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Estimating the suspended sediment yield in a river network by means of geomorphic parameters and regression relationships

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Abstract. An application of regression relationships depending on geomorphic parameters is proposed to predict the amount of the average annual suspended sediment yield at different sections of the drainage network. Simple and multiple regression relationships, utilising the drainage density and the hierarchical anomaly index as independent variables, based on data from 20 river basins of different size located in Italy, are here tested. An application is also shown for a small river basin located in central Italy where it is possible to compare the obtained suspended sediment yield estimates with reservoirs siltation data. The results confirm the potential applicability of regression equations for estimating the suspended sediment yield depending on the topological behaviours of the river network. A discussion of the reliability of the method for ungauged basins is also provided, which puts in light the necessity of additional tests to support the application of the approach to small size watersheds.

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