

## ***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.**

Received and published: 1 November 2008

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

- 1.
- 2.Thanks for the appreciation
- 3.We too agree, and appreciate the general evaluation
- 4.Unfortunately we differ here. In fact this is the crux of the problem. In a rather quiet far oceanic region, the aerosol parameters, which were all remaining rather low, started increasing from 28th April 2005 onwards and this was found to be associated with a corresponding increase in the wind speed. Yes, the increase was not very large,

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nevertheless it was not benign either. It is known that the wind stress over the ocean surface changes as the square of the wind speed, and during measurements, the 20-min averaged wind speeds went as high as 8.2 m/s (as clearly stated in the paper). It is also known that the sea-spray production during high wind speed occurs almost instantly with the increase in the wind speed, but the decrease is not instantaneous due to the finite residence time of the particles in the atmosphere. The resulting increase in concentration occurs selectively in the coarse mode regime only, as shown in our study and this leads to increase in AOD at longer wavelengths, consequently leading to increase in the direct radiative forcing at the IR wavelengths, which is larger than the corresponding increases in the visible. This is the most important outcome of this work and we believe this has immense scientific significance

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 15855, 2008.

**ACPD**

8, S8725–S8726, 2008

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