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Biogeosciences Discussions

Interactive comment on "Detection of wetland dynamics with ENVISAT ASAR in support of methane modelling at high latitudes" *by* A. Bartsch et al.

Anonymous Referee #2

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This paper describes a methodology for automatically detecting open water bodies utilizing C-Band SAR from ENVISAT ASAR. Though the methodology seems to generate nice results, it is very hard to understand what was done and how it was done. The paper is poorly written. Sentence construction is confusing and most paragraphs have no flow or continuity of ideas, making it very difficult to understand and follow. This paper needs to be rewritten to clearly explain the work that was done.

Title: The use of wetland dynamics in the title is misleading. The author is looking at detection of open water bodies, which are not necessarily wetlands.

Abstract: The abstract is confusing with poor use of the English language. In addition,

the author interchanges wetland and open water, which are two different things. Not all open water bodies are wetlands.

8244 Satellite data have been shown of large value for wetland monitoring (need reference) 8244 This includes regular coverage at as short as possible intervals (very vague statement, need to specify what that is, hourly, daily, weekly. In addition, need to address this in terms of what is an ideal monitoring period to capture inundation dynamics). 8244 this resolution represents sufficient grid spacing with respect to climate modeling (need reference). 8245 Ideally needs to be complete in space and time for the domain of interest (nebulous statement, not clear what it means) 8245 wave action increases (wave can also relate to the SAR signal interaction with the landscape, should read waves on the water) 8245 the majority of SAR data available (new paragraph) 8245 continuation records are ensured due to future plans of ESA with the SENTINEL satellite series (specify when that will be) 8246 especially lake shores can be affected (by what?) 8246 inundation is expected to occur over flat terrain (should go under new heading "Study Site") 8246 and different backscatter behavior of lakes (what kind of backscatter behavior would that be?) 8246 this can be achieved by usage of auxiliary data (what kind of auxiliary data?) 8246 flooded river valleys are also excluded for the purpose of methane modeling (why were they excluded?) 8246 Ob River floodplain is included (but you mentioned above that the Ob River and its floodplain were excluded) 8246 is applied for the different environments (what are those different environments?) 8248 region growing (explain) 8249 how do you know when there is maximum inundation 8250 variations occur in regions of the Ob basin (what kind of variations...water variations or backscatter variations or both?) 8252 it is not clear how the product supports or betters CH4 estimates 8264 60% of the data are affected in the tundra and the taiga (how?) 8255 the Sentinel satellites will provide (which sensors?) Figure 1 what is WS? Figure 2 remove extra a). Indicate the scale is dB Figure 3 need to show the relative size of the area and a dB scale Figure 4 need to specify that you are measuring % water fraction

Interactive comment on Biogeosciences Discuss., 8, 8241, 2011.