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When practical considerations impact your scientific model

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Statistical models are a frequently used tool in hydrology, especially when it comes to estimating design floods, i.e. flood events that used to design flood protection systems or reservoirs. The often complex hydrological data, which are affected by e.g. missing values, extremes or time-varying processes, require sophisticated statistical models that take these challenges into account. As a scientist, developing such models can be a lot of fun and provide interesting insights. After months of thinking about the best model under certain statistical assumptions, proving asymptotic theorems and testing the model with synthetic data, you are happy and proud to have developed a new model. This model will hopefully be widely used in future research. The next step is to apply the model to a large real data set. The results look good on average. The results will be shared with practitioners, because of course you want the model to be useful for science and practice. And then: the phone call. You are told that your results are not plausible for a certain catchment area. And in general, the new model is not needed in practice because there is an established model. This example describes such a case and discusses ways of dealing with it. It is intended to illustrate the importance of communication between science and practice and a general understanding between both sides.

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