BUKTI KORESPONDENSI

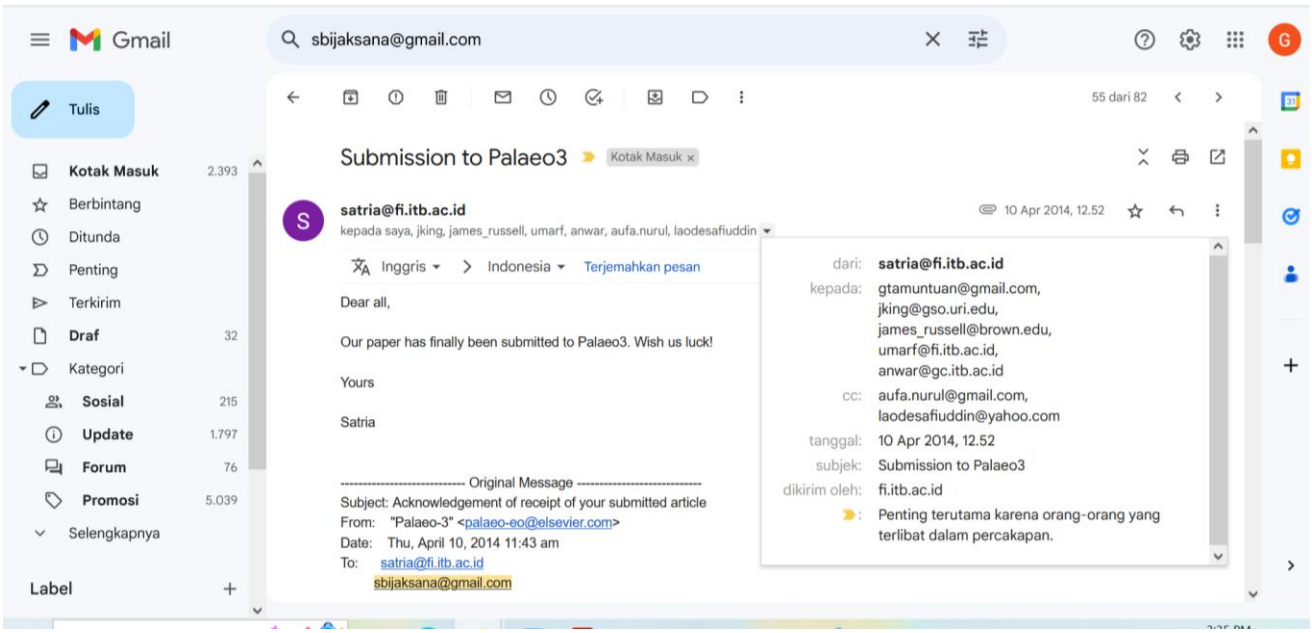
Judul Artikel Ilmiah :

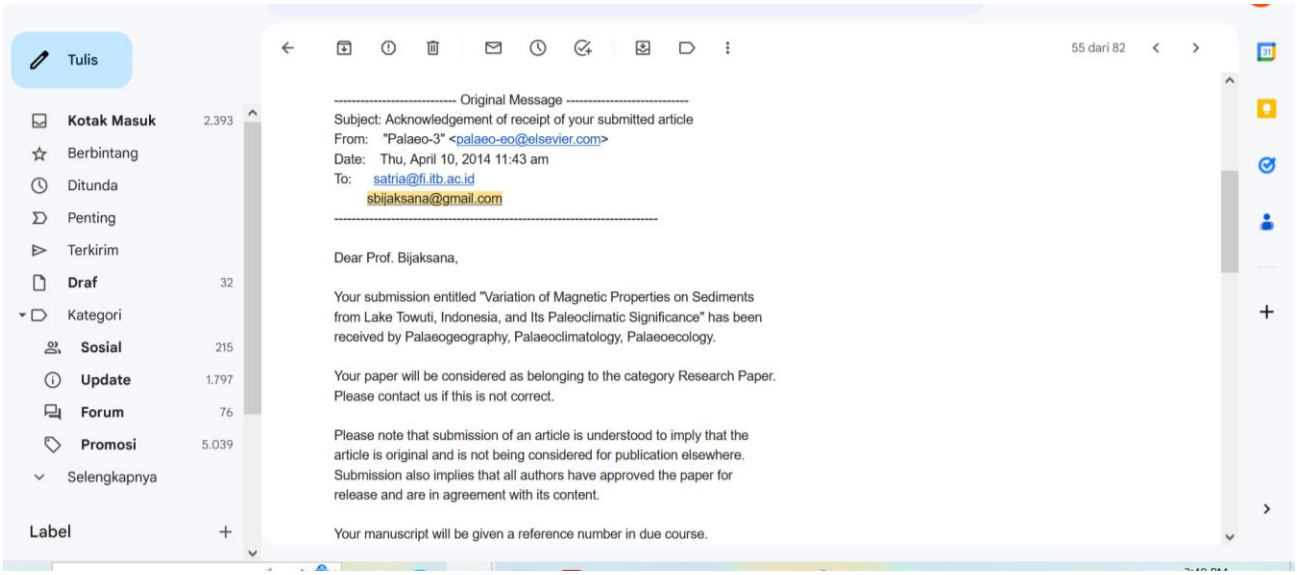
Variation of magnetic properties in sediments from Lake Towuti, Indonesia, and its paleoclimatic significance

Penulis :

Gerald Tamuntuan, Satria Bijaksana*, John King, James Russell, Umar Fauzi, Khoiril Maryunan, Nu rul Aufa, La Ode Safiuddin

Nama Jurnal : Palaeogeography, Palaeoclimatology, Palaeoecology

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---------- Original Message ----------
Subject: Acknowledgement of receipt of your submitted article
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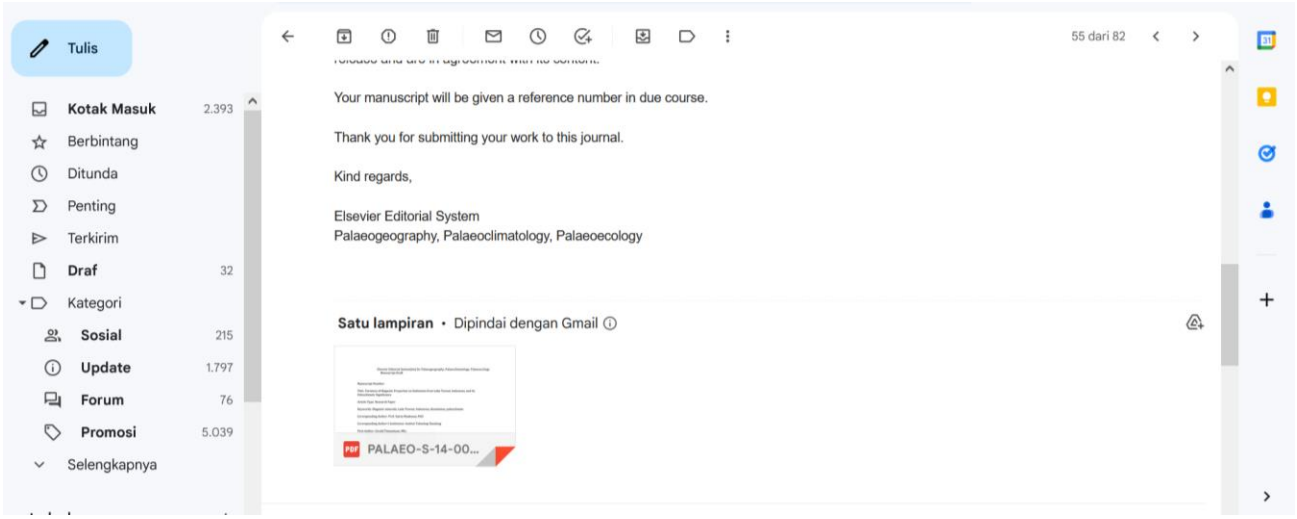
Date: Thu, April 10, 2014 11:43 am
To: satria@fi.itb.ac.id
sbijaksana@gmail.com
Dear Prof. Bijaksana,
Your submission entitled "Variation of Magnetic Properties on Sediments from Lake Towuti, Indonesia, and Its Paleoclimatic Significance" has been received by Palaeogeography, Palaeoclimatology, Palaeoecology.
Your paper will be considered as belonging to the category Research Paper. Please contact us if this is not correct.
Please note that submission of an article is understood to imply that the article is original and is not being considered for publication elsewhere. Submission also implies that all authors have approved the paper for release and are in agreement with its content.
Your manuscript will be given a reference number in due course.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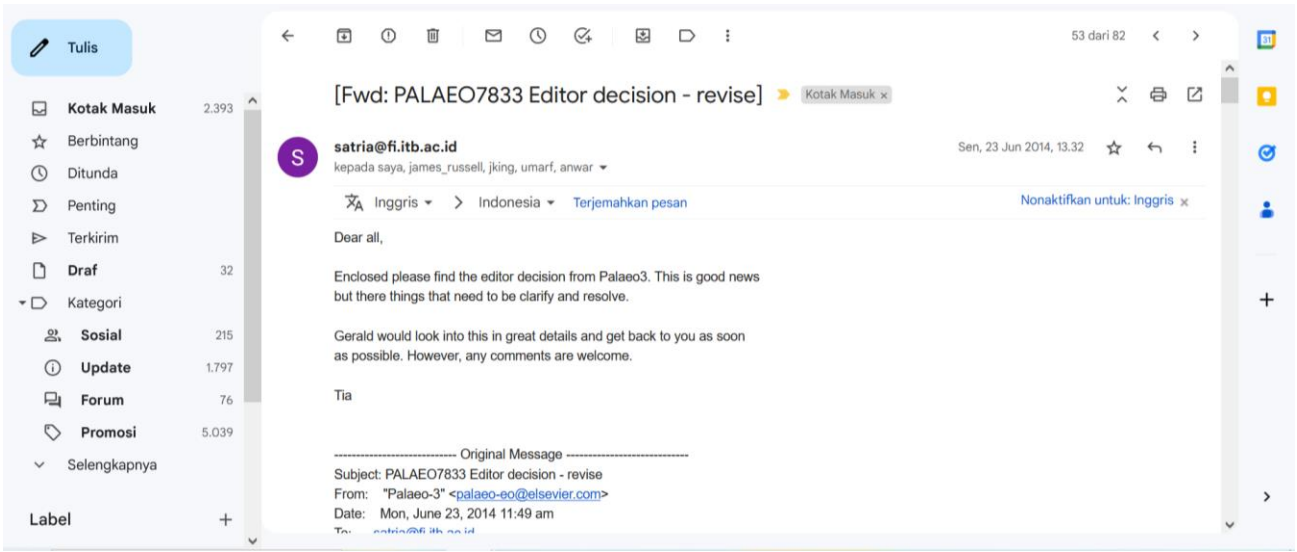
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[Fwd: PALAEO7833 Editor decision - revise]
Kotak Masuk
satria@fi.itb.ac.id
kepada saya, james_russell, jking, umarf, anwar
Sen, 23 Jun 2014, 13.32
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Terjemahkan pesan
Nonaktifkan untuk: Inggris
Dear all,
Enclosed please find the editor decision from Palaeo3. This is good news but there things that need to be clarify and resolve.
Gerald would look into this in great details and get back to you as soon as possible. However, any comments are welcome.
Tia
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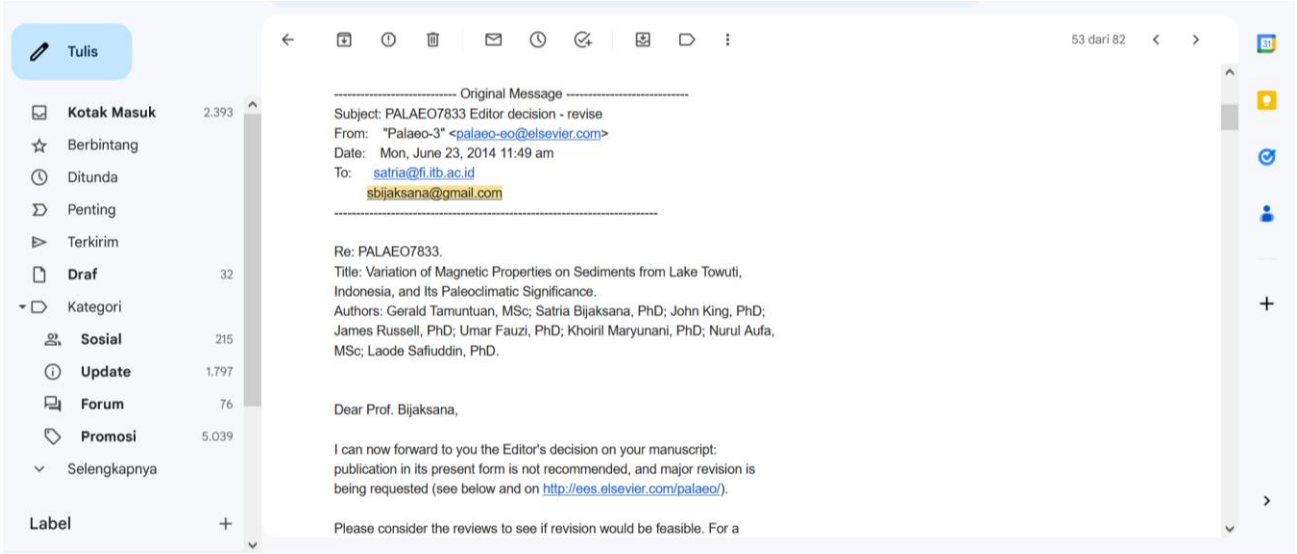
Date: Mon, June 23, 2014 11:49 am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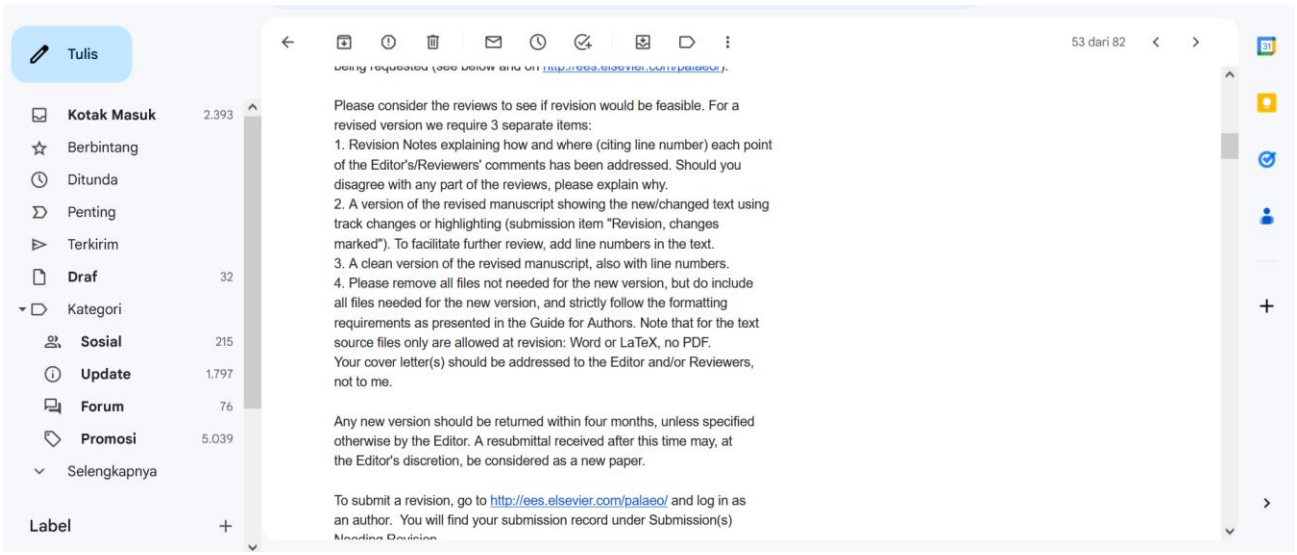
Subject: PALAEO7833 Editor decision - revise
From: "Palaeo-3" <palaeo-eo@elsevier.com>
Date: Mon, June 23, 2014 11:49 am
To: satria@fi.itb.ac.id
sbijaksana@gmail.com
Re: PALAEO7833.
Title: Variation of Magnetic Properties on Sediments from Lake Towuti, Indonesia, and Its Paleoclimatic Significance.
Authors: Gerald Tamuntuan, MSc; Satria Bijaksana, PhD; John King, PhD; James Russell, PhD; Umar Fauzi, PhD; Khoiril Maryunani, PhD; Nurul Aufa, MSc; Laode Safiuddin, PhD.
Dear Prof. Bijaksana,
I can now forward to you the Editor's decision on your manuscript: publication in its present form is not recommended, and major revision is being requested (see below and on http://ees.elsevier.com/palaeo/).
Please consider the reviews to see if revision would be feasible. For a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Please consider the reviews to see if revision would be feasible. For a revised version we require 3 separate items:
1. Revision Notes explaining how and where (citing line number) each point of the Editor's/Reviewers' comments has been addressed. Should you disagree with any part of the reviews, please explain why.
2. A version of the revised manuscript showing the new/changed text using track changes or highlighting (submission item "Revision, changes marked"). To facilitate further review, add line numbers in the text.
3. A clean version of the revised manuscript, also with line numbers.
4. Please remove all files not needed for the new version, but do include all files needed for the new version, and strictly follow the formatting requirements as presented in the Guide for Authors. Note that for the text source files only are allowed at revision: Word or LaTeX, no PDF.
Your cover letter(s) should be addressed to the Editor and/or Reviewers, not to me.
Any new version should be returned within four months, unless specified otherwise by the Editor. A resubmittal received after this time may, at the Editor's discretion, be considered as a new paper.
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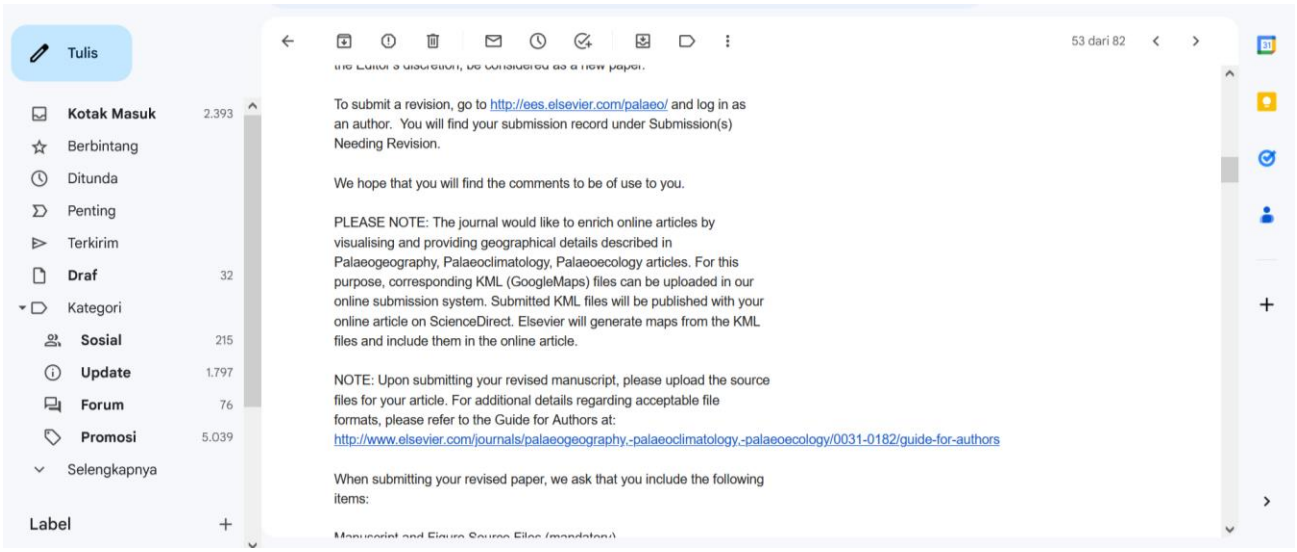
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We hope that you will find the comments to be of use to you.
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http://www.elsevier.com/journals/palaeogeography,-palaeoclimatology,-palaeoecology/0031-0182/guide-for-authors
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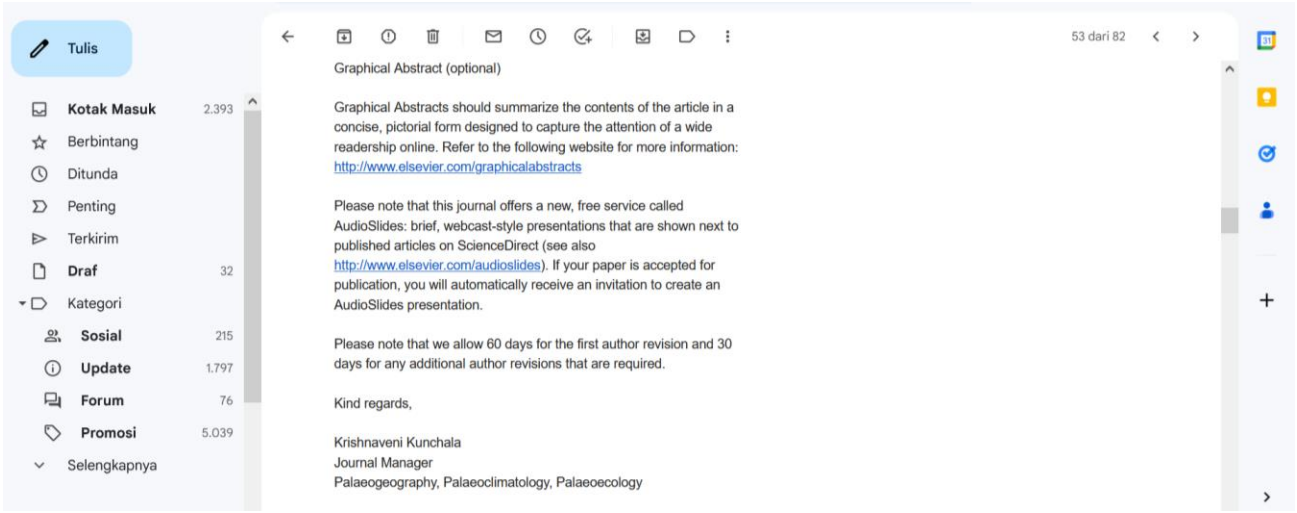
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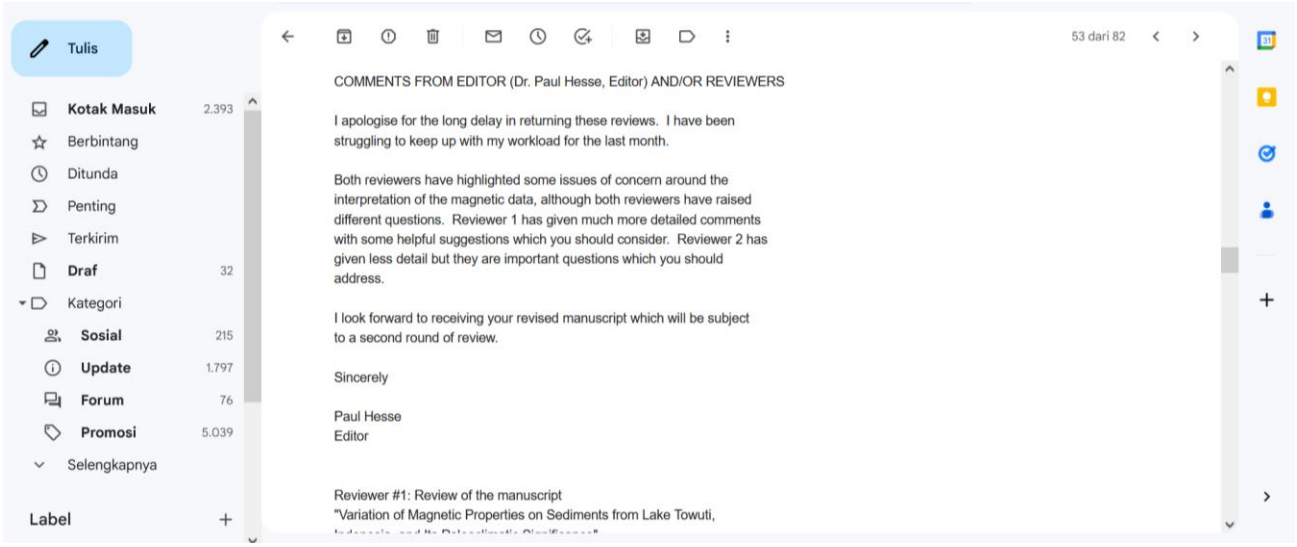
Graphical Abstract (optional)
Graphical Abstracts should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership online. Refer to the following website for more information:
http://www.elsevier.com/graphicalabstracts
Please note that this journal offers a new, free service called AudioSlides: brief, webcast-style presentations that are shown next to published articles on ScienceDirect (see also http://www.elsevier.com/audioslides). If your paper is accepted for publication, you will automatically receive an invitation to create an AudioSlides presentation.
Please note that we allow 60 days for the first author revision and 30 days for any additional author revisions that are required.
Kind regards,
Krishnaveni Kunchala
Journal Manager
Palaeogeography, Palaeoclimatology, Palaeoecology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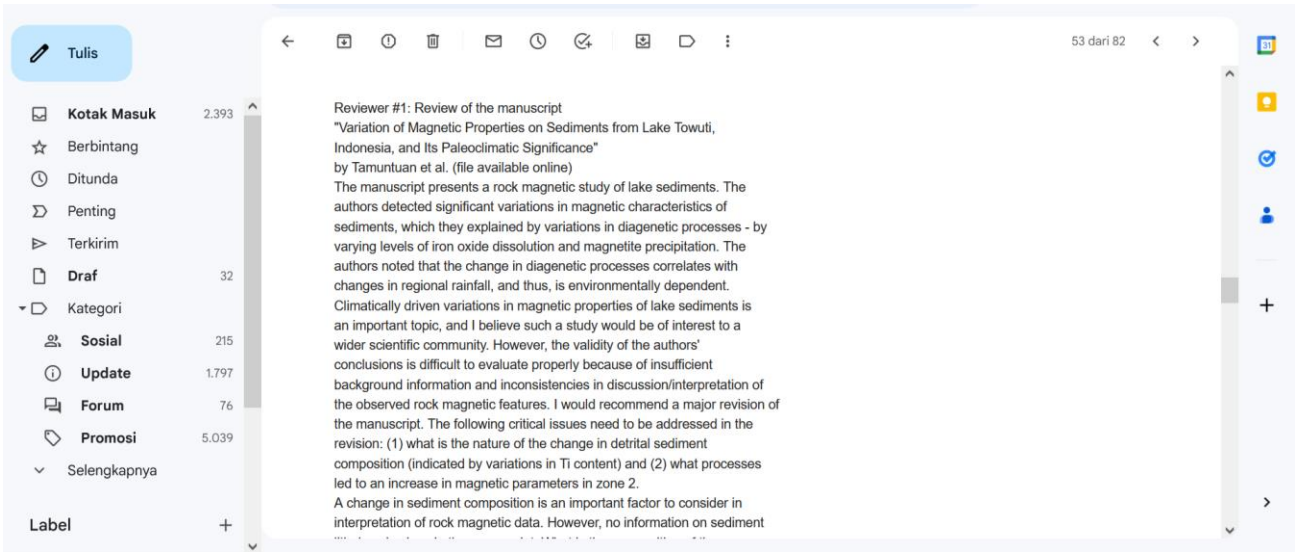
COMMENTS FROM EDITOR (Dr. Paul Hesse, Editor) AND/OR REVIEWERS
I apologise for the long delay in returning these reviews. I have been struggling to keep up with my workload for the last month.
Both reviewers have highlighted some issues of concern around the interpretation of the magnetic data, although both reviewers have raised different questions. Reviewer 1 has given much more detailed comments with some helpful suggestions which you should consider. Reviewer 2 has given less detail but they are important questions which you should address.
I look forward to receiving your revised manuscript which will be subject to a second round of review.
Sincerely
Paul Hesse
Editor
Reviewer #1: Review of the manuscript
"Variation of Magnetic Properties on Sediments from Lake Towuti,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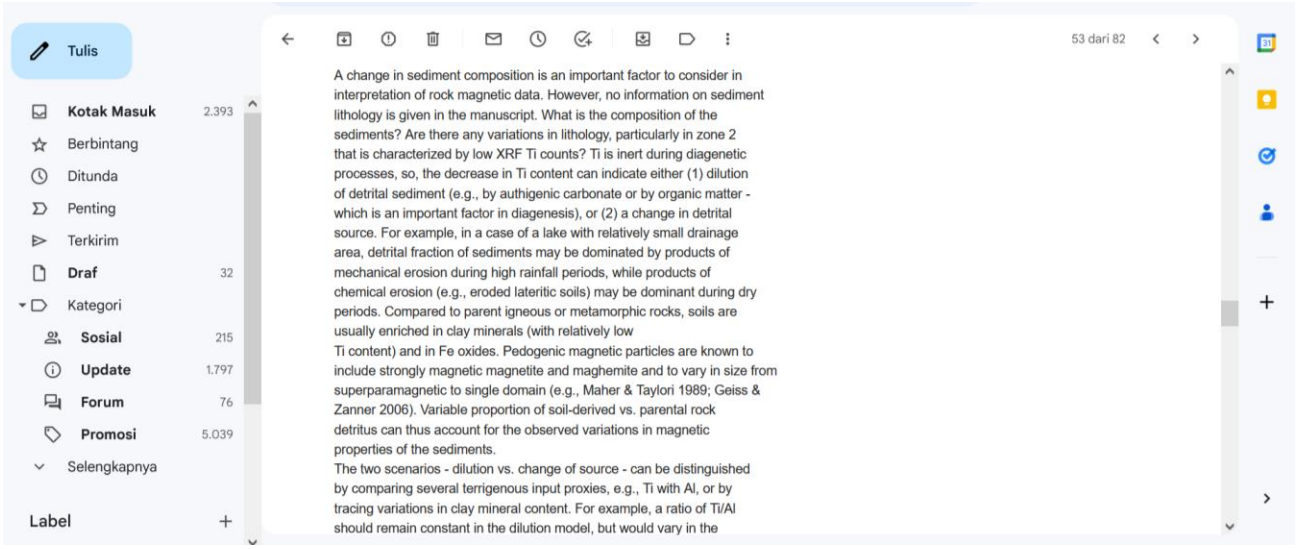
Reviewer #1: Review of the manuscript
"Variation of Magnetic Properties on Sediments from Lake Towuti, Indonesia, and Its Paleoclimatic Significance"
by Tamuntuan et al. (file available online)
The manuscript presents a rock magnetic study of lake sediments. The authors detected significant variations in magnetic characteristics of sediments, which they explained by variations in diagenetic processes - by varying levels of iron oxide dissolution and magnetite precipitation. The authors noted that the change in diagenetic processes correlates with changes in regional rainfall, and thus, is environmentally dependent. Climatically driven variations in magnetic properties of lake sediments is an important topic, and I believe such a study would be of interest to a wider scientific community. However, the validity of the authors' conclusions is difficult to evaluate properly because of insufficient background information and inconsistencies in discussion/interpretation of the observed rock magnetic features. I would recommend a major revision of the manuscript. The following critical issues need to be addressed in the revision: (1) what is the nature of the change in detrital sediment composition (indicated by variations in Ti content) and (2) what processes led to an increase in magnetic parameters in zone 2.
A change in sediment composition is an important factor to consider in interpretation of rock magnetic data. However, no information on sediment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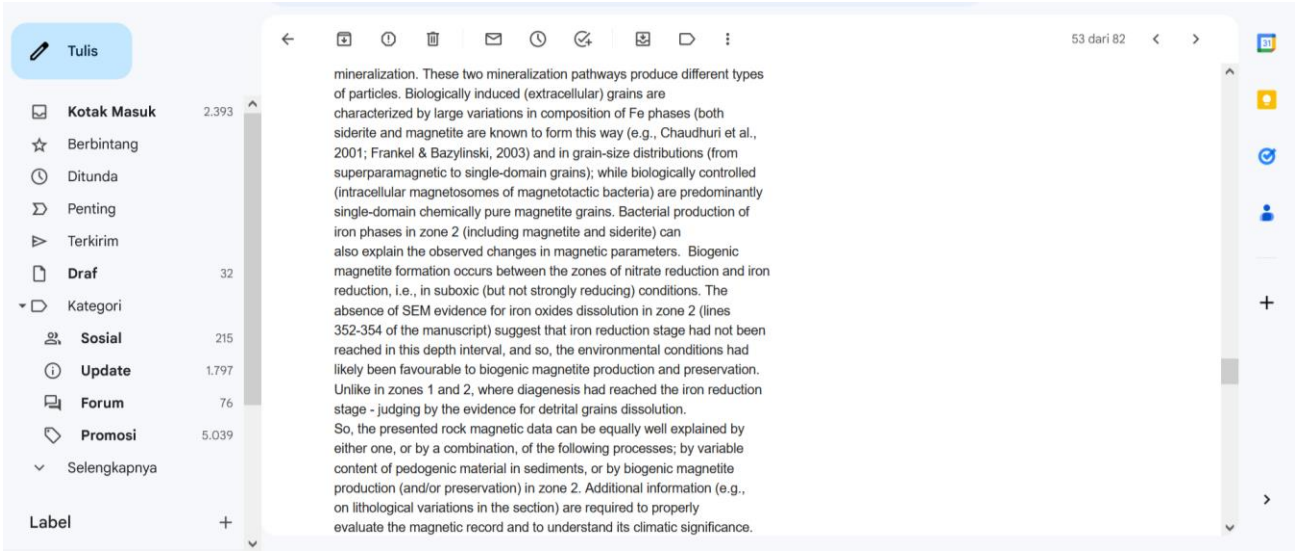
A change in sediment composition is an important factor to consider in interpretation of rock magnetic data. However, no information on sediment lithology is given in the manuscript. What is the composition of the sediments? Are there any variations in lithology, particularly in zone 2 that is characterized by low XRF Ti counts? Ti is inert during diagenetic processes, so, the decrease in Ti content can indicate either (1) dilution of detrital sediment (e.g., by authigenic carbonate or by organic matter - which is an important factor in diagenesis), or (2) a change in detrital source. For example, in a case of a lake with relatively small drainage area, detrital fraction of sediments may be dominated by products of mechanical erosion during high rainfall periods, while products of chemical erosion (e.g., eroded lateritic soils) may be dominant during dry periods. Compared to parent igneous or metamorphic rocks, soils are usually enriched in clay minerals (with relatively low
Ti content) and in Fe oxides. Pedogenic magnetic particles are known to include strongly magnetic magnetite and maghemite and to vary in size from superparamagnetic to single domain (e.g., Maher & Taylori 1989; Geiss & Zanner 2006). Variable proportion of soil-derived vs. parental rock detritus can thus account for the observed variations in magnetic properties of the sediments.
The two scenarios - dilution vs. change of source - can be distinguished by comparing several terrigenous input proxies, e.g., Ti with Al, or by tracing variations in clay mineral content. For example, a ratio of Ti/Al should remain constant in the dilution model, but would vary in the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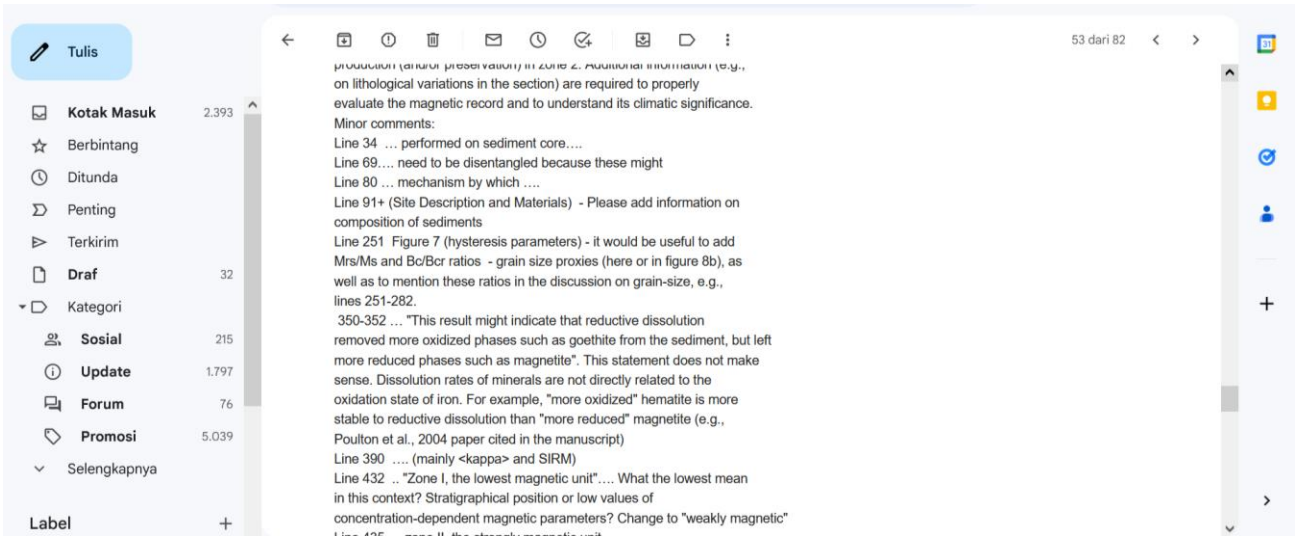
mineralization. These two mineralization pathways produce different types of particles. Biologically induced (extracellular) grains are characterized by large variations in composition of Fe phases (both siderite and magnetite are known to form this way (e.g., Chaudhuri et al., 2001; Frankel & Bazylinski, 2003) and in grain-size distributions (from superparamagnetic to single-domain grains); while biologically controlled (intracellular magnetosomes of magnetotactic bacteria) are predominantly single-domain chemically pure magnetite grains. Bacterial production of iron phases in zone 2 (including magnetite and siderite) can also explain the observed changes in magnetic parameters. Biogenic magnetite formation occurs between the zones of nitrate reduction and iron reduction, i.e., in suboxic (but not strongly reducing) conditions. The absence of SEM evidence for iron oxides dissolution in zone 2 (lines 352-354 of the manuscript) suggest that iron reduction stage had not been reached in this depth interval, and so, the environmental conditions had likely been favourable to biogenic magnetite production and preservation. Unlike in zones 1 and 2, where diagenesis had reached the iron reduction stage - judging by the evidence for detrital grains dissolution.
So, the presented rock magnetic data can be equally well explained by either one, or by a combination, of the following processes; by variable content of pedogenic material in sediments, or by biogenic magnetite production (and/or preservation) in zone 2. Additional information (e.g., on lithological variations in the section) are required to properly evaluate the magnetic record and to understand its climatic significance.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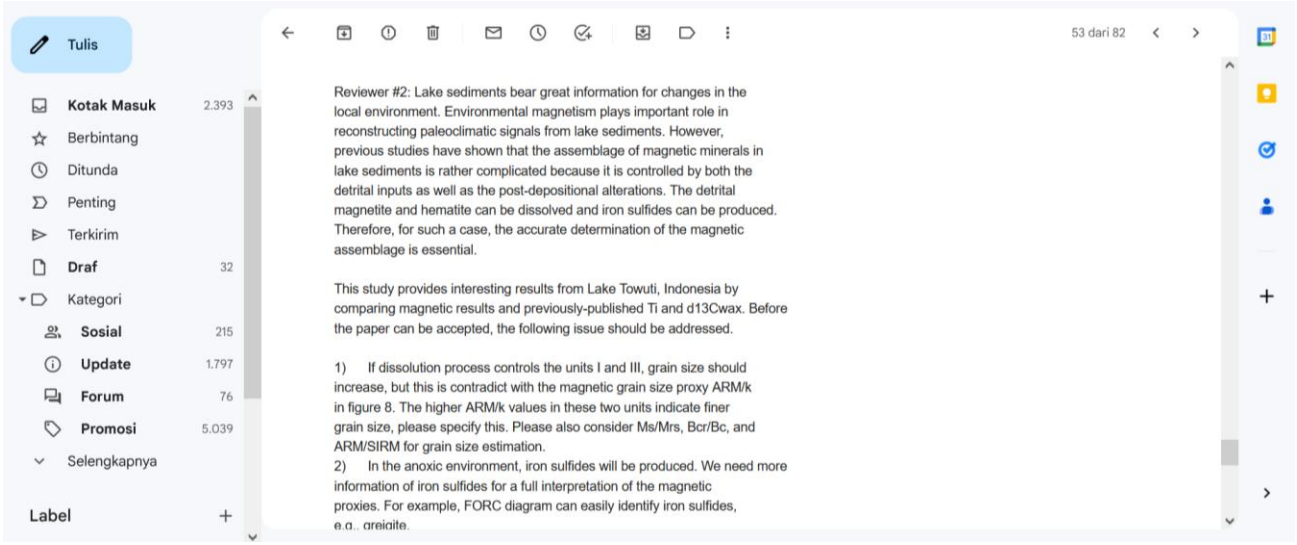
on lithological variations in the section) are required to properly
evaluate the magnetic record and to understand its climatic significance.
Minor comments:
Line 34 … performed on sediment core….
Line 69…. need to be disentangled because these might
Line 80 … mechanism by which ….
Line 91+ (Site Description and Materials) - Please add information on
composition of sediments
Line 251 Figure 7 (hysteresis parameters) - it would be useful to add
Mrs/Ms and Bc/Bcr ratios - grain size proxies (here or in figure 8b), as
well as to mention these ratios in the discussion on grain-size, e.g.,
lines 251-282.
350-352 … "This result might indicate that reductive dissolution
removed more oxidized phases such as goethite from the sediment, but left
more reduced phases such as magnetite". This statement does not make
sense. Dissolution rates of minerals are not directly related to the
oxidation state of iron. For example, "more oxidized" hematite is more
stable to reductive dissolution than "more reduced" magnetite (e.g.,
Poulton et al., 2004 paper cited in the manuscript)
Line 390 …. (mainly <kappa> and SIRM)
Line 432 .. "Zone I, the lowest magnetic unit"…. What the lowest mean
in this context? Stratigraphical position or low values of
concentration-dependent magnetic parameters? Change to "weakly magnetic"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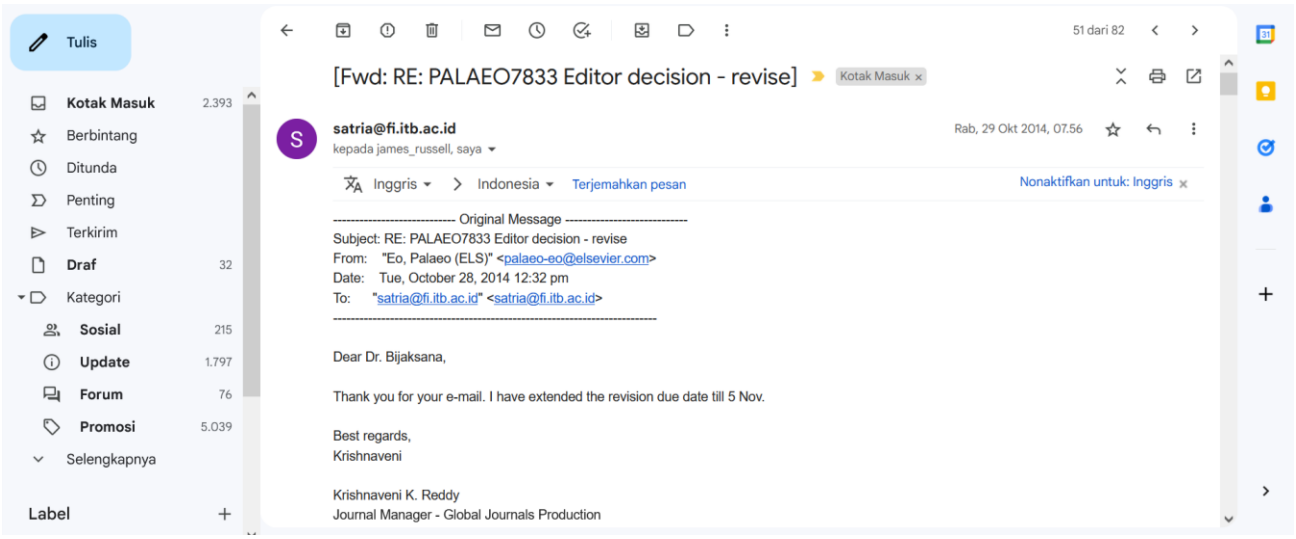
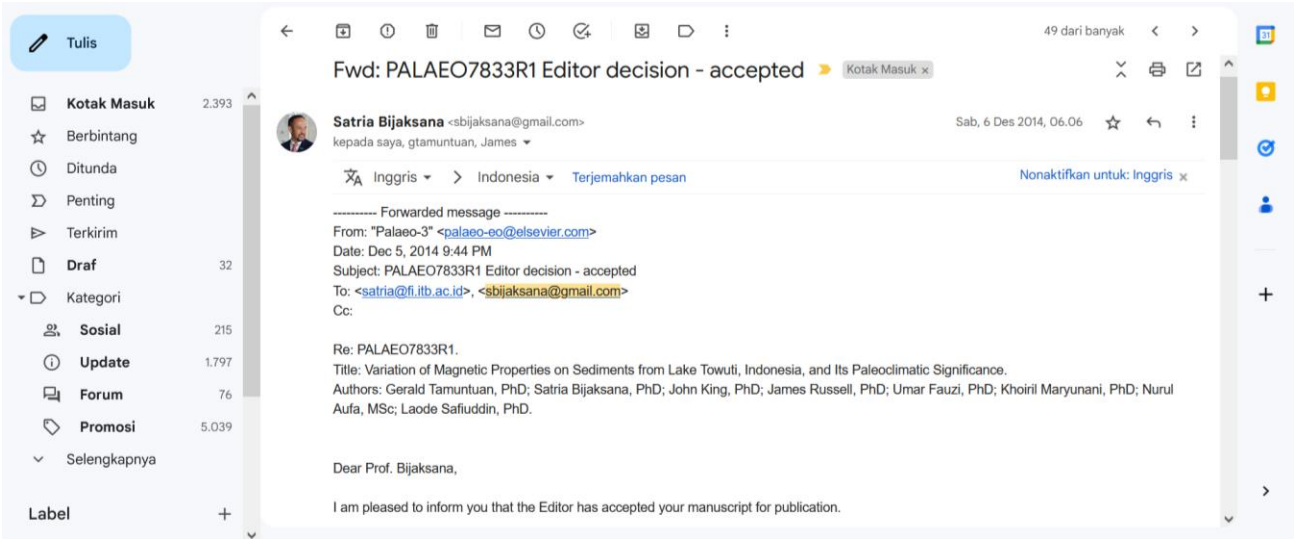
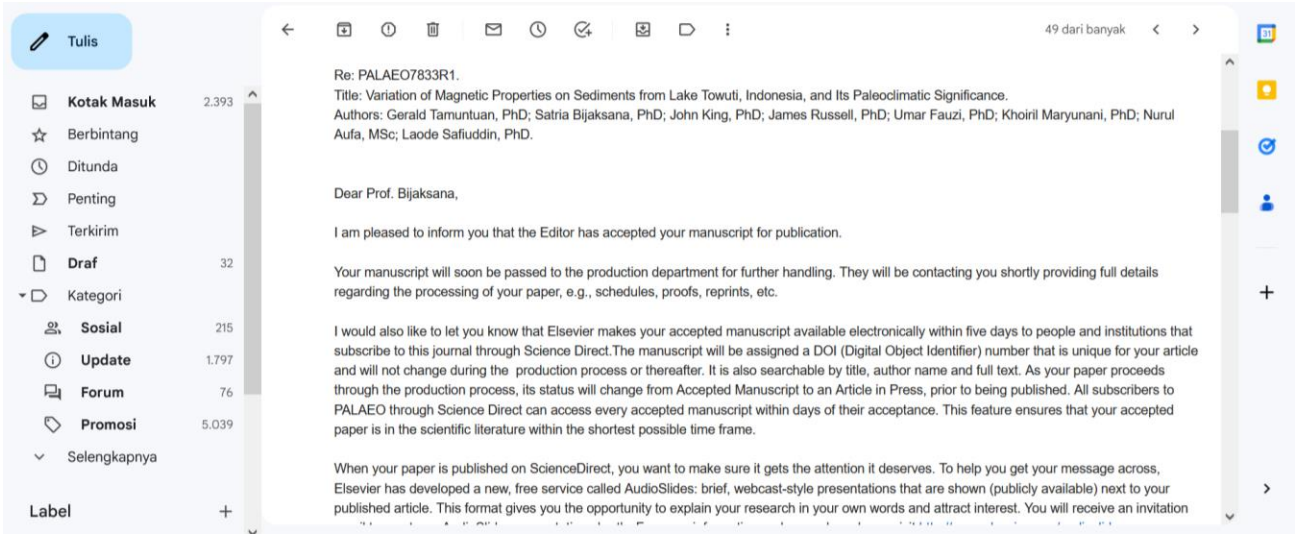
Reviewer #2: Lake sediments bear great information for changes in the
local environment. Environmental magnetism plays important role in
reconstructing paleoclimatic signals from lake sediments. However,
previous studies have shown that the assemblage of magnetic minerals in
lake sediments is rather complicated because it is controlled by both the
detrital inputs as well as the post-depositional alterations. The detrital
magnetite and hematite can be dissolved and iron sulfides can be produced.
Therefore, for such a case, the accurate determination of the magnetic
assemblage is essential.
This study provides interesting results from Lake Towuti, Indonesia by
comparing magnetic results and previously-published Ti and d13Cwax. Before
the paper can be accepted, the following issue should be addressed.
1) If dissolution process controls the units I and III, grain size should
increase, but this is contradict with the magnetic grain size proxy ARM/k
in figure 8. The higher ARM/k values in these two units indicate finer
grain size, please specify this. Please also consider Ms/Mrs, Bcr/Bc, and
ARM/SIRM for grain size estimation.
2) In the anoxic environment, iron sulfides will be produced. We need more
information of iron sulfides for a full interpretation of the magnetic
proxies. For example, FORC diagram can easily identify iron sulfides,



EDITOR DECISION - ACCEPTED

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Re: PALAEO7833R1.
Title: Variation of Magnetic Properties on Sediments from Lake Towuti, Indonesia, and Its Paleoclimatic Significance.
Authors: Gerald Tamuntuan, PhD; Satria Bijaksana, PhD; John King, PhD; James Russell, PhD; Umar Fauzi, PhD; Khoiril Maryunani, PhD; Nurul Aufa, MSc; Laode Safiuddin, PhD.
Dear Prof. Bijaksana,
I am pleased to inform you that the Editor has accepted your manuscript for publication.
Your manuscript will soon be passed to the production department for further handling. They will be contacting you shortly providing full details regarding the processing of your paper, e.g., schedules, proofs, reprints, etc.
I would also like to let you know that Elsevier makes your accepted manuscript available electronically within five days to people and institutions that subscribe to this journal through Science Direct.The manuscript will be assigned a DOI (Digital Object Identifier) number that is unique for your article and will not change during the production process or thereafter. It is also searchable by title, author name and full text. As your paper proceeds through the production process, its status will change from Accepted Manuscript to an Article in Press, prior to being published. All subscribers to PALAEO through Science Direct can access every accepted manuscript within days of their acceptance. This feature ensures that your accepted paper is in the scientific literature within the shortest possible time frame.
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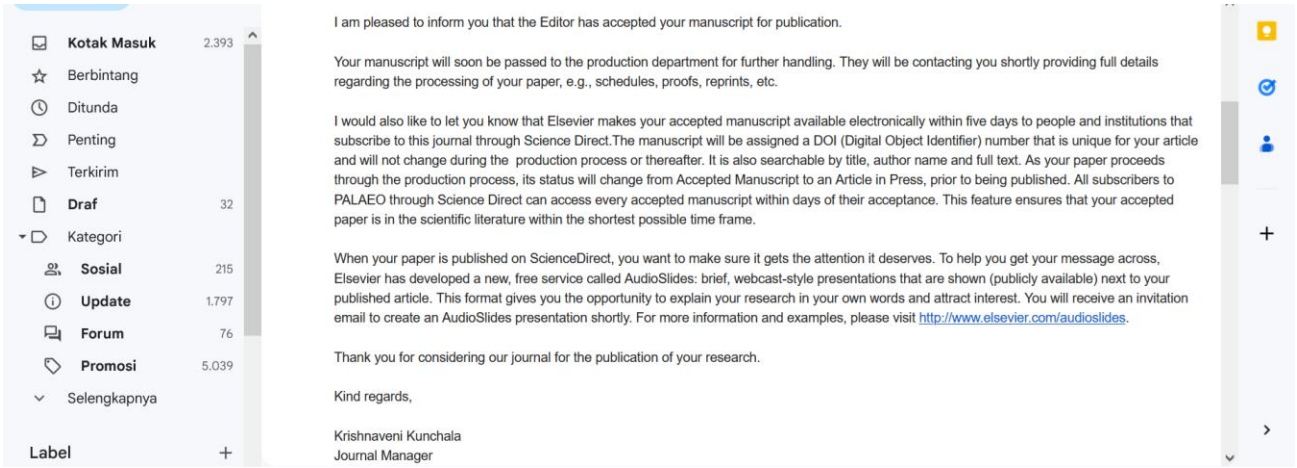
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Your manuscript will soon be passed to the production department for further handling. They will be contacting you shortly providing full details regarding the processing of your paper, e.g., schedules, proofs, reprints, etc.
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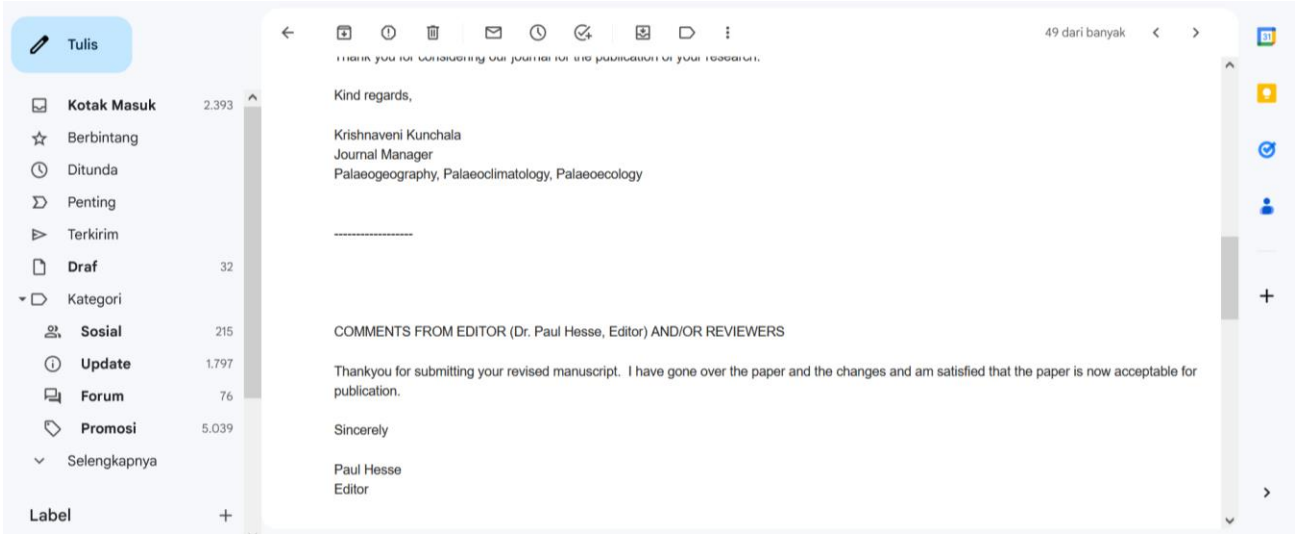
Krishnaveni Kunchala
Journal Manager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COMMENTS FROM EDITOR (Dr. Paul Hesse, Editor) AND/OR REVIEWERS
Thankyou for submitting your revised manuscript. I have gone over the paper and the changes and am satisfied that the paper is now acceptable for publication.
Sincerely
Paul Hesse
Editor