General comments

The State of Wildfires represents an important community effort to provide a scientifically rigorous account of key wildfire events during the 2024–25 fire season. The ambition and scope of the report are commendable, and it is encouraging to see such a broad range of expertise contributing to this work. I agree with the other reviewers that the report is both timely and significant. However, before recommending publication, I believe several issues should be addressed to ensure the report fully achieves its goal of delivering actionable insights for stakeholders and society.

Non-scientific comments:

1) **Readability and clarity**

I share Reviewer 2's view that the report is dense and difficult to follow. Beyond being heavy, the presentation sometimes obscures both intention and interpretation, which is very important given the target audience of this work. This does not stem from excessive technicality, but rather from how the material is structured and presented. I recommend targeted editing:

a. **Abstract/Executive Summary:** The abstract is very dense does not facilitate clear and quick understanding. I think the suggestion of using the current conclusion for this as suggested by Reviewer 2 is a very good one, as I agree it very well written. I would also suggest presenting results in order of impact: (i) human fatalities and losses, (ii) emissions, and (iii) attribution results. Additionally, I recommend reconsidering the phrase "global fire activity" in the opening paragraph:

L121: "The State of Wildfire Project systematically tracks and analyses global fire activity and this, its second annual report, covers the March 2024 to February 2025 fire season."

Whilst the report does acknowledge regions with lower-than-average fire activity, it does not focus on average global fire activity, and negative extremes are also not the focus of the report. Unless these themes are developed further, for example by highlighting cases where high fire weather coincided with unusually low burnt area, or highlighting regions of constant trends, it may be better to only mention the focus on (positive) extreme events here. Since most of the report emphasizes positive extreme fires, without transparently acknowledging this here, the framing could unintentionally bias readers toward viewing fire occurrence only in negative (and extreme) terms, which could have major policy implications.

b. The role of fire and defining "extremes": This relates to the previous point about unintentional bias. From my reading, the report fails to explicitly state that globally fire is ***(i)*** unavoidable and ***(ii)*** a necessary part of Earth systems and biodiversity. This absence risks reinforcing a simplistic view that "more fire is bad" and "less fire is good," which may mislead stakeholders. I think some discussion of this context is needed. Related to this, the introduction directly

begins discussing “extreme fire events” without first defining “extreme.” These terms should be defined clearly at first mention.

Line 609: *“(i) as relative anomalies (expressed in %) from the annual mean during all previous March-February periods since 2002 (2003 for fire C emissions); (ii) as standardised anomalies (standard deviations) from the annual mean during all previous March-February periods since 2002 (2003 for C emissions); (iii) as a rank amongst all March-February periods since 2002 (2003 for fire C emissions), March 2024-February 2025 inclusive.”*

Given that many regions have very long fire return intervals, the short record used here should be acknowledged explicitly and transparently. I would like to see discussions of the implications and limitations of this. I suggest framing these as extremes “within the lifespan of an individual today” which both clarifies the scope and makes the results more relatable while transparently acknowledging the limitation. I think this type of framing would also make the future attribution figure where the likelihood of experiencing an event if some was born *today* vs born at other dates link quite nicely. However this is just a suggestion, I am not sure exactly what the best way to get around this is!

I also appreciate the use of regional expert panels. This approach mitigates the limitations of the satellite products and incorporates diverse forms of knowledge and expertise, which is desperately needed. However, it should be noted that “extremes” identified in this way often reflect vulnerability and resilience shaped by factors beyond climate such as governance, funding, and policy decisions, which are not strictly biophysical conditions.

Line 102: *“Examples of extremes that can be captured by expert assessment (but not by Earth observations) include: suppression difficulty; fatalities and structure loss; impacts on human health and wellbeing; impacts on agricultural and other economic sectors; impacts on biodiversity, and; impacts on diverse ecosystem services such as recreation, tourism, or other cultural values.”*

Line 680: *“This includes (but is not limited to) wildfires that impacted society by causing fatalities, evacuations, displacement (e.g. homelessness), direct structure or infrastructure loss or damage, degradation of air or water quality, loss of livelihood, cultural practice or other ways of life, and loss of economic productivity. This definition also includes (but is not limited to) wildfires that impact the environment via disturbance to vulnerable ecosystems, biodiverse areas, or ecosystem services such as C storage.”*

For example, many of the things mentioned here to not relate directly to the climate drivers. Some discussion of this, and how it takes more of a risks definition of extreme rather than a biophysical one would be nice.

c. **Focal point events:** The analyses from the focal events were difficult to follow because of the fragmented presentation of the results, which felt at time quite repetitive. I recommend restructuring the Results section into 1) Global results and 2) Focal event case studies. Each case study could then follow a consistent template with:
    - The regional context
    - The description of fire event

- Causes (from previous literature)
- Prediction analyses and causal inferences (PoF and ConFLAME)
- Attribution results

Line 1961: *"Northeast Amazonia experienced an exceptionally severe fire season between January and April (Figure 10), driven by extreme drought which started in 2023, intensified by the combined effects of El Niño and the Atlantic Meridional Mode, which brought unusually high temperatures and suppressed rainfall."*

Line 1996: *"According to our Sparky-PoF analysis, the extreme fire activity during the 2024-25 fire season in the Pantanal-Chiquitano (described in Section 2.2.2.2), was mainly the result of extremely dry weather which had started since 2023…"*

Grouping all the information for each focal event would clarify what comes from background literature versus what is novel (PoF, ConFLAME), which is sometimes difficult to decipher. This would also reduce repetition and open space for deeper analysis, including integration of more of the excellent figures in S4.2. The recent California wildfire studies (McNorton et al., 2025) demonstrate how impactful such in-depth case analyses can be, and adopting a similar approach here would greatly strengthen the report.

Scientific comments (major):

1) **Attribution of human influence**

I agree with Reviewer 1 that the current approach to human attribution is problematic. Their suggestions for improvement are excellent, and I simply want to reiterate their concerns.

2) **Implication of single year analysis**

By its very design, the report focuses on wildfire events in an individual year. From my understanding, the weather/fuel/land use conditions relating to *that* specific year are then used to make causal inferences. This is fine; however, we know that many of the drivers of individual wildfire events can result from multi-year to decadal process such as fuel accumulation, shifting vegetation composition, and land use change as well as policy decisions such as suppression, and these will not occur on yearly timesteps. This especially relates to fuel conditions, such as fuel load but also fuel continuity. This point is especially important attribution work, both for the causal attribution of the focal events and the future the attribution results. I believe in nearly all the focal events, a multi-year process is described in the introduction to that event, and climate modes such as El Nino are also mentioned. It would be nice to clarify if PoF or ConFLAME take these multi-year processes into account? If they do not, it seems to me that the results are going to be bias towards attributing weather as the driving cause of fire events, regardless of how much longer-term processes may play a role, given that this is the only factor which operates on a yearly timestep. More discussion is needed to clarify if the current methods capture these long-term drivers, and if they do not, this limitation needs to be addressed. In the future, it would be nice to see future reports can account for the multi-year process (i.e. in both the ranking, forecasting and attribution).

3) **Discussion of the model limitations:**

It appears that both PoF and ConFLAME cannot reproduce the southern Californian focal event or the Northern Amazonia one (Figure S17). More evaluation and transparent discussion of this (and what it means) is needed.

Line 1788: "Interestingly, both the PoF and FWI systems failed to capture a lull in fire activity during the second emergence in August-November of fire-conducive conditions showing the limitations of forecasting fire activity rather than fire danger."

4) **Attribution analysis:**

Given that ConFLAME does not capture some of the focal events (above point), some more evaluation is needed on the model's ability to reproduce the contemporary fire record in specific case study locations. Are interannual variability, as well as previous extremes in the observed record captured, and are there benchmarking metrics available for this? I may have missed this, if so, ignore this comment.

Scientific comments (minor but would like to see addressed in future reports):

1) **Buffering in ranking and additional metrics**
   a. **Fire regimes and variability**

Fire regimes diverge dramatically, and this includes their year-to-year variability in fire activity. It would be nice to see an analysis of the relative spread in the observational record for the different fire metrics, as I think this would contextualize some of the results. For example, in regions with long fire return intervals and very low burnt area averages, a single year (early in the record) can disproportionately alter the mean, adding uncertainty to the signal and potentially obscuring more recent extremes. In contrast, regions with consistent fire properties make extreme years more robustly interpretable.

   b. **Trended data**

The authors discuss the overall trends in fire both inside and outside tropical regions, which are a result of climate, vegetation and land use change. Given that we know there is a trend in recent fire data, is the baseline mean approach appropriate? Complementing this with rolling windows (e.g., 5-year averages) or highlighting long-term trends in focal regions could add context. This would strengthen the policy relevance by distinguishing between consistent year-to-year patterns (with trends) and one-off anomalies that a mean value alone cannot capture.

2) **Discussion of climate modes**

Given that the satellite record is so short, it would be useful to also contextualize the rankings in the context of climate modes. Do certain areas consistently show higher rankings in El Nino years for example? If so, what are the implications of this? I don't think this is something that necessarily needs to be addressed in this report, however, it should be considered for future reports, as may explain/influence the ranking results.

3) **Fire weather vs actualized fire**

I would be very interested to see a discussion about the differences in the FWI rankings and the BA rankings. Comparing Figure 4 and Figure S2, it becomes very clear that the high ranking FWI regions do not necessarily correlate to the high ranking FWI (which is to be expected). Whilst South America does emerge very clearly in high rankings for both, Southern Africa, the coast regions of Western and Northern Africa, Central Europe, Scandanavia, and Russia all show very high rankings in FWI but low rankings in BA. This seems to be anomalous in some of these regions, where the reported percentage reductions are huge:

Line 993: "BA was around 50 thousand km 2 (71%) below average in the Asian temperate grassland, savannah and shrubland biome, 42 thousands km 2 (62%) below average in the Asian xeric shrublands"

This appears to me like another point where a focus on longer-term processes, as well as a discussion of fire regimes and fire ecology more generally would help explain these mismatches. Relating to the previous points, it would be interesting to relate these regions of mismatch to previous fire years, or, for example, highlight them as regions in which, given that *this* year we saw unusually low fire activity, excess fuel may have built-up, which may, in combination with the right weather conditions, increase the likelihood of extremes in the next few years. Such an approach would also yield policy-relevant insights, identifying areas where fire management attention may be needed not just because of recent fires, but also because of reduced fire activity in recent years that could elevate future risk.