

## Major Comments:

1. **Clearly define and use the terms fire hazard, fire probability, fire danger, fire risk, fire exposure. Consider reducing the number of descriptive terms to “fire probability” and “fire risk” to avoid confusion. It is sometimes unclear for the reader to understand when the manuscript is talking about the output from the Bayesian Network model (fire probability) and when those results have been combined with ecosystem properties to determine potential impacts on ecosystems (fire risk).**

- a. **The authors could add definitions potentially around lines 90 to 100.**

Thanks for the suggestion. We have mentioned the research queries from 95-100 and we will also highlight what we mean by fire risk in the study (based on AR6 report of IPCC, 2012). Moreover, we will provide detailed definitions of fire risk as suggested by both reviewers in the section 2.2 which is elaborated in the later comments.

- b. **Section 2.2: It is unclear exactly how the measures and properties in the table are used. The manuscript would benefit from a clearer definition here of how risk is defined and quantified.**

Thanks for the suggestion. We will revise the manuscript and use the term ‘fire risk’ and ‘fire hazard model’ consistently and avoid using the term ‘fire probability’ to reduce confusion. We will revise section 2.2 in the revised version and include the definition of ‘fire risk’ and ‘fire hazard’ in Table 1. We will also briefly describe how risk is quantified in section 2.2.

- c. **L277 to L281: The description of the combination of fire probability with ecosystem vulnerability would benefit from more information and clarification. As I understand it, the combination of these two products defines the fire risk.**

Thanks for the suggestion. We will clarify the definition in the revised version of the manuscript and highlight it in Table 1.

- d. **L369 to L376: This introduction section would benefit from more clarification. It is unclear whether the authors are talking about exposed areas in terms of fire probability or vulnerability to damage.**

Thanks for the suggestion. We will provide a clarification in the introduction section. By ‘exposed areas’ we are implying the potential

area likely to be affected due to the probable occurrence of a wildfire event and consequently which socio-ecological values will be vulnerable in those exposed areas.

**L383: Should “low danger” be “low fire probability”?**

Yes, thanks for the suggestion, we will change in the revised version.

**2. What is the resolution of the output from the fire prediction model, for example in Figure 12?**

The spatial resolution is 50m, we will explain in the revised version.

**3. The manuscript would benefit from a clearer discussion of the process of interpreting the Directed Acyclic Graphs. Some specific comments regarding result interpretation:**

- a. **Figure 4: Describe generally in the caption what all the B1 of X mean. Describe what the different colors mean in the bar charts. Describe what the arrows mean. Spell out DAG acronym in the caption.**

B1 means the first interval of each variable and the description are in the supplementary material (Table S2). The bar chart colors are randomly given. We will change the bar chart to monochromatic and reference Table S2 to the caption of Figure 4.

- b. **How and why is Figure 8 different from Figure 4?**

Thank you for the question. Figure 4 is the distribution of the probabilities according to the fire and non-fire variables. In contrast, Figure 8 shows the distribution of probabilities only when there is fire occurrence. We will clarify in the revised version.

- c. **How do the values in Table S1 relate to Figure 8?**

Table S1 describes the intervals of fuel type in Figure 8. We will clarify in the revised version.

- d. **Describe the connection between Figure 9 and Figure 8.**

Figure 9 describes the relative distribution of ignition and non-ignition points by fuel type, in contrast, Figure 8 shows the Bayesian Network graph. In order to improve the ecosystem management against fires, it is more interesting to understand what types of fuels are more important when there is a fire occurrence, since the landscape is one of the few variables that we can change to reduce the fire hazard. To do this, we can directly observe the distribution of fuels type from the Bayesian Network graph. Therefore,

in the revised version we will remove Figure 9 and clarify the importance of fuels type in ecosystem management and fire prevention.

**e. L318-320: Please double check the values. If I am reading Figure 8 and Table S2 correctly, 18.75 should be 22.72, 25.55 should be 26.67 and 27.90 should be 29.80. Or, are the ranges associated with the bins in Figure 8 defined somewhere else rather than Table S2?**

Thanks for the suggestion. The ranges are wrong in some variables; we will change the data in the revised supplementary data as follows:

Variables	Range (min max)	Intervals									
		B1 (min max)	B2 (min max)	B3 (min max)	B4 (min max)	B5 (min max)	B6 (min max)	B7 (min max)	B8 (min max)	B9 (min max)	B10 (min max)
slope (m)	0.00 64.84	0.00 4.39	4.4 9.26	9.27 14.07	14.08 22.14	22.15 64.84					
elevation (m)	0.00 3138.00	0.00 202.05	202.06 350.50	350.51 510.50	510.51 713.51	713.52 3138.00					
distance to road (m)	0.00 4707.44	0.00 120.71	120.72 291.42	291.43 504.95	504.96 932.67	932.68 4707.44					
fuel type	0 7	0	1	2	3	4	5	6	7		
maximum weekly temperature (Celsius)	1.51 39.23	1.51 5.29	5.30 9.06	9.07 12.83	12.84 16.60	16.61 20.37	20.38 24.15	24.16 27.92	27.93 31.69	31.70 35.46	35.47 39.23
weekly precipitation (mm)	0.00 125.10	0.00 0.05	0.06 2.45	2.46 4.75	4.76 7.75	7.76 10.85	10.86 14.95	14.96 18.75	18.76 25.55	25.56 38.45	38.46 125.10
day without precipitation (#)	0.00 114.0	0.00 2.5	2.5 8.5	8.5 35.5	35.5 114.0						

distance to protected area (m)	0.00	0.00	0.01	1014.51	2582.49	4859.74					
	16217.56	0.00	1014.50	2582.48	4859.73	16217.56					
distance to human (m)	46.90	46.90	3891.15	6287.74	8862.07	12549.18					
	25052.21	3891.14	6287.73	8862.06	12549.1	25052.21					
atmospheric temperature (Celsius)	- 2.96		1.00	4.95	8.90	12.85	16.80	20.76	24.71	28.66	32.61
	36.55	-2.96 0.99	4.94	8.89	12.84	16.79	20.75	24.70	28.65	32.60	36.55
solar radiation (J/m <sup>2</sup> )	12.00	12.00	85.81	159.61	233.41	307.21					
	381.00	85.80	159.60	233.40	307.20	381.00					

**f. L328 to L330: Clarify how the most influential variables are determined. Is it because they are the first connections to the fire occurrence variable in the network?**

Thanks for your question. We will add the text below in the revised manuscript:

“To answer which are the most influential variables of a Bayesian Network we can look at (1) the strength of influence of each edge connecting the nodes (Balbi et al. 2019) and (2) how “far”, in terms of number of edges, is an input node from the final output (Marcot et al. 2006). The strength of influence is calculated from the conditional probability tables and expresses the difference between the probability distributions of two nodes by looking at the posterior probability distribution of a node, for each possible state of the parent or child node. To summarize this difference, we report normalized Euclidean distance, although other types of distances (e.g. Hellinger) are also used (Balbi et al. 2019). We show this in a new Figure 4 representing the strength of influence as the thickness of the edges. We also quantify it numerically in Table 5. The predictors with the highest strength of influence are 1. atmospheric temperature, 2. days without precipitation, 3. fuel type and 4. solar radiation (Table 5), all of which are directly linked to the final output (fire occurrence). While atmospheric temperature, number of days without precipitation, and solar radiation are expected to increase in variability and increase fire hazard with limited options for human mitigation, fuel type can be managed with punctual landscape interventions reducing its combustibility level where it is more necessary.”

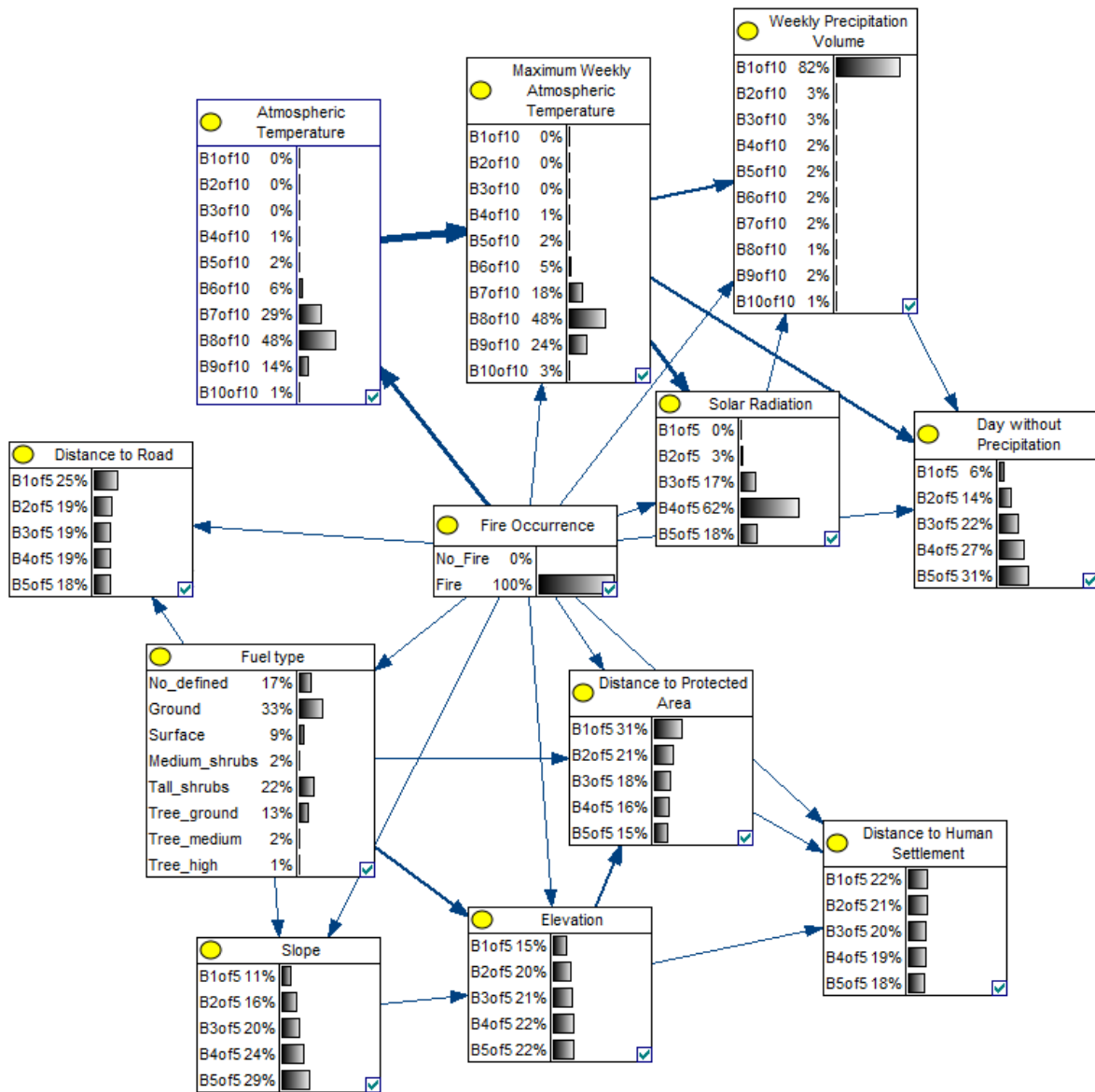


Figure 4. Directed Acyclic Graph (DAG) of the fire hazard Bayesian network model where the thickness of the edges shows the strength of influence between nodes. Nodes show the relative probability of each variable state (Supplementary Materials, Table S2), as learned from the dataset, that leads to a fire hazard of 100%.

Table 5. Strength of influence between fire occurrence and its child nodes.

Variable	Strength of influence
Atmospheric Temperature	0.338
Day without Precipitation	0.193
Fuel type	0.192

Solar Radiation	0.191
Elevation	0.158
Maximum Weekly Atmospheric Temperature	0.154
Distance to Protected Area	0.145
Slope	0.138
Distance to Road	0.117
Weekly Precipitation Volume	0.113
Distance to Human Settlement	0.112

#### References:

Bruce G Marcot, J Douglas Steventon, Glenn D Sutherland, and Robert K McCann. 2011. Guidelines for developing and updating Bayesian belief networks applied to ecological modeling and conservation. *Canadian Journal of Forest Research*. **36**(12): 3063-3074. <https://doi.org/10.1139/x06-135>

Balbi, S., Selomane, O., Sitas, N., Blanchard, R., Kotzee, I., O'Farrell, P., and Villa, F.: Human dependence on natural resources in rapidly urbanising South African regions, *Environ. Res. Lett.*, 14, 044008, <https://doi.org/10.1088/1748-9326/aafe43>, 2019.

**g. LL397 to L402: Add in some more information about how the socioecological value was determined and what it means.**

The socio-ecological value is based on the ecosystem services models considered (vegetation carbon mass, pollination, outdoor recreation, biodiversity and soil retention) normalized from 0 to 1, instead of others such as qualitative categorization and probabilistic approaches (normal, Poisson, binary) (Chuvieco et al., 2003). We transformed each modeling output rescaling them from 0 to 1, using the minimum and maximum value within the Sicily context. The quantitative scale was classified into 3 categories (1-low, 2-medium, 3-high) using equidistant intervals; thus integrating all

ecosystem services into a single value. We will complete the information in the revised version.

- 4. For future predictions – more information about which variables are available from CMIP5 sources. For instance, are all variables noted in Table 5 and Fig 4 available from CMIP5 or are some variables assumed not to change (for example human settlements).**

Thanks for the question, as it is not clearly described in the manuscript. We forecast weather resources based on the Coupled Model Intercomparison Project 5 (CMIP5) data for RCP 8.5. We keep the other variables (solar radiation, fuel, slope, elevation, distance to road, protected area and human settlement) with the current conditions. We will clarify in the revised manuscript.

- 5. Are the spatial distributions of the type I and type II errors randomly distributed around Sicily or are the errors associated predominantly with one location in Sicily. The result can help interpret whether the model is more accurate for some parts of Sicily over others.**

We have produced a map of the standard deviation of the estimated output using the learned BN model: this is because the BN model produces a probability distribution with a mean value and a standard deviation, we just didn't expose this second result in our submission. We agree it's an equally important output to show.

- 6. Section 3.2 requires an overall summary of the results found from the fire prediction in 2020 compared to 2050. For example, a description of the total change in fires in the low, medium and high categories from 2020 to 2050.**

Thanks for the suggestion, we will describe the results between the two fire hazard maps in the revised version.

- 7. Consider the use of “forest fires” throughout the manuscript and potentially change to “wildland fires” or “wildfires”. Table S1 indicates that vegetation types such as grassland and shrubland are considered in this work, which are not necessarily forests.**

Thanks for the suggestion, we will change to “wildfire” in the revised version.

## Minor Comments:

**L20: Seeing as this manuscript does not specifically study “preventing fires due to climate change” I suggest removing this part of the sentence.**

Thanks for the suggestion, we will change “and preventing fires due to climate change” to “and fire risk management, both under current and climate change conditions.” in the revised version.

**L44: Are the results in Figure 1 driven by one year (e.g. from Fig. 5, 2012 is very high), or are the results for Sicily consistently in the highest number of fire events for Italy every year 2009-2016? Also, if possible, I suggest analyzing the data for this figure from 2007 to 2020 to be consistent with the rest of the manuscript.**

Thank you for your suggestion. Figure 1 shows the official Italian government data, which does not take into account the small fires (less than 30 ha) and only provides data for all regions from 2009 to May 2016. Figure 5 shows the analysis of the data from the government of the Sicily region checked with the data from FIRMS. After a data cleaning and analysis of both, data from the Sicilian government and FIRMS, we obtained the distribution of ignitions and burned surfaces shown in Figure 5.

**Figure 1: Increase font size within the image and ensure legend and axes are in English.**

Thanks for the suggestion, we will change the old figure to the figure below this sentence in the revised version.



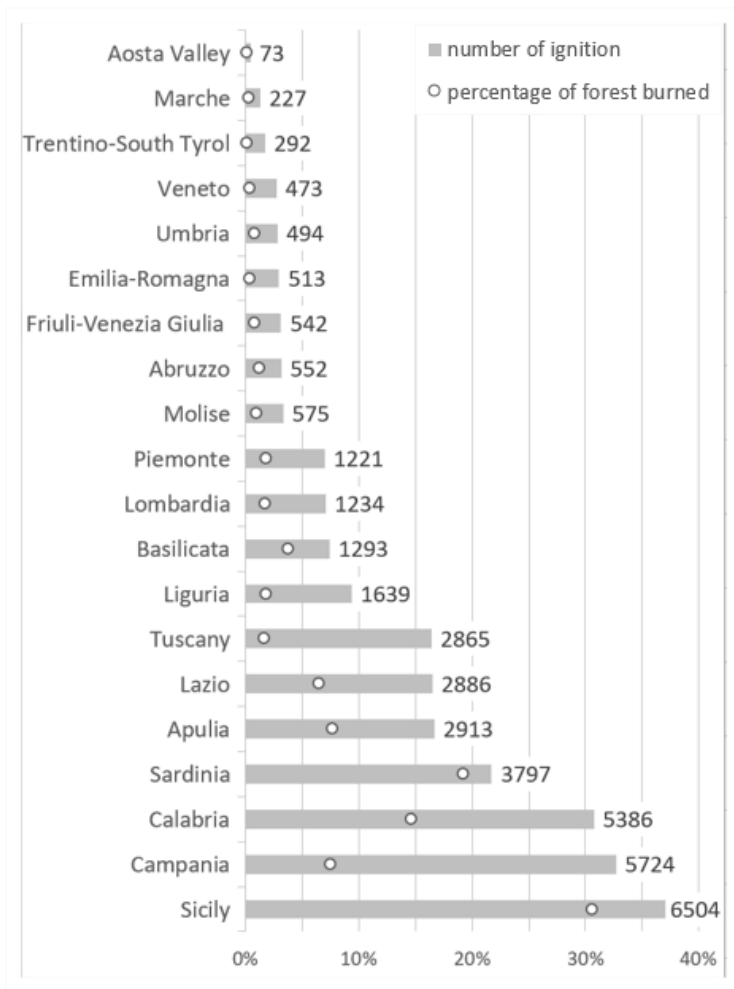


Figure 1: Total number of fire ignitions and percentage of area burned over Italy by region between 2009 and May 2016. Source: *Statistics on firefighting activity, Servizi AntiIncendio Boschivo (Italian Forest Fire Services), Roma.*

**L55: The comment about “biodiversity is lost” is completely opposite to L22 where the introduction mentions “fires increase biodiversity”. Please explain or correct this inconsistency.**

The positive or negative consequences of wildfires mainly depend on their size, intensity, and frequency. We will clarify the revised version as follows:

**Table 2: Define acronyms in the caption or a legend or table footnotes. “Temporal resolution” should be named “temporal coverage”. The description says data in the fire perimeter category only extends to 2019, but the study period says the research covers 2020 (L90) – please clarify.**

Thanks for the suggestion, we will change "Temporal resolution" to "Temporal coverage and time consistency" in the revised version. Time consistency is suggested by reviewer 1 referring to the data time step. We will clarify the study period in the revised version, which covers till 2020.

**Table 3: This one-row table seems unnecessary and could be mentioned as a sentence instead.**

Thanks for the suggestion, we will remove Table 3 in the revised version.

**Table 4: Define acronyms in the caption or a legend or table footnotes. It is unclear why ARIES is a source of data in this table, because it seems that ARIES is the model used. A clearer explanation of what ARIES is and what it contains in the methodology section would be helpful.**

Thanks for the suggestion. ARtificial Intelligence for Environment & Sustainability (ARIES), is an integrated network of web accessible data, models, and other resources, implementing the FAIR principles (Wilkinson et al., 2016) through the k.LAB software, a semantic web-based integrated knowledge system. Some of the variables were integrated in the ARIES network. We will clarify what ARIES is in the introduction section. Regarding Table 4, we will define the acronyms and explain in the text the methodology followed to obtain the variables.

**L181: Define the acronym E-OBS.**

Thanks for the suggestion, we will add the acronym definition as Ensembled OBservation in the revised version.

**L190: Add a reference for the DEM.**

Thanks for the suggestion. DEM data source is Geoportale Regione Siciliana, Infrastruttura dati territoriali - S.I.T.R., we will add in the revised version.

**L222 to 227 and Figure 3: The authors could consider removing most of this from the manuscript, or moving to a supplement, as some of the information is repeated later.**

Thanks for the suggestion. We will move to supplement material and describe ARIES and k.LAB in the introduction section and k.IM language at the beginning of 2.2.1 "Fire hazard model" as below:

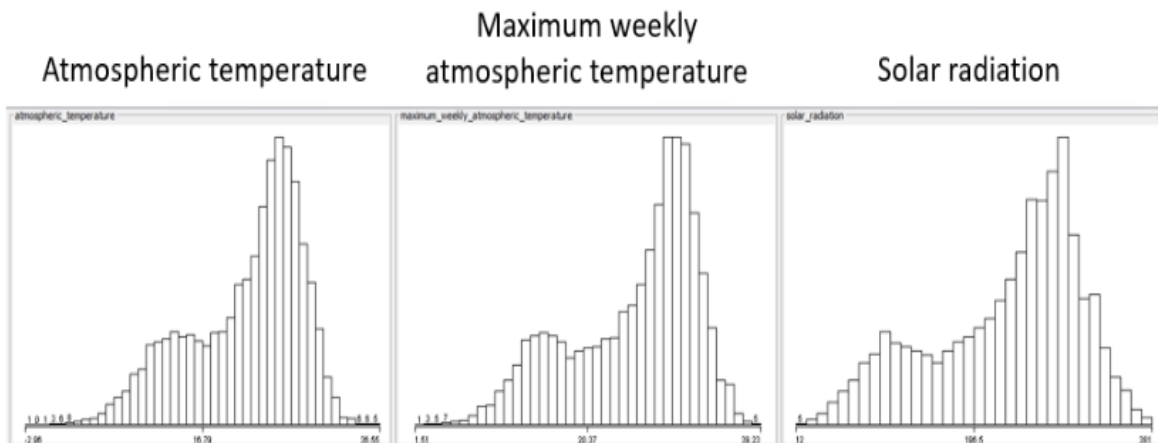
The model for this case study is developed using k.LAB software, a collaborative solution to achieve interoperability from the data sources to the generated modeling results. Within k.LAB an ontology-driven language called *knowledge-Integrated Modeling* (k.IM), which is grounded on an internal knowledge-based, provides the basis for the semantic annotations of resources (i.e., explicit definitions), such as external datasets, and the modeling tasks engendering traceability and knowledge integration through the lifecycle of scientific modeling (Figure S1).

Once the models are resolved, k.LAB returns spatially explicit contextualized models' results. To ensure transparency, a textual documentation of the process followed to achieve the results with annexed references and a computation workflow are also provided to the users.

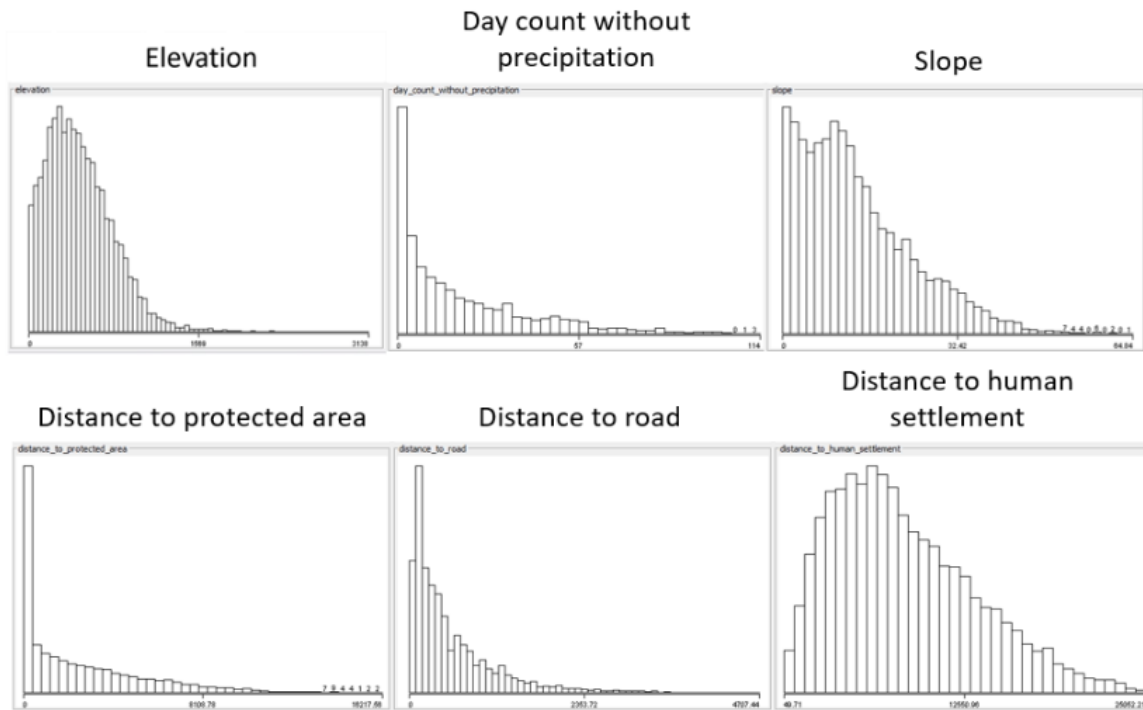
**Table 5: What was the motivation behind using the equal weight method for some variables and using the equal frequency method for other variables when choosing bins? What threshold or property was evaluated to determine the method used?**

We used the most appropriate method mostly according to the data distribution of each variable and by trial and error. However, Factors to consider include the shape and spread of the data, the purpose, and level of detail of the analysis, as well as the number and size of bins. The optimal number and size of bins depend on a trade-off between information loss and information gain.

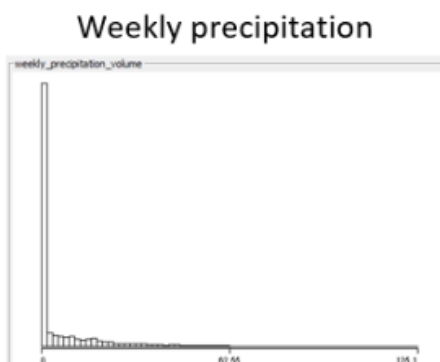
In general, Equal-width binning applied to more uniformly distributed input data as for atmospheric temperature, maximum weekly atmospheric temperature, and solar radiation.



For skewed distributions as for elevation, number of days without precipitation, slope, distance to protected area, distance to road, and distance to human settlement, we used Equal-frequency binning.



The disadvantage of Equal-frequency is that it can distort the distribution of the data and create irregular bin widths. That was the case with the “weekly precipitation” variable. After several tests, we realized that the equal-frequency produced a wrong data binning, this is the reason why we apply equal frequency in spite of its skewed distribution.



**L248 to L249: Do all 3 requirements need to be met to move onto the next node or only one?**

The algorithm advances when any of the conditions are met (Chen et al 2008). We will clarify this in the revised version.

**L274 to L275: It is unclear what the scale “low, medium and high” refers to. What is the measure/unit underlying the calculations? Are they different for each ecosystem property, for example, is pollination the number of plants, the number of seeds or something else? It would be valuable to have a small description of these. Finally, do the distributions of the ecosystem properties support three equidistant intervals?**

Thanks for the suggestion.

- All the models are normalized from 0 to 1 in order to compute, using the minimum and maximum value within the Sicily context.
- The ecosystem services models used are published (Martínez-López et al., 2019; Willcock et al., 2018). We briefly describe below:
  - Vegetation carbon mass: Martinez et al. 2016 calculates the above- and below-ground carbon storage in vegetation in physical units (T/ha), in accordance with Tier 1 Intergovernmental Panel on Climate Change (IPCC) methodology (IPCC, 2006; Ruesch and Gibbs, 2008).
  - Pollination: Based on land use, cropland, and weather patterns, the pollination model generates spatially explicit data of the supply and demand for insect pollination services (Martinez et al 2016).
  - Outdoor recreation: The recreation model uses ranked values to determine supply and demand and draws inspiration from the model created by Paracchini et al. (2014) for Europe. The model calculates the availability of recreational activities as a multiplicative function of naturalness and the accessibility-driven by distance of nature-based attraction parameters, computed as Euclidean distance (Martinez et al 2016)
  - Biodiversity: A Bayesian Network approach is used to spread site-based expert estimations of "biodiversity value" in order to create a map of the entire Sicilian region (Willcock, 2018).
  - Soil retention: Based on slope and contributing area, the model (Martinez et al 2016) provides biophysical estimates of soil loss and retention by plants (in tons of sediment per hectare per year) using the widely used Revised Universal Soil Loss Equation (RUSLE; Renard, 1997).

- The quantitative scale was classified into 3 categories (1-low, 2-medium, 3-high) using equidistant intervals for each socio-ecological value; thus integrating all into a single value. In this quantitative cross-assessment, the most valuable component was prioritized. The final map was overlaid with wildland areas.

We will clarify in the revised version.

**L291 to L293: It was unclear where this information about monthly distribution and August maximum came from until later in the manuscript. I suggest moving Figure 11 (average monthly distribution of ignitions and burned area) to directly after Figure 5, and reference it in these sentences.**

Thanks for the suggestion, we will move up in the revised version.

**Figure 7: Label axes**

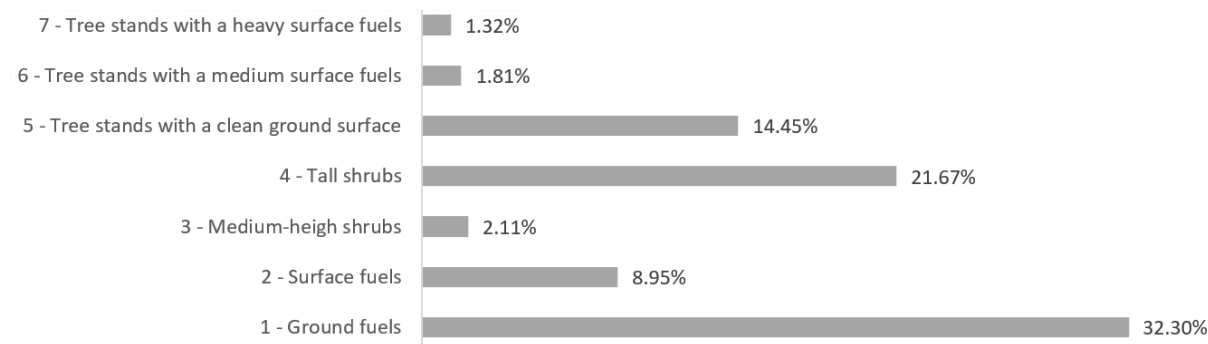
Thanks for the suggestion, we will add the label axes in Figure 7 in the revised version.

**Figure 8: Reference Table S2 in the caption to define bin ranges.**

Thanks for the suggestion, we will reference Table S2 in Figure 8.

**Figure 9: Add axes labels. I suggest spelling out the fuel type on the x-axis instead of using numbers. Alternatively, add a legend for the numbers.**

Thanks for the suggestion, we will change the graph in order to be more understandable in the revised version as follows:



**L350: Define “ROC”.**

Thanks for the suggestion, we will add the ROC definition as Receiver operating characteristic in the revised version.

**Figure 10: Label axes.**

Thanks for the suggestion. Reviewer 1 suggests removing Figure 10 and indicating the AUC value within the manuscript. We will follow the Reviewer 1 suggestion in the revised version.

**L364 (and potentially elsewhere): Please be consistent in the use of either “medium” or “moderate” for the fire probability ranges. For example, line 364 mentions “medium”, Figure 12 shows “moderate”, Figure 13 shows “medium”.**

Thanks for the suggestion, we will keep “medium” both the text and figures in the revised version.

**Figure 13: Define ES and what high and low means.**

Thanks for the suggestion, we will define it in the revised version as follows:

Figure 13: Exposure map of ecological values and ES (Ecosystem Services) that may interact with levels of forest fire probability (low, medium, and high), in 2020 and 2050.

**Figure 14: Caption says “green” but I think it should be “grey”.**

Thanks for the suggestion, we will change the color definition in Figure 14 in the revised version.

**Figure 16: The description of colors in the caption is opposite to what the legend in the figure describes, i.e. caption: red = 0, blue = 3, legend: blue = 0, red = 3.**

Thanks for the suggestion, we will change the color definition in the caption of the Figure 16 in the revised version.

**L408 to L419: This section of the discussion is confusing to understand and would benefit from a re- write.**

Thanks for the suggestion, we will rewrite in the revised version as follows:

Although historical fire data are becoming more accessible and findable, there is still much to be done for enhancing their full use (e.g. their interoperability and reusability). The most reliable data are those collected in the field by authorized public or private institutions, but in many cases, it is extremely difficult to access and download field data for the general public. In contrast, satellite data are becoming increasingly accessible. However, not always fire can be properly detected by satellites:

1. they need a minimum fire size or intensity (linked to the resolution),
2. there can be false alarms (commission errors),
3. they can be obscured by clouds or overstory vegetation, or

4. the time of satellite overpass may not coincide with the fire (Hantson et al., 2013, p.201; Schroeder et al., 2008).

In this study, we use both the satellite data and field data in order to verify and complement the fire-related information. Overall, satellite and field data common problems are the scarce harmonization among data formats and the lack or bad quality of metadata. In this study, the main difficulties were the differences in parameters such as coordinate reference system, lack of metadata information and fire attributes between the yearly perimeters of fire. By integrating the data in k.LAB, all the data resources were harmonized, properly classified, and made available online with complete metadata.

**Discussion: Consider renaming “Discussion and Summary” because some of the results are reiterated here.**

Thanks for the suggestion, we will rename the section name in the revised version.

**L435: What specifically is the “more complete data” that could be integrated?**

Thanks for the suggestion. "More complete data" refers to the spatial resolution of the data. We used low spatial resolution data (100m) for meteorological variables; if we compare it with other variables for which the resolution was under 50 meters. The reason was that there was no access to more detailed meteorological data at the daily time step for Sicily. We will change the sentence "more complete data" to "data with higher spatial resolution."

**Table S2: Describe what B1 to B10 are in the caption. Are these bins all determined with equal weight or equal frequency?**

We will change the caption and add more information in the Table S2 in the revised Supplementary Materials document. The type of discretization is explained in Table 5 in the manuscript.

**Table S3: Describe in the caption what ES means and the different categories. Here (and elsewhere) check the consistent use of the full stop mark. In table S3 it is used like a “comma” in Table S2 it is used as a decimal point.**

Thanks for the suggestion, we will define ES as Ecosystem Services and use the full stop mark in the revised Supplementary Material document.

**Technical Corrections:**

**Check consistency of “modelling” and “modeling”, for example the title and line 15 use different versions of the spelling.**

Thanks for the suggestion, we will use “modeling” in the revised version.



**L14: Remove “fashion” – unclear meaning in this sentence.**

Thanks for the suggestion, we will remove “fashion” in the revised version.

**L15: Remote Sensing is a data product not a modeling method. Therefore, I suggest changing “employing modeling methods” to “combining methods and data”.**

Thanks for the suggestion, we will use “combining methods and data” in the revised version.

**L26: ...area had a... → ...area has experience a...**

Thanks for the suggestion, we will change in the revised version.

**L29: ...traditions, with...**

Thanks for the suggestion, we will change in the revised version.

**L75: ...made, still few resources... → ...made, few resources...**

Thanks for the suggestion, we will change in the revised version.

**L79: ...even within the decision support system**

Thanks for the suggestion, we will change in the revised version.

**L111: Remove “nowadays”; ...southwest. Thus... (add the full stop)**

Thanks for the suggestion, we will change in the revised version.

**L112: ...permanent crops. Roughly a third...**

Thanks for the suggestion, we will change in the revised version.

**L113: ...protection, the most important being the Mount...**

Thanks for the suggestion, we will change in the revised version.

**L230: ...values, so continuous data need to be discretized.**

Thanks for the suggestion, we will change in the revised version.

**L240: lose less information → minimize information loss**

Thanks for the suggestion, we will change in the revised version.

**Table 5: Firec → Fires; ount of Day... → Count of Day...**

Thanks for the suggestion, we will change in the revised version.

**L246: ...through a heuristic search**

Thanks for the suggestion, we will change in the revised version.

**L255: ...66% of chance → ...66% chance**

Thanks for the suggestion, we will change in the revised version.

**L266: linked → connection**

Thanks for the suggestion, we will change in the revised version.

**L276: ...was overlaid with wildland areas.**

Thanks for the suggestion, we will change in the revised version.

**L297: ...once, 34.8% twice, 23.1% has burned three times or more, and nearly 6% has been burnt more than 5 times.**

Thanks for the suggestion, we will change in the revised version.

**L364: ...level of occurrence...**

Thanks for the suggestion, we will change in the revised version.

**Section 3.3 heading: Remove “and intermediate components” because it is unclear what these are.**

Thanks for the suggestion, we will remove it in the revised version.

**L374: vertical axis → column**

Thanks for the suggestion, we will change in the revised version.

**L375: axis → column**

Thanks for the suggestion, we will change in the revised version.

**L408: remote “Concerning data sources” and start the sentence with “Although”**

Thanks for the suggestion, we will change in the revised version.

**L409: Unclear what “fruition” means.**

Thanks for the suggestion, we will change “fruition” for “use” in the revised version.

**L456: Capitalize “Traditional”.**

Thanks for the suggestion, we will change in the revised version.

**Table S3 caption: Area of ecosystem services potentially exposed to fire...**

Thanks for the suggestion, we will change in the revised version.