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Discussions

Interactive comment on "Evaluation of Mekong River Commission operational flood forecasts, 2000–2012" *by* T. C. Pagano

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Overall, this is an interesting paper discussing the background and skill of hydrologic forecasting in the Mekong River basin. The analysis method and results are thorough and relevant to the RFMMC and other similar agencies. I recommend minor revisions.

There are a few points regarding discussion of the forecast skill that should be addressed more thoroughly.

Page 14450, line 5. The author misses the possibility that the good performance at the downstream points may be due to the scale of the forecast basin and the limitations of modeling small watersheds. Figure 2 illustrates clearly that forecasts at upstream points show greater variability with lead time, most likely due to the greater influence

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of uncertainties in initial conditions, recent and future precipitation, and other meteorological influences at the small scale. As one looks downstream, forecasts at the lower most points show very little variability with lead time, most likely because the rainfall that is influencing flow at this point has already fallen and the forecast is determined primarily by the routing model. In addition, errors in the rates and location of precipitation, runoff, etc, tend to balance out as one moves to larger and larger scales, improving model performance. This possibility should be addressed.

Following on the previous point, I do not entirely agree with the statement on Page 14445, lines 1-3 that locations with a small range of flow are easier to forecast than locations with a large range. If one was working with persistence or climatological forecasts, that may be true. However, there is not a clear reason why this would be the case for a model-based forecast. The difficulty in forecasting could be as much related to the scale of the basin as to the long-term range of flow. A better way to discuss the relationship between discharge and skill is with respect to flashiness or variance, which indicates how much the discharge changes on short time scales. Indeed, flashier systems are harder to simulate and predict. Some further explanation of this point would be useful.

Page 14451: The last paragraph reads like a statement out of a consulting report submitted to the RFMMC. I suggest making this more general. Archiving operational forecasts, as well as observations, in a consistent, machine-readable format is important for any forecasting agency. This paper demonstrates the type of information that can be obtained if a proper archive is maintained and discusses the uncertainty and problems that arise when it is not. This message and the message that continual evaluation is important are what expand the contribution of the paper beyond just a better understanding of forecast skill in the Mekong. Minor comments:

Page 14437: Refer to Figure 1 at the beginning of the discussion of Study Locations to make the section more understandable.

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Page 14439, line 26: In general, the meaning of the “as-is forecasts” and “original forecasts” was not immediately clear, and a better explanation should be provided. The sentence on Line 27 states, that “the latter may contain raw model output and not as-issued forecasts”. This refers to the “*isis.xls” file. My understanding from later sections is that the “*Original.xls” file should be the one that contains the raw model output. Following on that, on Page 14440, Line 1, what is a “normally-named file”?

Page 14442, line 6: The quality score “proposed” by Plate et al. (2008), seems to be the same presented on page 14445 and attributed to Kitanidis and Bras (1980). Perhaps the word “proposed” is inappropriate here. If they indeed are the same, the same name should be used in both sections.

Page 14447, line 20: An explanation about how the persistence with trend forecasts are created is needed. How many previous time steps is the linear trend based on?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 14433, 2013.