

MINI ARTICLE

Title

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Abstract

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Keywords: rescue; natural environment; civil protection plans; incidents; Catalonia

1. Background

The objective of the research project is to find geographical and temporal correlations between the Fire Department (FD) natural environment rescue operations and modifications in legal status of civil protections plans (CPP); as well as identify patterns and biases between incidents reported by the Generalitat de Catalunya and the rescue operations carried out by the FD, and changes in legal status of CPP. The study is restricted to the time window between years 2018 and 2022, for which the temporal evolution of the incidents by season will also be conducted. The tasks within the project were split and separated into parallel research questions which were addressed by each of the team members. In my case, the research I conducted addressed *finding geographical correlations/uncorrelations in FD rescue actions and modifications of legal status of CPP*. This mini-article addresses my contribution to the whole project and includes detailed sections on methodologies (see Sec. Methods), main results (see Sec. Results) and some conclusive ideas on my research (see Sec. Conclusions).

The data used within the scope of this project is re-used, and it has been taken from the portal *Dades Obertes de Catalunya*¹[1]. The two main datasets I worked with are "*Actuacions en salvaments al medi natural dels Bombers de la Generalitat*" (identifier fsum-2k6e)[2] and "*Registre general de plans de protecció civil de Catalunya*" (identifier xqqe-tgav) [3]. The first contains detailed information about rescue actions carried out by the FD of the Generalitat de Catalunya in natural environment rescues (such as

¹For conditions of use and licenses refer to [Llicència oberta d'ús d'informació Catalunya](#).

rivers, lakes, mountains, etc.) by emergency region, county and municipality. This data is available from the year 2010 and up to date. It also provides data corresponding to dates and georeferences (longitude and latitude). This dataset is published with open access (OA) in the portal *Dades Obertes de Catalunya* and it is provided by *Departament d'Interior* and *Direcció General de Prevenció, Extinció d'Incendis i Salvaments*. There is no available information on how data was collected, but this question may be addressed by referring to *Dades Obertes de Catalunya* for any of the details. The latter contains information about the registration of CPP approved by the Generalitat de Catalunya by plan type, state (homologated, revised or updated), last modification date, municipality, county, amongst others. The first registry is dated 22/11/1990. It is worth mentioning that there are CPP that are *supra-municipal* and that those will not be taken into account, since they do not have a county assigned and the study will be carried out by counties. It also includes plans that are not related to natural environment disasters, such as RADCAT (radiology emergencies), CAMCAT (polluted water emergencies) or PLASEQCAT i PLASEQTA (exterior emergencies in the chemical industry) in the sense that they are closely related to human action; and therefore they will be filtered out. This dataset is also published in the portal *Dades Obertes de Catalunya* and provided by *Departament d'Interior*. No information on how data was collected is available but this can be addressed by referring to the portal for any details.

Lastly, a dataset relative to geometry of Catalonia counties was used within the scope of plotting data in a map. This data corresponds to an 'outdated' map of Catalonia since the map has changed in 2023 (new county Lluçanès) which corresponds to the geometry of administrative divisions of Catalonia with date 01/08/2022. This data is provided and owned by the *Institut Cartogràfic i Geològic de Catalunya (ICGC)*[4].

2. Methods

What did you do (to transform the data set into your result(s))? Also: give a link to your python code (a public github repository, or one that Josep and I are collaborators on, Chaotique and josperello.) and briefly explain how the code can be used to generate the presented results. The code should be well documented. If it helps your explanation, you can also incorporate code like this:

```
import numpy as np
import pandas as np

df = pd.read_excel("filename.xlsx") # downloaded from example.ub.edu
print(min(df.salaries))
```

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3. Results

What did you observe in the data? This could be a figure, plus an interpretation of what is seen in the figure. See example table in Table 1, or in Fig.1

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Table 1. An Example of a Table

Column head 1	Column head 2	Column head 3	Column head 4
One ^a	Two	three three	four
Three	Four	three three ^b	four

Table note
a First note
b Another table note

4. Conclusions / Discussion

Which conclusions can be drawn, probably even for policy makers? Is there any future research necessary? Would it be helpful to have more data, and if so, of which type?

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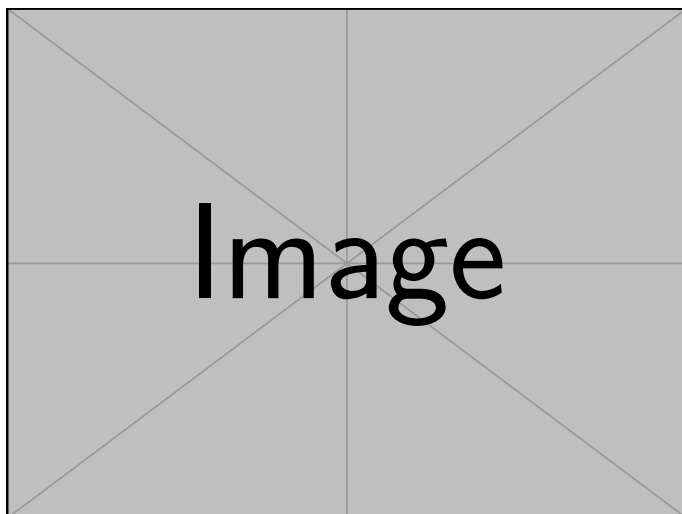


Figure 1. Insert figure caption here

References

- [1] Generalitat de Catalunya, Dades Obertes de Catalunya. https://governobert.gencat.cat/ca/dades_obertes/inici.
- [2] Actuacions en salvaments al medi natural dels Bombers de la Generalitat. <https://analisi.transparenciacatalunya.cat/Seguretat/Actuacions-en-salvaments-al-medi-natural-dels-Bomb/fsum-2k6e>.
- [3] Registre general de plans de protecció civil de Catalunya. <https://analisi.transparenciacatalunya.cat/Seguretat/Registre-general-de-plans-de-protecci-civil-de-Cat/xqqe-tgav>.
- [4] Divisions administratives, ICGC. <https://www.icgc.cat/Descarregues/Cartografia-vectorial/Divisions-administratives>.