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Biogeosciences Discussions

Interactive comment on "Baseline characteristics of climate, permafrost, and land cover from a new permafrost observatory in the Lena River Delta, Siberia (1998–2011)" *by* J. Boike et al.

Anonymous Referee #2

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General comments: As stated in the paper, the purpose of this study is to summarize the characteristics of Samoylov Island with respect to its climate, vegetation, soils, permafrost, land cover and hydrology using data collected between 1998 and 2011. This could provide useful information for carrying out future studies not only on the island, but also on the entire Lena Delta. The authors also suggest that the data collected on this island are representative of the Northern Siberian tundra. This might not be the case since the environmental conditions for the tundra and uplands are quite different than conditions on the adjacent delta. I would suggest that the authors clearly explain why they think that Samoylov Island is representative of the Northern Siberian tundra, especially the more continental parts of Siberia.

Detailed comments: Page 13636, lines 4-6. I do not think the deposit should be called non-soil just because the surface is devoid of vegetation or has been flooded. Page 13637, line 20. It would be useful to include photos of some of the representative soil profiles from the island. It appears that the dominant soils are Orthels. This would also suggest that this island is typical for the delta, but not for outside of the delta, where most of the soils are probably Turbels. Table 3. I would suggest that the origin of the parent material (alluvium, eolian, etc.) for these soils be included. Figures 8 and 9. Soil temperatures were taken at depths of 0.21 m (Fig 8b) and 0.09 m, 0.06 m, 0.47 m and 0.51 m (Fig 9). These are very odd depths and are probably of little use for future studies. I would suggest that, in the future, soil temperatures should be taken at standard, internationally recommended depths.

Page 13652, lines 9-12. It is interesting that no clear warming is detected in the upper 1 m although the winter air temperatures in recent years have not been as cold as in previous years. An increase of 1o C was also detected in permafrost at the 10.7 m depth. Is it possible that there is some problem with your soil temperature measurements?

Section 8, Outlook: Samoylov Island – a new Arctic Observatory. In this section it would be useful to explain where improvement of data collection methods are needed and the new types of data to be collected in the future. One item I could recommend now would be to collect soil temperatures at internationally recognized standardised depths.

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