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Interactive comment on “Rapid accretion of dissolved organic carbon in the Springs of Florida: the most organic-poor natural waters” by C. M. Duarte et al.

Anonymous Referee #2

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General comments:

The online published manuscript shows data on DOC accretion along downstream transport in Florida spring waters. Those springs are referred to as one of the most organic-depleted ones that have ever been described and belong to a large spring complex that share similar characteristics. DOC accumulation in spring flows is mainly attributed to autochthonous sources such as submersed aquatic vegetation.

In general, the manuscript provides a detailed, balanced, and well-structured overview on the respective study. However, I find that several aspects need to be reworked and clarified: (i) The introduction needs to be better tuned to the discussion section. For ex-

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ample, because the discussion lists these springs as ‘...the most organic-depleted waters yet reported in the biosphere...’, I expect that the introduction provides more information about DOC concentration in spring and necessarily also ground waters worldwide to the reader. I am curious about average DOC concentrations in spring/ground waters and other spring systems that show similar low DOC concentrations. Do these systems share similar characteristics?

(ii) The aspect of producing low-DOC reference material from these organic-depleted waters is to my opinion highly rewarding and needs a better discussion. The reader is a bit left alone with this final statement. The scientific community needs to be better convinced about a possible future initiative on producing Freshwater DOC reference standards. I have once produced my own ref standards from alpine lake water for a large lake sampling campaign, but would have been delighted if multiple tested and referenced standards would have been around.

(iii) The authors miss to shortly explain why these spring water are so depleted in DOC? Does it also have anything to do with the geological setting, residence times, temperature? Is information on total N concentrations and discharge enough to predict DOC concentrations? This would help to clarify the unique status of these Florida springs.

(iv) In which season were these spring samples obtained? The authors state that there is considerable variability in DOC concentrations among different discharge regimes. Did the authors also consider seasonal variability in regard to spring DOC concentrations and DOC accretion along downstream flow?

Specific comments:

1. abstract is written to the point, clear language, informative, well-structured text body
2. page 5254: improve discussion on DOC concentration in spring and necessarily also ground waters worldwide, inclusive better references to this information.

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3. page 5255: regards to modest variability in DOC concentrations I expect a better reference than Pairie unpublished data.

4. pages 5256 – 5258: I believe that the material and method section is clearly outlined, the formulae is correct and correctly explained

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