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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Small sinkhole-like features in alluvial plains: the example of Paganico (Lucca Plain, Italy)" *by* M. Dell'Aringa et al.

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The Authors wish to thank the Anonymous Referee #1 for his favourable opinion as regards this paper and especially for his suggestions devoted to improve it. However, the three weak points indicated by the reviewer are substantially correct. 1) As regards the geotechnical characteristics of the involved materials, there are very few data. Undisturbed samples are not available, as well as the degree of saturation. We know that Magazzini (1998) is not easy to find. In fact it is an unpublished technical report requested by the local Public Municipality. On the other hand, it is the only technical report (produced by an agronomist) available in order to understand the vertic prop-

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erties of the soil investigated. The methodology used by the author is the Coefficient of Linear Extensibility (COLE – USDA, United States Dept. of Agriculture), namely the ratio of the difference between the moist length and dry length of a clod to its dry length. This information will be correctly updated in the manuscript. 2) The hydraulic conductivity of the aquitard was estimated on the basis of the grain size characteristics and literature information. Hydraulic conductivity tests are not available, thus the shrinkage cracks are not taken into account. This point highlighted by the reviewer is however very important, because it is probably important the role of cracks in rising or reducing this parameter. Thus, we wish to carried out specific tests in the future. 3) In our opinion, when the rainfall season starts (usually with rainstorms), the water can infiltrate through the cracks before the formation of the water table, which needs of more time as well as the swelling. This process allows the erosional phenomena in the cracks also during the first rainfalls. Only subsequently the clay begin to swell. However, this possible explanation will be reported also in text.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 3413, 2013.