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Willingness-to-pay for a probabilistic flood forecast: a risk-based decision-making game

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Forecast uncertainty is a twofold issue, as it constitutes both an added value and a challenge for the forecaster and the user of the forecasts. Many authors have demonstrated the added (economic) value of probabilistic forecasts over deterministic forecasts for a diversity of activities in the water sector (e.g. flood protection, hydroelectric power management and navigation). However, the richness of the information is also a source of challenges for operational uses, due partially to the difficulty to transform the probability of occurrence of an event into a binary decision. The setup and the results of a risk-based decision-making experiment, designed as a game on the topic of flood protection mitigation, called “How much are you prepared to pay for a forecast?”, will be presented. The game was played at several workshops in 2015, including during this session at the EGU conference in 2015, and a total of 129 worksheets were collected and analysed. The aim of this experiment was to contribute to the understanding of the role of probabilistic forecasts in decision-making processes and their perceived value by decision-makers. Based on the participants’ willingness-to-pay for a forecast, the results of the game showed that the value (or the usefulness) of a forecast depends on several factors, including the way users perceive the quality of their forecasts and link it to the perception of their own performances as decision-makers. Balancing avoided costs and the cost (or the benefit) of having forecasts available for making decisions is not straightforward, even in a simplified game situation, and is a topic that deserves more attention from the hydrological forecasting community in the future.