

Interactive comment on “Improving statistical forecasts of seasonal streamflows using hydrological model output” by D. E. Robertson et al.

Anonymous Referee #1

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This paper presents a comparison of the impact of using a hybrid statistical streamflow forecasting model over the operational statistical streamflow forecasting model currently used by the Australian Bureau of Meteorology. The new predictor that is used is the previous month’s modelled streamflow from the hydrologic model WAPABA along with a prediction about future climate influences (same as for the operational model). The inclusion of the WAPABA streamflow makes it a hybrid model as the streamflow forecasts now incorporate information from a dynamical hydrologic model. The authors find that the hybrid model generally leads to improvements in forecast skill for most catchments. The investigation into the reasons for the improved skill is thorough and

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should provide a useful contribution to statistical streamflow forecasting literature. The paper is well written although I think it could be expanded in a few sections as outlined below to make the work clearer. I recommend that the paper is accepted subjected to minor revisions.

Page 8707 Lines 8 - 26 - I found the details on the current operational BOM method to be a bit too terse. I can see that the details are in Robertson and Wang (2012) but the current paper required me to reread several times before it all came together. Page 8708 Line 27 - 28 - On my initial reading i found this section quite confusing. The explanation on Page 8717 cleared things up for me but you might want to consider rewording this section to make it clearer. Page 8709 Line 17 - I think it would be useful to explicitly state that since the skill scores measure a reduction in error, that a large positive value is good and a negative value means an increase in error compared to reference case. I think it would also be useful to note that negative skill occurs where the climatological forecasts are better.

Figures I'm not really a fan of the presentation of Figures 3, 4 and 9. I think it's too hard to tell the difference between the different colours especially for the panels further away from the colour scale on the right . I would prefer to see the use of bands of colour to represent specific ranges of values rather than a continuous range. If you feel that you need to maintain the continuous range then I think at least around 0 skill value you need to have a more neutral colour. Figure 6 - it's difficult to see the light blue uncertainty bars particularly in the lower parts where they are over the grey bands for the climatological values.

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