General comments

The authors effectively addressed many of the reviewer comments in their revision to improve the manuscript's clarity, however considerable revision is still needed before publication. Please refer to line-by-line comments that follow.

Abstract

Line 12. "…extensively in [poorly drained] agricultural lands…" Suggest adding 'poorly drained'.

Line 16. Clarify 'runoff'. Surface, subsurface, both?

Line 26. "Shorted" should be 'shorter'

Line 25-29. Consider condensing this sentence, a bit hard to follow

Introduction

The introduction is still long and could be more concise.

Lines 45-50. Lowering the seasonally high water table in poorly drained fields is the main function of tiles drains

Line 61. "…that can represent tile drainage". Consider being more descriptive re: tile drainage…what type of flows, matrix? Gravitational? What about surface runoff?

Line 76. "Since the use of tile drainage has become popular… ". Hasn't tile drainage been used extensively for decades? Do you have any recent tiel adoption trend data specific to Canada that you can cite?

Line 100. You mention catchment scale but your study is at the field scale, please clarify whether the aim of CHRM-TD is catchment or field scale.

Lines 104-108. What about the hydraulic gradient?

Line 110. Suggest changing "Many" to 'Some studies'. Also some of the references cited are quite outdated.

Line 140. Integrate the last sentence with the previous one.

Line 154-155. "…which are increasingly being artificially drained". Citation?

Line 162. Soil type or series, not texture.

Line 192. If snowmelt processes were accounted for they should be better explained. How was melting estimated? What about infiltration with partially frozen soils?

Line 197. "Water quality" needs further clarification. What specific nutrients? Sediment?

Line 223. Preferential flow is likely an important mechanism at your site since the texture is a clay loam. Preferential flow even occurs readily in silt loams. Maybe just state that you did not model it for this study and will be assessed in future studies?

Line 227. Our research shows that soil freezing still happens with snow cover, with depth and extent depending on snowpack depth and other radiative factors.

Line 241. How good was the regression relationship for the rating curve?

Line 245. You mention "forcing" with other covariates but do not present or discuss forcing data. I suggest not using this term unless you did use it to force the model.

Line 344. Was Ks measured or assumed?

Line 347. "…was used to estimate"

Line 376. "…into the sire from adjacent farms". Replace 'farms' with 'fields'

Line 386. Clarify "This approach" at the start of the sentence.

Line 389-392. This sentence is long and hard to follow, suggest revising.

Line 421. State somewhere that these methods were used to assess model accuracy

Table 1. Remove "Source" as a column heading if it is not used.

Line 452. Suggest revising to "…the near absence of flow"

Line 462-463. Suggest revising to" Although peak tile drainage flow was not always…"

Line 474. Saturated soil storage and water table depth appear to be used interchangeably, which causes some confusion. Suggest sticking with one term or the other if you are implying the same physical state or clarifying the use of both terms.

Figure 5. Same comment as above. Y-axis lists 'SSS' and 'WT'- suggest sticking with one or the other as per above comment.

Lines 506-509. Provide more specifics about the "systematic issues" and provide some ideas on why the surface flow is not predicted well and how you plant to improve it.

Lines 513-526. Suggest providing additional context here. What are these collective differences suggesting about the overall model?

Figure 6. Might be helpful to present the R2 values for relationships.

Line 545. Change "have" to 'had' a strong influence"

Line 546. "…that flowed into tiles.

Table 2. Revise for consistent significant digits across the table

Line 591. "ore" should be 'more'

Line 598. Again, suggest sticking with either water table (WT) or saturated soil storage (SSS) but not using them interchangeably to avoid unnecessary confusion.

Figure 9 caption. Same comment as above- use either SSS or WT but not both. Also, should it be water table depth or just water table?

Line 612-624. Can you use the relationship you found between capillary fringe and drainable water to improve observed vs. predicted flows? While this might be too much to add to your results, discussing how one would use these data to improve CRHM-TD module seems like an important area to discuss.

Line 627. Should 'K' be "Ks" for saturated hydraulic conductivity?

Line 635. Same comment re: WT or SSS- use one or the other or explain reasoning for using both terms.

Line 648. Same as above.

Line 666-667. Similar comment as above- can you use the new relationships to improve flow predictions? How would this process unfold if you are not able to apply it now?

Line 669-670. What about the fact that tiles are 1 m deep and soil moisture was measured at 0.5 m?

Lines 681-692. Shouldn't the role of evapotranspiration be included here?

Line 721. Delete space between sentences.

Line 742. As previously mentioned, preferential flow is likely an important mechanism in your field given the texture is clay loam.