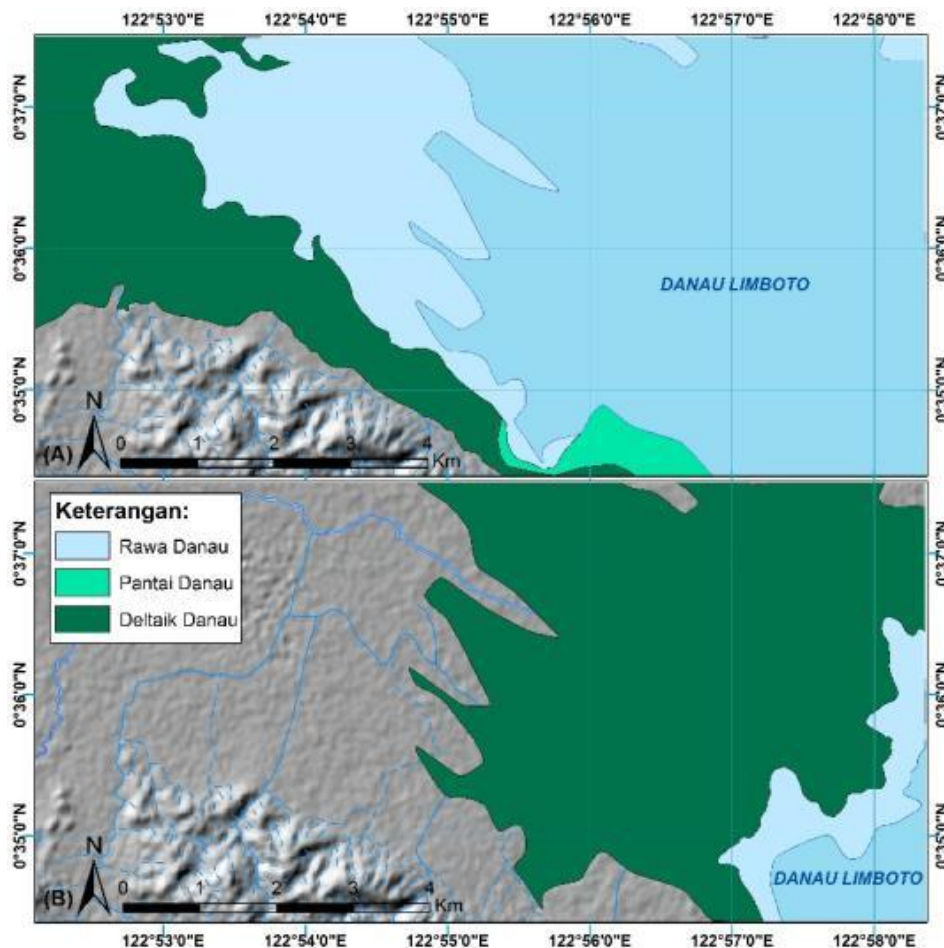


Gambar 11. Danau Limboto saat ini

yang cukup signifikan pada 10 tahun terakhir berdasarkan foto udara dan citra *Worldview* kawasan Danau (Gambar 10 dan Gambar 11).

Dari perubahan-perubahan luas Danau Limboto dari kurun waktu beberapa tahun terakhir, dapat disimpulkan bahwa Danau Limboto terancam dapat hilang dalam kurun waktu beberapa tahun kedepan, sehingga diperlukan berbagai tindakan yang berarti dari berbagai *stake-holder* yang memiliki kepentingan terhadap keberlangsungan danau ini.

Pola penyebaran fasies *lake margin clastic deposits* pada daerah penelitian disimpulkan berdasarkan hasil fasies yang mendominasi pada data penampang stratigrafi, terlihat perubahan yang signifikan pada subfasies *lake margin clastic deposits* dalam kurun waktu 10.000 tahun terakhir hingga saat ini. Pola penyebaran fasies ini mendeskripsikan aktivitas transportasi sedimentasi yang cukup tinggi pada Danau Limboto (Gambar 12).



Gambar 12. Pola penyebaran fasies *lake margin clatic deposits* pada daerah penelitian (a) 10.000 – 2500 tahun (b) 2500 tahun – saat ini. (Dinterpolasi dari data penampang stratigrafi dan *DEM SRTM*).

Subfasies deltaik fasies dicirikan oleh *keybed* berupa penyebaran struktur laminasi sejajar dan setempat laminasi silang siur yang mendominasi pada lapisan pasir yang mengindikasikan adanya aktivitas-aktivitas saluran sungai pada fasies ini. Subfasies rawa danau dicirikan oleh *keybed* lapisan lempung yang banyak mengandung sisa-sisa tumbuhan dan cangkang moluska air tawar. Sementara subfasies pantai danau banyak berupa endapan pasir yang setempat terisi oleh pecahan-pecahan terumbu dengan karakteristik pasir yang sangat retas dengan campuran lempung yang rendah.

4. Kesimpulan

Fasies dan lingkungan pengendapan daerah penelitian, dibagi menjadi dua formasi utama yaitu formasi non-endapan danau dan formasi endapan danau. Formasi non-endapan danau yaitu satuan batugamping klastik yang berumur akhir Miosen Akhir hingga akhir Pliosen Awal terendapkan di zona neritik tengah hingga neritik luar, satuan batugamping terumbu berumur akhir Miosen Akhir hingga awal Pliosen Akhir diendapkan pada zona neritik dalam hingga neritik tengah, satuan batupasir dibandingkan dengan formasi Molasa Selebes dan formasi Endapan Teras sehingga diendapkan di daerah cekungan pasca orogenik terakhir berumur Pliosen Akhir hingga Plistosen dan Formasi endapan danau satuan lempung dibandingkan dengan formasi Endapan Danau di endapkan pada daerah cekungan-cekungan darat berumur Holosen dan terendapkan hingga saat ini dan terakhir satuan lempung pasiran yang merupakan endapan fluvial dan masih terendapkan hingga saat ini

Secara keseluruhan lokasi penelitian terdiri dari zona pengendapan laut, transisi serta teresterial. Diperlihatkan dari adanya endapan penciri lingkungan pengendapan laut, lingkungan pengendapan transisi dan teresterial. Fokus studi pada tugas akhir ialah fasies dan lingkungan pengendapan Formasi Endapan Danau dimana mulai diendapkan pada kala Holosen hingga saat ini oleh aktivitas pengendapan di daerah teresterial, tidak mencirikan adanya pengaruh aktivitas air laut sehingga disimpulkan bahwa pengendapannya dikontrol oleh air tawar. Formasi Endapan Danau tersebar merata hampir di seluruh cekungan Limboto yang terdiri atas lingkungan *lake margin clastic deposit* dan *meandering-stream deposit*.

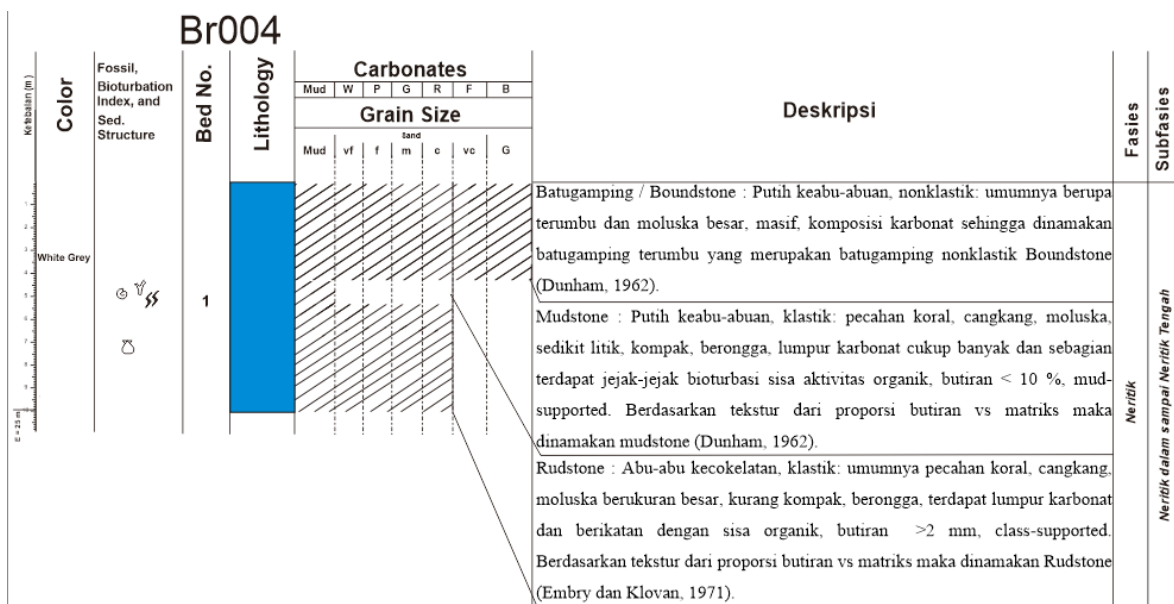
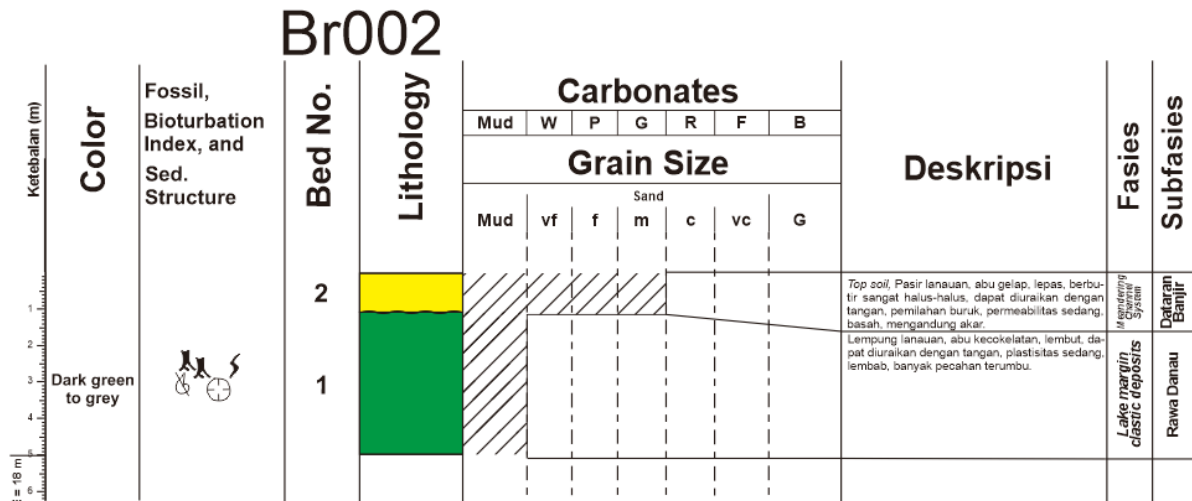
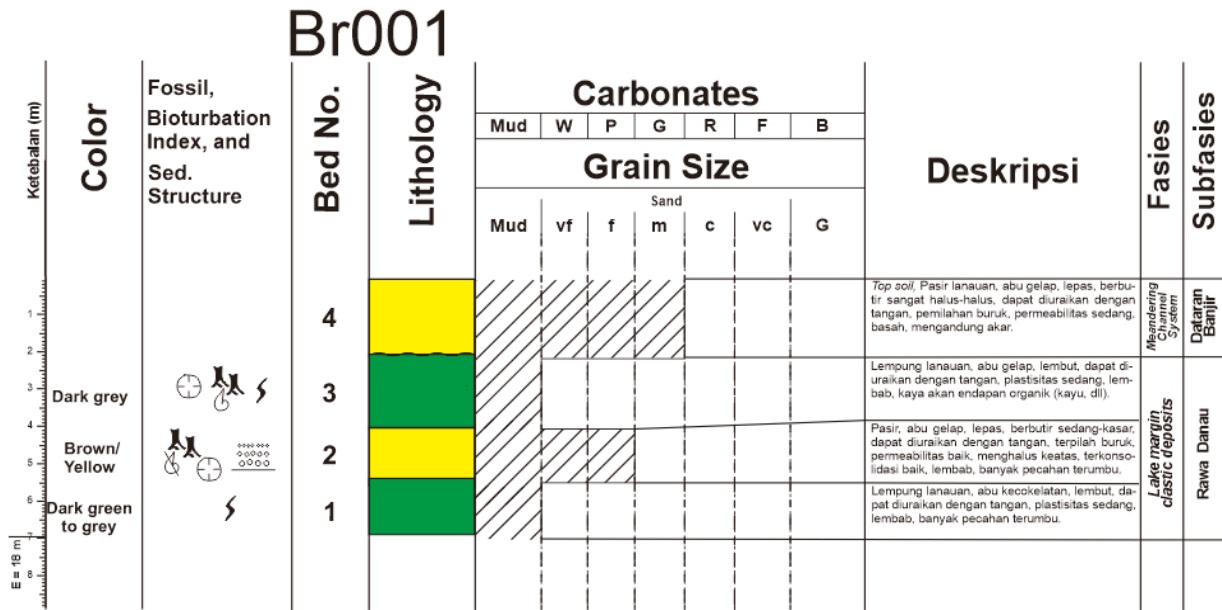
5. Ucapan Terima Kasih

Ucapan terimakasih kepada seluruh pihak terkait yang telah membantu terselesaikannya penelitian ini. Professor Masayuki Sakakibara dari Ehime University dan Professor Emy Suparka dari Institut Teknologi Bandung, yang telah membantu dalam analisis data petrografi, Patra Embara, ST dari PT. Suwanda Karya Mandiri yang telah memberikan kontribusi data penelitian.

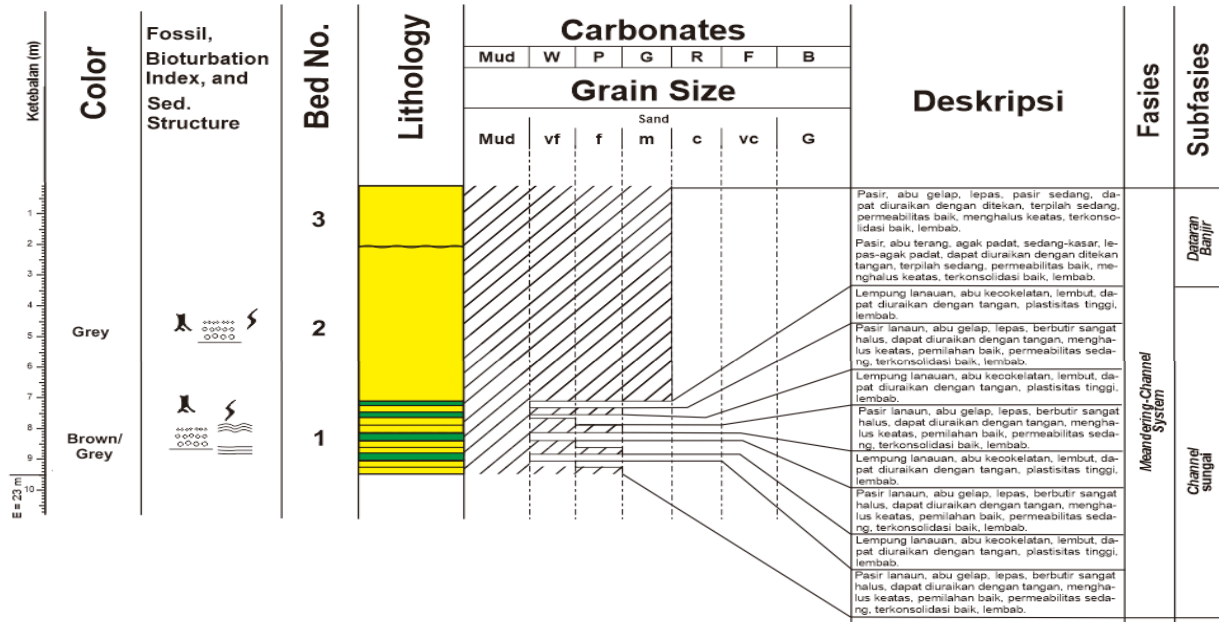
6. Referensi

- Apandi, T. & Bachri, S., 1997. Geological map of the Kotamobagu sheet. *Sulawesi Map*.
- Bawono, S., S., Partoyo, E., Wirosujono, S., Situmorang, R., I., & Spandjojo R., J., B. 1990 *Peta geologi Lembar Limboto, Sulawesi skala 1:100.000*. . Pusat Penelitian dan Pengembangan Geologi. Bandung.
- [BIG] Badan Informasi Geospasial. 2013. *Peta Rupa Bumi Indonesia, lembar 2216-621 Dan Lembar 2216-622 Limboto skala 1:25.000*. Indonesia.
- Blow, H., 1969. The Late Middle Eocene to Recent Planktonic Foraminiferal Biostratigraphy. *International Conference Planktonic Microfossil. 1967. Proceeding., Bull Vol 1*
- [BWS] Balai Wilayah Sungai Sulawesi II. 2018a. Analisis Seismic Hazard : DD dan Sertifikasi Desain Bendungan Bolango Ulu (MYC). Tidak diterbitkan. *Laporan Internal*. Kementerian Pekerjaan Umum dan Perumahan Rakyat. Jakarta.
- [BWS] Balai Wilayah Sungai Sulawesi II. 2018b. Desain Penataan Kawasan Danau Limboto. *Laporan Internal*. Kementerian Pekerjaan Umum dan Perumahan Rakyat. Jakarta.
- Embry, R.J., & Klovan, J.E., 1971. A Late Devonian Reef Tract on Northeastern Bank Island, N.W.T. *Bulletin of Canadian Petroleum Geology* 19(4):730-781.
- Nugraha, A., M., S., & Hall, R., 2018. Late Cenozoic paleogeography of Sulawesi, Indonesia. *Paleogeography, Paleoclimatology, Paleoecology*, 3. 490:191-209
- Pettijohn, F.J., 1975. *Sedimentary Rocks 3rd ed.* Harper and Row. New York
- Putra, S., S., Hassan C., Djudi, Suryatmojo, H., 2012. Reservoir Saboworks Solutions in Limboto Lake Sedimentations, Northern Sulawesi, Indonesia. *The 3rd International Conference on Sustainable Future for Human Security SUSTAIN 2012. Procedia Environmental Sciences*. 17(2013):230-239.
- Rudyawan, A., Hall, R., & White, L., 2014. Neogene Extension of the Central North Arm of Sulawesi, Indonesia. *American Geophysical Union, Fall Meeting*. December 2014. San Fransisco.
- Satyana A. H., Faulin T., & Mulyati S., N., 2011. Tectonic Evolution Of Sulawesi Area: Implications For Proven And Prospective Petroleum Plays. *Proceedings JCM Makassar 2011. The 36th HAGI and 40th IAGI Annual Convention and Exhibition*. Makassar.
- Tipsword, H.J., Setzer, F.M., & Smith, Jr., F.L., 1966. Interpretation of Depositional Environment in Gulf Coast Petroleum Exploration from Paleoecology and Related Stratigraphy: Transactions of the Gulf Coast. *Association of Geological Societies* 16:119-130
- Van Leeuwen, T. M. & Muhardjo. 2005. Stratigraphy and tectonic setting of the Cretaceous and Paleogene volcanic-sedimentary successions in northwest Sulawesi, Indonesia: implications for the Cenozoic evolution of Western and Northern Sulawesi. *Journal of Asian Earth Sciences* 25:481-511.

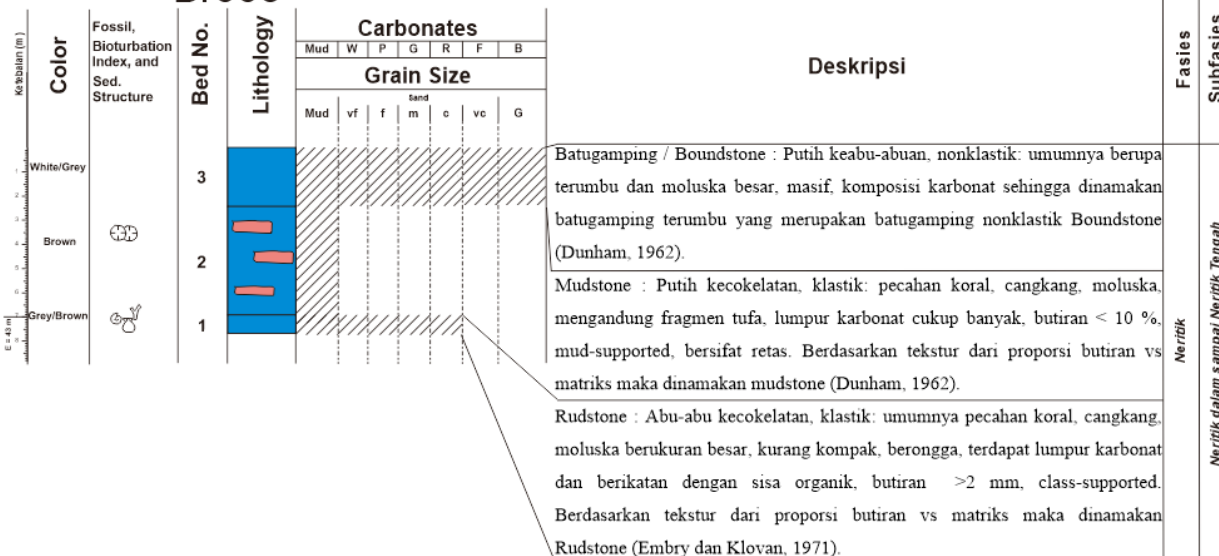
Lampiran. Profil vertikal



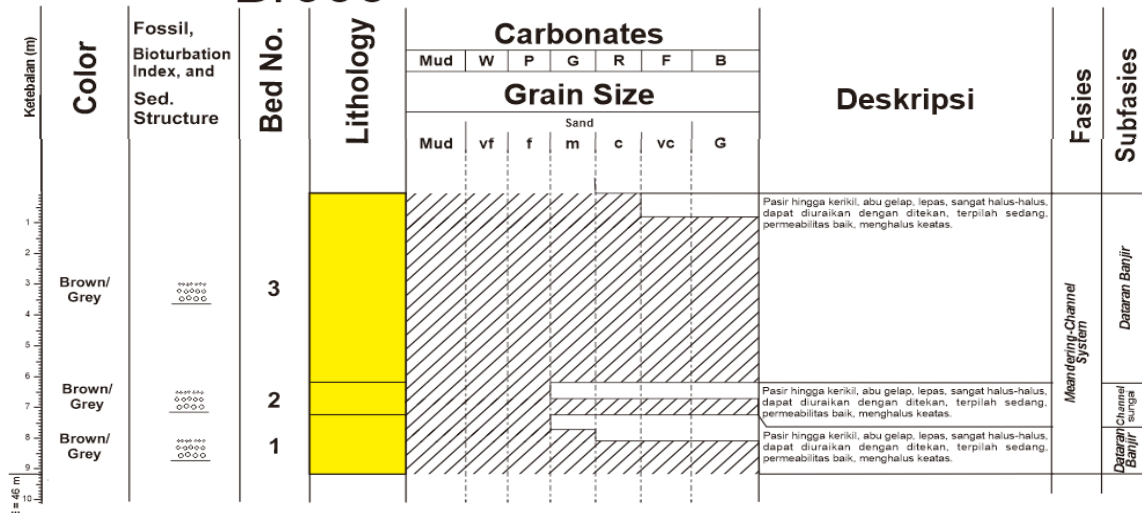
Br003

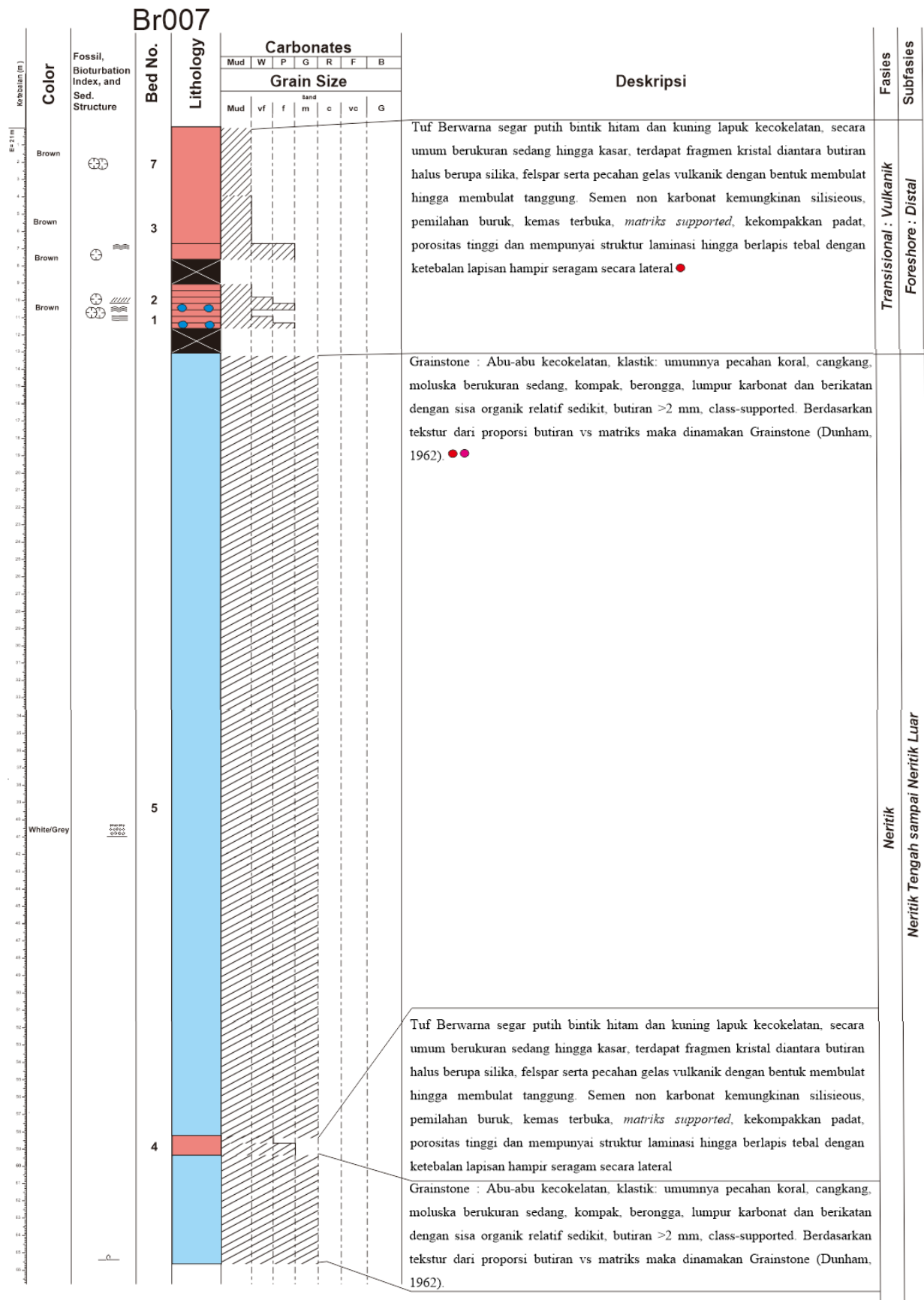


Br005



Br006





Br042																	
Kedalaman (m)	Color	Fossil, Bioturbation Index, and Sed. Structure	Bed No.	Lithology	Carbonates							Deskripsi	Fasies	Subfasies			
					Grain Size												
					Sand												
					Mud	vf	f	m	c	vc	G						
0-10 m	Dark grey	gastropoda, bivalvia, forams	3										Batupasir berwarna abu-abu kecokelatan, fragmen berupa litik, kuarsa dan plagioklas, berukuran pasir sedang hingga pasir sangat kasar, angular-subangular, terpilah sedang, matrik pasir sangat halus, semen bersifat silika setempat gampingan, setempat terdapat vein-vein kalsit, kekompakan sedang, porositas baik, kemas terbuka (<i>clast supported</i>).	Foreshore	Foreshore		
10-20 m	Brown/ Yellow	forams	2										Batulempung warna kecokelatan hingga hitam, setempat banyak mengandung pecahan fosil moluska berupa <i>gastropoda</i> dan <i>bivalvia</i> serta pecahan terumbu, padat setempat pecah-pecah.			Transitional	Offshore
20-30 m	Brown		1										Breksi berwarna abu-abu kecokelatan, fragmen litik berupa andesit, diorit, grandiorit dan fosil kayu, matrik pasir sedang hingga kasar, semen bersifat silika, kekompakan sedang, porositas baik serta kemas terbuka (<i>clast supported</i>).			Foreshore	

Br043														
Kedalaman (m)	Color	Fossil, Bioturbation Index, and Sed. Structure	Bed No.	Lithology	Carbonates							Deskripsi	Fasies	Subfasies
					Grain Size									
					Mud	W	P	G	R	F	B			
					Sand									
					Mud	vf	f	m	c	vc	G			
0-10 m	Grey		3									Batupasir berwarna abu-abu kocokelatan, fragmen berupa litik, kuarsa dan plagioklas, berukuran pasir sedang hingga pasir sangat kasar, angular-subangular, terpilah sedang, matrik pasir sangat halus, semen bersifat silika setempat gampingan, setempat terdapat vein-vein kalsit, kekompakan sedang, porositas baik, kemas terbuka (<i>clast supported</i>).	Transisional	Foreshore
10-20 m	White/ Grey		2									Boundstone berwarna putih keabu-abuan, nonklastik, umumnya berupa terumbu dan moluska besar, masif, komposisi karbonat sehingga dinamakan batugamping terumbu yang merupakan batugamping nonklastik Boundstone.		
20-30 m	White/ Yellow		1									Grainstone menunjukkan ciri-ciri dengan warna segar putih kecokelatan, tekstur klastik, agak kompak, struktur berlapis dengan kenampakkan sisa hasil pertumbuhan terumbu karang dan terdapat fosil dari filum moluska pada klas <i>gastropoda</i> , karbonatan.	Nerak dalam sampai Nerak Tengah	

Br047														
Kedalaman (m)	Color	Fossil, Bioturbation Index, and Sed. Structure	Bed No.	Lithology	Carbonates							Deskripsi	Fasies	Subfasies
					Grain Size									
					Mud	W	P	G	R	F	B			
					Sand									
					Mud	vf	f	m	c	vc	G			
0-10	Dark grey		4									Batupasir berwarna abu-abu kecokelatan, fragmen berupa litik, kuarsa dan plagioklas, berukuran pasir sedang hingga pasir sangat kasar, angular-subangular, terpilah sedang, matrik pasir pasir sangat halus, semen bersifat silika setempat gampingan, setempat terdapat vein-vein kalsit, kekompakan sedang, porositas baik, kemas terbuka (<i>clast supported</i>).	Transitional	Foreshore
10-20	Brown/ Yellow		3											
20-30	Dark green to grey		2											
30-40			1											

Legend:

	Fossils (undifferentiated)		Normal graded
	Fossils-broken		Parallel lamination
	ammonoids		Wave lamination
	Bivalves		Cross lamination
			Flame structure
			Chalcareous
	Bryozoans		Petrography
	Roots		Microfossil
	Slight		Carbon dating
	Intens		

Data Mikrofossil

Kode : Stasiun BR033
 Lokasi : Desa Tabongo Barat
 Batuan : Napal (Pettijohn, 1975)
 Pengamatan : Foraminifera kecil

BR 033 BENTONIK		Kedalaman (Zonasi Tipsword, 1966)						
No.	Spesies	Litoral	Neritik dalam	Neritik tengah	Neritik luar	Batial atas	Batial bawah	Abisal
			0	20	100	200	500	2000
1	<i>Lenticulina sp.</i>							
2	<i>Amphistegina lessonii</i>							
3	<i>Elphidium crispum</i>							
4	<i>Ammonia inflata</i>							
5	<i>Ammonia beccarii</i>							
6	<i>Elphidium macellum</i>							
7	<i>Operculina ammonoides</i>							
8	<i>Cancris auriculus</i>							
9	<i>Cibicides sp.</i>							
10								
11								

BR 033 PLANKTONIK		Umur (Zonasi Blow, 1969)										
No.	Spesies	Miosen Tengah		Miosen Akhir			Pliosen Awal		Pliosen Akhir		Plistosen	
		N13	N14	N15	N16	N17	N18	N19	N20	N21	N22	N23
1	<i>Orbulina universa</i>											
2	<i>Globorotalia humerosa</i>											
3	<i>Globigerinoides sp.</i>											
4	<i>Globorotalia menardii</i>											
5	<i>Globigeina bulloideus</i>											
6	<i>Globigerinoides ruber</i>											
7	<i>Globigerinoides trilobus trilobus</i>											
8	<i>Pulleniatina primalis</i>											

Interpretasi : Berdasarkan asosiasi foraminifera benthik yang hadir, sampel ini diendapkan pada lingkungan neritik dalam – neritik tengah. Adanya foraminifera besar seperti *amphistegina* dan *operculina* menunjukkan lingkungan yang masih dangkal. Namun kelimpahan foraminifera planktonik hanya sekitar 10%, hal ini menunjukkan lingkungan yang lebih dangkal, pada neritik dalam-neritik tengah.

Umur : Akhir Miosen Akhir – Awal Pliosen Akhir (Blow, 1969)
 Lingkungan Pengendapan : Neritik Tengah – Neritik Dalam (0 – 20 m) (Tipsword et al., 1966)

Kode : Stasiun BR007
 Lokasi : Desa Tabongo Barat
 Batuan : Grainstone (Embry & Klovan, 1971)
 Pengamatan : Foraminifera kecil

BR 007 BENTONIK		Kedalaman (Zonasi Tipsword, 1966)						
No.	Spesies	Litoral	Neritik dalam	Neritik tengah	Neritik luar	Batial atas	Batial bawah	Abisal
			0	20	100	200	500	2000
1	<i>Cancris auriculus</i>							
2	<i>Lenticulina cultrata</i>							
4	<i>Cibicidoides sp.</i>							
5	<i>Amphistegina lessonii</i>							
6	<i>Cibicides sp.</i>							
7	<i>Elphidium macellum</i>							
8	<i>Triloculina trigonula</i>							
9	<i>Quinqueloculina spp.</i>							
10	<i>Textularia aglutinans</i>							
11	<i>Operculina ammonoides</i>							
12	<i>Elphidium advenum</i>							
13	<i>Ammonia beccarii</i>							
14	<i>Bolivina spp.</i>							
15	<i>Discorbis sp.</i>							
16	<i>Elphidium crispum</i>							

BR 007 PLANKTONIK		Umur (Zonasi Blow, 1969)										
No.	Spesies	Miosen Tengah			Miosen Akhir		Pliosen Awal		Pliosen Akhir		Plistosen	
		N13	N14	N15	N16	N17	N18	N19	N20	N21	N22	N23
1	<i>Globigerinoides trilobus trilobus</i>											
2	<i>Globigerina bulloides</i>											
3	<i>Globigerinoides trilobus immaturus</i>											
4	<i>Orbulina universa</i>											
5	<i>Globaquadrina dehiscens</i>											
6	<i>Globigerinoides ruber</i>											
7	<i>Globigerinoides trilobus sacculiferus</i>											
8	<i>Globorotalia humerosa</i>											
9	<i>Neoglobaquadrina sp.</i>											
10	<i>Globorotalia obesa</i>											
11	<i>Globigerinoides obliquus extremus</i>											
12	<i>Pulleniatina primalis</i>											

Interpretasi : Genus-genus yang hadir pada sampel ini merupakan genus penciri lingkungan neritik tengah – neritik luar. Adanya foraminifera besar seperti amphistegina dan operculina menunjukkan lingkungan yang masih dangkal. Kelimpahan foraminifera planktonik hanya sekitar 30%.

Umur : Awal Miosen Akhir – Akhir Pliosen Awal (Blow, 1969)

Lingkungan Pengendapan : Neritik Tengah – Neritik Luar (20 – 100 m) (Tipsword et al., 1966)