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Interactive comment on "GIS and remote sensing techniques for the assessment of land use changes impact on flood hydrology: the case study of Yialias Basin in Cyprus" *by* D. D. Alexakis et al.

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This manuscript investigates the hydrological effects of land use changes within the Yialias catchment area located in central Cyprus. The Hydrologic Modeling System (HEC-HMS) and satellite remote sensing techniques are used. The authors calibrated the model for three precipitation events and validated it for a major flood event of 2003. The results obtained show the crucial role of extending urban land use in the increase of runoff rate. The paper addresses a question of high importance, because a flooding

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Interactive Discussion

Discussion Paper

is one of the most common natural disasters causing a large economic and social damage all over the world. I believe it can be acceptable after a minor revision.

Title: The title is too long and not fully corresponds to the contents of the paper. The study actually not uses GIS analysis. The only mention of the "GIS environment" concerns solely the soil map.

Introduction: p.4834, line 24 – "exposurevulnerability" – What it is?

p.4834, line 25 – Please clarify how "flood risk will continue to rise, as a consequence of". . . a "value increase in endangered areas". It is not obvious.

p.4835, line 3 – Punctuation error: ";" should be replaced by the point.

Methodology: p.4838, line 7-8 – "the area's soil map was developed in a GIS environment". – Please, clarify (see comment to p.4841 - 3.3 Soil map).

p.4840, line 19 – "ondividual" - typing error.

p.4841, line 9 – I did not find the "Fig.4c".

p.4841, line 13-14 – Please, clarify what land use types includes each of "seven major different classes". For example, it is not clear what difference exists between "Agriculture Generic" and "Agriculture Close Green", what is "Herbaceous"?

p.4841, line 18-20 – "At the end, with the specific classification approach, the Kappa coefficient values were increased from the initial values of lower to 0.6 to 0.78 and 0.80 for 2000 and 2010 cases, accordingly". – The sentence is not clear.

p.4841 - 3.3 Soil map – The chapter is too short. Please, explain in more detail how "The soil map was constructed" and what characteristics of three soil classes are.

p.4843, line 4 – "CA" – The abbreviation needs an explanation.

p.4843, line 7-9 – "As it is indicated in Table 2, the Forest Mixed and Olive Trees classes have significant possibility to change to urban land cover in the near future". - It is not

obvious from the table. The probability values are too low.

p.4843, line 11 – "a steady increase of land cover" – Please, clarify of what "land cover".

Case study: The chapter is too short. The specific implementation process in the study area needs more explanations.

p.4847, line 17 – "A list of the rainfall runoff events is given in Table 1." – It is not.

p.4847, line 20-21 – "A list of the rainfall runoff events is given in Table 3." – It is not.

Results: The chapter is too short. The authors should discuss their results.

The paper needs a discussion chapter.

Figure 7 provides no data for "water".

Figure 8 and 11 are redundant, they should be combined.

Other typing errors need corrections: for example, p.4848, line 17; p.4849, line 2.

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