Organic carbon and aliphatic amines in marine particles: exchange processes between ocean and atmosphere

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In order to investigate exchange processes between air and sea, in two intensive campaigns at the Cape Verdes, seawater and marine aerosol was sampled and analyzed for the organic content.
Chlorophyll A data near Sao Vicente showed low biological activity at the first campaign (May 2011) but higher biological activity in the second campaign (November 2011).
For seawater analysis, higher dissolved organic carbon concentrations were found in November 2011. Furthermore, enrichment of organic carbon in the sea surface microlayer – the direct interface between air and sea - was found up to an enrichment factor of 2.
General aerosol composition regarding inorganic ions was similar in May and November, but the OC content was strongly increased in November. Also OC enrichment in aerosols compared to seawater increased in times of high biological activity by 30%.
Besides organic sum parameters, aliphatic amines were investigated on aerosol particles and found in concentrations between 11 and 17 ng m^{-3}. The concentrations of the amines were similar at the two campaigns; however their contribution to the DOC was higher at times of high biological activity.
The results suggest that organic carbon on aerosols is connected to the biological activity within the ocean being an important source.