

Supplement to

“Supporting local climate change adaptation worldwide: A web application for exploring uncertain future changes in water resources based on a multi-model ensemble of global hydrological models”

Online user survey as presented on [sosci.de](https://www.sosci.de)

Section 1: Introduction

Dear evaluators of the Climate Change Impacts on Water Resources Explorer,

Thank you for taking the time to evaluate the information content and the ease of use of the web app. Your feedback will help to improve it further.

You will first get to know the Explorer by performing two tasks using the web app, for which you may refer to the provided documentation. Afterwards, you will be asked to answer a few questions about your experience with the web app and your background. Altogether, this may take 40 to 60 minutes.

Before opening the Explorer at <https://www.ageoce.com/en/solutions/climate-change-water-explorer/>, **please note the time** as you will later be asked to report how long it took you to complete the tasks, including reading the documentation. This will show us the efficiency of information uptake by users of the web app.

By continuing, you confirm that you understand that your participation is entirely voluntary. You understand that your responses will be kept strictly confidential and anonymous. You agree that the data collected may be published anonymously. You have the option to withdraw from this study at any time, without penalty, and you also have the right to request that your responses not be used.

Section 2: Tasks to be performed by using the CCIWR Explorer

Task 1: Explore how renewable groundwater resources in Central America, particularly in Honduras, El Salvador, and Nicaragua, are expected to change in the future. How are renewable groundwater resources (i.e., mean annual/yearly groundwater recharge) projected to change between 1985-2014 and 2041-2070 under the high-emissions scenario SSP 3 (RCP 7.0)? What impact would climate change mitigation have, i.e., if the low-emissions scenario SSP1 (RCP2.6) were to become a reality?

To find locations on the map, you can adjust the transparency of the layers by clicking on “Layers” and moving the slider.

1.1 Considering the median of the simulated changes, climate change mitigation (i.e., SSP 1 (RCP2.6)) is projected to lead to a smaller decrease in renewable groundwater resources than SSP 3 (RCP 7.0) in this region.

Yes¹

No

Not sure

1.2 Under the high-emissions scenario SSP 3 (RCP 7.0), more than 80% of all “models” (i.e., ensemble members) project a decrease in renewable groundwater resources by more than 50% in most of the region.

Yes

No

Not sure

1.3 Under the high-emissions scenario SSP 3 (RCP 7.0), more than 80% of all “models” (i.e., ensemble members) project a decrease in renewable groundwater resources across most of the region.

Yes

No

Not sure

¹ Here, underlining indicates the correct answer. In the survey, answers were not underlined.

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Task 2: Explore future changes in total runoff in Ulaanbataar, the capital of Mongolia.

2.1 Under the very-high-emissions scenario SSP 5 (RCP 8.5), 30% of all ensemble members project a decrease in the yearly total runoff of more than

18%

27%

Not sure

until the period 2041-2070,

while 50% of all ensemble members predict either a decrease or an increase of up to

8%

13%

Not sure

2.2 How does this change when considering total runoff in the summer (JJA)?

30% of all ensemble members project a decrease in the total summer runoff of more than

24%

33%

Not sure

until the period 2041-2070,

while 50% of all ensemble members predict either

an increase of more than 7%

a decrease of more than 7%

2.3 Does the range of projected summer runoff changes (i.e., the projection uncertainty) decrease for the period 2071-2100 as compared to the period 2041-2070?

Yes

No

Not sure

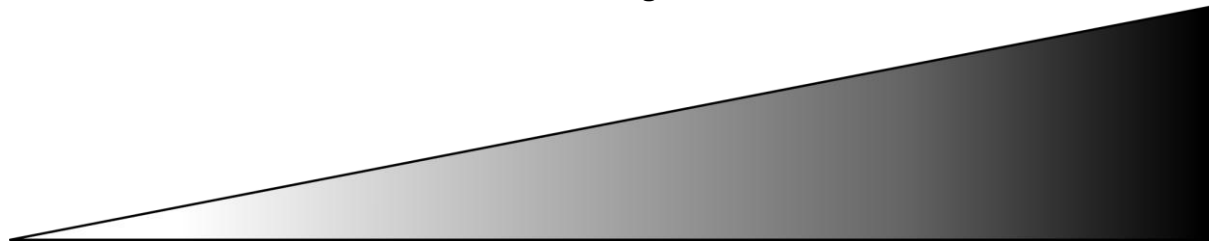
You are now familiar with how to use the Explorer and its benefits. How long did it take you to complete the two tasks, including reading the documentation?

minutes

Section 3: User satisfaction

How satisfied are you with the user interface of the CCIWR Explorer? Please indicate how much you agree with the following statements:

strongly disagree **disagree** **neither agree
nor disagree** **agree** **strongly agree**

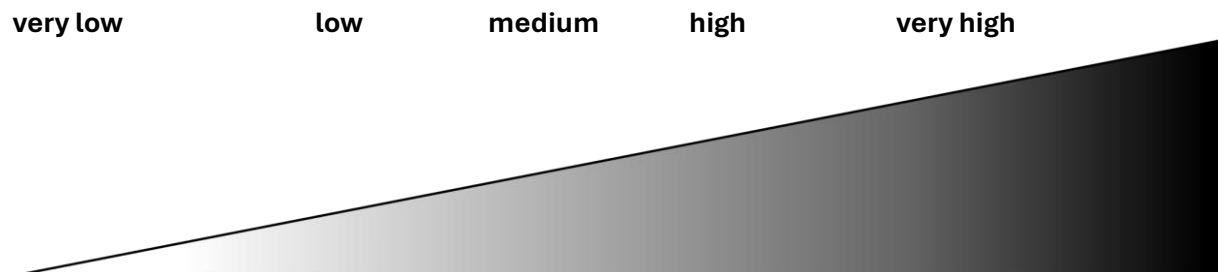


- The documentation is informative and sufficient
- The options that the user can select for exploring future changes in water resources (e.g., variable, or climate scenario) are understandable and easy to select.
- The options that the user can select for exploring future changes in water resources (e.g., variable or climate scenario) are sufficient.
- The presentation of the median changes (top map) is clear and informative.
- The presentation of the range of projected changes, or rather the agreement between “models” (bottom map), is clear and informative.
- The bottom map helps to understand the potential critical changes in water resources due to climate change.
- The percentile box plots (“Local Insights”) are clear and informative.
- The percentile box plots, including the download option with various file formats, are well-suited to providing information on climate change hazards in local climate change adaptation processes.
- Overall, a large amount of usable information and an understanding of the projected changes can be obtained quickly.
- I will consult the Explorer in the future to gain further information about climate change impacts on water resources.

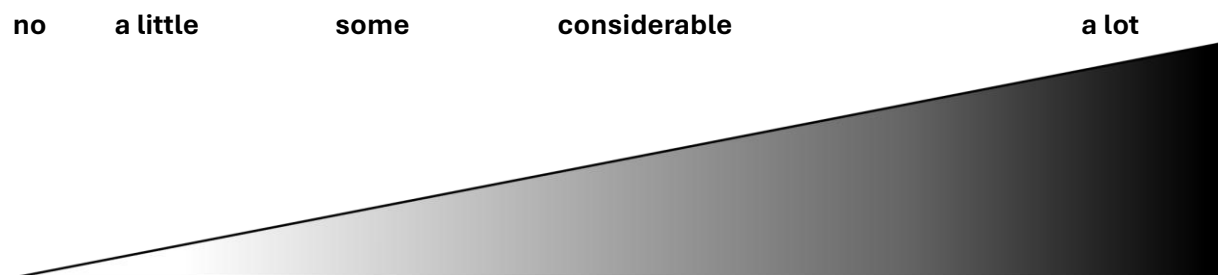
What information is missing in the documentation?

Please provide suggestions for improving the Explorer.

Section 4: User background



- How do you rate your knowledge of climate change and climate scenarios?
- How do you rate your knowledge of water resources?



- How much experience do you have with hydrological modeling?
- How much experience do you have in quantifying climate change impacts?

Before this evaluation, did you understand the meaning of percentile?

Yes

No

Before this evaluation, did you know about multi-model ensembles and their application in estimating future climatic changes or climate change impacts?

Yes

No

Thank you very much for your time and effort. We hope you found your experience with the Explorer insightful. We are looking forward to learning what you think.