

# ***Interactive comment on* “Comparison of machine learning classification algorithms for land cover change in a coastal area affected by the 2010 Earthquake and Tsunami in Chile” by Matias I. Volke and Rodrigo Abarca-Del-Rio**

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Received and published: 2 July 2020

In our opinion and to our knowledge to date (02-07-20), in the field of tsunami effects, this study represents a first evaluation of emerging machine learning algorithms for land cover classification using multispectral data on tsunami-affected areas. In that aspect the work is a contribution and should serve from now on as a reference and basis of work for possible studies related to the development of risk maps and damage cadastres. In turn, if we look at the literature, we do not see much work on data mining methodologies applied to remote sensing for earthquakes. So it could also serve as a

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reference.

It is true, many of these self-learning algorithms have been widely used for remote sensing, especially after the explosion of data mining and notably in the case of landslides which is a nearby field of research, but it does not involve such expensive surface areas as ours (Wang et al. (2020), A. Merghadi et al. (2020))

However, and here we thank the reviewers, we now apply the Extreme Gradient Boosting (XGB) and Deep Neural Network (DNN) algorithms that have been used mostly in data science and have only recently been shown to work in remote sensing. Also, although comparisons between these types of classifiers can be found in the existing literature, they generally do not provide the space needed to find the best combination of parameters, analysis with different sizes and quality of training samples. These changes are incorporated in the new version of the manuscript.

Finally, our basic objective was to detect a fast and robust methodology that would easily account for a first approximation of visible changes after a tsunami and eventually an earthquake. In this sense, the results of this work allow us to affirm that the less complex methodologies obtain the same results as the more complex ones. Therefore, not knowing even if the results can be generalized (here is a study theme for application in more areas), it seems to us that we also achieved that contribution.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-41>, 2020.

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