Hydrology and Earth System Sciences Discussions

Interactive comment on "The turbidity behavior in an Amazon floodplain" *by* E. Alcântara et al.

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Response to Anonymous Referee # 2

Referee #2: 'Unfortunately, this paper was both poorly written and poorly structured making it very difficult to follow the information presented. Throughout the paper the English needs careful correction and the ordering of the content needs to be reconsidered'

Authors: Dear referee thanks a lot for your comments. We will try to make better the structure of the paper and also we will make a depth correction of English language and style.

Referee #2: 'For example, in the Introduction section the authors present a confusing

summary of the past studies on the Amazon floodplain.'

Authors: We will organize in a better way the introduction.

Referee #2: 'Furthermore, it was not satisfying that much of this material was not related to your data analysis in the discussion section.'

Authors: This is not completely right because all of the cited or reported material was used during the text to help us explain our results. However, we will improve these.

Referee #2: 'The authors have presented some analysis in this paper which I believe is flawed. For example, the power spectrum (Fig 9) cannot be used to make comments about the "power" as a function of time'.

Authors: Dear referee, no result in our paper is 'flawed'. See the explanation about your comments:

Wavelet analysis is becoming a common tool for analyzing localized variations of Power within an environmental time series (Meyers et al., 1993; Kumar and Foufoula-Georgiou, 1997; Massei et al., 2006). Please check the references about this theme and read again. For example, see the following text from (Forrence and Compo, 1998, page 67): 'Thus, it is unclear whether the decrease in 2– 8-yr power after 1990 is a true decrease in variance or an artifact of the padding.'

Referee #2: 'In its present form I do not believe that the paper demonstrates any significant advances in our understanding of floodplain dynamics'

Authors: The understanding of floodplain dynamics is not our goal. Our goal in this paper is '. . .in this paper the main objective is to map the spatial distribution of the turbidity along the hydrologic cycle and identify factors controlling its short time variability.'

Referee #2: 'I would like to see the authors expand their discussion of the implications of this data set for other similar systems as well as make more satisfying conclusions about why the patterns they measured exist'

Authors: This will be done.

Detailed comments:

Referee #2: 'Definitions need to be introduced earlier e.g., definition of pulses appears p. 3950, line 15 after the term has already been used many times. The description of the precipitation climate should precede the description of how the Amazon floodplain responds to the "water year".'

Authors: This will be done.

Referee #2: 'It is not clear from your description whether the lakes are contributing water to the flood plain or whether they are the floodplain. Furthermore, it is not clear if the different lake descriptions exist at the same time. You did relate these characterisations to your results in your discussion of the spatial analysis'

Authors: We will make this information clearer.

Referee #2: 'I felt that Fig. 2 was not necessary'

Authors: The figure 2 is important in our discussion. Also we have other 2 referee and they don't found this figure unnecessary.

Methodology

Referee #2: 'I found the descriptions of the methodology used for the data analysis to be unnecessarily detailed.'

Authors: We will try to reduce this information in accordance to others two referees.

Referee #2: 'It is not at all clear to me why you would want to try and model your data as an eightterm Gaussian series. This needs to be justified. If you want to remove high frequency fluctuations then a low-pass filter would be a better choice.'

Authors: In fact this needs to be justified. This Gaussian series shows the dependence of the turbidity through the time. We will give more information in the final text. This

type of adjustment is hardly used in oceanography.

Referee #2: 'The discussion of the wavelet analysis is not cohesive and is very difficult to understand. Showing a time series of wind vectors below the wavelet analysis would be better than including wind roses.'

Authors: We will try to do this.

Spatial analysis

Referee #2: 'The analysis of the spatial data is extremely speculative. It appears the turbidity data needs to be coupled with measurements of currents and waves in order to substantiate the suggestions the authors provide to explain the areas of high and low turbidity.'

Authors: May be you have reason. However, nor always it is possible to get all the desired data and also the access to this floodplain is extremely difficult and expensive. Unfortunately at this moment we don't have condition to do the measurements of currents and waves as you wish. Moreover, the published papers about this floodplain help us to explain satisfactory our finds.

Referee #2: 'Why are there so many NaNs in Fig 15d?'

Authors: NaN means Not a Number.

Referee #2: 'In figure 15d, when the water level is lowest, we do not see the highest values of turbidity, this does not agree with your time series analysis. Why?'

Authors: Dear, check again. If you observe with attention you see that the highest value of turbidity occur in this flood phase and the spatial data confirm this. So, the spatial and time series agree!

We wish to thank you for help us improve the paper.