The recurrence dimension for piecewise monotonic maps of the interval

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Abstract. We investigate a weighted version of Hausdorff dimension introduced by V. Afraimovich, where the weights are determined by recurrence times. We do this for an ergodic invariant measure with positive entropy of a piecewise monotonic transformation on the interval [0, 1], giving first a local result and proving then a formula for the dimension of the measure in terms of entropy and characteristic exponent. This is later used to give a relation between the dimension of a closed invariant subset and a pressure function.