Dust Storms over the Arabian Gulf: An optimistic vision toward climate change consequences

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Dust storms frequencies and strengths have been monitored during 2009 at different locations along the coastal areas of the United Arab Emirates as a representative site of the Arabian Gulf marine environment. The results have been compared with the previous five years data set. Moreover mineralogical components of the collected dust samples during the study period have been analyzed using both XRD and XRF techniques. The results of comparison have allowed to evaluate changes occurred in dust storms characteristics over the Arabian Gulf and to consider it as a sensitive signal of climate changes over the region. It has been also found that due to the different wind patterns over the Arabian Gulf, the dust sources are variable both temporally and spatially and its variability can be confirmed by mineralogical composition of the dust samples. Furthermore, the mineralogical analyses have also helped in evaluating the beneficial nutritive contribution of dust deposition to the microbial productivity in the marine ecosystem of the Arabian Gulf.