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## ***Interactive comment on “Meeting the challenge of mapping peatlands with remotely sensed data” by O. N. Krankina et al.***

**Anonymous Referee #1**

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The objective of this paper, as specified by the authors, is to provide guidance to improve the mapping of boreal peatlands from remote sensing observations. For that purpose, several databases on peatland distribution in the region of Saint Petersburg are compared and the spectral characteristics of different vegetation types are examined using Landsat TM measurements.

1) This paper provides a detailed and rather thorough review of the remote sensing of peatlands, insisting on the limitations of each technique. Different approaches are proposed, based on the vegetation or hydrology characteristics, and the authors insist on the vegetation-based classification. This introductory part is interesting and informative.

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2) The study then concentrates on the area around Saint Petersburg and six databases of peatland distributions are carefully compared, showing very large differences that are attributed essentially to spatial resolution issues and definition problems. The differences being really important, which number to trust? Are the same large differences expected in other places? All these datasets have been built from measurements taken at different time in the year. How important is the time factor in the classification methods? What is the sensitivity of the classification to the seasonal cycles?

3) The spectral signatures of peatlands are examined, using Landsat imagery. The results are not very convincing. Would these signatures also apply to other years, to other regions? What is the application of this analysis in terms of peatland classification?

4) The conclusion takes the reader by surprise. I was expecting some developments about methods to improve the estimates of peatland distribution, following the analysis provided in section 4. This study fails to provide any guidance for better remote sensing of peatland. Several methods are alluded to (like combination of spectral sensor and radar data) but are not explored in this study.

As a conclusion, this study seems unfinished. Based on the analysis already provided in this paper, more efforts have to be done in order to develop new ideas and methods to improve the mapping of peatlands.

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