

Geosci. Commun. Discuss., author comment AC2
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Reply on RC2

Pablo Borges de Amorim and Pedro Luiz Borges Chaffe

Author comment on "Teaching climate risk for water planning: a pilot training for tertiary students and practitioners in Brazil" by Pablo Borges de Amorim and Pedro Luiz Borges Chaffe, Geosci. Commun. Discuss., <https://doi.org/10.5194/gc-2021-23-AC2>, 2021

Dear editor Dr. Sam Illingworth

We deeply appreciate the thoughtful and helpful review of our manuscript. We have adjusted the manuscript to account for all the referees' suggestions. The referees' constructive comments, suggestions, and corrections motivated us to further improve the manuscript.

We recognize that the current version of the manuscript is more coherent than the previous one and hope that in its current form the manuscript will be suitable for publication in the Geoscience Communication journal.

Please, consider our comments to each of the specific comments attached.

Yours sincerely,

Pablo Borges de Amorim and Pedro Luiz Borges Chaffe

Reply to comments by Referee #2

The authors appreciate the comments of Referee #2 that helped us clarify and improve the main points of our manuscript. Please, find below our reply to all the comments.

Comment on gc-2021-23

Anonymous Referee #2

Referee comment on "Teaching climate risk: a pilot training for tertiary students and practitioners in Brazil" by Pablo Borges de Amorim and Pedro Luiz Borges Chaffe, Geosci. Commun. Discuss., <https://doi.org/10.5194/gc-2021-23-RC2>, 2021

I like the manuscript. It is well written and well explained.

Reply: We appreciate the positive view of the manuscript.

My comments:

I'm wondering about the length of the article and I have seen some repetition in the manuscript text. It would be nice if authors remove sentences having the same meaning in different sections.

Reply: We have now thoroughly revised the text and removed the sentences having the same meaning in different sections.

In the introduction section, the authors describe more about climate risk and different approaches for teaching climate risk. However, adding some evidence for teaching climate risk (or any natural hazard and their risks) from around the globe could be useful. My concern here is: can the authors provide some examples that teaching climate, earthquake, flood, or any natural hazard to the students/public is helping to increase their awareness and to reduce the associated risk? I think there are some good examples for at least earthquake risk (e.g. <https://doi.org/10.3389/feart.2020.00180>, <https://doi.org/10.5194/gc-4-281-2021>). Why teaching climate risk is important, is it for reducing the risk or to motivate the public for the topic, or something else? I suggest adding a paragraph to explain teaching or training the public (students, any) is useful for.....

Reply: We have now added a paragraph in the introduction to explain why training on climate risk is important. Lines 47-55: "Training tertiary students and practitioners on climate risk is useful for enhancing awareness about the relevance of the topic and informing about the existence of methods to reduce climate risks (George et al., 2009, 2016). It can help society plan and implement adaptation options with respect to the impacts of climate change (Fernandez et al., 2014), as foreseen in the SDG 13 (United Nations, 2016). Training in climate risk has been shown effective in developing knowledge, attitudes, and skills of farmers, meteorologists, managers, and policy makers around the world to make informed decisions to tackle climate change impacts (e.g., Yen et al., 2019; George et al., 2006, 2019). This is particularly important for water professional because the water sector is highly exposed to climate hazards and global warming is projected to further intensify the water cycle (Jiménez Cisneros et al., 2014). Especially in Brazil, where changes to a drier hydrological regime are expected in the future (Borges and Chaffe, 2019; Borges de Amorim et al., 2020)"

The authors mentioned the 'Environmental Engineering bachelor course of the Federal University of Santa Catarina (UFSC)' a couple of times but its brief description is missing. Furthermore, it would be nice if course content is added in the supplementary files.

Reply: The course content will be added in the supplementary files.

It would help readers to understand the scenario if authors discuss how students can play the role in water resource planning.

Reply: We have now added an extra topic in the discussion about how the students can apply the knowledge (acquired in this training) in water resource planning.

A small paragraph on how such training would help the public (not from the related domain) would help readers to apply similar training ideas in different cultures/domains.

Reply: We have now added a paragraph in the discussion about the implications of delivering this training to the community outside the water resources field. We also cited the literature recommended above, i.e., Mohadjer et al. (2021). After lines 301: "This training is designed for the water sector, but it can be easily adapted to other domains that require spatial planning and are exposed to climate hazards, such as health, agriculture, energy, transport, biodiversity, and ecosystems (Sherbinin et al., 2019; Nobre et al., 2019). The maps must be adjusted, and the trainers must ensure that all four

elements that comprise climate risk (i.e., climate hazard, exposure, sensitivity, and adaptive capacity) are represented in the collection of maps. The interactive exercise in Session 1 can be used in other domains to help participants to assimilate the IPCC's climate risk concept. However, that might depend on the pre-existing knowledge and experience of the participants regarding floods (Mohadjer et al., 2021). Moreover, the classroom culture must be taken into consideration in this kind of training and adjustments may be necessary (Mohadjer et al., 2021; George et al., 2006)."

Line 50: The reason why authors chose Brazil is because of the high demand for climate risk experts.... While authors are talking about climate risk, it is better to provide some information about climate-induced natural hazards in Brazil.

Reply: We have now added information about climate-induced natural hazards in Brazil. Lines 51-55: "We use Brazil as a case study as the country is already suffering considerable damages and losses associated with climate-induced natural hazards, particularly floods, landslides, droughts and heat waves (CEPED UFSC and World Bank, 2016; Nobre et al., 2019). At the same time, there is high demand for climate risk experts (Brazil, 2016) and a considerable number of courses and programs with the potential to include climate risk management (Cadastro Nacional de Cursos e Instituições de Educação Superior, 2020; Cursos da Pós-Graduação Stricto Sensu no Brasil [2017 a 2020], 2020)."

The climate risk definition is repeated. I suggest revising the text or remove the repeated part. (for example, line 70-75 and line ~100), same for PBL....

Reply: We have now thoroughly revised the text and removed the repeated parts. The repeated explanation of PBL in the section 2.1 was removed and the extra information was relocated to the introduction (as asked by the Referee #1). We removed the sentence: "where risk is a combination of a climate hazard, with the exposure and vulnerability of a system. Vulnerability is comprised of sensitivity and adaptive capacity" (former lines 99-100)

With these minor modifications, the manuscript should be published.

Reply: We appreciate the important suggestions.