



Sediment and solute transport in a mountainous watershed in Valle del Cauca, Colombia

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Sediment samples and solute concentrations were measured from the La Vega micro watershed in the southwestern region of the Colombian Andes. A main goal of this study was to improve prediction of soil surface and soil nutrient changes, based on field measurements, within small basin of the Aguaclara watershed network receiving different types of conservation measures. Two modeling approaches for stream discharge and sediment transport predictions were used with one of these based on infiltration-excess and the other on saturation-excess runoff. These streams are a part of a recent initiative from a water fund established by Asobolo, Asocaña, and Cenicaña in collaboration with the Natural Capital Project to improve conservation efforts and monitor their effects. On-site soil depth changes, groundwater depth measurements, and soil nutrient concentrations were also monitored to provide more information about changes within this mountainous watershed during one part of the yearly rainy season. This information is being coupled closely with the outlet sediment concentration and solute concentration patterns to discern correlations between scales. Lateral transects in the upper, middle, and lower part of the hillsides in the La Vega micro watershed showed differences in soil nutrient status and soil surface depth changes. The model based on saturation-excess, semi-distributed hydrology was able to reproduce discharge and sediment transport rates as well as the initially used infiltration excess model indicating available options for comparison of conservation changes in the future.