

## **GROUNDWATER RUNOFF AND EFFECTIVE INFILTRATION IN HYDROGRAPHIC BASINS OF TRÁS-OS-MONTES E ALTO DOURO REGION (NORTHERN OF PORTUGAL)**

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In the mountainous region of Northern Portugal, four hydrographic basins have been selected to estimate the groundwater runoff and the effective infiltration, using different data series of the annual rainfall and daily runoff data monitored at four hydrometric stations. The selected basins are Corgo (290 km<sup>2</sup>), Pinhão (250 km<sup>2</sup>), Terva (99 km<sup>2</sup>) and Beça (73 km<sup>2</sup>). The distribution of rainfall and temperature characterises long and cold Winters and short and hot Summers. The winter rainfall represents 70-80% of the total annual. The short and mild Spring and Autumn seasons stand for transition periods. From the geological point of view, the basins are entirely shaped on hard rocks with variable ratios between hercynian granites and lower Palaeozoic phyllites and schists. Using the Kille method, which applies for the minimum daily value of every month it was possible to estimate the following groundwater runoffs: 4.8 l/s.km<sup>2</sup> for the Corgo basin, 2.9 l/s.km<sup>2</sup> for Pinhão, 2.5 l/s.km<sup>2</sup> for Terva and 6.9 l/s.km<sup>2</sup> for Beça, which correspond to 13%, 10%, 8% and 18% of their respective annual rainfall. These effective infiltration rates are shown to be conditioned by the: 1) geomorphology and morphometry ; 2) weathering intensity; 3) structural patterns; 4) predominant lithology being granitic or schistose.