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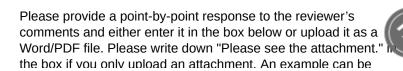
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Journal	Energies (https://www.mdpi.com/journal/energies) (ISSN 1996-1073)
Manuscript ID	energies-1069865
Type	Article
Number of Pages	1
Title	Building Suitable Datasets for Soft Computing and Machine Learning Techniques from Meteorological Data Integration: A Case Study for Predicting Significant Wave Height and Energy Flux
Authors	Antonio Gómez-Orellana ***** , Juan Carlos Fernández ***** , Manuel Dorado-Moreno ***** , Pedro Antonio Gutiérrez ***** , César Hervás-Martínez *****
Abstract	Meteorological data are extensively used to perform environmental learning. Soft Computing (SC) and Machine Learning (ML) techniques represent a valuable support in many research areas, but require datasets containing information related to the topic under study. Such datasets are not always available in an appropriate format and its preparation and pre-processing implies a lot of time and effort by researchers. This paper presents a novel software tool with an user-friendly GUI to create datasets by means of management and data integration of meteorological observations from two well-known sources of information: the National Data Buoy Center and the National Centers for Environmental Prediction and for Atmospheric Research Reanalysis Project. Such datasets can be created using buoys and reanalysis data through customisable procedures, in terms of temporal resolution, predictive and objective variables, and can be used by SC and ML methodologies for prediction tasks (classification or regression). The objective is providing the research community with an automated and versatile system for the casuistry that entails well-formed and quality data integration, potentially leading to better prediction models. The software tool can be used as a supporting tool for coastal and ocean engineering applications, sustainable energy production or environmental modelling; as well as for decision making in the design and construction of coastal protection structures, marine transportation, offshore industry, ocean energy converters and efficient operation of offshore and coastal engineering activities. Finally, to illustrate the applicability of the proposed tool, a case study to classify waves depending on their significant height and to predict energy flux in the Gulf of Alaska is presented.

Author's Reply to the Review Report (Reviewer 3)

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* Author's Notes to Reviewer

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Review Report Form

English language and style

( ) Extensive editing of English language and style required
( ) Moderate English changes required
(x) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	( )	(x)	( )
Is the research design appropriate?	(x)	( )	( )	( )
Are the methods adequately described?	(x)	( )	( )	

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Are the results clearly presented? (x) ( ) ( )

Are the conclusions supported by the results? ( ) (x) ( )

Comments and Suggestions for Authors

The manuscript is related to an interesting topic and based on open database.

The structure is organized in a good way. Few adjustments are requested to introduction and conclusions.

First of all, in the abstract openess of data is mentioned but it is not discussed deeply in stating the background. See recent articles published in top-ranked Journals such as Energy, Energies and others. As example, consider
https://doi.org/10.1016/j.energy.2020.118803
https://doi.org/10.3390/en13226095

The research question formulated by the authors to fill the identified research gap should open the conclusions section as well as reporting limitation and replicability potential of the answer.

Please check carefully English.

Submission Date 24 December 2020

Date of this review 06 Jan 2021 15:40:42