

Review of esurf-2017-50: ‘Bumps in river profiles: uncertainty assessment and smoothing using quantile regression techniques’ by
W. Schwanghart and D. Scherler

Fiona Clubb

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The authors have done a great job of addressing the comments that were brought up in the first review, especially with the new analysis of channel gradients and the testing of the sensitivity of the CRS method to the K and τ parameters. I think the paper is now suitable for final publication following a couple of very minor technical corrections (see below).

Page 2, Line 3: should be ‘DEMs’ rather than ‘DEM’.

Page 2, Line 20: should be ‘have’ rather than ‘has’.

Page 10, Lines 0-8: It’s interesting that the same set of parameter values doesn’t minimise the error between the benchmark and smoothed profiles for both elevation and gradient. Based on this, it seems like the user should choose parameter values depending on which metrics they wish to use for their analysis. From Figure 11 it looks like the gradient optimisation smooths the profile more than the elevation optimisation for the Yakima catchment, is that correct? It would be good to state what the K and τ parameters actually were for the Yakima catchment for the different optimisations (can probably do this on Figure 11 somewhere?)

Page 11, Lines 14-18: Related to the previous comment, I think it would be useful to add a sentence here discussing the fact that different K values lead to differences between the errors between gradients and elevations, and that this is something users should take into account when calibrating the parameters for their specific use.