Dear Thomas Wild,

Thank you for the extensive review of our revision and the additional reviewer feedback. We made multiple changes to the manuscript with the following major changes:

- We revised the abstract to more closely represent the focus of the paper.
- We uploaded the figure plotting scripts and preprocessing scripts along with the data to allow reproduction of the figures.
- And included additional literature as suggested.

Our responses are highlighted in blue, and text changes in addition are *italicized*.

On behalf of all authors,

Robert Reinecke

1 Editor comments

Dear Authors,

Thanks for preparing your thorough revisions in response to the first round of reviewer comments. I am going to pass your manuscript and responses back to reviewers now, but I have a few of my own comments that I would like you to consider addressing at this stage. I have a set of high-level comments, but also some line comments as well.

High-level comments:

1. **I suggest further distinguishing the paper's contribution in the text**. I think I am still struggling to discern this paper's core contribution. I don't mean to suggest it's not a contribution, only that I think further clarifying it could help readers. As far as I can tell, the paper does not deliver any protocol, and it also does not really deliver any results. So, is its purpose ultimately to motivate the value of having the groundwater sector in isimip, and describe some of the models and variables that will be looked at, but without detailed protocols or results given? If so, I would suggest stating this much more explicitly. Also, regarding results, I do like have your section is titled to clarify its purpose "4. Unstructured experiments point out model differences that should be explored further". But earlier in the abstract you refer to 'initial results', which I suggest modifying because I think it could lead to misinterpretation about what this paper actually provides. I do actually agree with reviewer one's original comment that the paper might be better off spending less time showing results from a range of papers/experiments whose points of commonality are hard to discern (section 4), and instead spending more time on the paper's core contribution to introduce the new isimip-groundwater sector, but I respect that you wish to keep this section, and you already provided rationale in your response to reviewers about why you feel it is important to keep.

Thank you for the constructive feedback on our manuscript. Yes, the paper is not delivering results as a core contribution, but the aim is to provide and motivate a modeling protocol. This protocol, however, is embedded in the general ISIMIP protocol and thus less noticeable. We

agree that this needs to be stated more clearly. We also agree that the formulation in the abstract might be unclear. Therefore, we have rephrased the abstract and part of the introduction accordingly. Also based on the comments from Reviewer #1 the abstract now reads:

Groundwater serves as a crucial freshwater resource for people and ecosystems, playing a vital role in adapting to climate change. Yet, its availability and dynamics are affected by climate variations, changes in land use, and abstraction. Despite its importance, our understanding of how global change will influence groundwater in the future remains limited. Multi-model ensembles are powerful tools for impact assessments; compared to single-model studies, they provide a more comprehensive understanding of uncertainties and enhance the robustness of projections by capturing a range of possible outcomes. However, to date, no ensemble of groundwater models has been available to assess the impacts of global change. Here, we present the new Groundwater sector within ISIMIP, which combines multiple global, continental, and regional-scale groundwater models. We describe the rationale for the sector, the sectoral output variables that underpinned the modeling protocol, and showcase current model differences and possible future analysis. Currently, eight models are participating in this sector, ranging from gradient-based groundwater models to specialized karst recharge models, each producing up to 19 out of 23 modeling protocol-defined output variables. To showcase the benefits of a joint sector, we utilize available model outputs of the participating models to show the substantial differences in estimating water table depth (global arithmetic mean 6 - 127 m) and groundwater recharge (global arithmetic mean 78 - 228 mm/y), which is consistent with recent studies on the uncertainty of groundwater models, but with distinct spatial patterns. We further outline synergies with 13 of the 17 existing ISIMIP sectors and specifically discuss those with the global water and water quality sectors. Finally, this paper outlines a vision for ensemble-based groundwater studies that can contribute to a better understanding of the impacts of climate change, land use change, and abstractions on the world's largest accessible freshwater store – groundwater.

We extended the introduction with an additional paragraph that summarizes the paper context and thus provides a concrete framing (Line 125 ff):

"In this manuscript, we provide an overview of the current ISIMIP framework with an emphasis on how the new sector is embedded in the current project in Section 2. The current generation of groundwater models participating in this effort is described and compared, and we define a list of output variables that form the foundation of the sector's model intercomparison protocol in Section 3. In 4, we showcase current model differences and possible future analysis. The connections to other sectors are discussed in Section 5, and Section 6 provides an outlook on future scientific goals for the groundwater sector."

2. Consistency with 'global change' terminology and literature. The paper's title and exposition invoke 'global change', but I find that this paper is more aligned with climate change and global hydrology, rather than global change. It is true that some of the key models referenced in your study represent dynamics around land use change, climate change scenarios, and human groundwater abstraction. So, in this sense your study is theoretically aligned with global change, assuming you ultimately conduct experiments that explore these dimensions. But, what I think has the potential to create confusion is that there are many researchers who focus centrally on 'global change', and many of

them study or consider water resources in various ways, usually focused on human dimensions, economics, etc. I think it will be unclear to those communities how your contribution aligns (or does not) with their efforts, and it could be helpful clarify this in the paper. For example, as I mention in my line comments below, there are researchers who work on groundwater and global change through a hydro-economics lens, focused foremost on the economics of groundwater extraction, but also including some physics-based representations of groundwater extraction. Many of those teams are also directly linked (and internally consistent) with the IAMs that produce the emissions and land use change trajectories (e.g., via ScenarioMIP) that are responsible for feeding climate impacts information into the hydrology models that you are focused on. How will the groundwater sector in ISIMIP relate to those communities and any global change scenarios they produce related to groundwater?

[moved from below] It is only at the very end of the abstract that we learn that this entire exercise is really focused on climate impacts. I personally think it could lead to misinterpretations (from those not very familiar with ISIMIP) to feature that only at the end of the abstract, particularly given the title's use of "global change".

We specifically chose the title global change because, as the editor notes, we do investigate not only climate change but also land use change, environmental change, and groundwater abstractions that are influenced by human activities on land. Global change is the interplay of societal developments and climate change. We believe that our manuscript touches both aspects. ISIMIP has a strong link to the CMIP and ScenarioMIP community not only being a "downstream" user of the CMIP simulations that are used to drive our models but also a direct feedback link to this community, e.g., the upcoming CMIP7. Having a groundwater sector within ISIMIP perfectly aligns with research communities that already work on the economics of groundwater. And as stated below in a response, we welcome also these kinds of models to the sector if they can be included in a meaningful way. Nevertheless, an interaction to jointly develop new scenarios of e.g. groundwater use would be extremely valuable, especially since some of the models e.g. Superwell (Niazi et al. 2025) is using parameters and inputs that originate in some of the models of the global water and groundwater sector already. In our response below, we specifically refer to economic models now. To clarify that our focus in fact is not only climate change, we have changed the last sentence of the abstract:

"Finally, this paper outlines a vision for ensemble-based groundwater studies that can contribute to a better understanding of the impacts of climate change, land use change, environmental change, and socio-economic change on the world's largest accessible freshwater store – groundwater."

3. I don't find that it's possible for me to reproduce the figures/results you present in the paper. Please provide a code repository that complies with GMD standards.

We have added the plotting and preprocessing scripts to the Zenodo repository that was already used in the previous version. We have updated the Zenodo repository with a new version2 and an appropriate DOI. Please note that while the plots can now be reproduced and we provide the preprocessing scripts, we do not republish the original model outputs here, which are listed in Table A1 (as a note, all model runs executed according to the ISIMIP protocol are all publicly available at data.isimip.org).

The data availability statement now reads (lines 419 ff):

"The ensemble-mean WTD and groundwater recharge trends are available in Reinecke (2025) https://doi.org/10.5281/zenodo.14962511. The Zenodo repository included pre-processing scripts, plotting files, and data, as well as the main outputs presented in this manuscript as raster files. For the original model data publications, see Table A1."

Line comments (line numbers, when provided, pertain to the tracked changes PDF)

Abstract

- Line 35. I suggest avoiding normative language like "excessive", and instead using more specific language (i.e., excessive in what way), if possible, to avoid misinterpretation.

It now reads: "Yet, its availability and dynamics are affected by climate variations, changes in land use, and abstraction."

- Line 38. "no ensemble of groundwater models has been available". I think it would be helpful to articulate how you define a groundwater model for purposes of this paper. I assume you are referring to models focused largely on the physical system. But, for example, there are global hydro-economic models that deal explicitly with the economics of groundwater extraction along with some groundwater physics. Are those models excluded? I assume so, because they are not cited.

[moved from below] Sections 2/3: ISIMIP framework/current generation of models

- Here could be a place to consider describing what kinds of models are included versus excluded—like hydroeconomic models and global change models that are more focused on humans and less focused on groundwater physics.

If these models also produce a subset of output variables of interest to ISIMIP, they would be more than welcome to participate in the future, especially since some of these models already produce overlapping output variables such as abstraction or recharge. Also, if the modeling groups think there would be a benefit of extending the definition of output variables, they would be more than welcome to participate in this sector or create new sectors. A participation would also offer a benefit in utilizing intersectoral synergies with the agro-economic sector (which is currently still under development in ISIMIP and thus also shown in gray in Fig. 4). Still, this does not change the fact that no ensemble of groundwater models is yet available to assess global change impacts. We already stated that in section 2 of the manuscript "[..] and additional modeling groups are welcome to join the sector in the future. Models participating in the sectors do not need to be able to model all variables and scenarios defined in the protocol." We don't think such a definition necessarily belongs in the abstract – especially since we do not restrict a specific type of model. Still, we have changed the introduction to clearly state which current models we consider part of this sector at this phase of the project, and to offer a concrete invitation to others to join this effort.

Line 117 now reads: *"The new sector welcomes all models that are relevant to assessing the impacts of global change on groundwater-related variables. While the current set of models presented here focuses on different physical representations of groundwater, future*

developments could also include models that account for hydro-economic aspects of groundwater (e.g., Niazi et al. 2025; Kahil et al. 2025).”

- The sudden discussion of Spain and Portugal in the abstract felt a bit surprising and arbitrary. Maybe rearranging your current text could soften some of the surprise.

The sentence now reads *“Groundwater recharge changes between 2001 and 2006 show plausible patterns that, for example, align with droughts in southern Europe during this period.”*

- “The pressure on groundwater systems intensifies due to the combined effects of population growth, socioeconomic development, agricultural intensification, and climate change, e.g., through a change in groundwater recharge (Taylor et al., 2013; Reinecke et al., 2021).” I find the cited literature to be insufficient. These papers may have referenced these issues or addressed a subset of these issues, but as far as I can tell, the list of papers does not cover the full space. It could be helpful to cite the papers that have addressed these issues holistically, including those that have looked at combined effects of multiple global change factors on groundwater.

We have included additional references that address these issues. The passage now reads (lines 56 ff):

“The pressure on groundwater systems intensifies due to the combined effects of population growth, socioeconomic development, agricultural intensification (Niazi et al. 2024; Wada et al. 2012), and climate change (Taylor et al., 2013; Gleeson et al., 2020, Cuthbert et al., 2023, Huggins et al., 2023), e.g., through a change in groundwater recharge (Portmann et al., 2013; Hartmann et al. 2017; Reinecke et al., 2021; Berghuijs et al., 2024; Kumar et al. 2025).”

- Line 71: (1) what is a “large-scale perspective”? (2) You are citing economics as a key issue, which again makes me concerned that your paper actually omits a lot of humans- and economics-focused global groundwater literature. (3) The cited literature is also non-exhaustive.

As the Editor mentioned, many local and regional hydro-economic models include certain groundwater dynamics. For example, there is a global hydro-economic model that has recently been published (Kahil et al., 2025; https://gmd.copernicus.org/articles/18/7987/2025/gmd-18-7987-2025.html), which includes economics, optimization and groundwater. In fact, there is a wealth of literature in hydro-economics and groundwater; however, currently our paper focuses on the physical side of groundwater dynamics, considering interactions with relevant boundary conditions like socio-economics, agriculture, ecosystem and environment, all of which needs in depth attention. To keep our original focus, we would respectfully acknowledge the groundwater interactions with socio-economy, however, a detailed literature review on economics might be out of the scope in our current manuscript, and to avoid potential ambiguity in our focus. We have further included more literature regarding groundwater studies that have looked at groundwater and socio-economy (see also our responses above).

The first line of the paragraph now reads (lines 65 ff*): “Understanding the impacts of climate change and the globalized socio-economy on groundwater systems (Rodella et al., 2023; Gisser et al., 1980) requires a large-scale perspective that extends from continental to global scales (Haqiqi et al., 2023; Konar et al., 2013; Dalin et al., 2017, Gleeson et al., 2021).”*

- Line 79: This statement seems like it could benefit from further literature support: “While large-scale climate-groundwater interactions are starting to become understood (Cuthbert et al., 79 2019), current global water and climate models may not always capture these feedbacks as most either do not consider groundwater at all or only include a simplified storage bucket, limiting our understanding of how climate change will affect the water cycle as a whole.”

We agree and we have added an additional reference. It now reads (lines 74 ff): “*While large-scale climate-groundwater interactions are starting to become understood (Cuthbert et al., 2019), current global water and climate models may not always capture these feedbacks as most either do not consider groundwater at all or only include a simplified storage bucket, limiting our understanding of how climate change will affect the water cycle as a whole (Gleeson et al., 2021, Condon et al, 2021).*”

- I suggest better explaining what the role of the global water sector in isimip is, so readers can better understand the full picture and the implications of a groundwater sector.

We have extended the explanation in section 2 with the following statement(lines 162 ff):

“Collaboration (and perhaps integration) with sectors like the Global Water sector is possible and desirable in the future. The global water sector focuses on using the ISIMIP protocol to drive a diverse set of global water models (including hydrological and land surface models; Reinecke et al. 2025b) and to produce output variables that capture diverse hydrologic processes, such as discharge, as well as human water use.”

Results

1. In Figure 4, I found it confusing that you say you’ll focus on green and orange—and then orange is called ‘focus’.

Thank you for spotting this! We agree that this is confusing. We have changed the figure to now read “under development” for the orange lines.

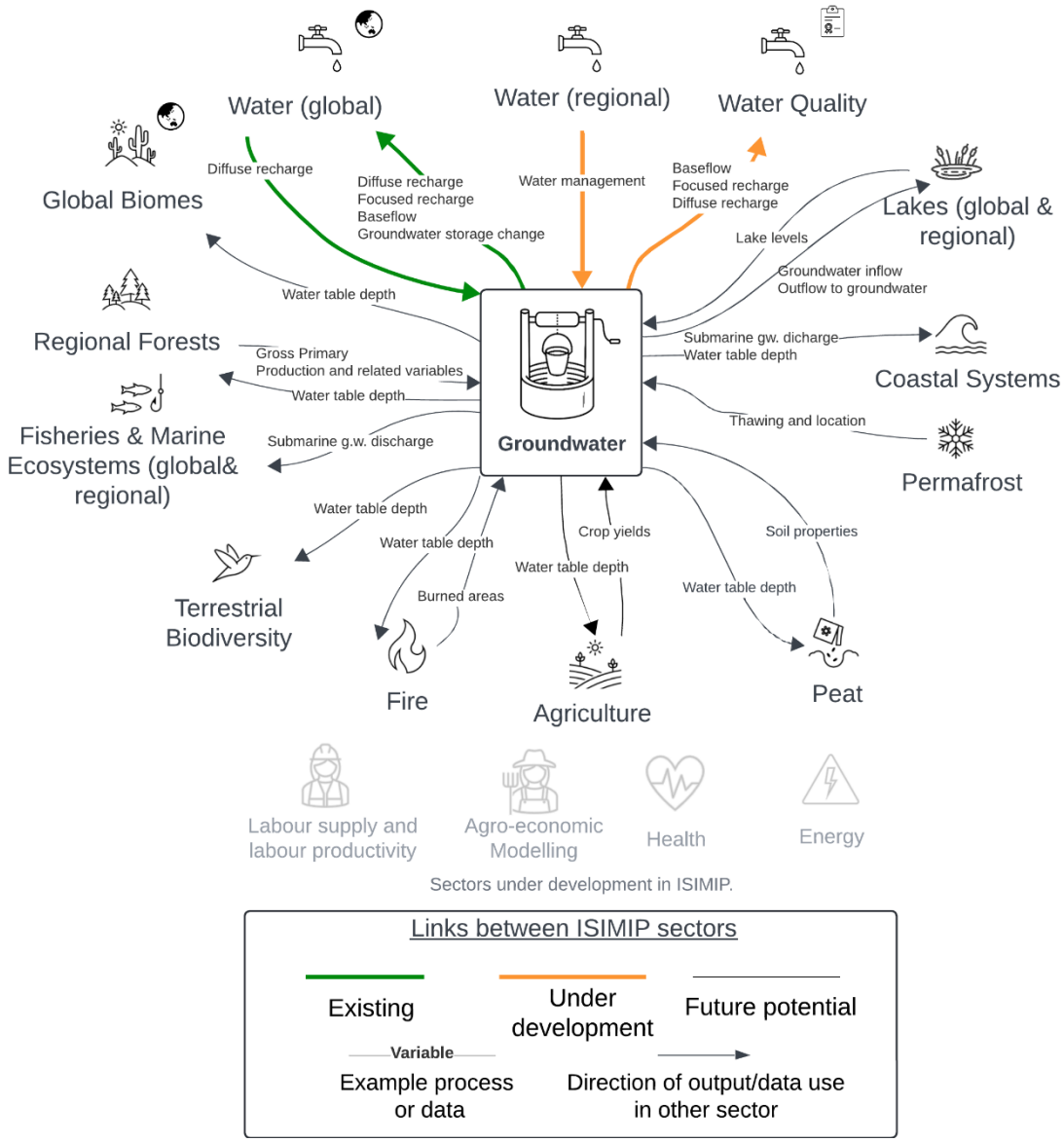

***Figure 4**: The Groundwater sector provides the potential for multiple interlinkages between different sectors within ISIMIP. In the coming years, we will focus on links to three sectors (green and orange): Water (global), Water (regional), and Water Quality. Other cross-sectoral linkages between non-Groundwater sectors (i.e., linkages between the outer circle) are not shown. Sectors that are currently under development or have not yet have data or outputs that could be shared or used for cross-sectoral assessments are shown in gray. Interactions between sectors are annotated with example processes, key variables, or datasets that can be shared between sectors.*

Vision

- You note that "In summary, the ISIMIP Groundwater sector aims to enhance our understanding of the impacts of climate change and direct human impacts on groundwater and a range of related sectors." It's certainly possible I missed it, but I don't see that this is actually supported/made clear in the paper. What set of experiments will

be run that will isolate the impacts of humans on groundwater? What dimensions of human impacts will be looked at, and how? I think this probably just relates to my earlier comment that I'm struggling with wanting more details about what experiments will be done, whereas doing so isn't necessarily the focus of this paper.

Thank you for pointing this out. We already state which experiments will be carried out but possibly not clearly enough. The overall ISIMIP protocol has already defined the experiments, which we also describe in the manuscript. We state in section 2 "The simulation rounds consist of two main components: ISIMIP3a and ISIMIP3b, each serving distinct purposes. ISIMIP3a focuses on model evaluation and the attribution of observed climate impacts, covering the historical period up to 2021. It utilizes observational climate and socioeconomic data and includes a counterfactual "no climate change baseline" using detrended climate data for impact attribution. Additionally, ISIMIP3a includes sensitivity experiments with high-resolution historical climate forcing and water management sensitivity experiments.

In contrast, ISIMIP3b aims to quantify climate-related risks under various future scenarios, covering pre-industrial, historical, and future projections. ISIMIP3b is divided into three groups: Group I for pre-industrial and historical periods, Group II for future projections with fixed 2015 direct human forcing, and Group III for future projections with changing socioeconomic conditions and representation of adaptation. Despite their differences in focus, time periods, and data sources, both ISIMIP3a and ISIMIP3b require the use of the same impact model version to ensure consistent interpretation of output data, thereby contributing to ISIMIP's overall goal of providing a framework for consistent climate impact data across sectors and scales." And state clearly that we aim to carry out these experiments: "In the short term, the Groundwater sector will focus on the historical period from 1901 to 2019 in ISIMIP3a (https://protocol.isimip.org/#/ISIMIP3a/water_global/groundwater), utilizing climate-related forcing based on observational data (obsclim) and the direct human forcing based on historical data (histsoc)."

To make it more apparent that ISIMIP forms the framework for implementing concrete experiments, we added the following paragraph at the end of section 2(lines 176 ff):

"Carrying out the ISIMIP experiments in the groundwater sector will yield a new understanding of how these models differ, why they differ, and how they could be improved. These experiments will further help to disentangle the impacts of climate change and water management, specifically through ensemble runs of future scenarios using ISIMIP3 inputs."

- A lot of what you describe is indeed what other communities (including, but not limited, to other isimip sectors) have found about the value of producing ensembles that enable intercomparison. I suggest citing those other communities' work.

We added a non-exhaustive list with a new sentence to section 6 (lines 371 ff): "*Other intercomparison and impact assessment projects already have been successful in achieving similar goals such as the lake (Golub et al., 2022) or water quality sector (Strokal et al., 2025) in ISIMIP, the CMIP (Eyring et al., 2016a), or the AgMIP for agricultural models (von Lampe et al., 2014).*"

2 Reviewer 1

The authors provided thoughtful and comprehensive responses to all reviewer comments. To the extent that is reasonable and practical, the authors revised the paper to address reviewer comments. The revisions (additional text + revised Figure 4) have substantially improved the paper, particularly Sections 4 through 6 where both reviewers identified several areas for improvement. I found that the revisions helped clarify the goals (both near and longer term) of the ISIMIP Groundwater sector and strengthened the motivation for a Groundwater-focused sector within ISIMIP.

After considering the comments of the other reviewer and Editor and reading the revised manuscript I think that some revisions, discussed below, could improve the paper.

We thank the reviewer for taking the time to review our revised manuscript.

Comments:
• Regarding distinguishing the paper's contribution raised by the Editor and Reviewer 2. I agree that some additional revisions to the Abstract and Introduction, as suggested by the Editor, could help make the objective of the paper clearer (what it is – motivation and vision for the Sector versus what it isn't – detailed protocols or comprehensive results). Relatedly, currently about 40% of the Abstract is devoted to summarizing the preliminary model results from Section 4. Reducing the emphasis on the model results in the Abstract and instead focusing on other aspects of the paper, such as content in Sections 5 and 6 would make the Abstract a more balanced summary of the paper and help distinguish its core contributions. To me, the value of the paper is introducing the global groundwater community and more broadly the global research community who may be interested in groundwater (e.g. the many connections in Figure 4) to this new sector, and I think the paper accomplishes that well. As pointed out by the Editor, some additional clarifications could be help avoid misunderstandings of the scope or intent of the Sector.

Thank you for this suggestion. In addition to implementing the editor suggestions, we also rewrote parts of the abstract to give more emphasis to sections 5 and 6 as suggested.

The abstract now reads:

"Groundwater serves as a crucial freshwater resource for people and ecosystems, playing a vital role in adapting to climate change. Yet, its availability and dynamics are affected by climate variations, changes in land use, and abstraction. Despite its importance, our understanding of how global change will influence groundwater in the future remains limited. Multi-model ensembles are powerful tools for impact assessments; compared to single-model studies, they provide a more comprehensive understanding of uncertainties and enhance the robustness of projections by capturing a range of possible outcomes. However, to date, no ensemble of groundwater models has been available to assess the impacts of global change. Here, we present the new Groundwater sector within ISIMIP, which combines multiple global, continental, and regional-scale groundwater models. We describe the rationale for the sector, the sectoral output variables that underpinned the modeling protocol, and showcase current

model differences and possible future analysis. Currently, eight models are participating in this sector, ranging from gradient-based groundwater models to specialized karst recharge models, each producing up to 19 out of 23 modeling protocol-defined output variables. To showcase the benefits of a joint sector, we utilize available model outputs of the participating models to show the substantial differences in estimating water table depth (global arithmetic mean 6 - 127 m) and groundwater recharge (global arithmetic mean 78 - 228 mm/y), which is consistent with recent studies on the uncertainty of groundwater models, but with distinct spatial patterns. We further outline synergies with 13 of the 17 existing ISIMIP sectors and specifically discuss those with the global water and water quality sectors. Finally, this paper outlines a vision for ensemble-based groundwater studies that can contribute to a better understanding of the impacts of climate change, land use change, and abstractions on the world's largest accessible freshwater store – groundwater."

• I agree with concerns raised by the Editor regarding data availability meeting GMD standard for reproducible and open science.

We addressed this comment above as a response to the editor.

• Minor comment: the double use of "focus" for Figure 4 that the editor raised could be fixed by rephrasing to "prioritize the green and orange."

Thank you for this suggestion! We chose to revise the figure, which should now be clearer and consistent with the figure description. Please see our response to the editor above.

3 Reviewer 2

This paper is a good step toward improving the incorporation of groundwater processes in global and continental scale climate modeling efforts. It also makes a good case for inclusion in ISIMIP a Groundwater Sector.

We thank the reviewer for taking the time to review our revised manuscript.

My comments and edits are all minor and marked directly on the PDF that I am uploading. That document is best viewed as 2 pages per screen.

Summary of my more relevant comments (but even the other comments/edits not listed here should be read by the authors):
P. 5-6. General comments on authors' responses to prior reviewers.

We thank the reviewer for these extensive comments on our original review replies. We especially acknowledge the comments concerning groundwater quality modeling. Regarding comments about comparing apples with oranges, whether models include water use or not, we would like to note that this paper only describes the experimental setup, which is very inclusive. We agree that the specific scientific analysis that follows the model simulations needs to be

more selective of the model output. Some questions may include a more diverse set of models, and others might require a very selective subset of model simulations.

P. 18. Reference to Table 1: Missing from this list is any mention of shallow and deep groundwater phenomena. See Condon et al. 2021 for several important descriptions of why both shallow and deep (e.g., semi-confined and confined systems, where groundwater levels and interplay with surface processes tend to be completely different than the water table) groundwater phenomena and their connections can also be important for adequately representing groundwater storage and impact processes. And let me add -- this interaction between shallow and deep groundwater can be every bit as important as the interaction between the water table and land surface. The latter is by now a traditional focus on this type of modeling, but it ignores deeper phenomena controlling the upward propagation of deep pumping effects. That phenomena cannot be captured by an approach where the sole hydraulic state variable is the water table elevation or depth.

We agree that the interaction between deep and shallow groundwater can be important. However, Table 1 provides a descriptive overview of the current generation of models participating in the presented sector. Table 2, which the reviewer highlights with the same comment in the attached PDF, on the other hand, lists several outputs currently part of the new ISIMIP sector. Since none of the models simulate deep groundwater, and there is no global dataset that would allow appropriate parameterization, we do not include specific outputs for this sector regarding these processes. This does not mean they are irrelevant. If, at a later stage, model advances make it possible to provide these outputs, we would certainly be open to changing the protocol to include these variables as well. This has already been best practice in other sectors of ISIMIP to adapt to research advances and needs.

P. 26 Fig. 1: The map would be much more informative if there was more color contrast in the 0 to 5 m range. Suggest using a different color gradation.

It depends on what aspect one would like to highlight. In Reinecke et al. (2024) Fig. 1a https://iopscience.iop.org/article/10.1088/1748-9326/ad8587/meta we did just that. In principle, a sequential color scale is most appropriate for sequential data. If one is mainly interested in shallow water tables, a greater contrast will highlight differences within that range. Yet, here we chose to use a scale that is clearer also to colleagues looking at deeper groundwater.

P. 27 Fig. 2b: The units are clearly wrong. Perhaps it should be "m/yr"? But even that would not look consistent with the ordinate axis units in (a).

Thank you for spotting this! The figure shows the coefficient of variation as also correctly described in the figure text. But the figure itself should not show a unit at all. While the map is correct the legend description was a mistake. We have changed this and the figure description and map are now correct:

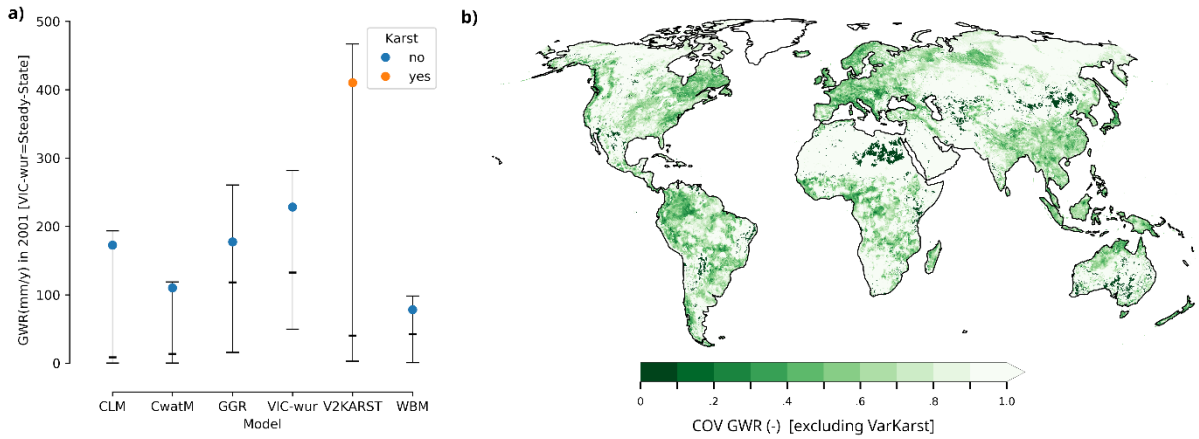

Figure 2: *Global groundwater recharge (GWR) in 2001 or at steady-state (only VIC-wur). The simplified boxplot (a) shows the arithmetic model mean as a colored dot and the median as a black line. Whiskers indicate the 25th and 75th percentiles, respectively. The global map (b) shows the coefficient of variation of the model ensemble without V2KARST calculated as the ensemble standard deviation divided by the ensemble mean. Models shown are not yet driven by the same meteorological forcing (see also table A1).*

P. 30: It seems to me that the biggest benefit of the higher fidelity regional groundwater models is to provide 'test beds' for how to upscale processes in the global or continental scale groundwater models. The latter will necessarily neglect or upscale processes in the former, and there should be comparison studies exploring how to adequately represent regional phenomema in the global/continental models.

Thank you for highlighting this. We agree. However, we also mainly focus regional hydrological models in this section and not necessarily regional groundwater models. It would be great if regional groundwater models would join this effort as well. Unfortunately, so far the interest of local modeling groups has been limited.

We further changed multiple sentences to improve text clarity based on the comments in the attached PDF. We specifically thank the reviewer for providing multiple editorial improvements which we implemented as suggested.

References

Niazi, H., Ferencz, S. B., Graham, N. T., Yoon, J., Wild, T. B., Hejazi, M., Watson, D. J., and Vernon, C. R.: Long-term hydro-economic analysis tool for evaluating global groundwater cost and supply: Superwell v1.1, Geosci. Model Dev., 18, 1737–1767, https://doi.org/10.5194/gmd-18-1737-2025, 2025.