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Suspended sediment transport by rivers in the different climatic zones of Cameroon (Central Africa)

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Abstract Some watersheds representing the major climatic zones of Cameroon, in Central Africa, have been simultaneously investigated during the period 2002–2004. The patterns of monthly suspended sediment transport show a common form. In areas with a tropical climate, there is a hysteretic loop, with the maximum concentration preceding the flow peak. In these areas, the values of suspended sediment concentrations (up to 3000 mg L^{-1}) and specific sediment yields (>200 t km^{-2} $year^{-1}$) are high. In contrast, in areas with an equatorial climate, the monthly concentrations increase regularly with the monthly flow and sediment concentrations are about 15 mg L^{1} and specific sediment yields less than 10 t km^{-2} $year^{-1}$. A comparison of recent results and historical data shows that in areas of dry tropical climate (Mayo Tsanaga) where flow rates have decreased by 50% since the late 1960s, average sediment concentrations increased from an overall average of 1050 to 2500 mg L^{-1}, with a maximum exceeding 3000 mg L^{-1} in 2003. Conversely, in the equatorial zone (Ntem), the available data indicate no major change in sediment concentrations despite a decrease in flow rate of 19%.

Key words Cameroon; climate; drought; suspended sediment transport