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Improving characterization of streamflow by conceptual modeling of rating curve uncertainty

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Streamflow timeseries are an important source of information for hydrological predictions, both through direct use in extreme value analysis and through streamflow records used in calibration of hydrological models.
In this research we look at ways to best represent uncertainties in the rating curve and ways to constrain them using additional information apart from the Q,h pairs used traditionally. One of the possible avenues to enable use of such information is a more physically based representation of rating curves and explicit accounting of the dynamic nature of the stage-discharge relation. We present these representations and the reduction in uncertainty that can be achieved by the introduction of various pieces of external information.
The influence of variable streamflow uncertainty for hydrological model calibration will also be explored.