

Paper NHESS 2021-389

“Machine learning models to predict myocardial infarctions from past climatic and environmental conditions”

Response to Reviewer #1:

We thank the reviewer for the additional review, and these comments. We did on purpose not include “year” as a variable, as can also be seen from Table 3. As time indicators, we only included week, day, and month. Any (inter)annual variability that is present in the data, would be resulting from the environmental and demographic data, which is also precisely the purpose of the paper: a data-driven approach to estimate MI occurrence based on those data (and not time). Note also that from the analysis of variable importance, these time indicators are not as relevant as most environmental and demographic variables (see Figure 5).

We acknowledge that external effects not considered by the model may indirectly be picked up and be incorrectly attributed to the environmental and demographic predictors instead. If applied to projections of future climate change this may lead to over- oder underestimation of these effects by the models.

We therefore propose to add the following clarification to the paper (around Line 423 on Page 19):

"Further analysis of the data, including accounting for trends over time, may further increase robustness of the results to prevent the attribution of exogenous effects not considered in the model to the existing features."

We hope the proposed additional sentence is a good solution to this issue raised by the reviewer.

Response to Reviewer #2:

We thank the reviewer for the additional review, and the encouraging comment that we have completed the revision in good order.