

**Interactive comment on "Do probabilistic forecasts lead to better decisions?" by Ramos, van Andel, and Pappenberger, submitted to Hydrology and Earth System Sciences Discussions in December 2012**

This manuscript addresses an important topic about the value of probabilistic flood forecasts for decision makers. As discussed by the authors, interpretation of probabilistic forecasts is complex and requires investigating in what ways probabilistic forecasts are useful to end users in their risk-based decision making. The paper presents a "laboratory-based" study conducted during an EGU session about hydrometeorological ensemble forecasting. The results show some indication about how probabilistic flood forecast information would yield to increased consensus in the decisions and more risk-seeking attitude although with better economic performance. They also indicate the impact of previous user decision performance and money left in hand regarding risk-seeking or risk-adverse attitude.

The paper is well written and includes appropriate references on this topic, which is still relatively new to the hydrometeorological forecasting community (as mentioned by the authors, most papers dealing with probabilistic forecast value are based on the assumption that forecast users will make optimal decisions). The authors acknowledge the limitations of their experiment given the time constraints and the respondent sample size. They made the experiment material available for future teaching or training sessions, which could help gather additional responses and refine the experiment conclusions. I recommend this paper to be published to stimulate increased collaborations between hydrologists, forecast users, and social scientists engaged with social and behavioral sciences on the use and interpretation of probabilities for risk-based decision making. This paper also encourages closer collaborations between modelers and decision makers to conduct other "laboratory-based" studies and develop training opportunities to ultimately increase the effectiveness in the use of probabilistic forecasts.

I have the following minor comments to help improve the quality of the manuscript.

- Page 13571, lines 5-6 "information about the level of confidence to be placed in the predictions": the authors should clarify whether they refer to providing forecast with uncertainty estimates, or providing information about forecast verification.
- Page 13571, lines 15-16: suggest mentioning explicitly the need for developers and forecasters to conduct forecast verification and communicate forecast verification information to users with application-oriented metrics. Most operational and pre-operational probabilistic forecasts are not provided along with effective verification products and supporting datasets to allow sophisticated users to conduct their own verification assessment (which could help maximize the value of probabilistic forecasts in their applications).
- Page 13573, lines 18-20: the authors should underline that the audience included probabilistic forecast specialists and decision makers, who are interested in probabilistic forecasting and most likely working with such products. Therefore it was not necessary for the experiment to investigate how well the uncertainty information was understood. It would be interesting to conduct similar studies

with a less specialized audience and investigate the importance of forecast “framing” and formatting to avoid misinterpretation of uncertainty information (see e.g., Joslyn et al. 2009).

- Page 13574, lines 21-23: suggest adding a sentence on the potential learning effect. By starting the experiment with probabilistic forecast information, the learning effect would have favored the decisions in the second game, and not the decisions based on uncertainty information in the first game.
- Page 13575, lines 21-22: the authors should explain that they kept track of the majority decision at each round to clarify what the “final amount of money in their purse as a group” refers to (although the explanation is given later on in section 2.4).
- Page 13576, lines 14: suggest using a different term for “ensemble result”, or better explaining the reason for using it. To avoid potential confusion with *ensemble* forecast products, the term “majority decision” could be used.
- Page 13579, Figure 3 and its interpretation: the authors should avoid the confusion between cases and rounds. Figure 3 includes a description in terms of cases, therefore most comments should be described with case numbers. Figure 3 should be clarified, for example by including the label “case number” and the graphical representation of the optimal decision.
- Pages 13594-13595: give references in alphabetical order.