Hydrol. Earth Syst. Sci. Discuss., 12, C755–C756, 2015
www.hydrol-earth-syst-sci-discuss.net/12/C755/2015/


Hydrology and Earth System Sciences
Open Access
Discussions



# *Interactive comment on* "Technical Note: Variability of flow discharge in lateral inflow-dominated stream channels" *by* C.-M. Chang and H.-D. Yeh

**Anonymous Referee #2**

Received and published: 31 March 2015

General Comments

In this paper, the authors developed an analytical solution for the derived equation (Eq. 2 in the manuscript) via spectral theory and quantified the uncertainty with the closed-form expressions for the variance and spectral density of discharge fluctuations. They found that the variability of stream flow discharge increases with distance from the upstream boundary of the channel and time. The authors focused more on presenting and solving equations without a thoughtful discussion and explanation on the variability of flow discharge in lateral inflow-dominated stream channels. I think it is ok as a technical note that mainly introduces a method. I believe the manuscript is suitable for



Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

publication after the following comments are considered.

Specific Comments:

1. In section 2 “Description of the problem”, the problem is not clearly defined. The author should clearly state the specific problem that they will address in this study.

2. Page 2488 Line 12-13 “the increase of discharge variability with the temporal correlation scale at a fixed time agrees with common physical intuition” It is better to expand this statement a little bit. For example, what is the common physical intuition here?

3. Compare to the analytical solution and closed-form expressions that the author proposed in this study, is there any other analytical solution of Eq. (2) or any other ways to quantify the uncertainty of flow discharge? If yes, the authors should make a comparison among them to highlight the advantages of the proposed method in this paper.

Typing errors:

1. Page 2481 Line 10: “it apparent from. . ...” should be “it is apparent from”

2. Figure 1: the label “a” and “b” are missing

---

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 2477, 2015.