Evaluating why flash floods are different: An experimental investigation of sediment transport and sorting by rapidly changing hydrographs

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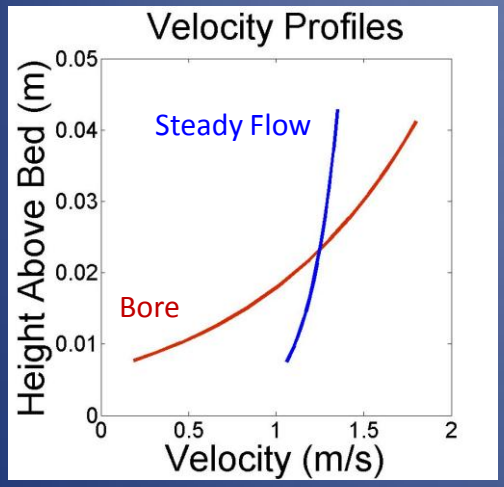
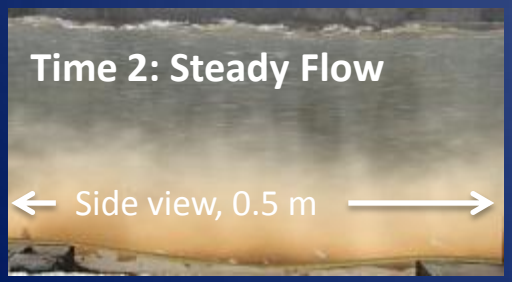


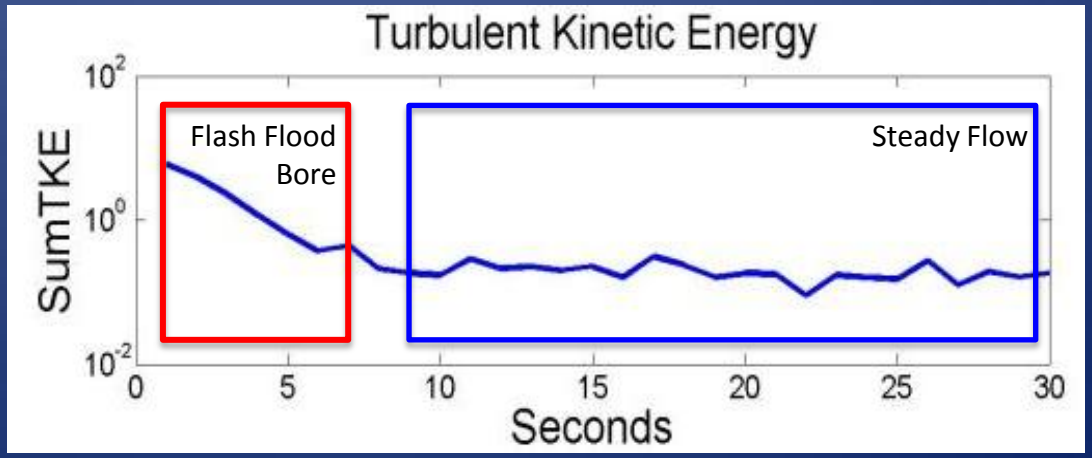
Preliminary velocity profiles (above) for bottom of an experimental flood.

Flash flood experiments are conducted in a laboratory flume capable of creating reproducible flood bores and hydrographs. Comparing the bore ("wall of water") at the start of the flood to subsequent steady flow, preliminary observations quantify that:

- Turbulent kinetic energy (TKE) is higher in the bore than in steady flow.
- Suspended sediment concentrations are highest in the bore, consistent with high shear stresses and turbulent intensity.

Future work will quantify bed load (coarse sand and gravel) transport rates and sorting in flash floods.





Preliminary TKE, averaged over 1 second time steps and summed across a 3.5 cm velocity profile.