Filtering the hydrograph through sediment transport & channel geometry

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Locations of 186 USGS stream gages analyzed in this study. Field sites span a wide variety of climatic, lithologic, and tectonic regimes. Each field site has 10 years of 15 minute instantaneous discharge data, with channel slope, grain size, and channel geometry measured in the field.

Partial hydrograph for the Mameyes River showing the variation between discharge and shear velocity. Channel geometry filters one into the other.

Conclusion A - Long timescale approximation

Reduce variable hydrograph to a fixed-magnitude steady flood event with an intermittency factor.

Conclusion B - Transient floods may be approximated by steady flow with equal T*.

Complex transport phenomena occurs at timescales within floods.