We thank the reviewer for their thoughtful review. We will revise the manuscript in accordance with their suggestions.

Figure 1 will be revised. We agree that panel d was overly large and did not have a high information content. We will remove panel d which will enable us to enlarge the other three panels so that the features referred to in the text can be discerned. We will investigate if a lighter aerial image is available for Fig 1b, noting that this is a true colour image. We will also improve Fig 1b by only including the outer administrative boundary of the reserve – the internal boundaries are not relevant to the paper. An example of a revised Fig 1 is attached at the end of this response.

We will correct the incorrect date in the caption to Figure 2 to read 1961-1990.

We will redraw Figure 4, using a similar format and colours for Fig 4b as for Figure 6 to separate the pre- and post- fire rainfall. We will also update the colours of Figs 6, 7, S1 and S2 to match, along with the figure captions. An example of a revised Figure 4 is attached at the end of this response.

We will expand the discussion to provide a broader contextualisation of the results and thank the reviewer for alerting us to two recent publications. Guzmán-Rojo et al. (2024) is a substantive review of the current understanding of groundwater recharge processes relevant to hydrological modelling, and we propose to cite this paper and a reference cited therein and add a new final paragraph:

"Pre- and post-fire hydrological datasets, such as ours, that can be used to calibrate or validate water balance models of groundwater recharge are rare (Guzmán-Rojo et al. (2024). Our data provides quantified information on the evolution of the post-fire response, including the length of time post fire where surface ash enhanced overland flow and limited recharge, and the subsequent decreased rainfall recharge threshold due to soil loss and enhanced fracturing that occurs after the ash had been transported from the land surface. This hydrological response is consistent with ParFlow simulated surface and subsurface water balance changes for a water limited site and high fire severity (Atchley et al 2018)."

Atchley, A.L,, Kinoshita, A.M., Lopez, S.R., Trader, L., and Middleton, R. Simulating Surface and Subsurface Water Balance Changes Due to Burn Severity. Vadose Zone J. 17, 180099. https://doi.org/10.2136/vzj2018.05.0099, 2018

Guzmán-Rojo, M., Fernandez, J., d'Abzac, P. and Huysmans, M. Impacts of Wildfires on Groundwater Recharge: A Comprehensive Analysis of Processes, Methodological Challenges, and Research Opportunities. Water, 16, 2562, https://doi.org/10.3390/w16182562, 2024

We will correct all the secondary comments, including a period on line 19 and line 97, a reference on line 43, rephrasing of the depth below surface statement on line 68, phrasing of pre-fire on line 111, and we will modify Table 1 as suggested to use a symbol rather than italics. The Table 2 caption spelling of Climate (Köppen-Geiger) will be corrected.

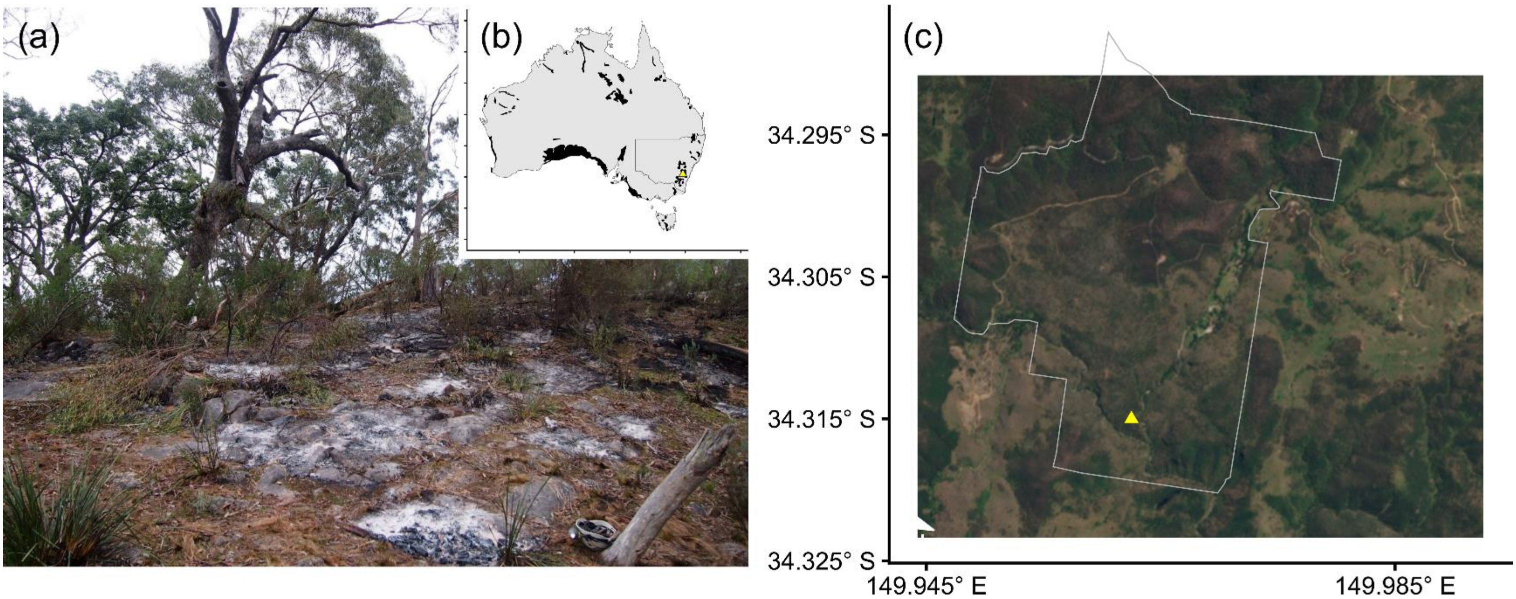

Figure 1. a). Photograph of the surface above the cave one day after the fire (source: Andy Baker). b) Australia with karst overlay, yellow triangle indicates the study site (WOKAM; from Chen et al (2017). c) Sentinel S2 visible image, with outer bounds of the Wombeyan Karst Reserve. SentinelS2 True Colour image [2024]. Retrieved from Copernicus Dataspace [7 December 2024], processed by Copernicus. Wombeyan karst conservation reserve boundary: State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water 2000, NSW National Parks and Wildlife Service (NPWS) Estate, accessed from The Sharing and Enabling Environmental Data Portal [https://datasets.seed.nsw.gov.au/dataset/9bad468a-c2a6-4c90-bfaa-8ae8af72e925], date accessed 2024-11-07.

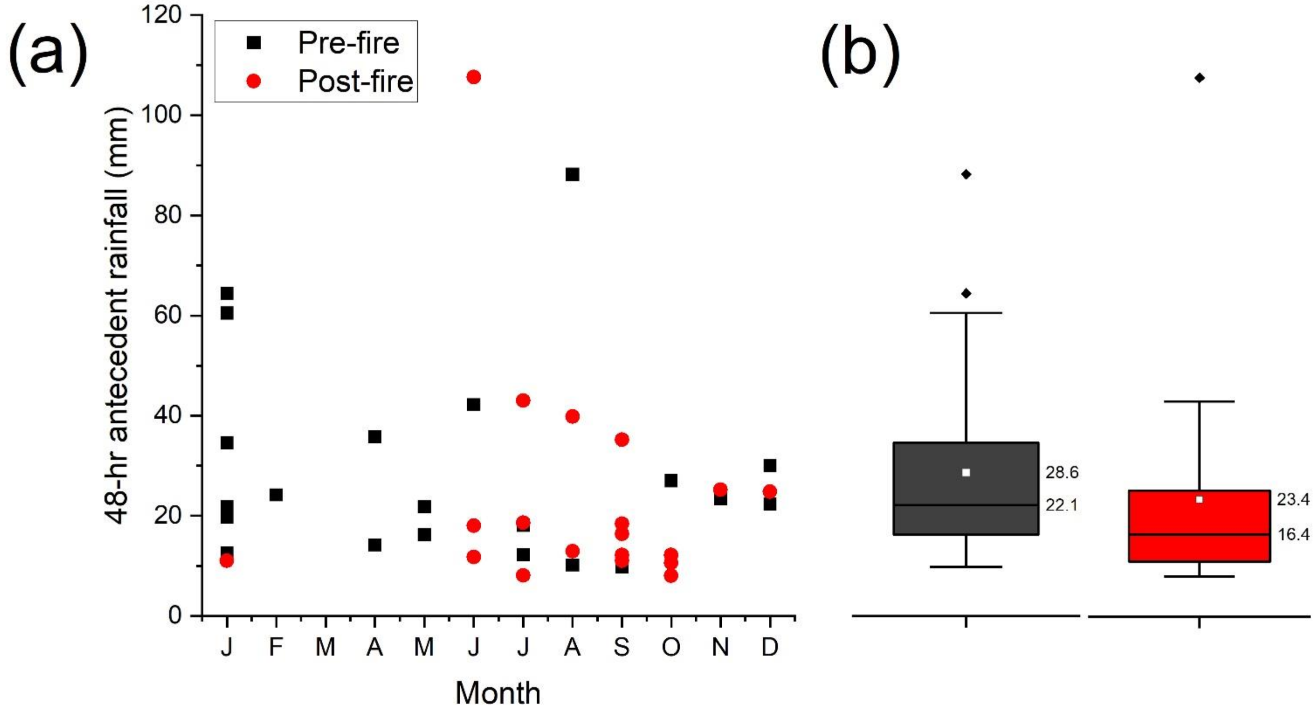

Figure 4 a) 48 h antecedent rainfall classified by month and whether before or after fire. B) box and whisker plot of 48 h rainfall amounts for before the fire (black) and after the fire (red).