



Field study of atmospheric dust devils in the Atacama Desert

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We report on field observations in January 2009, and more recently in November-December 2009, of atmospheric dust devils in the Atacama Desert of northern Chile (20°S). A very high level of dust devil activity over the study sites has been observed though prone to a sensitive dependency on different types of local meteorological conditions that occurred during the two observational periods, especially on ambient wind speed. We found a high correlation between the dust devil's frequency of occurrence and the Obukhov length scale parameter, L , calculated from meteorological gradient measurements, with a clear tendency for this frequency to increase along with decrease of L . The upper threshold values of the Obukhov length $L=20-30$ m, and the 2-m mean wind speed, $V_{2m}=8$ m/s, for the dust devil occurrence have been found, but the minimal V_{2m} -threshold was not observed. We also present the results of "chasing" of individual dust devils, including analysis of thermal images (in IR range) of intercepted warm-core dust devil vortices.