Earth Syst. Sci. Data Discuss., 6, C44–C45, 2013
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ESSDD
6, C44–C45, 2013

Interactive Comment

Interactive comment on "Permafrost temperature and active-layer thickness of Yakutia with 0.5 degree spatial resolution for model evaluation" *by* C. Beer et al.

Anonymous Referee #1

Received and published: 21 June 2013

The manuscript by Beer et al uses a map of landscape and permafrost conditions in Yakutia from 1991 to derive active layer thickness and permafrost temperatures in order to produce a validation data set for climate and associated land surface model results with a resolution of 0.5 deg. It is clear that independent data sets for variables related to permafrost are of high importance, and at present the IPA map by Brown et al is mostly used, but has clear restrictions. This means the objectives of the manuscript are important and relevant. However, the discussion paper has some major problem.

1. The Russian map is only referred to, but not shown. This is important for a reader to see the map to assess the validity of the data set produced. E.g. p. 156, l. 8 refers

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to layer 4 and 5, and I do not know what those layers are.

2. It is not given any indication of how the map info is transferred into ALT and permafrost temperatures based on the landscape classes. It is not given how the map is compiled, which again makes it difficult for the user to evaluate the data set.

3. It is not given what you mean with permafrost temperatures here. For which depth is the temperature given?

4. What do you mean with "isolated permafrost zone"? In convention we distinguish between continuous (>90%), discontinuous (50-90%), and sporadic permafrost (< 50%). The IPA map in addition refers to areas with "isolated patches" (< 10% I think) of permafrost. You never use the term "sporadic" here, see p. 157, l 11 ff.

5. The original Russian map is certainly highly detailed, but if you quantify based on a qualitative analogue product, it should be somehow be validated in the first place. As the map has a high resolution, comparison with e.g. CALM sites should be shown for ALT and GTN-P sites for ground temperatures to document the quantitative value of the map.

In conclusion, I understand the absolute need of independent and more quantitative validation data sets. And I see of course that maps like those produced for Yakutia contain surely more detailed information than the global IPA product. However, the step from analogue map information to quantitative data sets requires a careful documentation of the base map in addition to a careful description how the information is transformed into a digital data set. Here, the discussion paper should be improved under a possible revision process.

Interactive comment on Earth Syst. Sci. Data Discuss., 6, 153, 2013.