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Zonation of hydric regimens in Venezuela based on rainfall characteristics

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The climate in Venezuela is a product of a complex combination and interaction of meteorological and geographical factors such as the geographic location either north of Ecuador or in the tropics, and the presence of warm waters north and northeast, a vast tropical moist forest south and a mountain range west.
In order to delimit the different climatic zones in Venezuela, a zoning of water regimes were used to classify climate indices primarily on rainfall parameters. A first index used was the length of a dry period, corresponding to the number of months in the year when precipitation is less than half of the reference evapotranspiration. Another index was the Aridity Index (Ia) proposed by UNEP (1997), for which calculations were based on values of average annual rainfall of the stations of the FAO database (1984, 2000).
The reference evapotranspiration (ETo) was calculated by the CIRH program version 2.0 (Santibanez, 2005), which allows the calculation of ETo by the FAO (Allen et al.1998) or by the original Penman-Monteith formula, by Thornthwaite (1948), Turc (1961) or by Ivanov (1996).
The results show that the distribution of the climatic regimes of Venezuela is determined by rainfall patterns. The central region is dominated by a sub-humid regime surrounded by a humid regime. The southern region is dominated by hyper-humid, hydric and hyper-hydric regimes, as well as the most western and eastern regions. In the northern and central-western regions the semiarid, arid and hyper-arid regimes dominate.