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adi wibowo <bowo.adi@live.undip.ac.id>

Submission to Geodesy and Geodynamics - manuscript number

1 message

Geodesy and Geodynamics <em@editorialmanager.com> Mon, Apr 18, 2022 at 8:03 AM
Reply-To: Geodesy and Geodynamics <journalgg@vip.163.com>
To: Adi Wibowo <bowo.adi@live.undip.ac.id>

This is an automated message.

Manuscript Number: GEOG-D-22-00029
Anomaly Detection on Displacement Rates and Deformation Pattern Features using Tree-Based algorithm in Japan and Indonesia

Dear Dr Wibowo,

Your above referenced submission has been assigned a manuscript number: GEOG-D-22-00029.

To track the status of your manuscript, please log in as an author at https://www.editorialmanager.com/geog/, and navigate to the "Submissions Being Processed" folder.

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Kind regards,
Geodesy and Geodynamics

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adi wibowo <bowo.adi@live.undip.ac.id>

Decision on submission to Geodesy and Geodynamics

1 message

Geodesy and Geodynamics <em@editorialmanager.com> Sat, May 7, 2022 at 10:35 AM
Reply-To: Geodesy and Geodynamics <journalgg@vip.163.com>
To: Adi Wibowo <bowo.adi@live.undip.ac.id>

Manuscript Number: GEOG-D-22-00029

Anomaly Detection on Displacement Rates and Deformation Pattern Features using Tree-Based algorithm in Japan and Indonesia

Dear Dr Wibowo,

Thank you for submitting your manuscript to Geodesy and Geodynamics.

I have completed my evaluation of your manuscript. The reviewers recommend reconsideration of your manuscript following minor revision and modification. I invite you to resubmit your manuscript after addressing the comments below. Please resubmit your revised manuscript by Jun 05, 2022.

When revising your manuscript, please consider all issues mentioned in the reviewers' comments carefully: please outline every change made in response to their comments and provide suitable rebuttals for any comments not addressed. Please note that your revised submission may need to be re-reviewed.

To submit your revised manuscript, please log in as an author at https://www.editorialmanager.com/geog/, and navigate to the "Submissions Needing Revision" folder under the Author Main Menu.

Geodesy and Geodynamics values your contribution and I look forward to receiving your revised manuscript.

Kind regards,

Yiyan Zhou

Executive Editor-in-Chief

Geodesy and Geodynamics

Editor and Reviewer comments:

Reviewer #1: Comments on "Anomaly Detection on Displacement Rates and Deformation Pattern Features using Tree-Based algorithm in Japan and Indonesia" by Wibowo et. al.

The authors used data-driven-based analysis for detecting an anomaly using displacement rates and deformation features extracted from daily GNSS data using a machine learning algorithm. Two examples are presented to illustrate anomaly detection of recent major earthquakes in Indonesia and Japan. Overall, this work is ambiguous for me and significant improvements are made with regard to the paper structure, figures, the results. More importantly, more verifications are necessary to underline the used methods. In addition, this paper is not well organized and written. Below shows my comments to improve the current manuscript.

Major comments
1. The introduction about methods and results is chaotic, for example, (1) the data pre-processing of GNSS data is misplaced in Results and Discussion, which should be placed in Method or Data. (2) Training-testing setting and Metric Evaluation should be placed in Method.
2. Validation: the results need to be assessed to underline their methods; I cannot find the accuracy of the used methods from the current manuscript.
3. More details are needful for introducing the used datasets and data preprocessing (how to process GNSS data that have multiple tectonic and nontectonic signals, e.g., instrumental, and seismic offsets, hydrological loads, GIA), methods (more details on how to implement the experiments), metric evaluation. More importantly, the results should be organized more reasonably and clearly.
4. All figures should be replotted to make them beautiful and some additional explanations are necessary for symbols of these figures.
5. The English expression is sub-optimal and is should be largely improved in next submission.
Details comments

In Abstract
6. The logic of the sentence "Earth-based and satellite-based monitoring of temporal and spatial crustal activity associated with earthquakes has been installed" is not right, please rephrase.
7. What is the "knowledge-driven techniques", please give some examples.
8. "The big data of GNSS with 188 and 1181 GNSS stations", how did you define "big data", Is it appropriate to call data sets of 188 and 1181 GNSS stations big data.
9. The summary of your results is too simple and what do these numbers say.

In Introduction
10. The word of "resolution" is an uncountable noun.
11. Please specify "knowledge-based techniques, specialized processing, and time-specific analysis" and give some references.
12. The logic of this sentence "This study focuses only view large events; therefore, it requires machine learning for big data" is ambiguous.
13. Change to "Tree-based algorithms in machine learning".
14. Something is missing in sentence "Tree-based uses information gain to overcome uncertainties often obtained if the data is small".

In Dataset
15. More details are needed for introducing the used dataset.
16. The website (http://geodesy.unr.edu/gps_timeseries/tenv3/IGS14/) is not suitable to be placed behind the Geographical Survey Institute (GSI), Japan Observer, it is only the website for downloading data. Also change to "… are shown in Figure 1."

In Principal Component Analysis
17. What is the GNSS residual time series and how to obtain the GNSS residual time series.
18. More details should be added to explain "After PCA, the data will be independent to each other". Generally, the PCA decomposition only produces linearly uncorrelated components.

In Single Estimator (Decision Tree)
19. Change to "that is used in Gupta et al., (2017).
20. More explanations are needed for the formula: Gini Index = 1 − Σ P

In Ensemble Bagging (Random Forest, ExtraTrees)
21. Change to "which uses the same principle as…".

In Extracting Feature
22. Change to "transform raw data into refined and structured data".
23. More details are needed to describe parameter setting about bandpass filter and least-squares method
24. In Figure 4, the filled data for empty records obviously deviated from the original data trend after using the least square method. I can not also understand how to fill the data using the least square method.

In Training-testing setting
25. Please re-express "all stations worked in a time series".
26. Please re-express "If the availability of data is less than five stations in an event, then the data is passed".
27. Please re-express "Training-testing both features employs splitting data with a percentage of 80:20.".

Reviewer #2: A data-driven method based on machine learning is developed for detecting abnormal signals of earthquake by using daily coordiante time series of CORS stations. The method are tested in Japan and Indonesia by using continuous GPS observations and show it has a good capability on deteting of abnormal signal before medium to large earthquakes. Some minor revisions are sugested as follows:
(1) variables in equations should be explained in text, such as eq(1) and (7);
(2) some type errors, such as in page 13, line 2, 'filtfilt'; page 25, line 3, '81.8%'.

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adi wibowo <bowo.adi@live.undip.ac.id>

Confirming submission to Geodesy and Geodynamics

1 message

Geodesy and Geodynamics <em@editorialmanager.com> Thu, Jun 9, 2022 at 4:52 PM
Reply-To: Geodesy and Geodynamics <journalgg@vip.163.com>
To: Adi Wibowo <bowo.adi@live.undip.ac.id>

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Manuscript Number: GEOG-D-22-00029R1

Anomaly Detection on Displacement Rates and Deformation Pattern Features using Tree-Based Algorithm in Japan and Indonesia

Dear Dr Wibowo,

We have received the above referenced manuscript you submitted to Geodesy and Geodynamics.

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adi wibowo <bowo.adi@live.undip.ac.id>

Decision on submission to Geodesy and Geodynamics

1 message

Geodesy and Geodynamics <em@editorialmanager.com> Tue, Jul 5, 2022 at 1:58 PM
Reply-To: Geodesy and Geodynamics <journalgg@vip.163.com>
To: Adi Wibowo <bowo.adi@live.undip.ac.id>

Manuscript Number: GEOG-D-22-00029R1

Anomaly Detection on Displacement Rates and Deformation Pattern Features using Tree-Based Algorithm in Japan and Indonesia

Dear Dr Wibowo,

Thank you for submitting your manuscript to Geodesy and Geodynamics.

I am pleased to inform you that your manuscript has been accepted for publication.

My comments, and any reviewer comments, are below.
Your accepted manuscript will now be transferred to our production department. We will create a proof which you will be asked to check, and you will also be asked to complete a number of online forms required for publication. If we need additional information from you during the production process, we will contact you directly.

We appreciate you submitting your manuscript to Geodesy and Geodynamics and hope you will consider us again for future submissions.

Kind regards,
Yiyan Zhou
Executive Editor-in-Chief

Geodesy and Geodynamics

Editor and Reviewer comments:

Reviewer #1: The authors have almost addressed all my commments, I can accept the current version.

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