

Comments on Interactions of local climatic, biotic and hydrogeochmeicla processes facilitate phosphorus dynamics along an Everglades forest-marsh gradient

Troxler et al.

General comments:

This study aims to determine phosphorus interactions through a dynamic hydrologic regime calculating ET and precipitation and hydraulic patterns along a 'tear drop' shape tree island in the Everglades. It compares these concepts (TTRP other concepts and models) to semiarid and arid systems. These models and concepts are applicable to both systems and can help understand the transport of (in this case) P from higher p-rich tree island areas to lower marsh areas.

This is a very novel idea and works to combine different ecosystem, not only in the Everglades but also semiarid ecosystems.

There are 3 things that concern me about this study. It would be nice to see evidence that P is limiting in the marsh. Also, the author's say they measured DO but do not present in full and it would be nice to see redox that can potentially be calculated with the data the authors have. With P being so affected by DO and (CO₂ which is suggested in the discussion – see below) might be nice to see. Also there are many places where the authors redefine chemical abbreviations that are already changed in the intro. please double check that.

I suggest that with this novel idea this ms should be accepted with revisions.

Specific comments:

10291

Is there any way to describe (other than ET) how the P is taken up by the different species. Did you extract p or do uptake into the plants on a whole ecosystem throughout the Island ? there is mention of root uptake later in the paper but it because of the species or the soils? unclear

10292 /2.2

21 cores is a lot. Is it 21 random or along the gradient? Unclear

later in the paper you TDP and here you say you measured TP clarify

Also in fig 1 the caption has ABC but I can only see an A and B in the fig. (no WCA labeled)

why did the authors use 1M KCl in stead of NH₄Cl clarify in more detail

10292/2.3

did the wells have tips or closed off at the end so you got true flowthrow? Clarify maybe that is the anchor section?

20923 line3

Did the wells go through the limestone or just to the bedrock? Clarivy

Line 13

Slug tests – more detail. Did you do it in the well or above the well and how did you sample

2.4

measured DO, temp, pH and Spec. cond. But is is not presented may be useful to help with the P story

10925

results did you separate roots for TN TC, etc. from soils and roots themselves did you sieve them out if so state that in the methods. Did try to sieve to a common size which I doubt you could not that part needs to be addressed but did you try to get the roots out?

I can't see supplement 1 maybe my computer?

Discussion

The first paragraph reads like an abstract and again the acronym have already been described – correct. Rework.

They make a lot of suggestions of other papers suggesting that CO₂ is really important and why but no measurements were made

Could add in the DO they do have and work on that there are calculations you can do to help and calculate redox and explain P dynamics.

Table 1

P is used for precip. And Phos. Clarify
I plotted the all parameters and very cool

Table 2a

Wet head TDP is huge can you explain

Fig.2 A

While this very dynamic differences between HH and the others could maybe blow up the other three on another scale to show the differences between them and the the depths, it is described in the paper but may be good to see visually

Fig 2 B

Love it

Fig. 3

Throw in arrows when you sampled?

Fig. 5

I understand of the lack of SE and that they weren't sig. but may be nice to see them and interesting data !

Fig. 6

Looks like a fig. off a talk or paper to me confusing and you said you sampled surface water but never saw it is that 0-10 depth? Clarify