



Unmanned Aerial Vehicle for monitoring gully erosion in Rio de Janeiro State

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The objective of this paper was to use an unmanned aerial vehicle (UAV), to perform planialtimetric mapping of an erosive feature located in Rio Claro Municipality, Rio de Janeiro State. The study area is located within Pirai drainage basin, a tributary of Paraíba do Sul river. Paraíba do Sul valley presents a history of use and occupation strongly linked to the economic cycles of Brazil, where the native forest of the Atlantic Forest biome was cleared, in order to use the soil in a profitable way, making the exploration of sugar cane, coffee growing and opening of areas for pasture. The use of VANTs in geomorphological research effectively enabled a complete assessment of the erosion feature, where it was possible to make cross sections and longitudinal profiles, calculation of length, width and total area. In addition to being an equipment that facilitates the understanding and monitoring of areas of interest, the use of VANT's allow the capture of images of high resolution and precision, which are subsequently processed, giving rise to new ways of assessing the feature. To complement the research work, soil samples were collected from the soil surface layer for determining their chemical and physical properties. The results of the analyzes indicate that the soil presents favourable conditions for its erodibility, presenting high silt and fine sand content, high bulk density and low organic matter content and aggregate stability. Such properties, together with land use and inadequate management, generate highly impacted areas.