

## ***Interactive comment on “Flood discharge measurement of mountain rivers” by Y.-C. Chen***

### **Anonymous Referee #2**

Received and published: 3 January 2013

This paper presents an automatised method to obtain near real time flood discharge measurements by using an Acoustic Doppler Profiler. Since measuring discharge during floods is a dangerous and costly process, results provided by this automatised method are really promising.

However, as reviewer #1 also noticed, claims made by the author on the general applicability of this method to all mountain rivers (as suggested by the title) should be dampened. The problematic should be better set in the local context and conclusions drawn accordingly... is the method in use in the active monitoring system of the Nanshih river? More real world implications would be welcome.

Otherwise, the paper is strong and I believe that it would be suitable for publication in HESS once these points have been addressed.

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Some specific comments follow:

p12656 I25: please define mountain in this case (slope / elevation?)

p12657 I18: "floods often occur during typhoons", in the local context probably, typhoon only occur in a limited region of the world. Please replace this statement in a local context.

p12659 I13: "below water surface 0.4m", please rephrase in plain English

p12659 I15: "below water surface 40 cm", see previous comment. Please harmonise the units, i.e. choose either m or cm.

p12659 I25-27: Please develop why a 3.0 MHz is suited to the Nanshih river. Please replace the end of the sentence by 'cross-sectional'

p12666 I6-24: Please indicate to which period average annual values of precipitation correspond. Similarly, identifying the time and reasons for minimum and maximum flows could help catching a glimpse of the hydro-climatic conditions in the region.

p12666 I8: Please harmonise the spelling of "gauge" throughout the text.

p12666 I10: Locating Taipei on the map would be helpful for people not at ease with Taiwanese geography.

p12667 I22: I could not find a z in Figure 4.

p12670 I23: Do you refer to Table 3 instead of Table 2?

p12671 I25: is this y-axis easy to locate? This could be a major limitation in a less well monitored river.

p12672 I13-16: Please do not overstate here. The method has only been demonstrated to work well in a single river. I would be keen to see some kind of validation in other rivers. Are applications in less mountain rivers also planned?

Table 1: Please correct the top-right number (probably 308.6). Double digit precision

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in the two lower right boxes is not necessary.

Table 2: This table is never referred to in the text (except the probable typo p12670 l23). Please keep the same precision for all boxes in the table.

Table 3: A column with the difference between Qest and Qr could be helpful.

Figures: Legends could benefit from a more detailed description of what is represented. What do dots represent in Figure 11?

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 12655, 2012.

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