

Interactive comment on “Block and boulder transport in Eastern Samar (Philippines) during Supertyphoon Haiyan” by S. M. May et al.

Anonymous Referee #1

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I found this paper comprehensive and well written. It is an insightful study of a recent high-magnitude coastal event in The Philippines and the findings are relevant to the task of better understanding the relative magnitude of both recent and prehistorical events. The results will add to the suite of coarse sediment investigations being carried out by other workers in comparable regions elsewhere.

At a time when there is much attention on high-energy coastal inundation events in the Asia-Pacific region (whether driven by exceptional storms or tsunamis), this work that questions how best to interpret depositional signatures and the inundation characteristics responsible is of value to the wider scientific community. The work will appeal to researchers concerned with the analysis of high-energy coastal geomorphology, wave and surge interaction with reef coastlines, hydrodynamic modeling and natural hazards

C290

affecting tropical coastlines.

I recommend publication after the authors have attended to some minor issues, as given below. These include both technical points, corrections to language/expression and broader issues for discussion, listed in order of appearance through the manuscript by section heading:

1. Abstract: the term 'dislocated' is not appropriate. Suggest 'dislodged' instead.
2. Abstract: change 'uphill' to 'upslope'.
3. Abstract: the authors state that the high flow velocity calculations from boulder measurements exceed flows predicted by a hydrodynamic model, and that this therefore supports the notion of infragravity waves produced by Typhoon Haiyan. But it may also point towards the underperformance of the hydrodynamic model. Please address briefly.
4. Abstract: 'demand to carefully reassess' - please rephrase.
5. Course of the event: correct to 'in a westward direction...'
6. Coastal flooding: correct to 'similar to how TC Nargis...'
7. Previous typhoons: use 'Eastern Samar' throughout instead of 'E Samar'. Currently both are used.
8. Field and laboratory work: multi-view image methods for coastal boulder size estimation were recently published by Gienko (2014), ESPL, v.39, p.853–864.
9. Field evidence: change 'subrecent transport' to 'historical transport'
10. Storm surge and wave model: please rephrase 'the here presented Delft3D model'.
11. Boulder transport and flow velocities: the authors admit that 'flow velocities modeled with Delft3D are insufficient to account for the transport of the documented clasts'. This leads on to their proposal that this is evidence for a range of hydrodynamic pro-

C291

cesses having been responsible for the movement of the large coastal clasts. Although I do not necessarily disagree with this, I feel this issue could benefit from further consideration. The discrepancy in flow results may have several alternative explanations, either that the flows calculated using the transport equations are overestimated, or that the flows determined by the model are underestimated, or likely both to some unknown degree. The authors could make a valuable contribution here, providing more discussion on how to proceed in such cases where multiple methodologies used for the best intentions (i.e. validation) then yield results that are not in agreement.

12. Conclusions: 'a variety of hydrodynamic processes must be considered when interpreting boulder deposits...' This is too a vague statement to include in the conclusions, especially since this is one of the main thrusts of this paper. Please be more specific. List and briefly outline these various processes.

Interactive comment on Earth Surf. Dynam. Discuss., 3, 739, 2015.