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A study on near-surface Aerosol mass-size distribution over Arabian Sea and Indian Ocean

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The concentration and size distribution of particles from 0.025 to 12.5 □m in radius dispersed over the ocean atmosphere have been measured with a quartz crystal microbalance (QCM) cascade impactor. These near-surface measurements are used to study systematic characterization of aerosols over the oceans, which in turn needed to understand the aerosol effect on climate. This experiment has been carried out on board Oceanographic Research Vessel (ORV) Sagar Kanya, during 9th october to 17th November 2004 as its cruise SK212, which was mainly devoted to atmospheric as well as oceanographic studies of Arabian sea and Indian ocean. The entire cruise track is shown in the Figure below. The measurements were made only when the ship is in the maximum cruising speed to avoid any ship contamination. Thus about 250 measurements were made in the entire cruise period. A clear variation has been observed in the total mass concentration when ship sailed deep into the sea i.e., away from coastal India. Results reveal that aerosol mass concentrations are generally higher near the coastal India and are varying between 45 to 65 $\mu g/m^3$. Where as the total mass concentration near the equator has been observed low and it is varying between 10 to 35 $\mu g/m^3$. Submicron particle concentration dominates near the coastal India and super micron particle concentration dominates near the equator.

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