

***Interactive comment on* “Dynamic analysis of groundwater discharge and partial-area contribution to Pukemanga Stream, New Zealand” by V. J. Bidwell et al.**

**V. J. Bidwell et al.**

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Anonymous Referee #2 Received and published: 5 September 2007  
General Comments The estimation of the effects of nitrate filtered from the soil surface on the quality of surface water is extremely important in every region of the world where agricultural lands are diffused. During the last decades this estimation has received more attention because of many reasons described also by the authors. The proportion and origin of groundwater contribution to streamflow is very important to the aforementioned estimation. The proposed paper does not involve original contributions, anyway it may be useful in the partitioning of streamflow contributions from near-surface runoff and groundwater. It is a good paper in the complex, well written and well organized. The

assumptions and the analyses are valid and adequately justified. The material is clearly presented and the methodology is appropriate. On this basis the paper may be considered as a useful support to other analyses earlier published.

Specific comments In section 2.1 (Catchment description) some details about the horizontal spatial variability of land use and cover could be introduced.

All of this 3 ha catchment is in pasture, with some poplar trees planted for erosion control.

In section 2.2 (Instrumentation) instrumentation (type and location) for the measurement of rainfall and streamflow should be described

The following descriptions of instrumentation will be inserted on page 2466-10:

Rainfall data were supplied by AgResearch Ltd, which operates the Whatawhata Research Station on which Pukemanga Catchment is located. Streamflow was monitored in two structures, H-flume for high flows (above 6.35 L/s) and V-notch weir for low flows. Resolution was 1 mm for stage and 5-minute time interval.

Section 3 (Results) and 4 (Discussion) should be combined

We would be guided by the Editor's advice about this.

Technical corrections (These will all be corrected in a revised manuscript) Page 2469, line 7, the equation should be in the same line; Page 2474, line 23, the average value of the error (8%) should be evaluated in absolute terms; Page 2481, line 7, Fig. 3 should be Fig. 2; Page 2482, line 4, Fig. 3 should be Fig. 2; Page 2486, line 13, the error -16% is not coherent with that indicated in the text (page 2474, line 23)

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Interactive Discussion

Discussion Paper