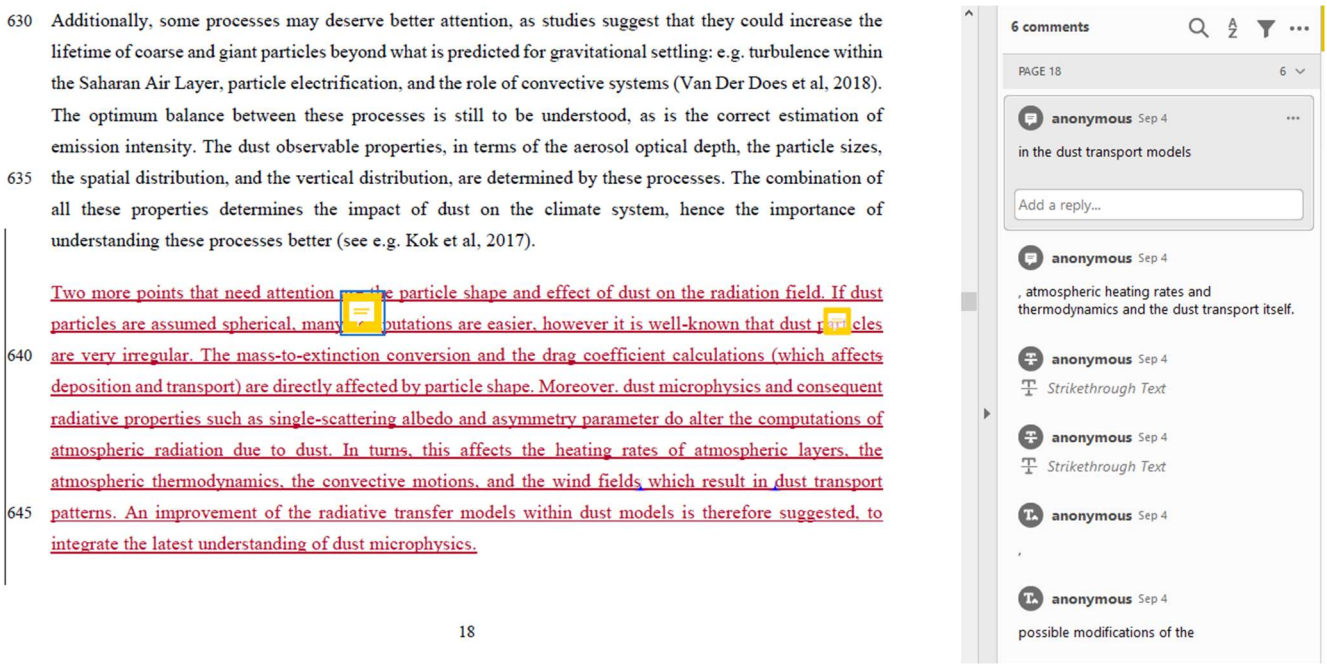
We have now made the corrections indicated by the editor (see below). Many thanks.

Corrections:



630 Additionally, some processes may deserve better attention, as studies suggest that they could increase the lifetime of coarse and giant particles beyond what is predicted for gravitational settling: e.g. turbulence within the Saharan Air Layer, particle electrification, and the role of convective systems (Van Der Does et al, 2018). The optimum balance between these processes is still to be understood, as is the correct estimation of emission intensity. The dust observable properties, in terms of the aerosol optical depth, the particle sizes, 635 the spatial distribution, and the vertical distribution, are determined by these processes. The combination of all these properties determines the impact of dust on the climate system, hence the importance of understanding these processes better (see e.g. Kok et al, 2017).

Two more points that need attention are the particle shape and effect of dust on the radiation field. If dust particles are assumed spherical, many computations are easier, however it is well-known that dust particles 640 are very irregular. The mass-to-extinction conversion and the drag coefficient calculations (which affects deposition and transport) are directly affected by particle shape. Moreover. dust microphysics and consequent radiative properties such as single-scattering albedo and asymmetry parameter do alter the computations of atmospheric radiation due to dust. In turns, this affects the heating rates of atmospheric layers, the atmospheric thermodynamics, the convective motions, and the wind fields which result in dust transport 645 patterns. An improvement of the radiative transfer models within dust models is therefore suggested, to integrate the latest understanding of dust microphysics.

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6 comments

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Corrected text:

Two more points that need attention are the particle shape and effect of dust on the radiation field, atmospheric heating rates and thermodynamics and the dust transport itself. If dust particles are assumed 640 spherical in the dust transport models, many computations are easier, however it is well-known that dust particles are very irregular. The mass-to-extinction conversion and the drag coefficient calculations (which affect deposition and transport) are directly affected by particle shape. Moreover. dust microphysics and consequent radiative properties such as single-scattering albedo and asymmetry parameter do alter the computations of atmospheric radiation due to dust. In turn, this affects the heating rates of atmospheric layers, 645 the atmospheric thermodynamics, the convective motions, and the wind fields, which result in possible modifications of the dust transport patterns. An improvement of the radiative transfer models within dust models is therefore suggested, to integrate the latest understanding of dust microphysics.

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