



A NEW APPROACH FOR SEDIMENT BALANCE QUANTIFICATION AND WIND EROSION MONITORING

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Studies on spatio-temporal heterogeneity of land surface in arid and semi-arid regions in relation to wind erosion are very few. These are ad hoc and instantaneous measurements of physical parameters, taking little account of aeolian landforms as markers of a changing environment. This is a handicap in the analysis of these spaces, in particular their sedimentary dynamic. Design methods for understanding the specific organization of aeolian landforms and their spatio-temporal monitoring is therefore essential. This allows quantifying the annual and seasonal sedimentary budgets of bad-instrumented sites which have not automatic recordings of meteorological variables

In this work, we propose a method for multi-temporal quantification of sediment balance across a transect. This method were applied and validated in the Oglet Merteba study site. It has the advantage of linking the amount of sand deposited / eroded with changing surface conditions. It is to delineate and compare apparently accumulation and deflation areas with those having real positive and negative sedimentary budget. To do this, linear analysis techniques "point quadrat" and 'profile leveling' were applied to a 500 m length transect. Measurements of variables related to aeolian landforms, soil and vegetation characteristics were undertaken during 2 years.

The results show that the overall balance of Oglet Merteba is positive but with important seasonal fluctuations. Accumulation areas may actually be deflation zones, despite the presence of indicators showing the contrary. Conversely areas mapped as deflation zones can correspond really to zones of accumulation. This work is a contribution for the quantification of sedimentary budgets at the site level. It allows, when integrated in an Observatory approach, to harmonize the methods of data collection/analysis to regularly produce a synthesis of the situation of the local environment in a format that enables comparisons to that space as well time scales.