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Extreme rainfall trends around Cusco and its relationship with the Floods in January 2010

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Rainfalls that occurred in Cusco at the beginning of 2010 have caused losses of over 700 million soles. In this study, rainfall daily data series from five meteorological stations located near the city of Cusco, are analyzed (Granja Kcayra, Acomayo, Pisac, Urubamba and Sicuani) for the period 1964-2009. The objective was to evaluate the extreme precipitation indices to analyze climate variability, for which reason, three levels of frequency were evaluated: rainy days per year with a rainfall greater than10 mm (R10), rainy days per year with a rainfall greater than 20 mm (R20) , maximum consecutive rainy days with rainfall greater than 1 mm (CDW) and three levels of intensity: 95% percentile of daily data per year (R95), 99% percentile of daily data per year (R99) and maximum daily data per year (RX1). The results showed that the station with more (less) frequency and intensity of daily rainfall is Acomayo station (Urubamba).
The relationship of these extreme indices with the recent extreme events occurred in Cusco (January and February 2010), showed that daily precipitation rates have not reached its historical maximum value during the period 1964-2009, but the most important result was the change in the frequency of rainfall (CWD) in the Urubamba station, it went from a maximum of 14 days during 1964-2009 to 24 days in 2010.
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