Reviewer 2

*Thank you for taking the time to give feedback on our manuscript. We have responded to your comments below in blue with a *, with substantial proposed changes to the manuscript text being indicated in red with “”. Given your concern regarding the methodology and terminology of wildfires, we would like to address this first here before moving to the specific comments. We do not believe there are flaws in the methodology or interpretation of results, and we hope that this explanation will resolve any concerns – A lack of clarity in the manuscript may have contributed to this misunderstanding and we thank you for the opportunity to address this in the revised manuscript.

Respectfully, we disagree that small fires and fires in built-up areas and gardens should be excluded from this manuscript, though we thank you for bringing to our attention that this should be better justified and communicated throughout our manuscript. In England, due to a high population density and landscape fragmentation, there are no truly ‘wild’ or ‘natural’ areas as one might expect to find elsewhere like North America (Gazzard et al., 2016). Fires will always be smaller because of this, but this is also exactly why small fires and fires surrounding urban areas are important (arguably potentially more so than larger fires in remote locations) because they can easily put people and property in danger. A notable large-scale destruction of homes from vegetation fire in the UK was ‘just’ 20 ha in size (Wennington Fire – 2022). At the same time, a single 20 ha fire in a crop field resulted in £40,000 damage to one farm. National Farmers Union Mutual (a UK insurance company) reported costs of £110 million from farm and vehicle fires in the UK in 2023, despite the average crop fire burning 1.5 ha (unpublished data).

The term ‘wildfire’ appears to be causing some confusion regarding our manuscript as there is no globally agreed definition and it spans across many different scales of fire occurrences. This is a very interesting discussion that would make a nice opinion piece but is well outside the scope of our own research. Instead, we have now opted to remove the use of the term wildfire in this manuscript, and instead we refer to ‘vegetation fire occurrence’. We hope this provides complete clarity in the focus of this manuscript and avoids the potential for confusion introduced by preconceived perceptions of the term wildfire that the reader may have (e.g., Tedim and Leone, 2020). We have also clearly defined vegetation fire occurrences in the context of our manuscript using the UK Fire and Rescue Services Wildfire Operational Guidance definition: “A wildfire is any uncontrolled vegetation fire that requires a decision or action regarding suppression” (Scottish Government, 2013). We have moved this definition earlier in the manuscript and have elaborated on our discussion of the importance of small vegetation fires and the UK situation in the introduction section to clarify what it is we are interested in and why it is relevant very early on.

Similarly, we have not discriminated on the landcover on which the vegetation fire burned because fires within urban vegetated areas pose a significant threat to people and property. Sadly, the recent fires in California are testament to the importance of this now more than ever. Again, we have placed greater emphasis on why these fires are important in the introduction.

Rather than removing all small fires and specific landcovers, we instead explored these relationships within the manuscript, demonstrating how relationships with PPAs change when using different thresholds of vegetation fire size (using all fires, > 1 ha, > 10 ha, > 50 ha, > 100 ha, > 500 ha) annually and by month. We also look at the number of fires in each of these categories to be very clear about the sample size when considering different thresholds. Section 3.5 (previously section 3.4) also breaks down the relationships according to key landcover types, which excludes fires in urban areas and focuses on heathland/moorland, grassland, broadleaf forest, standing crops, and conifer forest – again providing all details on the number of fires in each category.

Within this review, Reviewer 2 suggested fires smaller than 10 ha, 30 ha or even 50 ha should be excluded, while Reviewer 3 suggested thresholds of 100 ha or 500 ha, which illustrates that applying a size threshold would be an arbitrary decision that there is not a consensus on. We believe that our analysis, which presents the results across key landcovers, months, and for different threshold sizes provides a much more thorough examination of the relationship between PPAs and vegetation fires than narrowing the scope to a single arbitrary size or landcover category. This in turn allows the reader to understand the nuances between fire size and number of fires in the data set when drawing conclusions.

Thank you for entertaining this somewhat lengthy comment, but we hope that this clarifies the decisions made in the manuscript and resolves any concerns the reviewers previously had. We appreciate the chance to improve our manuscript to more clearly articulate these points to the readership of NHESS. We have added a section on UK vegetation fires in the introduction to outline the vegetation fire context, define vegetation fires and introduce the significance of small fires:

"1 Introduction

1.1 Vegetation fire risk in emerging fire prone regions

Vegetation fire risk is increasing in temperate regions like the UK, which have historically experienced few large fires, due to mild, humid climates that mean fuels are generally less flammable (Belcher et al., 2021). However, changes in land management practices combined with a warming climate are increasing the quantity of live biomass available to burn (Glaves et al., 2020; Belcher et al., 2021). Research in these so-called "emerging fire-prone" regions has been limited because wildfires tend to be dominated by smaller fires, many of which are not detected in satellite records nor included in historical records (Fernandez-Anez et al., 2021). Consequently, decision support systems based on fire weather–fire relationships have primarily been developed in fire-prone regions that have a long history of experiencing large and extreme wildfires (e.g., Canada, Southern Europe, Australia, USA) and then adapted for use in emerging fire-prone regions (e.g., de Jong *et al.* 2016; Masinda *et al.* 2022; Steinfeld *et al.* 2022). Despite and because of these challenges, there is an urgent need to understand and quantify wildfire risk to inform long-term wildfire preparedness in these regions (Pandey et al., 2023).

1.2 Vegetation fires in the UK

Vegetation fires are a semi-natural hazard in the UK as ignitions are almost entirely anthropogenic (Gazzard *et al.* 2016). Human use of fire on the landscape has been a traditional practice for centuries in the UK, particularly as a tool for land management and habitat creation, and fire can bring positive ecological benefits (Belcher et al., 2021); however, there is evidence that the risk of severe vegetation fires is increasing (Arnell et al., 2021; Belcher et al., 2021; Perry et al., 2022). In the UK, Fire and Rescue Services Wildfire Operational Guidance defines a vegetation fire incident as 'any uncontrolled vegetation fire that requires a decision or action regarding suppression' (Scottish Government, 2013). Currently, this does not impose a minimum size threshold on the definition of a vegetation fire, and indeed wildfires do not need to be large to be impactful (Belcher et al., 2021; Kirkland et al., 2023; Stoof et al., 2024). The UK has a high population density of 280 people per square km, compared to traditionally fire prone countries like Australia (3 people per square km), Canada (4 people per square km) and USA (36 people per square km) (World Bank, 2022). This means that natural landscapes are highly fragmented and lack the fuel continuity to generate massive burned areas, and fires tend to be detected quickly. Moreover, a high population density means that a high proportion of fires occur in the interface between people, infrastructure and environment. Vegetation fires in these areas can threaten lives and property, despite their often small size (Graham et al., 2020; John and Rein, 2024; London Fire Brigade, 2023). Critically, vegetation fire preparedness still lags behind other countries and response capabilities can be overwhelmed in extreme conditions (John and Rein, 2024; Climate Change Position Statement, 2025; Pandey et al., 2023).

1.5 Rationale

Fewer studies have explored the large-scale atmospheric drivers of fire weather and vegetation fire occurrence in countries historically not prone to fires, such as the UK. Although fire risk is increasing in these regions, established tools for predicting fire weather and fire occurrence are often lacking. In the UK, extended periods of atmospheric blocking likely play a key role in sufficiently drying out vegetation and elevating fire risk. To address this gap, it is crucial to better understand the role of PPAs in vegetation fires, particularly in temperate regions like the UK, where fires are often smaller than those detectable by satellite but still impactful. A comprehensive fire occurrence database allows us to examine the seasonality and land cover-dependent relationships between PPAs and vegetation fires, extending beyond the larger fires typically observed in summer on specific land covers. We investigate the importance of PPAs for fire weather and vegetation fire occurrence by addressing the following research questions: (1) what is the association between PPAs and surface fire weather across the UK between March–October 2001–2021? Then, using the comprehensive vegetation fire occurrence database for England, (2) What is the association between PPAs and vegetation fire occurrence across key land cover types in England from March–October 2010–2020?"

First of all, I would like to apologize for the long delay in providing the revision of the manuscript.

The authors investigate the occurrence of extreme blocking ridges associated with large wildfires in England. For that they use a method to identify atmospheric blocking patterns for the pan-European spatial domain. The method is based on persistent positive anomies of 500 hPa geopotential height.

Main issues:

- The data provided by the Home Office for England, covering the period between March and October 2010–2020, requires careful consideration. First, the analysis should be restricted to fires exceeding 10 hectares, or preferably, 50 hectares. Fires below these thresholds generally have a minimal or negligible impact. If such thresholds are applied, the majority of the analysis and conclusions will be based on a limited number of cases, which restricts the generalizability of the findings.

*As discussed above, we respectfully disagree that all fires less than 10 or 50 ha generally have a minimal or negligible impact. Please see the overall comment for evidence of impactful vegetation fires in the UK less than 50 ha in size, such as the Wennington 2022 fire that destroyed ~20 properties, as well as changes we have made to the revised manuscript to address this concern. Table 1 and 2 give a comprehensive summary of how PPA–fire relationships change when different size thresholds are considered, as well as how many cases are included in each category, thereby allowing the reader to make informed conclusions about the generalisability of findings. We believe this to provide a more nuanced analysis than simply applying an arbitrary size threshold, which we note differs in recommendation between the reviewers too.

- Introduction: The introduction lacks clarity in several places. For example, lines 39–41 and 44–46 are vague and read more like a report rather than scientific writing. These sections should be rewritten to align with scientific standards, ensuring precision and focus.

*We have rewritten the introduction to be more focused, including these sentences specifically and added further references to support the information, which now form part of the focused paragraph on small vegetation fires:

"Introduction

1.1 Vegetation fire risk in emerging fire prone regions

Vegetation fire risk is increasing in temperate regions like the UK, which have historically experienced few large fires, due to mild, humid climates that mean fuels are generally less flammable (Belcher et al., 2021). However, changes in land management practices combined with a warming climate are increasing the quantity of live biomass available to burn (Glaves et al., 2020). Research in these so-called "emerging fire-prone" regions has been limited because wildfires tend to be dominated by smaller fires, many of which are not detected in satellite records nor included in historical records (Fernandez-Anez et al., 2021). Consequently, decision support systems based on fire weather–fire relationships have primarily been developed in fire-prone regions that have a long history of experiencing large and extreme wildfires (e.g., Canada, Southern Europe, Australia, USA) and then adapted for use in emerging fire-prone regions (e.g., de Jong *et al.* 2016; Masinda *et al.* 2022; Steinfeld *et al.* 2022). Despite and because of these challenges, there is an urgent need to understand and quantify wildfire risk to inform long-term wildfire preparedness in these regions (Pandey et al., 2023).

1.2 Vegetation fires in the UK

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1.3 Synoptic controls on surface fire weather and vegetation fire

In the midlatitudes, surface weather is driven by synoptic-scale weather patterns (i.e., large scale upper-air atmospheric circulation patterns (Franzke et al., 2020)). While surface weather is highly spatiotemporally variable and difficult to forecast beyond the short-term, synoptic-scale upper-air (500 hPa) atmospheric patterns can be more reliably predicted in the medium range (+10 days) (Hohenegger and Schär, 2007). As such, considering synoptic-scale indicators of vegetation fire occurrence in addition to surface fire weather may provide additional insights for improving near-to-medium range forecasting of fire danger to aid fire preparedness and management decision-making (Humphrey et al., 2024; Jain et al., 2024; Papavasileiou and Giannaros, 2023).

Within Europe, previous research examining large-scale weather patterns associated with vegetation fire occurrence have tended to focus on countries in the Mediterranean (e.g., Duane and Brotons 2018; Pineda *et al.* 2022; Rodrigues *et al.* 2022), likely due to the history of significant vegetation fires and comprehensive fire occurrence databases; though there are some exceptions that examine Europe-wide (Giannaros and Papavasileiou, 2023; Little et al., 2024) and Northern European (Drobyshev et al., 2021; Wastl et al., 2013) relationships. While atmospheric blocking has been associated with vegetation fire occurrence across Southern Europe, other studies have also highlighted the importance of strong wind events and atmospheric instability as drivers of extreme vegetation fire activity (Artés et al., 2022; Resco de Dios et al., 2022; Ruffault et al., 2017).

1.4 Persistent positive anomalies in geopotential heights (PPAs)

Atmospheric blocking occurs when a high pressure system remains nearly stationary such that it effectively "blocks" the usual mid-latitude zonal airflow, leading to dry, clear-sky conditions and high surface temperatures that may be amplified by land–atmosphere feedbacks (Rex, 1950). Such conditions promote fuel aridity and consequently vegetation fire occurrence (Sharma et al., 2022). Moreover, persistent atmospheric blocking events can lead to synchronous elevated fire danger across large areas, which can overwhelm fire response capabilities (Abatzoglou et al., 2021; Jain et al., 2024).

Positive geopotential height anomalies at the 500 hPa level are widely used to identify high-pressure blocking events (Tibaldi and Molteni, 1990). One such method, Persistent Positive Anomalies in 500 hPa geopotential heights (PPAs), are an event-based paradigm for tracking extremes in high pressure blocking patterns (that exceed a threshold amplitude, size, and duration) through space and time (Dole and Gordon 1983). Compared with other methods of identifying atmospheric blocking patterns, such as measuring the reversal of meridional flow (Pinheiro et al., 2019; Tibaldi and Molteni, 1990) and dynamic potential vorticity (Pelly and Hoskins, 2003; Small et al., 2014), PPAs are less constrained by the specific blocking mechanism, which can be important for capturing events during the main fire season when strong polar dynamics are not common (Dole and Gordon, 1983; Miller et al., 2020). PPAs can be used to capture the potential persistent, weaker pressure gradient events that characterise hot, dry surface conditions for fires in summer (Sousa et al., 2018; Woollings et al., 2018).

PPAs have recently been associated with extreme fire weather (hot, dry weather as defined by the Canadian Fire Weather Index) and vegetation fires in the Northern Hemisphere mid-latitudes for both Western North America (Jain et al., 2024; Sharma et al., 2022) and Europe (Little et al., 2024). We recently established the importance of PPAs for vegetation fires at a pan-European scale finding that fires were more than twice as likely to occur during PPA events across Europe and were associated with 53% of burned area for Western Europe (Little et al., 2024). However, the EFFIS burned area product used in that study only includes vegetation fires of around 30 ha and greater detected by satellite imagery, which resulted in very few records in regions with predominantly small vegetation fires. Notably, for the period March–October 2010–2020, EFFIS reported 348 vegetation fires for the UK (San-Miguel-Ayanz et al., 2012). In comparison, for the same period, the Fire and Rescue Service incident database reported 291,963 vegetation fires occurring in England alone (Forestry Commission, 2023).

1.5 Rationale

Fewer studies have explored the large-scale atmospheric drivers of fire weather and vegetation fire occurrence in countries historically not prone to fires, such as the UK. Although fire risk is increasing in these regions, established tools for predicting fire weather and fire occurrence are often lacking. In the UK, extended periods of atmospheric blocking likely play a key role in sufficiently drying out vegetation and elevating fire risk. To address this gap, it is crucial to better understand the role of PPAs in vegetation fires, particularly in temperate regions like the UK, where fires are often smaller than those detectable by satellite but still impactful. A comprehensive fire occurrence database allows us to examine the seasonality and land cover-dependent relationships between PPAs and vegetation fires, extending beyond the larger fires typically observed in summer on specific land covers. We investigate the importance of PPAs for fire weather and vegetation fire occurrence by addressing the following research questions: (1) what is the association between PPAs and surface fire weather across the UK between March–October 2001–2021? Then, using the comprehensive vegetation fire occurrence database for England, (2) What is the association between PPAs and vegetation fire occurrence across key land cover types in England from March–October 2010–2020?"

- Blocking Paragraph (Lines 65–70): The explanation of blocking is not presented correctly. The paragraph begins with a discussion of the 500 hPa level, followed by a description of what blocking is. This structure is unclear and suggests a lack of understanding of the concept. A more structured and detailed explanation of atmospheric blocking is required, ensuring the authors demonstrate a thorough grasp of the subject.

*We agree with the reviewer that this section was not presented in the most logical and clear order. We have now restructured this section:

"1.3 Synoptic controls on surface fire weather and vegetation fire

In the midlatitudes, surface weather is driven by synoptic-scale weather patterns (i.e., large scale upper-air atmospheric circulation patterns (Franzke et al., 2020)). While surface weather is highly spatiotemporally variable and difficult to forecast beyond the short-term, synoptic-scale upper-air (500 hPa) atmospheric patterns can be more reliably predicted in the medium range (+10 days) (Hohenegger and Schär, 2007). As such, considering synoptic-scale indicators of vegetation fire occurrence in addition to surface fire weather may provide additional insights for improving near-to-medium range forecasting of fire danger to aid fire preparedness and management decision-making (Humphrey et al., 2024; Jain et al., 2024; Papavasileiou and Giannaros, 2023).

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> Section 1.3. Antecedent conditions are crucial for understanding most fire behavior. These conditions, including prolonged dry periods, accumulated fuel loads, and seasonal trends, significantly influence fire behavior and severity. The section should emphasize the role of these pre-existing factors in shaping fire activity.

*We believe this has been sufficiently addressed in Section 1.3, but we have added some further text to line 144 (Section 2.1.1) to emphasise the role of the FWI system in accounting for antecedent weather conditions:

"The moisture codes include the previous day's value as an input, thereby incorporating antecedent conditions of the last 50+ days into the CFWIS (Flannigan et al., 2016)."

- L97 Does it really matters analyzing fires below 30ha or even 50ha?

*Yes, we believe it does matter in this context, and we have tried to communicate this more clearly now for an international audience. Ground-truthed vegetation fire records beyond satellite imagery are really important for countries that don't routinely experience massive fires, and this dataset has not been analysed through this lens before. We have dedicated more of the introduction to communicating the importance of small fires in countries experiencing increasing vegetation fire risk as well as understanding the current fire situation to inform decisions surrounding future fire risk.

- Why is this study important and why is different from Little et al 2024??

*The importance of the analysis of a comprehensive database of UK vegetation fire occurrence records that have not previously been analysed in the academic literature should not be dismissed. We understand that by international standards this is a relatively short record (although 10 years of data is still a significant effort) but it allows us to explore an understudied area of wildfire research through small fires that aren't captured by current satellite capabilities. We have added a sentence to the vegetation fire data section and the rationale in the introduction to highlight the importance of this dataset.

Little et al. (2024) examined the role of PPAs for wildfires detected by the EFFIS burned area product, but this excludes wildfires < 30 ha, i.e., the majority of vegetation fires the UK experiences. Furthermore, Little et al. 2024 did not examine the key landcover types burned, nor the surface fire weather associated with vegetation fires, which we have added into the proposed results. The examination of the role of PPAs for different types of landcover burned and for different fire sizes, focusing on an understudied area (rather than Europe wide, where nuanced relationships that exist at a subregional level are masked and overlooked compared to the strong (but extensively researched) fire–climate relationships within Mediterranean Europe) distinguish this piece of research from Little et al. 2024.

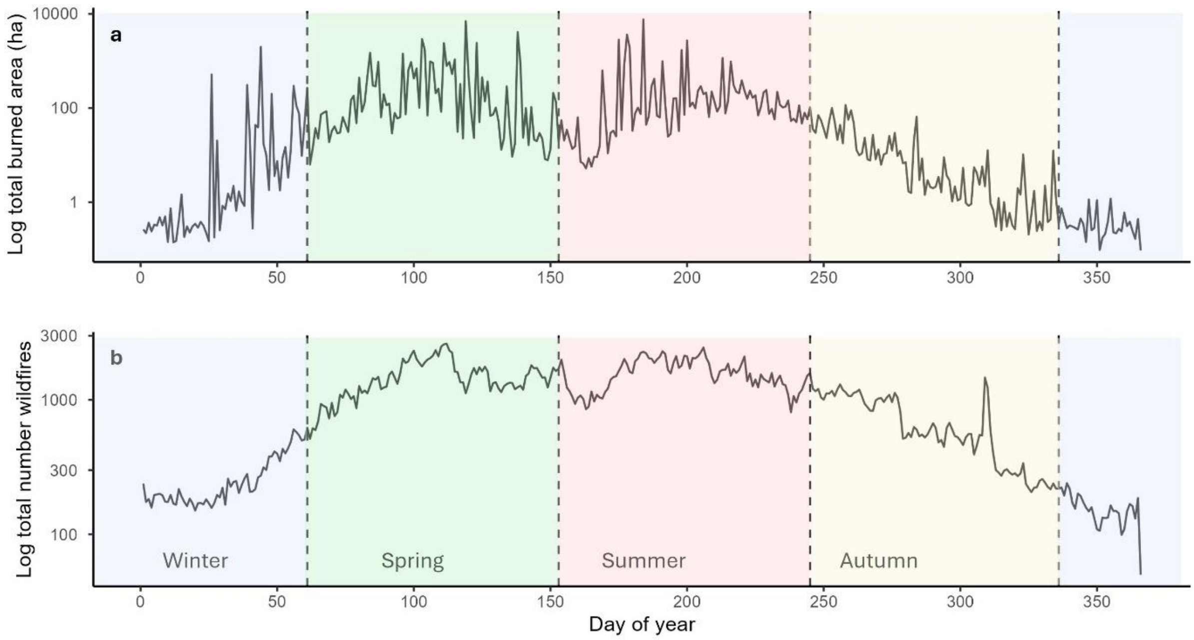
- L126 The analysis raises the question of why wildfires in built-up areas and gardens are being included. Are these incidents truly wildfires? By definition, wildfires typically occur in natural or semi-natural landscapes, and including these cases may lead to misleading interpretations or dilute the focus of the study.

*Please see our initial comment for a thorough discussion of this point, but to summarise, it depends on the definition used (and there are many definitions of wildfire). We used the definition used in the UK, where this research was carried out, and this is the definition that Fire and Rescue Services use to classify vegetation fire incidents they attend. The recent California fires sadly demonstrate that built-up areas and gardens will still burn, and while we do not expect similar behaviour in the UK by any means, vegetation fires surrounding properties pose one of the largest threats to people and infrastructure here. In saying this, we present the results across a range of different size thresholds, those above 1 ha exclude the majority of fires in built-up areas, but there is a negligible change in the percentage of burned area and number of fires associated with PPAs across these thresholds, suggesting the results are robust to their inclusion or exclusion. Further, the breakdown of relationships by landcover allows the reader to consider just heathland, grassland, crop or forest fires.

We believe that some of the concerns regarding this manuscript are around the ‘wildfire’ terminology, which is detracting from the main focus of the research. To improve the clarity and focus of the manuscript and avoid entering into debate around terminology, we have opted to remove the term ‘wildfire’ from the manuscript and instead refer to ‘vegetation fire occurrence’. This highlights both that we refer to outdoor fires where vegetation is burning and that it is the occurrence of a fire (rather than the subsequent behaviour of the fire) that we are interested in.

- Figure 1. The total burnt area of specific large wildfires dominates the results, overshadowing smaller events and potentially skewing the analysis. A more detailed breakdown or normalization of the data might help clarify the trends and improve the interpretability of the figure.

*We have altered Figure 1 to be more informative and log transformed the axes, this has now become Figure 4 in the results section:



"Figure 4: Total log transformed daily (a) burned area and (b) number of vegetation fires recorded in England between 2010–2020. Day of year on the x-axis is partitioned to show the calendar months (dashed lines) winter (DJF), spring (MAM), summer (JJA) and autumn (SON)."

- Re-grid: I don´t understand how did you re-grid the data? Specially for the wild fires. If there is one wild fire with 1ha within a certain 1x1 degree box then you count this grid point with a wildfire? Do you think that´s a fair thing to do? If this is the case, I don´t agree with the methodology since a single wildfire with a 1ha is not meaningful on a 1x1 degree box.

*The re-gridding is actually only related to the PPA and surface weather analysis – thank you for bringing this to our attention as this is not how it is communicated in the text. Originally, we had looked at an analysis using PPA-fire grid cells, but this was not included in the final manuscript, so we have now removed the section on this in the text. The gridded data were used to identify the presence of a PPA event in that grid cell, which is appropriate for looking at synoptic scale phenomena (Liu et al., 2018; Sharma et al., 2022). For each wildfire, we then labelled it as being associated with a PPA if the coordinates were within a PPA grid cell, during or up to 5 days following the presence of a PPA. The number of lag days since PPA presence were also recorded. Otherwise, the fire was labelled as a non-PPA event. The percentage of burned area and fires associated with PPAs is therefore analysed by fire record rather than by grid cell (the opposite to how it was communicated originally). Therefore, a single fire with a small burned area will only have a small weighting on the results, which look at overall burned area and total number of fires. We now explain this more clearly in the text in Section 2.1.3:

"We labelled each incident as a PPA–fire event if a PPA was present in the grid cell the incident occurred in either on the same day or up to five days preceding the incident, otherwise it was labelled a noPPA–fire event. This five day lag is to account for the role of PPA conditions in pre-drying fuels that subsequently ignite (supported by Fig. S1 and previous research (Sharma et al., 2022)). (Little et al., 2024) assessed the sensitivity of PPA–fire associations across Europe to a range of different time lags, finding no major differences in the results. It should be noted that incident burned area is assigned to the incident start date as there is no daily breakdown of burned area within individual events. We acknowledge this limitation; however, as 99.9% of all vegetation fires and 72.7% of burned area are from incidents that occur within a single day or up to five days length, we believe this metric still largely captures whether incidents are associated with

PPA events (particularly as PPA–fire events are defined by a five-day lag period). We also repeated the above steps but first applying a minimum fire size threshold of greater than 1 ha; 10 ha; 50 ha; 100 ha; and 500 ha and filtering by fires on specific key UK landcovers (heathland/moorland; grassland (grassland, pasture, grazing); conifer forest; broadleaf forest; and standing crops) to examine PPA–fire relationships across different vegetation fire sizes and landcover types."

- I have another major issue using the specific detection blocking method. Using this specific method, you only have a yes or no analysis. My suggestion is to use Weather Regimes (Grams et al., 2017) instead of your blocking method. This as many advantages: 1) The use of weather regimes gives more opportunity to study other meteorological patterns that can be important for wildfires which you cannot do it in the present form. 2) the authors mentioned several times, that this study would be important for helping in forecasting wildfires. It the PPAs operational forecast in use? Another advantage of using Weather regimes is that they are operational forecasted at the ECMWF (https://www.ecmwf.int/en/newsletter/165/meteorology/how-make-use-weather-regimes-extended-range-predictions-europe). The authors could consider combining the Fire Weather Index (FWI) forecasts from Copernicus with weather regime forecasts to enhance wildfire predictability in England. This integrated approach could improve the accuracy of forecasting wildfire risks by leveraging the strengths of both systems, providing valuable insights for prevention and mitigation strategies.

Grams, C., Beerli, R., Pfenninger, S. et al. Balancing Europe's wind-power output through spatial deployment informed by weather regimes. Nature Clim Change 7, 557–562 (2017). https://doi.org/10.1038/nclimate3338

*We agree that analysing Weather Regimes is an interesting and useful research question and one we are currently working on in collaboration with the UK Met Office on a different project, using UK-specific weather typing. However, we believe this is a completely separate research question to the focus of this manuscript. It is not simply whether a blocking pattern is present or not that dictates conditions for vegetation fires, and blocking patterns occur alongside a wide range of different weather conditions. The purpose of the PPA algorithm is to pull out the most extreme conditions from week-to-week blocking weather patterns. That is, those events that are especially large, long-lasting, and anomalous in terms of their geopotential heights that we may expect to lead to larger numbers of fires occurring or larger burned areas. This method is therefore beneficial for assessing the extent to which these extreme conditions are important for fires and whether they should be specifically monitored for periods of elevated fire risk – such relationships would potentially be diluted if we used weather regimes instead. While the PPA forecast is not operational currently, there is no reason it could not be tracked using readily-available data in real-time to forecast the development of these extreme events that may require specific actions and preparations above what would be undertaken for a typical blocking event. We highlight this in the discussion of our research, but as a research paper, it is not necessary to consider only operational forecasts or models (and in fact, operational products need to be preceded by such underlying research papers).

Considering these significant major issues, I recommend the rejection of the manuscript in its current form. I also suspect that the use of wildfires only above 10ha or 50ha and excluding in built-up areas and gardens areas will give a very limited sample for analysis which will limited the findings of the study. The points outlined above highlight critical flaws in the analysis, interpretation, and presentation of results, which need substantial revision before the work can be reconsidered again for publication.