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Logout (/user/logout)	Title	Building Suitable Datasets for Soft Computing and Machine Learning Techniques from Meteorological Data Integration: A case study for predicting significant wave height
	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, a valuable support in many research areas, require datasets containing information related to the topic under study, which are not always available in an appropriate format, and its preparation and pre-processing implies a lot of time and effort by the 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 by customisable procedures, in terms of predictive and objective variables and temporal resolution. These datasets can be used by SC and ML methodologies for prediction tasks (classification or regression) that support improvement of sustainability energy production, design of production systems as WECs or environmental modelling, among others.

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



Comments
 and
 Suggestions
 for Authors

This work develops a framework to collect, integrate, and pre-process meteorological observation data from NDBC and NNRP. Moreover, this framework uses machine learning techniques to do predictions based on these pre-processed datasets. This work saves researchers from tedious and repetitive data collection and pre-processing work. Also, the use of machine learning in this framework is very useful given that NDBC and NNRP contain missing data in their observation datasets.

My only comment is that the wave prediction from the machine learning technique is not well validated.

Submission Date 17 November 2020
 Date of this review 29 Nov 2020 06:23:58