



Experimental assessment of the hillslope hydrology in an Ecuadorian páramo ecosystem: preliminary results

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Hydrological data of hillslopes in the Andean páramo of southern Ecuador are very few. Notwithstanding the lack of data it is generally stated that hydrologically the páramo in Ecuador behaves different from the South American páramo. To verify this, with funding of International Foundation for Science (IFS, Sweden), the hydrology of two hillslopes in the Quimsacocha study area, with elevation ranging between 3600 and 3800 m a.s.l., was monitored. The soils in both slopes are identical, classified as Andosoles (FAO/ISRIC/ISSS, 1998) and characterized by a high water retention capacity (Borja, 2006). The weather condition, geomorphology and topography of both slopes are similar. Only the vegetation is different; one slope is covered with tussock-forming grasses (*Calamagrostis* sp.) and the other slope reforested with pine trees (*Pinus Patula* sp.). On an area of 300 m² (10 m wide and 30 m long) rainfall, surface and subsurface runoff, and soil moisture content are monitored using automatic monitoring equipment (Iñiguez, 2006).

Based on the short but extensive monitoring scheme, which started June 2007; analysis of the preliminary results reveal that the triggering mechanism of overland flow in both land covers is saturation-excess and not infiltration-excess (or Hortonian flow). This preliminary conclusion is supported by soil moisture data, which showed that saturation was reached after almost every storm event. Infiltration-excess overland flow in tussock-forming grasses cover was recorded for lower rainfall intensities than in the *Pinus* land cover.

Borja, P., 2006. Development of pedo-transferfunctions for Andosols hydraulics characterization. Master thesis, University of Cuenca, Ecuador. FAO/ISRIC/ISSS, 1998. World Reference Base for Soil Resources. No. 84 in World Soil Resources Reports. FAO, Rome, 88 pp. Iñiguez, V., 2006. Water balance for a hillslope plot in the páramo. Master thesis, University of Cuenca, Ecuador.