



Doddy Heka Ardana &lt;doddyhekaardana@unr.ac.id&gt;

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## Revision after Peer Review (ID:14825967)-Groundwater Level Forecasting Using Multiple Linear Regression and Artificial Neural Network Approach

7 messages

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Doddy Heka Ardana <doddyhekaardana@unr.ac.id>  
To: Anthony Robinson <revision.hrpub@gmail.com>

Mon, Feb 21, 2022 at 11:07 AM

### The Civil Engineering and Architecture Journal COVER LETTER

Putu Doddy Heka Ardana  
Ngurah Rai University  
Civil Engineering Department, Ngurah Rai University,  
80238, Denpasar, Bali, Indonesia

21<sup>th</sup> February 2022  
Editorial The Civil Engineering and Architecture Journal  
Horizon Research Publishing Corporation

Dear Mr. Robinson,

Following up on the review results from the two reviewers who informed me on Wednesday, February 9, 2022, I have revised according to the direction of the reviewer. The details of the repairs I have made are:

#### TITLE SECTION

**Fixed the main title on the word "approach".**

Answer: add the suffix "es" to the word "approach" so that it becomes "approaches".

#### ABSTRACT SECTION

**Improvements to the abstract, clarifying the research location, and eliminating some of the information that should be conveyed in the methodology, must show the result from both methods.**

Answer: Improvements according to the reviewer's direction have been carried out and can be checked again in the abstract in the final manuscript.

#### INTRODUCTION SECTION

**Check the expression "The availability of groundwater, the flow of groundwater, and the physical properties of an aquifer or groundwater system are all indicators of groundwater level".**

Answer: After I re-read the statement, there was indeed a misunderstanding in describing it into the manuscript. I've done a complete revision of the statement in the background.

**The sentence "Any change in groundwater pressure will produce differences in groundwater levels" is not true, because difference in groundwater level produce difference in pressure or head. Remove the sentence.**

Answer: the sentence has been removed.

**Shunsine spelling error.**

Answer: has been fixed to “sunshine”.

**Without any information about your methods here you cannot compare or evaluate them, therefore you need to talk about your methods first, then evaluate them.**

Answer: Discussions on several methods for predicting groundwater level have been carried out and after that, the comparison between MLR and ANN is discussed (can be seen in paragraph 3).

**Rewrite the paragraph “Based on previous research, it is likely that no research has been conducted to date that compares the predictive ability of the MLR and ANN techniques in simulating groundwater levels using limited hydrometeorological time series data (barometric pressure, evaporation, temperature, wind, bright sunshine, and rainfall) based on the results of previous data screening tests”.**

Answer: This paragraph has been re-write.

**What is the reason of this sentence “This is different from the application of ANN in the modeling of groundwater level fluctuations”.**

Answer: This means that the comparison of this method on groundwater level prediction is seen from the non-linearity side.

## **MATERIALS AND METHODS SECTION**

**The format of referencing right, check with journal required format.**

Answer: I have readjusted the citation/references format according to the article template.

**The columns are wrong because you have also 2 more columns below figures**

Answer: I have adjusted the layout for this case.

**Resolution of this figure is low, add more clear figure.**

Answer: I have corrected Figure 1.

**Change the word “hydrometerology” with “hydrometeorological”**

Answer: I have been corrected.

**This period is more than 3 years**

Answer: Yes, it is true. The data period is 46 months and I have been corrected in the final manuscript.

**What are Q and R**

Answer: Q and R are the variable in RAPS method. I replaced Q and R with other explanation.

**This sentence of “Trend Absence Test” is not complete**

Answer: The sentences about Trend Absence Test have been repaired and completed.

**Nonlinear in what, this expression is wrong**

Answer: The explanation of ANN which has similarities with the workings of the human brain has been clearly explained in the final manuscript

**Remove figure 2 about “Block diagram of model of a neuron”**

Answer: the figure has been removed

**R and R<sup>2</sup> are same, only squared, therefore use one of them. Usually R<sup>2</sup> is better**

Answer: The next thing I use in the discussion is R<sup>2</sup>

## RESULTS AND DISCUSSION SECTION

**Remove that x with each variable in equation 4 and equation 5 because it is misleading**

Answer: I have been repaired the equation

**The Sig parameter must be define this term or change it to p-value**

Answer: I have been corrected

**They are variables not parameters. A variable represents a model state, and may change during simulation. A parameter is commonly used to describe objects statically. A parameter is normally a constant in a single simulation, and is changed only when you need to adjust your model behavior.**

Answer: has been corrected with variable

**Change the word modeling with modelization**

Answer: has been corrected

**Define all terms in the ANN equations**

Answer: has been defined in the final manuscript

**Check the title of Figure 9 until 12**

Answer: has been corrected

## CONCLUSION SECTION

**Not always because ANN usually over-fits results**

Answer: yes, that statement is true. But in this case ANN is better than MLR in non-linear context

**Weak and wrong sentence, rewrite it correctly**

Answer: I've added some important information to strengthen the conclusion

Input from the editor so that the similarity index of the revised version should be lower than 18% and similarity from a single source should not exceed 5%. After the revision and proofreading process on the final manuscript, a similarity check process was carried out. The results were 11%, with the similarity value of each source being below 5%. The file similarity check can be seen in the attached file on this cover letter and in the email.

I also attached the Publication Agreement in this email.

Therefore, we are sure that readers will be interested in this topic so that it will have implications for the increasing number of citations to this paper. We believe after this manuscript revised, it is appropriate for publication by The Civil Engineering and Architecture Journal.

Please address all correspondence concerning this manuscript to me at [doddyhekaardana@unr.ac.id](mailto:doddyhekaardana@unr.ac.id).

Thank you for your consideration of this revised manuscript.

Sincerely,

**Putu Doddy Heka Ardana**

## SIMILARITY CHECK



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**4 attachments**

 **HRPUB\_MLR and ANN\_Final.doc**  
1275K

 **Similarity Check.pdf**  
3540K

**Cover Letter HRPUB Revision2.doc**

148K

**HRPUB\_Publication\_Agreement2022\_14825967.pdf**

172K

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**Anthony Robinson** <revision.hrpub@gmail.com>  
To: Doddy Heka Ardana <doddyhekaardana@unr.ac.id>

Tue, Feb 22, 2022 at 9:35 AM

Dear Putu Doddy Heka Ardana,

Thank you for your kind email.  
We have received your revised paper and other related documents. If further revision is not required, you will expect an Acceptance Letter in a week.

Best Regards

Anthony Robinson  
Editorial Assistant  
[revision.hrpub@gmail.com](mailto:revision.hrpub@gmail.com)  
Horizon Research Publishing, USA  
<http://www.hrpub.org>

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**Doddy Heka Ardana** <doddyhekaardana@unr.ac.id>  
To: Anthony Robinson <revision.hrpub@gmail.com>

Tue, Feb 22, 2022 at 9:42 AM

Dear Mr. Robinson

Thank you for your response.  
I hope good information comes from you in a week.

Sincerely,  
Putu Doddy Heka Ardana

[Quoted text hidden]

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**Anthony Robinson** <revision.hrpub@gmail.com>  
To: Doddy Heka Ardana <doddyhekaardana@unr.ac.id>

Wed, Feb 23, 2022 at 3:47 PM

Dear Putu Doddy Heka Ardana,

Figure 1 is not very clear. Please send us a high-resolution version.

Best Regards

Anthony Robinson  
Editorial Assistant  
[revision.hrpub@gmail.com](mailto:revision.hrpub@gmail.com)  
Horizon Research Publishing, USA  
<http://www.hrpub.org>

[Quoted text hidden]

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**Doddy Heka Ardana** <doddyhekaardana@unr.ac.id>  
To: Anthony Robinson <revision.hrpub@gmail.com>

Wed, Feb 23, 2022 at 4:33 PM

Dear Mr. Robinson

Thank you for the information, I will do that.

Sincerely,  
Putu Doddy Heka Ardana

[Quoted text hidden]

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**Doddy Heka Ardana** <doddyhekaardana@unr.ac.id>  
To: Anthony Robinson <revision.hrpub@gmail.com>

Thu, Feb 24, 2022 at 7:58 PM

Dear Mr. Robinson

I have made significant improvements to Figure 1 (Location of Study) by using a clearer and higher resolution image in the manuscript and also attached an image file to this email.

I also corrected the coordinate position (latitude and longitude) of the Ubung monitoring well in Table 1.

Thank you

Sincerely,  
Putu Doddy Heka Ardana

[Quoted text hidden]

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**2 attachments**



**Position of observation well.jpg**  
4139K



**HRPUB\_MLR and ANN\_Final.doc**  
4930K

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**Anthony Robinson** <revision.hrpub@gmail.com>  
To: Doddy Heka Ardana <doddyhekaardana@unr.ac.id>

Fri, Feb 25, 2022 at 9:32 AM

Dear Putu Doddy Heka Ardana,

Thank you for your email.  
We have received the revised paper together with the improved image.

Best Regards

Anthony Robinson  
Editorial Assistant  
[revision.hrpub@gmail.com](mailto:revision.hrpub@gmail.com)  
Horizon Research Publishing, USA  
<http://www.hrpub.org>

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