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Discussions

Interactive comment on "A comparison of interpolation methods on the basis of data obtained from a bathymetric survey of Lake Vrana, Croatia" *by* A. Šiljeg et al.

Anonymous Referee #2

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Here, Šiljeg and coworkers present a detailed survey of the bathymetry of Lake Vrana in Croatia. The work is organized to address three stated goals:

1. To compare the effectiveness of 16 interpolation methods. 2. To determine the most appropriate interpolators for the purpose of developing a rastor model of the lake. 3. To calculate the surface area and volume of the lake, and to compare differences in the calculation of the rastor models.

The quality and interpretation of the gathered data appear very good and the described approach to mapping this sort of system should be of interest to the freshwater com-

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munity. However, I agree with the first reviewer that this manuscript, in its present state, is not suitable for publication in HESS.

The manuscript's problems are by and large related to organization and focus. On a secondary level, there is too much detail in the discussion of tangential matter and not enough detail in subject matter that is important.

Perhaps the easiest way to solve this problem is to be clear about the focus of the manuscript. The title (A comparison of interpolation methods on the basis of data obtained from a bathymetric survey of Lake Vrana, Croatia) suggests the focus is on geostatistics. That would be fine. However, a good portion of the paper is related to the details of gathering bathymetric data. If the paper is truly about differences between interpolation methods, then it seems to me that any portion of the collected data set would suffice and goal #3 above could be dropped.

If, on the other hand, the real focus of this paper is to calculate the surface area and volume of the lake (and to compare differences in the calculation of the rastor models; goal #3), then perhaps goals #1 and #2 (above) could be abbreviated. Much of this manuscript is detailed in Šiljeg (2013) – why not simply cite the conclusions (on which interpolation methods work best) and focus on the results of your interpolation? Many people are familiar with the Surfer software program and if you clearly state how the bathymetric data was interpolated (and that the volume and area of the lake didn't vary too much with different interpolation methods), I don't think there will be much objection.

If I understand correctly, what is really new here is the bathymetric map of the lake. If you can map the lake, relate the water level (at any given time) to a fixed elevation, and show how changes in water level affect total lake area and total lake volume, then I think this could be very useful. For instance, changes in evaporation or precipitation or exchange with the Adriatic Sea could quickly be translated to the area of shoreline exposed or submerged. Some sort of hypsographic curve is the expression I think I'm

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looking for.

Even with improved focus, the authors need to improve the organization of the paper. Methods belong in the methods section, discussion in the discussion section, etc. Details also need to be provided. E.g., nowhere in the current manuscript is there a complete list of all 16 interpolation methods (and their associated acronyms). Figure legends are woefully incomplete (see for instance Fig. 8).

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 13931, 2014.