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What can be learned about the maximum magnitude from historic earthquake data?

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We show that in the context of a truncated Gutenberg Richter model for the distribution of magnitudes the maximum magnitude M event can not be estimated from observations. In more precise terms, the marginal posterior distribution of this parameter given any number of observations is not normalizable. If an upper bound $\hat{M}$ for the truncation value is assumed, the posterior distribution can be normalized and its variance decreases with the number of observed events. In this case, however, the posterior depends on the choice of $\hat{M}$.