



Contribution ID: 69

Type: **not specified**

Statistical Model for Wildfires and the Effect of the Climate Change

Tuesday, 12 September 2023 12:05 (30 minutes)

We have created a wildfire-probability estimating system, based on publicly available data (historic wildfires, satellite images, weather data, maps). The mathematical model is rather simple: kriging, logistic regression and the bootstrap are its main tools, but the computational complexity is substantial, and the data analysis is challenging.

It has a wide range of applications. Here we show a very interesting one: based on our model and the available possible climate change scenarios, we are able to estimate the possible damage caused by wildfires for a given region in the future. This is based on skilful simulation from the possible weather patterns and the database of known historic wildfires in the region and on some simplifications (e.g. there are no changes in cities, roads, costs).

The methods are illustrated for South American regions, using different climate models. We hope that the results may contribute to the climate change awareness and we plan to use it for European regions as well.

Keywords

wildfire, climate risk

Classification

Mainly application

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Session Classification: INVITED South American

Track Classification: Environment