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Interactive comment on “Analysis and definition of potential new areas for viticulture in the Azores (Portugal)” by J. Madruga et al.

Anonymous Referee #2

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1 General Comments

The present article is an interesting study about the suitability for wine-grapes growing in the Azores, and specifically in viticultural areas outside the traditional ones, which are protected and supported by UNESCO. In this regions costs must be limited to ensure the profitability and therefore the survival of viticulture. This argument has brought the authors to include in their spatial evaluation of suitability a factor cost. It has been inserted by considering the possibility of mechanization, therefore excluding areas with slopes steeper than 15%. Even if simply approached in the case of this article, the use of a cost factor in terroir zoning is an original approach, which will merit further considerations.

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The principal problems with the present articles are in

- *the definition of suitability parameters for zoning* (apart from the slope). The article lacks the justification of why some terroir characteristics (such as soil water holding capacity, pH etc.) have been chosen in the way used in the present work, and their suitability to grape growing in Azores.

Considering the climate there is any quantitative information about rainfall amounts.

Other indexes could be included to optimize the zoning procedures, following the multicriteria approach proposed by Tonietto and Carbonneau, 2004, or at least it should be justified why those indexes are not taken into account. This will also improve the results section which is currently very reduced.

- *the structure of the writing*. Material and methods is too long and some parts, such as the soil and climate description are probably better if partially included in the results section. Sentences are often too long, should be shortened to increase readability.

In my opinion the present paper could be **accepted after a major revision**.

2 Specific Comments

Abstract

through and not thru line 15-1148

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Introduction

line 25-1148, climate is "one of the most important" instead of "the most important". line 3-1149, "The geologic diversity..." this sentence is not true, you can refer to the review by van Leeuwen 2004 instead of Wilson 1998. line 5-1150, What is the traditional model of terroir in the Azores?

Data and methodology

line 8-1151 bedrock instead of bed-rock line 7-1152 Reference for Koppen classification is lacking. line 29-1152 acronym for CIELO must be anticipated here and non at line 15. line 10 to 14-page 1154 this part is about results and "correlate well" should be statistically specified Generic description about Andisol characteristics could be shortened to better highlight Azores soil characteristics.

2.1 Figures

Figure 1 lacks of a scale.

3 Concluding remarks

The article is an interesting reading about a zoning approach in marginal viticulture areas. It well describe Azores climate and soils. It should be improved by also using other climatic indexes other than Winkler one and by better justifying the reasons of each choice used for zoning.

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References

Van Leeuwen C., Seguin G., The concept of terroir in viticulture, Journal of Wine Research, 2006, Vol. 17, No. 1, Pp. 1-10

Tonietto J., Carbonneau A., A multicriteria climatic classification system for grape-growing regions worldwide, Agricultural and forest meteorology, 2004, Vol. 124, No. 1-2, Pp. 81-97.

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