

Response to Editor's comments:

Dear Muheki,

Thank you for submitting a revised manuscript.

The reviewer recommends to accept the manuscript.

After a final reading myself, I suggest that you should make clear in the manuscript that by "co-occurring" you mean co-occurring in the same location, and not time (at least that your data set does not allow to make any statements about temporal co-occurrence).

After making this revision please submit also a manuscript version with track changes.

Best regards,

Christian Franzke

We thank the editor for their time and valuable suggestions to improve the manuscript. Below, we illustrate modifications to the manuscript to accommodate the concern raised above. We believe that the manuscript has benefited from these modifications. The following convention is used in this document to illustrate the text modifications in the original manuscript: [modified text](#).

In the abstract, we ensured to clearly communicate that these co-occurring extremes occur within the same location and calendar year:

Abstract. Co-occurring extreme climate events exacerbate adverse impacts on humans, the economy, and the environment relative to extremes occurring in isolation. While changes in the frequency of individual extreme events have been researched extensively, changes in their interactions, dependence and joint occurrence have received far less attention, particularly in the East African region. Here, we analyse the joint occurrence of pairs of the following extremes within the same [location and calendar](#) year over East Africa: river floods, droughts, heatwaves, crop failures, wildfires and tropical cyclones. We analyse their co-occurrence on a yearly timescale because some of the climate extremes we consider play out over timescales up to several months. We use bias-adjusted impact simulations under past and future climate conditions from the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP). We find an increase in the area affected by pairs of these extreme events, with the strongest increases for joint heatwaves & wildfires (+940% by the end of the century under RCP6.0 relative to present day), followed by river floods & heatwaves (+900%) and river floods & wildfires (+250%). The projected increase in joint occurrences typically outweighs historical increases even under an aggressive mitigation scenario (RCP2.6). We illustrate that the changes in the joint occurrences are often driven by increases in the probability of one of the events within the pairs, for instance heatwaves. The most affected locations in the East Africa region by these co-occurring events are areas close to the River Nile and parts of the Congo basin. Our results overall highlight that co-occurring extremes will become the norm rather than the exception in East Africa, even under low-end warming scenarios.

In the introduction (Line 57-58), we also further clarify that these co-occurring extremes occur within the same location and calendar year:

In this study, we aim to understand the occurrence of compound extremes in East Africa at annual time scales, and focus specifically on co-occurring extremes. [Here, the term co-occurring extremes refers to two extreme events occurring within the same location and calendar year.](#) We consider the occurrence of two out of six categories of extreme events within the same year in East Africa namely: river floods, droughts, heatwaves, crop failures, wildfires, and tropical cyclones.