Interactive comment on “Coupling slope-area analysis, integral approach and statistic tests to steady state bedrock river profile analysis” by Yizhou Wang et al.

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In this contribution, we compare and combine two well-known methods, the slope-area and integral approach, to analyze steady state bedrock channels. Using a well-studied set of streams in Mendocino Triple Junction (MTJ) region of northern California as a test case, we illustrate that The slope-area method is useful to identify scaling breaks (variation in substrate along a river), which are then used as limits over which to apply the integral method. The integral approach yields better-constrained values of channel concavity and steepness parameters with low uncertainty. Statistical tests (Durbin-Watson test, Spearman rank correlation coefficient test) are then performed to examine if residuals are independent and homoscedastic. The coupled process
thus can produce more reliable and robust estimates of uncertainties in stream power parameters.