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Aerosol forcing in different categories of models

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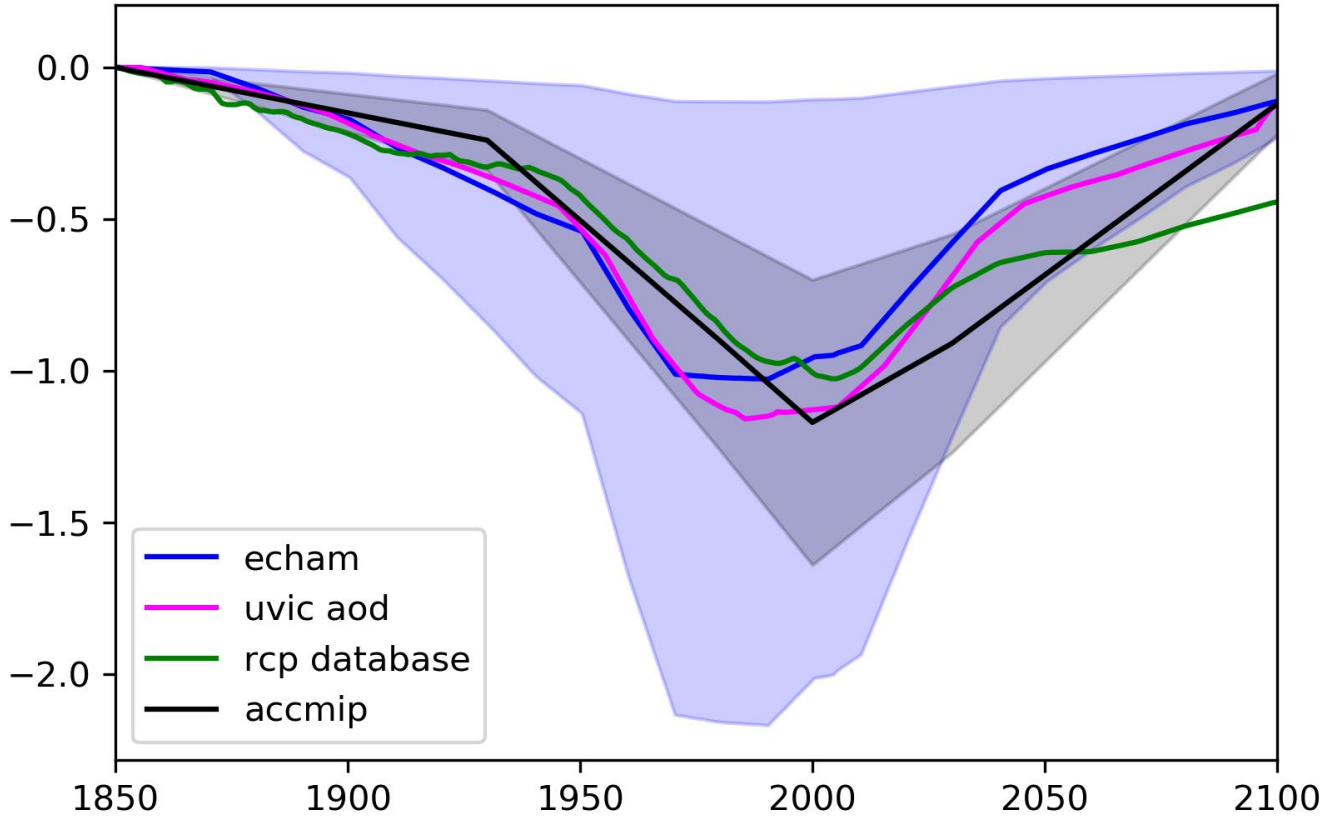
Climate effects of SLCFs are studied with models of various complexity, e.g.:

- General Circulation Models with explicit aerosol-cloud interactions
- Simple carbon cycle climate model MAGICC

Aerosol forcing in the RCP Database overestimate year 2100 aerosol forcing compared to more comprehensive models



CMIP5 (nor CMIP6?) model runs have their aerosol or other forcings diagnosed ...

... and therefore forcings from the RCP database have been used to interpret and process results of these model runs

(e.g., Millar et al., 2017; Matthews et al., 2017)

Main points:

1) The use of SLCFs in simpler models should be critically evaluated

2) In an ideal world, we would diagnose the forcings in CMIP6 runs

References

- Matthews, H. D., Landry, J.-S., Partanen, A.-I., Allen, M., Eby, M., Forster, P. M., … Zickfeld, K. (2017). Estimating Carbon Budgets for Ambitious Climate Targets. *Current Climate Change Reports*. https://doi.org/10.1007/s40641-017-0055-0

- Millar, R. J., Fuglestvedt, J. S., Friedlingstein, P., Rogelj, J., Grubb, M. J., Matthews, H. D., … Allen, M. R. (2017). Emission budgets and pathways consistent with limiting warming to 1.5 °C. *Nature Geoscience*, *10*(October), 741–748. https://doi.org/10.1038/ngeo3031