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Aerosol radiative forcing with the MACv2 aerosol climatology

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Aerosol is highly diverse in space and time. And many different aerosol optical properties as well are environmental properties (e.g. clouds, surface, solar insolation) are needed for the determination of aerosol radiative effects and forcing. Here results from radiative transfer off-line simulations with monthly maps of the MACv2 climatology are presented. Spatial distribution patterns as function of time illustrate aerosol associated radiative effects at the top of the atmosphere (TOA), for the atmosphere and at the surface. Aside from the direct effect also considered is the indirect (Twomey) effect, which overall is the dominating contributor for TOA netflux changes by anthropogenic aerosol. Over the last 30 years this TOA aerosol forcing has not changed much despite strong changes in regional contributions.