



Connectivity of cultivated areas in bocage watersheds

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In bocage watersheds, the relationships between runoff producing areas and suspended sediments measurements are generally more difficult to assess than in openfield areas. Land use organisation and connectivity are the major controlling factors because man-made linear structures like hedges, roads or ditches networks strongly impact runoff pathways on slopes. These structures can block runoff or connect areas localized at an important distance to the river. In order to highlight such influence, we study three catchments of same size (fifteen square kilometres) with same lithological characteristics (shist) but with various hedge, road and drainage network densities in Normandy (France). Results underline that the cultivated areas directly connected to the fluvial system are preferentially localized on watersheds of 1st Strahler order classification, but the percentage remains weak at the global scale (less than 5 percent). Therefore, percents of cultivated areas indirectly connected ranged from 6 to 10 percent are more important. Locally, the spatial organisation of roads and ditches aggravate the degree of connectivity. As a consequence, localising areas indirectly connected within the catchments is a fundamental step to better understand slopes contribution to the global sedimentary budget.