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Interactive comment on “Impact of mire reclamation on export potential and characteristics of dissolved carbons in the Sanjiang Plain, Northeast China” by Y. D. Guo et al.

Anonymous Referee #2

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In Confidence (for editor). I apologise for the delay with this review. I have some reservations with the paper in that some of the data appear to have been previously published in Song et al. (2011) referenced below. I have suggested in the report below that this paper should be referenced in the manuscript. The papers appear to share common sampling sites in 2009, and given the similar approach taken in both papers, I am not sure that this manuscript merits full publication in Biogeosciences.

For authors: Impact of mire reclamation on export potential and characteristics of dissolved carbons in the Sanjiang Plain, NE China

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This is a concise paper that provides clear evidence of change in dissolved carbon in waters sampled from relatively pristine wetlands and degraded sites in NE China over a 3-year period. The authors draw upon a reasonably strong data set to explore trends, and their relationship to organic matter characteristics (hydrophobic and hydrophilic DOC; SUVA and fluorescence). It would have been useful, in places, if more detail had been provided on sampling protocols (e.g. time between sampling and filtration; how samples were stored; date of subsequent analyses). However, my main reservation with the paper is the degree to which the results reflect the hydrology of the sample sites. In this respect, it is unfortunate that no data are presented on flux rates, and insufficient information is provided on the hydrology of individual sample sites (i.e. characteristics of the three categories of drainage ditches). In places, also, the analysis is very descriptive, I am not sure how useful isolated EEMs are, for example, sampled in July (but year not given), and more data are required here to give confidence in the results. Hopefully, these concerns can be addressed in revision, and the authors could also note the following minor points: Abstract: the last sentence suggests that ‘change in the hydrological regime of the mire landscape by sustained agriculture...’ are responsible for the changes described. However, the hydrological regime is not described in the paper (water levels are presented in Fig. 3, but not flux rates), nor are details of agricultural practices. Mire: throughout the paper the authors refer to the sites as ‘mire’ wetlands. In Europe, mires generally refer to any peat accumulating wetland – but to avoid confusion the authors should define this term. Introduction: Much of the literature here is European and North American in focus. It would be useful if more information could be provided on the results of work completed recent in NE China. In particular, some of the sampling sites seem to be shared with Song et al., (2011) which is not referenced in the submitted manuscript, and it would be good to see some acknowledgement of this paper to give confidence that the papers are distinct and the same data are not used in both papers. Site Descriptions: latitude and longitude would be useful in section 2.1, together with elevation, and a description of the hydrological regime. In Section 2.2. more information is needed on individual

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sample sites (as noted above), and the distinction between the different categories of drainage ditch (particularly the ‘capillary’ ditch; C-DD). Details of sample storage (and the time between sampling and analysis) are needed in Section 2.3, together with an assessment of error (particularly given the use of 2 decimal places). Section 2.5 is not needed. It is also not clear, how water levels were measured (Fig. 2). Results & Discussion: this is very descriptive, and a more quantitative analysis, together with more comparison with published data elsewhere, would be more useful. Song, C.C., L.L. Want, Y.D. Guo, Y.Y. Song, G.S. Yang, & Y.C. Li. 2011. Impacts of natural wetland degradation on dissolved carbon dynamics in the Sanjiang Plain, Northeastern China. *J. Hydrol.* 398, 26-32.

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C2770

