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Discussions

Interactive comment on "An index of floodplain surface complexity" by M. W. Scown et al.

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This paper recognises a deficit in our analysis of floodplain characteristics and functioning, that of detailed measurements and characterisation of floodplain topography. An index of floodplain surface complexity is developed based on two indicators whose methods of assessment are explained in the paper. The combination of these two indicators is a commendable approach to try to capture the nature of the floodplain topography. The indices are tested against eight different floodplains and relationships to measures of environmental drivers are assessed. The paper is very lengthy, especially the discussion, but is a fairly straightforward analysis of the measures derived and the relationships at three different scales. The results could be summarised more efficiently within the text rather than the somewhat laborious itemisation of outcomes. The eight floodplains selected cover a range of sizes and environments but no hu-

mid tropical floodplain is included, with their typical complexity of former channels and ox-bow lakes. No indication is given of the resolution of the LIDAR images used to derive topography and therefore of the level of relief variations that will be detected. The method of limitation of floodplains also not given - whether maps of inundation of a particular recurrence interval flood or distinct morphological boundaries, but the latter still need s a criterion to distinguish higher levels as terraces or valley walls. The rationale for the three scales of analysis is not well - explained and perhaps a variable scale related to the width of the channel could have been tested. This is more likely to mimic the scales of variations created in the floodplain topography. There is little discussion of the origins of surface variability in floodplains, which might have led to selection of different or additional drivers/ variables with which to relate the topographic results. For example, channel pattern/ sinuosity could be a key variable, given the origins of floodplains. Overall, this is in an interesting but rather mechanical analysis , with a commendable motive and some measurement indices that could be useful , but the analysis would benefit from more informed interpretation based on geomorphological insights.

Technical issues: Abstract L10 - sentence construction, and need : after namely. P4511, 4519 comprise, not comprise of.