

## ***Interactive comment on “Effects of sea surface winds on marine aerosols characteristics and impacts on longwave radiative forcing over the Arabian Sea” by Vijayakumar S. Nair et al.***

**Vijayakumar S. Nair et al.**

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The authors would like to thank the referee for the review.

1.Thanks for the appreciation

2.We agree partly and disagree partly. The new result is the balancing off of the changes in shortwave forcing by the enhanced (but with an opposite sign) longwave forcing, and such reports are rather scarce. Though there have been several investigations on the modification of aerosol microphysics by winds, such an integrated study using several collocated and independent measurements are virtually non-existent over the oceanic regions in and around India. Sea-salt or sulphate were neither measured, nor inferred from chemical analysis. However, the possibility of dust being eliminated

using the wind characteristics and back trajectory analysis, and continental advection being not supported by the prevailing winds, the only other possible candidate for coarse-mode enhancement is sea-salt. Moreover, parametrisation of the concentration on wind speed is almost consistent with similar results for wind-generated aerosols. Even the size range that was affected was in conformity to the theory of sea-spray aerosol generation. We are sorry that the sentence "the consequent increase in the long wave direct radiative forcing almost entirely offsets the corresponding increase in the short wave direct radiative forcing (or even overcompensates ) at the top of atmosphere" might not have conveyed what was meant. What we wanted to state was "the change in LWF (due to increased coarse mode aerosols generated by the impact of increased wind speed on ocean surface) is larger in magnitude and opposite in sign to the corresponding change in the SWF, and in that sense, it overcompensates the SWF". These changes can be incorporated in the revised version

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