

## ***Interactive comment on “Experimental and numerical study on the design of a deposition basin outlet structure at a mountain debris cone” by B. Gems et al.***

**Anonymous Referee #2**

Received and published: 21 October 2013

Generally speaking, the manuscript combines numerical and physical modelling in an excellent way.

Some comments:

Abstract: There are more possibilities to implement mitigation measures against flooding and sediment deposition available, not only at the fan apex (not head).

2.1. Catchment characteristics: hazard potential ...is mainly related to long-lasting, advective precipitation events This sentence is a statement without any argument. There is quite a huge amount of sediments available in the catchment, therefore the process

C1489

is rather transport limited than supply limited. Design discharge of 55 m<sup>3</sup>/s includes sediments or not (10% relates to bedload component)? The experiments were conducted with 55 m<sup>3</sup>/s water discharge. Please clarify. What's the transport capacity in the basin upstream?

4.1. Model set up: The method of Fehr (1987) only is based of surface sampling, not of taking samples of the bed layer. What's the total volume of deiment (basin, influx)? Isn't there a need to include grain sizes up to 1 cm? (d<sub>90</sub>)

4.2. Results input rates to about 5% Why not 10%?

5.2. Applied method Some remarks are missing what's happening with the sediments round the confluence with the Inn.

Figures: A little bit confusing. Too small. Same perspective would be helpful (3 and 8, all in 4, all in 7)

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 3169, 2013.

C1490