PROJECT: Analysis of Forest Fires in Turkey (1988–2023)

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1 Abstract

The problem we have chose to inspect is investigating causes of forest fires occurred in Turkey and creating actionable insights to prevent them. The reason we have chose to study this particular problem is; data being official source that offers us years of multi-faceted content to explore and is suitable to working with the R programming language. The structure of data consists of distribution of forest fires across counties, the categorization of their causes, and the silvicultural practices employed for forest management and establishment. The data we have studied on is taken from Orman Genel Müdürlüğü official website.

2 Access to Data

You can access the relevant .RData file from the link:

Forest fires .RData file
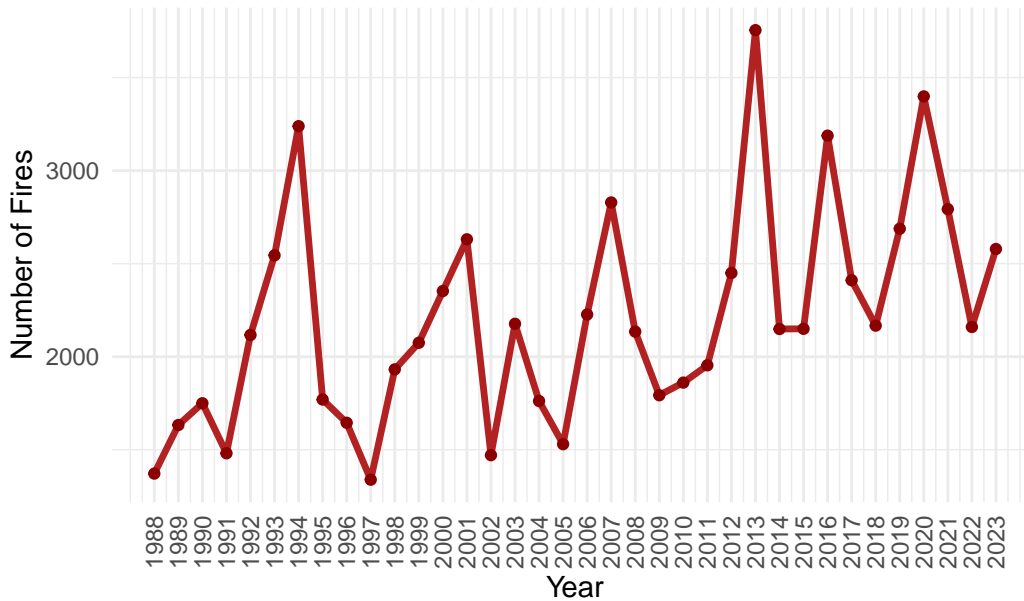
3 Description of Data

Let's take a look at the characteristics of data:
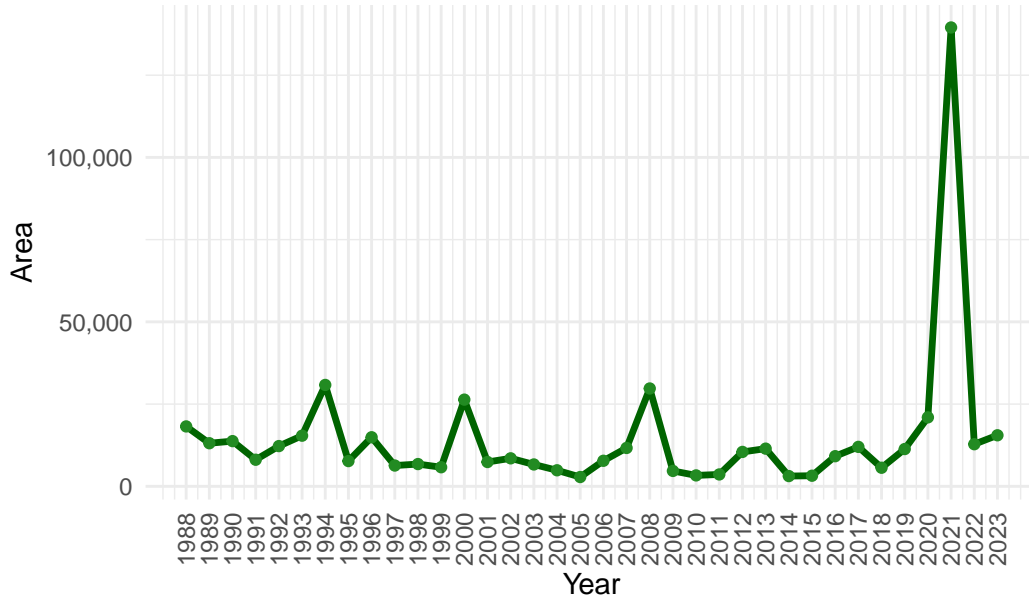
4 Preprocessing Data

The following steps were taken when transferring data to the R environment:

1. **Editing File Names:** Since Turkish characters (ç, ğ, ü, ö, ş, ı) in file names in Turkish can cause errors, the Turkish characters in the file names were converted to English characters. For example: "b?lge_mudurluklerine_sayisal_olarak_2004_2023.xlsx" file was changed to "bolge_mudurluklerine_sayisal_olarak_2004_2023.xlsx".

2. **Data Cleaning:** Irrelevant explanations, visuals and empty lines in the Excel files is deleted to make datasets easily readable and processable.

3. **Editing Column Names:** Turkish characters in the column names are replaced with English characters (such as Sehir instead of City, Bolge instead of Region). Column names are replaced with more descriptive ones. For example: Main categories of negligence, accident, and intent got more detailed according to the causes of fire and got named as: ihmal_copluk, ihmal_avcilik, kaza_trafik, kaza_energy, kaza_yangin, kaza_aniz

4. **Editing the Data Structure:** Data in the same category were brought together.

5. **Data Import:** Data was imported from the xlsx package with the `read.xlsx()` function (`encoding = "UTF-8"` was used).

Number of Forest Fires by Year

Burned Area by Year (Hectares)

Annual Distribution by Fire Causes