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Anti-erosive management monitoring using kite aerial photography

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In Tunisian semi-arid areas, human pressure, torrential rains and low vegetation cover are the essential factors of gully erosion. This type of erosion, its most severe form, threatens both cultivated lands by the extension of badlands and water resources by water reservoir sedimentation. For a long time, the objective of most gully erosion studies was the morphological characterization of the gullies in order to properly understand how they work. Gradually, the technological advancement in sensors and platforms for aerial image acquisition, made it is possible to achieve more detailed mapping of the gullies. During the last decade, actually Kite aerial photography has experienced the strongest development in acquiring aerial photographs at very high resolution. Such images meet, on one hand, the need for mapping at the sub-meter scale and in the other hand the capability to study the gullies in three dimensions. Moreover these images are very useful for anti-erosive management description (determination of their types and their status). Therefore, the objective of this paper is to test the potential of high resolution aerial photographs taken from kite platforms in 3D gullies monitoring, allowing to assess in-situ the anti-erosive management efficiency.

Keywords: Gully erosion, anti-erosive management, Kite platforms, High resolution images.