

Interactive comment on “Meteorology-driven variability of air pollution (PM₁) revealed with explainable machine learning” by Roland Stirnberg et al.

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Comments previously provided by a reviewer are listed below. These comments have not been addressed in this ACPD version and thus need to be addressed in this round of review.

I am afraid that even after reading the article, I do not understand why the authors choose to explain air quality over Paris based on meteorology at the SIRTA location, when regional and local emissions and atmospheric transformations during long range transport are the major drivers of ambient pollution. These major drivers are mentioned towards the end as future work, but studies should start there. For example, even if

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MLH or wind speed is low, zero emissions = no air pollution.

The authors frame it as "we should take atmospheric and environmental processes into account during the development of efficient pollution mitigation strategies"/"a basis for future clean air programs", but AirParif can't exactly change wind conditions or MLH or T/RH. Maybe this can be used to forecast periods of bad air quality - but they describe some important events that the model fails to reproduce because it is missing major drivers in the inputs (lines 390, 426-427). So I am not sure this study is an advance over previous knowledge.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-469>, 2020.

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