

Lark *et al* comments.

This is an intriguing paper and the topic deserves recognition in the age where both digital and paper maps are important outputs to research projects and policy questions. It therefore deserves to be published, albeit after the authors have considered and responded to the comments below.

The statistical aspects are beyond my experience but I offer a number of aspects where I think the paper could be improved.

Style: The writing style is a little verbose and 'dense', with long sentences being commonplace. There are also places where it could be reduced in length and avoid repetition. This could be a major undertaking and I will leave it to the editor to decide how to handle this.

Types of uncertainty: I am unclear of the difference between conceptual and interpretation uncertainty. Their description (or rather my interpretation of them) suggests that they both identify contexts where a boundary is uncertain because of lack of exposure or topographic expression to be sure of 'where to hang a line (boundary) on' (surveyor speak). This is the 'gradational' type of boundary referred to in the section on 'conceptual uncertainty' and it therefore it has to be 'interpreted'.

Strength of participating characters: Groups of people with similar experiences can become quite set in their way and the elicitation process will require strong facilitators otherwise the views of the stronger characters might prevail. I see this as a potential issue with the method and would welcome comment on it.

Uncertainty of classes within the boundaries: Difficulties in boundary recognition can often be related to a lack of precision in the definition of what lies within the units that a surveyor is trying to identify. Certainly this is the case with soils and vegetation, it may less relevant with hard geology but I anticipate it might be the case with superficial deposits. Indeed this might be an issue that contributed to the difficulties in Scenario 6. Unless the authors can argue against it, or it is already covered in the other uncertainties, I would welcome some commentary on this in the Introduction

The different types of uncertainty might warrant a separate section from the Introduction.

Interpreting linework: This may be a term well used in geological mapping, but I interpreted this expression as the process of interpreting lines that are already on a map/air photo rather than the process of drawing them for the first time. In essence, it is identifying and delineating boundaries between features and I think that conveys what is being done in the field better than the expression used.

Translation to vegetation and soil mapping: The paper would be strengthened if a short commentary was given on the applicability of the procedure to the say soil and vegetation mapping.

Specifics:

Line 68: suggest 'also' is added before 'true'.

Lines 417-419: I'm not clear what this sentence means or its relevance.

Line 565: why not use maps rather than 'boundary-based products'.

Lines 662 and 664: Is brash a geological expression? It is also the by-product wood left on the ground after woodland harvesting. It is not in my geology dictionary!

Line 680: Induration. Admittedly this is a geological term but it might be confused with the same pedological term. Can another term be used?

Line 865: 'Anchoring'. Unclear what this means. Does it mean something becoming 'set in stone'?

Line 1003 and others in Table 1: The codes either need explanation or removed. Is Table 1 a table?

Table 2 Scenario 3. Can mapping really be done accurate to 1-4 metres?

Figure 1 Does this add much?

Figure 2 Should there not be 5 lines on this diagram?