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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "The catastrophic landfill flowslide at Hongao dumpsite on December 20, 2015 in Shenzhen, China" *by* Qiang Xu et al.

W. P. Wang (Referee)

wangwenpei1985@163.com

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Full Title: The catastrophic landfill flowslide at Hongao dumpsite on December 20, 2015 in Shenzhen, China

Recommendation: accepted subject to minor revisions.

Overall Reviewer Manuscript Rating: 75

Comments: Manuscript entitled "The catastrophic landfill flowslide at Hongao dumpsite on December 20, 2015 in Shenzhen, China", it presented the characteristics of high travel speed and long run-out distance. Meanwhile, the main causes of the failure were analyzed, including high and excess pore water pressure, the accumulation rate and

total volume of the landfill.

The subject considered has a good significance and the paper is well organized. Based on field investigation, in-situ test, UAV stereo-measurements, and remote sensing, the manuscript showed lots of concrete data on the topic. The slope stability and the flowslide movement were also analyzed carefully. Appropriate figures were given to make the paper understood easily.

However, a number of points still need clarifying and certain statements require further justification as followsïijŽ

1. The volume of the deposit and the landfill should be checked carefully again. The maximum design capacity should be 4 million m3, so the numbers in the text should be also checked carefully. 2. Please give the method to estimate the permeability of waste filling. 3. Please note that Fig.4 is not cited in the text. 4. In Fig.5, daily rainfall data could be better to explain the failure process. A heavy rainfall with an amount of 67.8 mm occurred on December 9, 2015, only 11 days before landslide. 5. In Tab.3, If we add the flowslide volume at A and B areas, the total volume is only 4.66 million m3, so the number should be checked. 6. What's the meaning of fill zone in Figs 14 and 18? 7. Please note that Fig.22 is not cited in the text. 8. In the 6th section 'Laboratory Experiment', the location and characteristics of the 4 samples should be made clear. 9. In Fig.25, please add the method to determinate the groundwater level. A hypothetic groundwater level is not appropriate enough for FOS calculation. 10. In Tab.4, There is a big difference of the φ of waste surface between the laboratory and inversion analysis, so it is necessary to explain the reason of using φ=9.4. If it is just used for reducing the FOS, the value should be discussed. 11. In Fig.26, the vertical coordinate head should be added. 12. Please add the reference "Mechanism of the December 2015 Catastrophic Landslide at the Shenzhen Landfill and Controlling Geotechnical Risks of Urbanization". 13. Many spelling and grammar errors.

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Please also note the supplement to this comment:
http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-196/nhess-2016-196-RC2-supplement.pdf

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