Response (in italics) to: RC C1324

Interactive comment on "Use of laser-scan technology to analyse topography and flow in a weir pool" by P. E. Dresel et al.

Anonymous Referee #2

Received and published: 7 May 2012

General comments:
This paper presents the use of a laser-scan technique for use in quantifying the volume of water in a weir pool that has not reached discharge level. The method presented could be important in water resource studies, particularly in quantification studies in drying climates.

Overall I rate this manuscript as excellent significance, and good in terms of scientific and presentation quality. However the paper could be improved, as outlined below.

Specific comments:

1)- The title of the paper and the focus of the content is on the development and application of the method, rather than the implication of the data collected during testing. Considering this, I think that the content would be better presented in a more technically focused paper, rather than as a research article.

> *Thank you for your helpful comments. We agree that the focus of this article is primarily as a technical note on the methodology we have developed. HESS does not have a specific category for technical notes or other short communications. As such we have attempted to balance concise discussion of the methodology with sufficient background on our research to present it as a context within which the method is of value.*
>
> *The Introduction and Study Location sections have been revised to focus more succinctly on the methodology.*

In light of this, the authors should consider removing some of the background (region specific details and such) and focus more on the uses and application of laser technology in similar scenarios, and emphasise how this research differs from that.

Technical edits:

1)- pg 3724, staring line 6: this paragraph discussing the overall study area and 3 paired catchments is somewhat confusing. Fig. 1, which could be used to help explain this, does not help to clarify how there are 3 paired catchments in the study area.

> *We have removed description of the multiple catchment pairs to focus on only the relevant catchment and revised the section to*

2)- pg 3724, line 17: Reference 'Australian Government Bureau of Meteorology' does not quote a date, nor does it appear in the reference list as that. Does this correspond to 'climate data online' (pg 3730, line 21)? Please amend.

Reference reformatted to include Australian Government Bureau of Meteorology as the author.

3)- pg 3726, line 1: -0.2m should have an en dash, not an em dash.

This appears to be an artefact of the conversion at the publisher. I will bring this their attention .

4)- pg 3726, various: 'local coordinate system', 'local coordinates' - what is the local coordinate system?

The first instance changed to "non-georeferenced local coordinates". The origin is arbitrary and assigned in the software while processing the scans into a combined point cloud.

5)- Fig 1, 3, 4: require North arrows

North arrows added

6)- Fig 4: Move A & B identifiers to top left corners - they are hard to read where they are. What do -0.168 and 0.032 refer to? This is not clear in the legend nor the caption.

Identifiers were moved. Legend clarified to state the blue area is the pool area with water at the bottom of the V (B) and at the top of the V (B). Elevation values were removed since the origin was not georeferenced.

7)- Fig 5: remove title from top, fix y-axis label to remove the ^. The legend is not very clear – 'poly' etc. Caption "at a height of 0.1 on the stick gauge" – 0.1 m? Please clarify.

*Changes made to figure and legend. Caption clarified to read, "*Pool level vs. volume relationship for the weir pool at levels lower than exit flow, showing calculated volumes and the polynomial fit to the data. The bottom of the weir notch is at a height of 0.1 m on the stick gauge".

8)- Authors should consider having someone proofread for grammar, as several commas are required within the text for easier understanding and flow.

Manuscript was proofread for grammar. Publisher now performs basic editing on accepted manuscripts.