

**AUTHORS' RESPONSES TO INTERACTIVE COMMENT ON "ON THE SOURCES OF HYDROLOGICAL PREDICTION UNCERTAINTY IN THE AMAZON" BY ANONYMOUS REFEREE #1**  
**Hydrol. Earth Syst. Sci. Discuss., 9, 3739, 2012.**

The authors are please to respond to the comments and suggestions by Reviewer in the following text, in which Reviewers' comments are shown in **bold** typeface, and the authors' replies in *italic*.

**AUTHORS' RESPONSES TO COMMENTS BY ANONYMOUS REVIEWER #1.**

**Reviewer's general comment:** This paper focuses on two main sources of hydrological predictions uncertainties: the initial conditions of the model and the meteorological forcings. Through an existing hindcast approach, the authors differ both spatially and temporally the sources of hydrological predictions uncertainties in the Amazon River basin. Moreover, surface water, soil moisture and groundwater are distinguished showing that initial conditions of surface water are the major source of hydrological uncertainty in this basin. It is also the case for groundwater in southeast. This type of study is very useful for the hydrological community and I think that some prospects for such work should be mentioned at the end of conclusion. The topic of this paper is in the scope of HESS, and relevant. Overall the paper is well written. Some technical corrections and suggestions for improvement are listed below.

**Authors' response:** *The authors are grateful for the Reviewer's opinion about the paper and for bringing important comments that will certainly improve the manuscript. We have made our best efforts to address all corrections suggested. Following the reviewer's suggestions, that some prospects for such work should be mentioned at the end of conclusion, we included the following sentence at the end of conclusions:*

*"Results indicate that hydrological forecasts based on physically based and distributed hydrological models forced with past climate and optimal initial conditions may be feasible in the Amazon River basin and possibly in other world large rivers. It should also be mentioned the potential of newly remote sensing data for providing past meteorological forcings (e.g. Tropical Rainfall Measurement Mission, Huffman et al., 2007, and others) and information to update model states, such as radar altimetry based water levels or discharge derived from previous (Alsdorf et al., 2007, Santos da Silva et al., 2010) or future SWOT mission (Durand et al., 2010)."*

**Reviewer's specific comment:** p. 3741, line 26: Recently an interesting modeling effort was introduced by Guimberteau & al. (2012) with new data sets of floodplains areas and precipitation: <http://www.hydrol-earth-syst-sci.net/16/911/2012/hess-16-911-2012.html>

**Authors' response:** *We now cite the paper of Guimberteau et al. (2012) at this part of the manuscript.*

**Reviewer's specific comment:** p.3742, line 10: The work of Prigent & al. (2007) can be also cited: <http://www.agu.org/pubs/crossref/2007/2006JD007847.shtml>

**Authors' response:** *We included the reference Prigent et al. (2007) at this part of the manuscript.*

**Reviewer's specific comment:** p.3742, line 11 and p.3754, line 30: The date for Vinukollu et al. is not 2010 but 2011.

**Authors' response:** *We corrected this reference.*

**Reviewer's specific comment:** p.3743 and 3744: For easier reading in section 2.1., the reference to the Figure 1 in the text should be divided in Fig. 1a, Fig. 1b, etc. when the different approaches are described.

**Authors' response:** *We now included references for Fig. 1a, 1b, 1c and 1d as suggested.*

**Reviewer's specific comment:** p.3745, line 1: "module described in (Paiva et al., 2011a)." = module described in Paiva et al. (2011a).

**Authors' response:** *Corrected.*

**Reviewer's specific comment:** p.3745, line 8: Can you cite the sources of the discharge data used for the calibration? Same question (at line 9) for the validation of the model.

**Authors' response:** *We included the following sentence at this part of the manuscript:*

*"Stream gauge data were provided by the Brazilian Agency for Water Resources (ANA), the Peruvian and Bolivian National Meteorology and Hydrology Services (both SENAMHI) and the HYBAM program (Hydrology, Biogeochemistry and Geodynamic of the Amazon Basin, <http://www.ore243hybam.org>)."*

**Reviewer's specific comment:** p.3745, line 7 to 12: Does it exist a reference paper for calibration and validation of the model? (Maybe Paiva & al. (2011b)?). It could be useful for the reader to see the reference in this section.

**Authors' response:** *Details concerning model calibration and validation are all presented in Paiva et al. (2012). For better clarity, we modified lines 3-4 and now it reads as follows:*

*"We used results from a model application in the Amazon River basin (Fig. 2a) presented in Paiva et al. (2012), as briefly described below."*

**Reviewer's specific comment:** p.3746, lines 3 and 4: “in 6 sites located in the main tributaries of Amazon River basin” = in 6 sites located in the main tributaries of Amazon River basin (see Fig.2a)

**Authors' response:** *Corrected.*

**Reviewer's specific comment:** p.3747 line 1: “In the Amazon main stem analyses shows that” = In the Amazon main stem, analysis show that

**Authors' response:** *Corrected.*

**Reviewer's specific comment:** p.3758: for easier reading of figure 3 but also of the text in section 3.1., Figure 3 should be divided in two: Fig3a for discharge results and Fig3b for relative ensemble spread.

**Authors' response:** *We followed the reviewer's suggestion and divided Figure 3 into 3a and 3b. We also corrected the manuscript in parts where Fig. 3 is cited.*