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Interhemispheric Transport of Viable Fungi and Bacteria from
Africa to the Caribbean with Soil Dust
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Abstract. Daily aerosol samples collected in trade winds at Barbados, West Indies, throughout 1996-1997 yielded significant concentrations of viable (culture-forming) bacteria and fungi only when African dust was present. Air masses from the North Atlantic, North America, and Europe yielded no cultivable organisms. The strong association of cultivable organisms with African dust suggests various factors that might be relevant to viability. Although we did not specifically look for pathogens these same mechanisms could protect them as well. Our results suggest that arid regions could be an important source for the long range transport of viable microorganisms. The transport of microorganisms to Barbados follows a clear meteorological and seasonal pattern which suggests that it should be possible to model the transport process and to predict events. Microorganism and dust concentrations were unusually great in 1997, possibly in response to the strong El Niño. This suggests that the long-range transport of microorganisms might be particularly responsive to climate variability in general.