Hydrology and
Earth System
Sciences
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Interactive comment on "Deduction of Reservoir Operating Rules for Application in Global Hydrological Models" *by* Hubertus M. Coerver et al.

Anonymous Referee #2

Received and published: 13 February 2017

I read the manuscript with interest and I found it well written and clearly presented. I have only some issues that I think the authors should clarify:

1. On page 3, line 12-13, the authors say that fuzzy logic has not been used within the field of reservoir operation. Could you leave a word about this recent paper: Macian-Sorribes, H. and Pulido-Velazquez, M. (2016). Integrating Historical Operating Decisions and Expert Criteria into a DSS for the Management of a Multireservoir System. J. Water Resour. Plann. Manage., 10.1061/(ASCE)WR.1943-5452.0000712, 04016069

2. The description of the results (Section 4) is rigorous, but often too analytical. Physical meaning is a bit neglected, until we come to the discussion (Section 5). I would like to see the results presented in the lights of more physical links to the physical charac-

teristics of the watersheds and reservoirs. For instance, the relation between storage capacity and mean inflow (annual or even monthly flows, if one is focusing on the time step used) is only introduced at the end, while I think it is crucial to understand the performance of data-driven methods. Much of the results are explained in the lights of the length of the data time-series, but physical issues are also important and should be mentioned earlier. Also, for instance, how does the purpose of the reservoirs (irrigation, hydro-power, etc.) play a role (if any)?

3. In the 3-step "training/validation/test" procedure, I could not see the difference between "validation" and "test". From a first read, I had thought that "test was referring to using it in an "operational, real time" setup, where inflows were forecast/predicted by a model and used through the operation rules determined in the training/validation phase. I think however that I understood it wrong. Could you clarify this?

4. The issue of non-stationary data time series should be discussed given the context of the paper. What if the training period does not reflect the same conditions of the validation period? In an "ever changing world" (as supported by the Panta Rhei IAHS decade), there are strong chances that upstream catchment areas have changed in land use and occupation (not to mention climate changes) and that also other reservoirs have been built in upstream parts, influencing inflow. How does that affect the method applied and the results?

5. In Fig. 7 & Fig. 6, I would recommend to write the legend outside the plot, so the reader can have a full view of the simulations in the training period.