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Nonlinear Set Membership prediction of river flow

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Abstract - In the present paper, a Nonlinear Set Membership prediction method previously proposed by the authors is applied to a river flow prediction problem. The method does not require the choice of the functional form of the model used for prediction, but assumes a bound on the gradient norm of the regression function defining the model. The method is used for the univariate prediction of the time series consisting of the mean daily discharges of the Dora Baltea river in northern Italy, taken from year 1941 to 1979. The obtained prediction performances are compared with those obtained by means of neural networks and of local linear approximation techniques used by other authors for this time series.