

Interactive comment on “

Geostatistical regionalization of low-flow indices: PSBI and Top-Kriging” by S. Castiglioni et al.

Anonymous Referee #2

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This is very interesting and well written paper. I have a range of comments mainly to improve the discussion of the paper.

- It would be good to mention in the abstract why Q355 is relevant (as is discussed later in the text).
- Both methods (depending on the scale of application and whether the network is controlling or not) seem to offer a lot of potential in model calibration. They would offer a strategy to derive estimates of hydrologically relevant flow characteristics either at ungauged or at internal catchment sites to which lumped or distributed models could be

C3366

calibrated (see regionalization of flow characteristics and subsequent calibration approaches by Bardossy (2007, HESS) or Yadav et al. (2007, Adv. Water Resources)). Hence providing a very interesting alternative to the direct regionalization of parameters.

- While the authors mention that catchment classification requires the additional step of grouping catchments, the basis for such groupings are nonetheless often continuous indices (e.g. Wagener et al., 2007, Geography Compass; and work by Ross Woods), which means the authors approach could provide an interesting basis for classification across gauged and ungauged basins.
- What is the variability of Q355 along the network? What density of estimates would be needed for a continuous prediction? at what scale is the variability known and hence what are limits of predictability?
- There are some smaller textual errors, which the authors will find when reading through carefully one more time. E.g. 'closer look to Table' should be 'closer look at Table'.
- I have another question about the limits of predictability of the two methods: PSBI cannot predict behavior of locations outside the range of observed catchment characteristics. Does top-kriging enable further extrapolation as long as a network connectivity exists?

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C3367