

Study on global Covid19 data with Ecodep

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Introduction

The EcoDep project aims to bring together researchers to answer questions about the environment. Our mission with EcoDep is to try to find a model that is close to the real data so that we can predict an improvement in the health crisis or a deterioration? Indeed, with just over 4.59 million deaths worldwide due to Covid19, many researchers are trying to explain and understand this disease to better treat it.

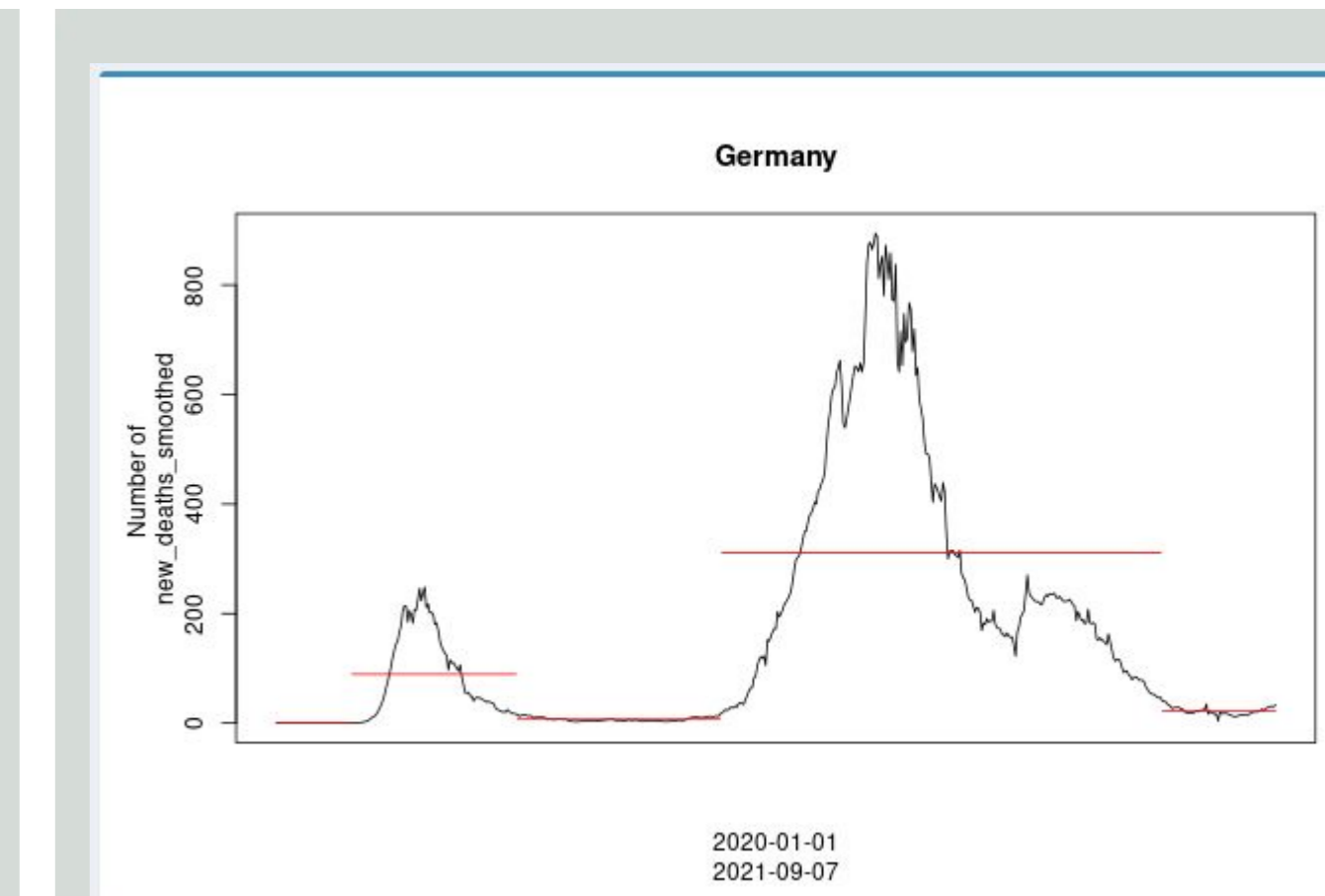
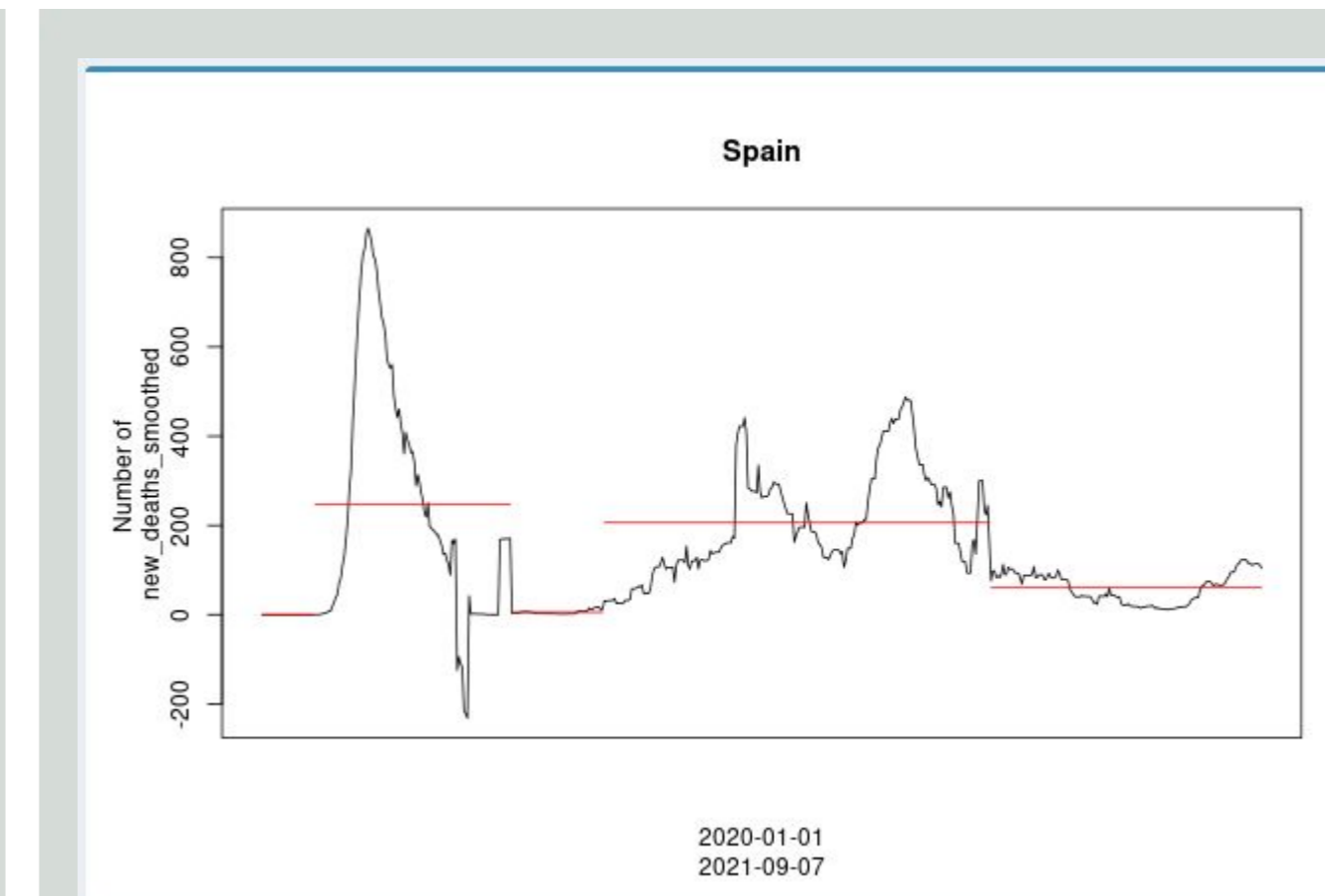
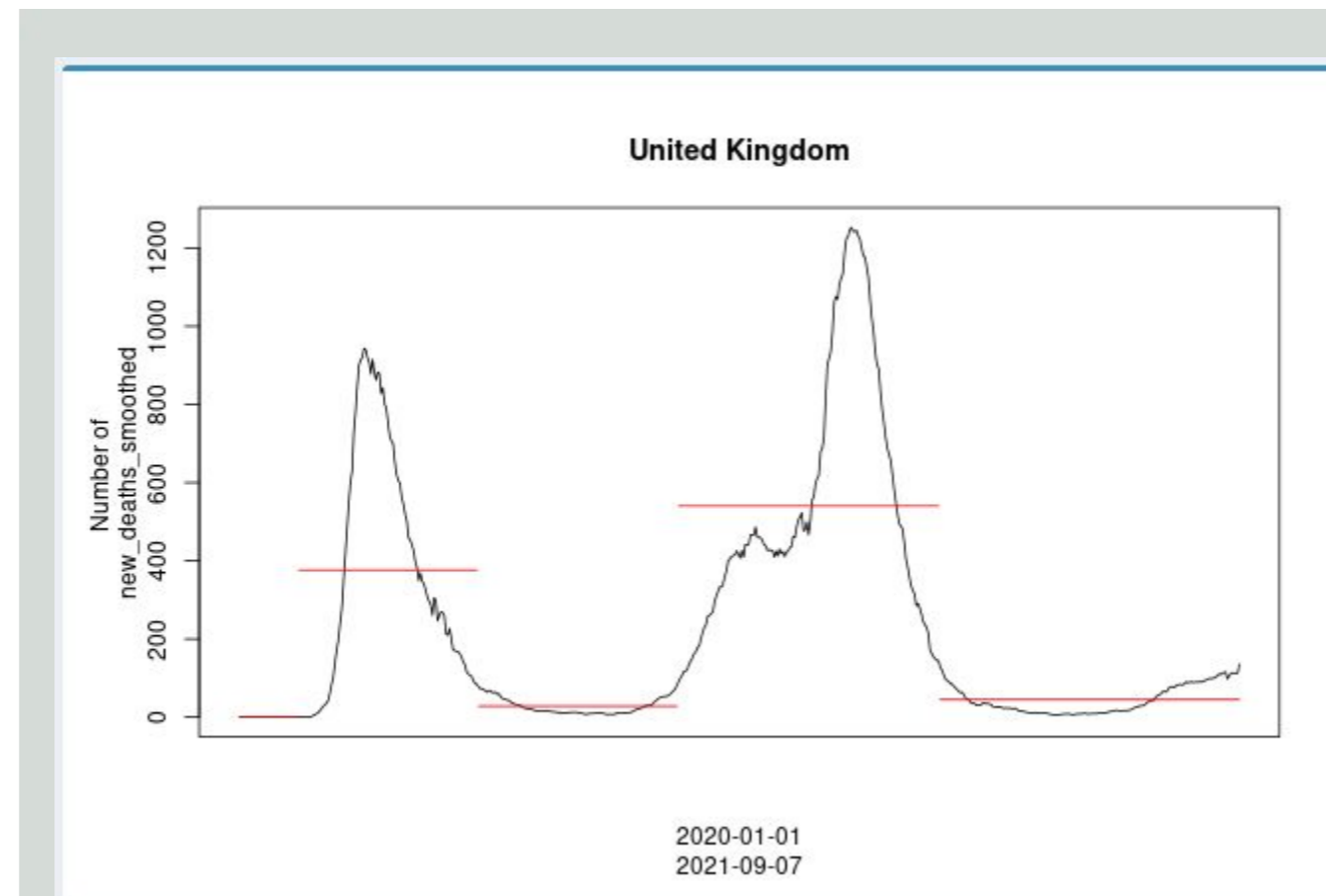
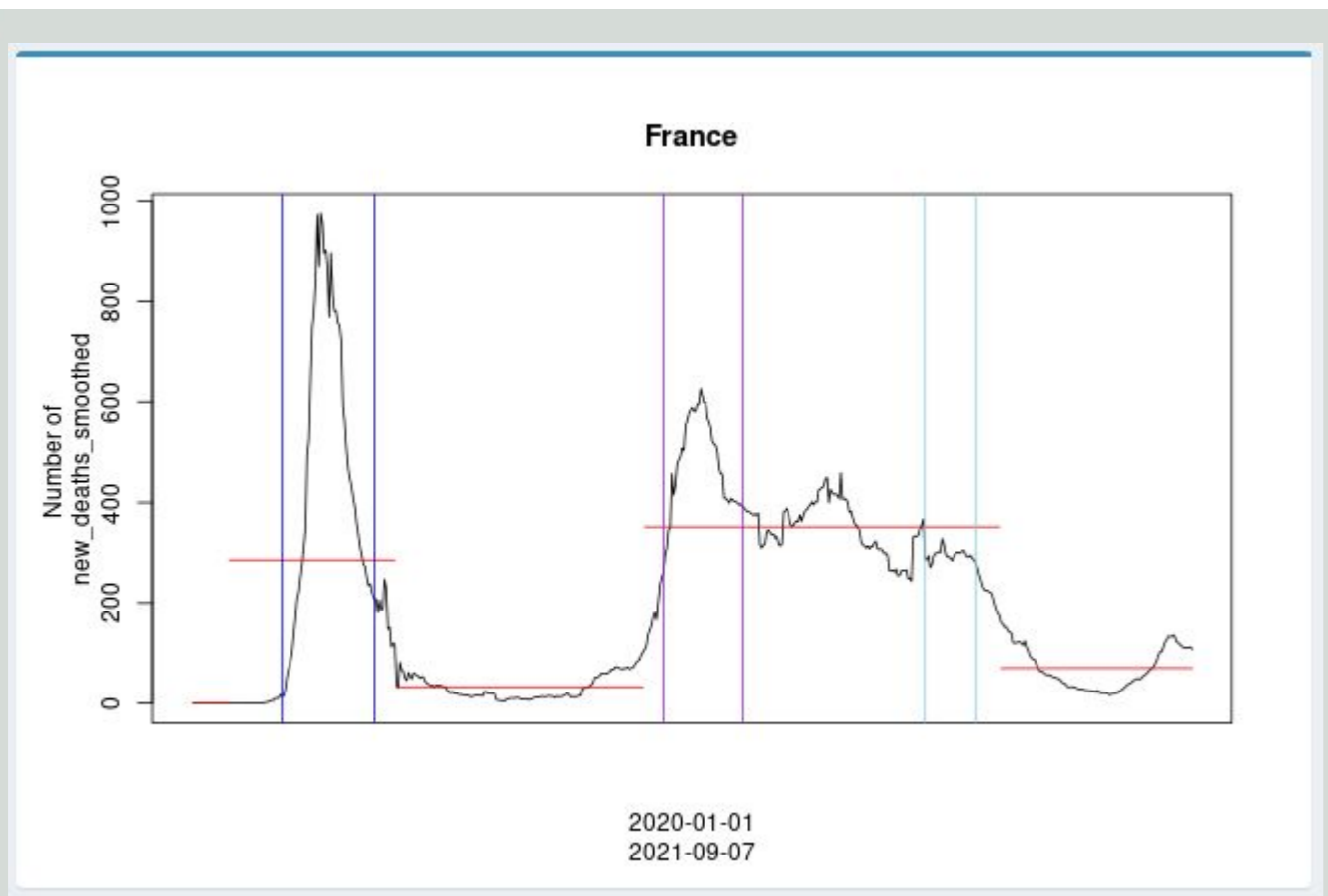
Data

Covid19 Data : Set up by "Our World in Data". Covid-19 data contains more than 115 000 observations (data updated daily) and 62 variables. For our analysis, we used only 7 variables which are : Location, Date, Total cases, New cases Smoothed, New deaths smoothed, Total cases per million, Total Vaccinations.

Vaccine data in France : Set up by Santé Publique France. The data on vaccines in France includes nearly 1200 observations (data updated daily) and 6 variables which are : Type of vaccin, Day, number of dose 1, number of dose 2, cumulative number of doses 1, cumulative number of doses 2

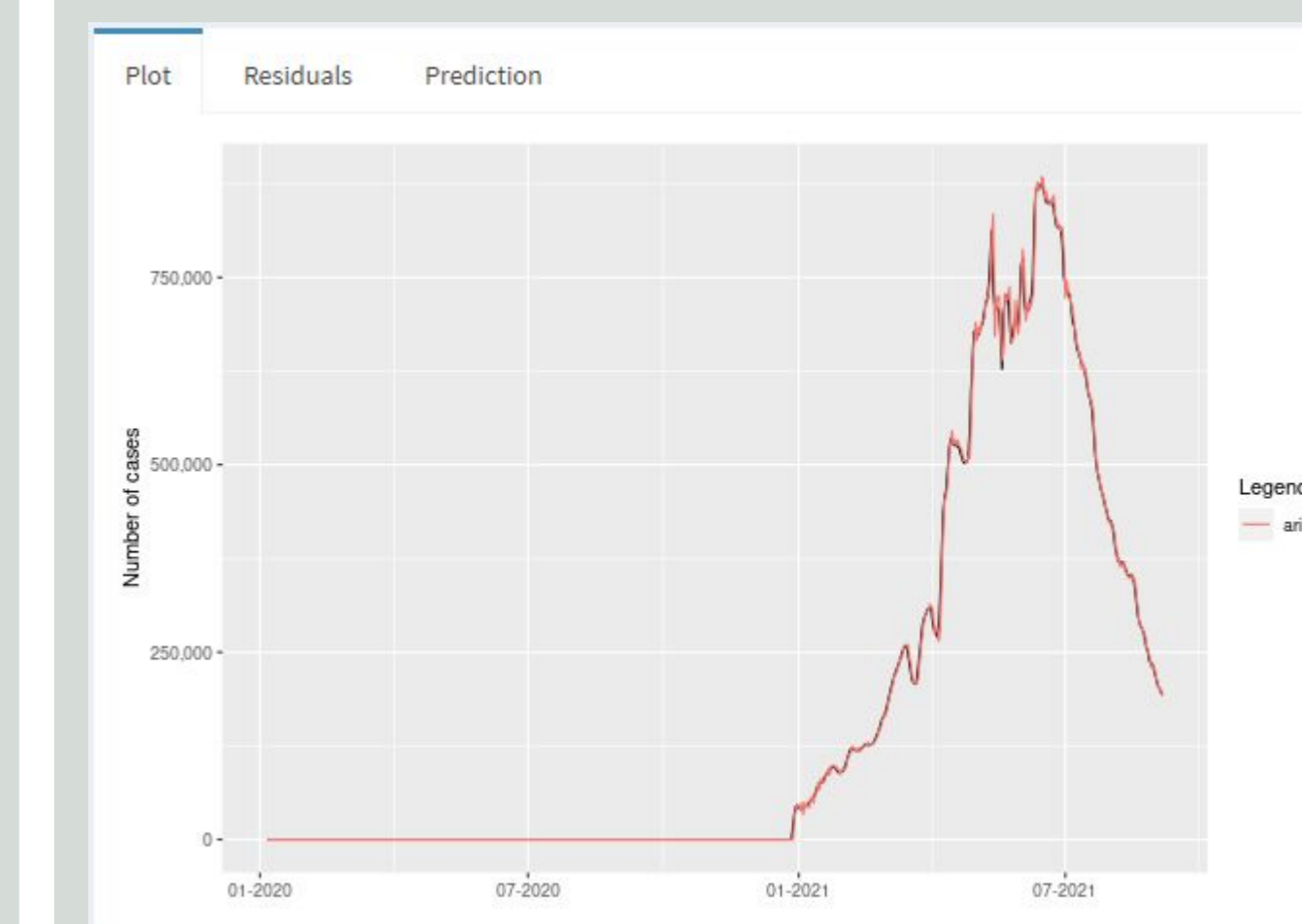
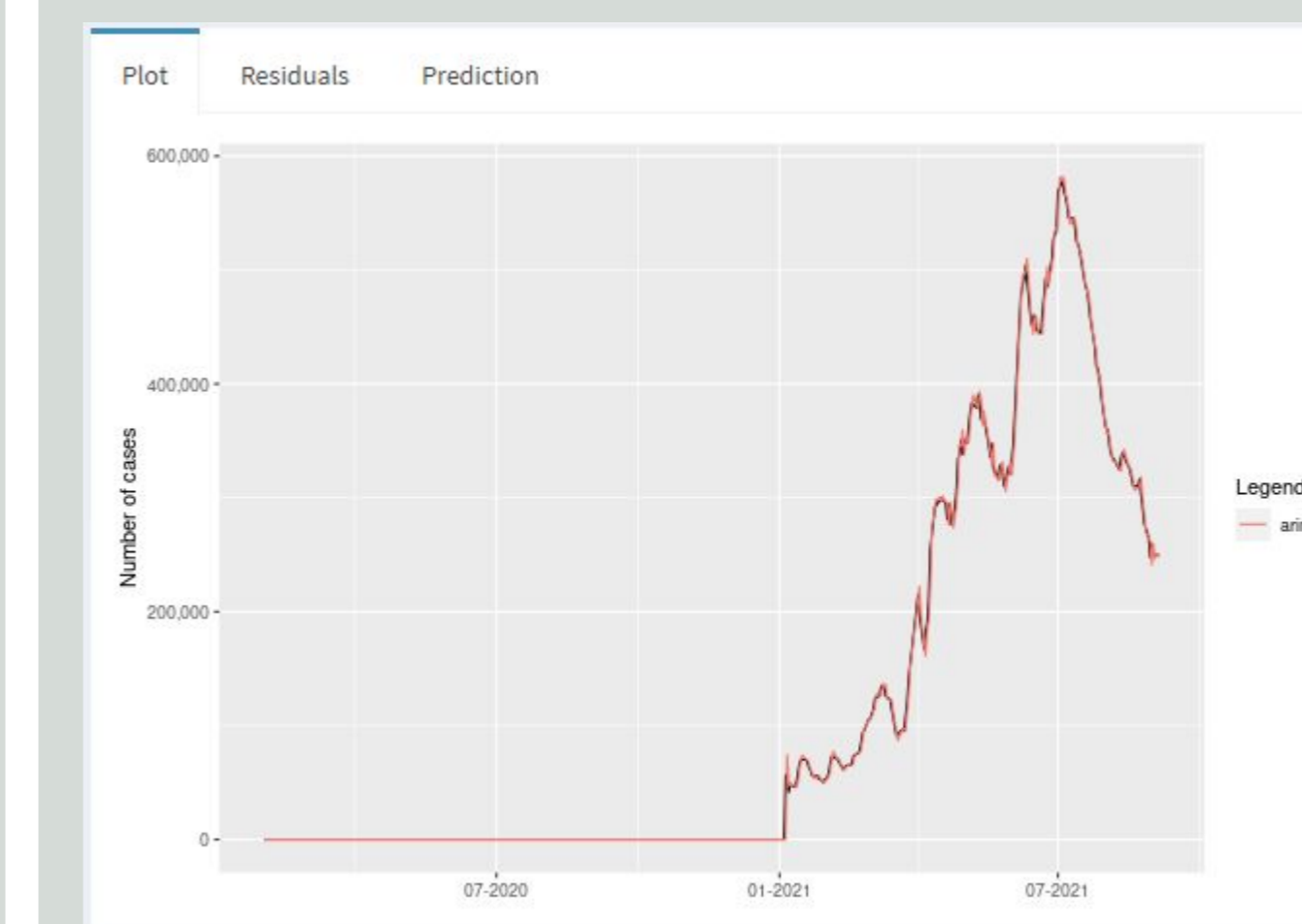
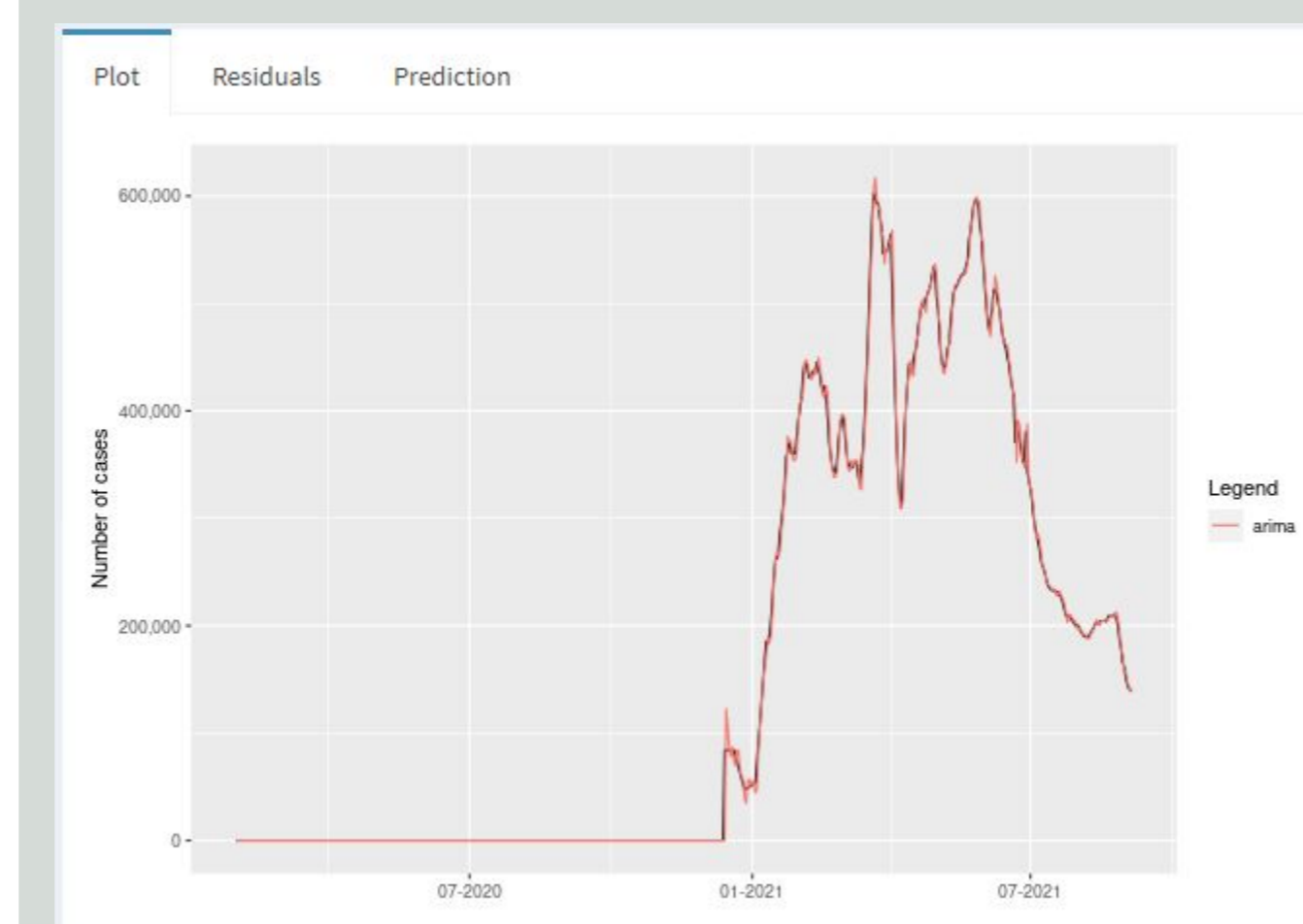
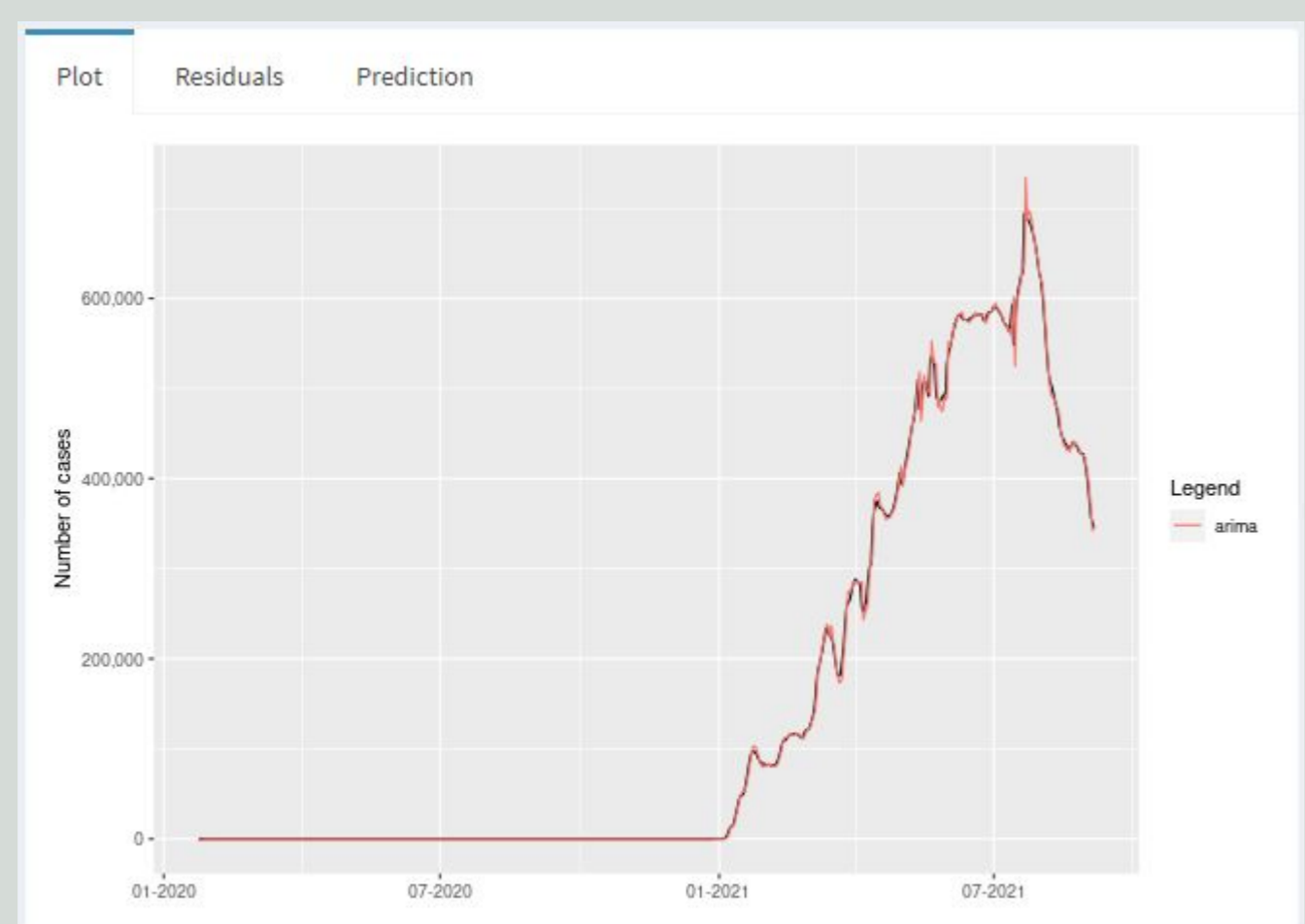
Segmentation

In order to observe the different variations in the new deaths smoothed data for each country, we used the segmentation.



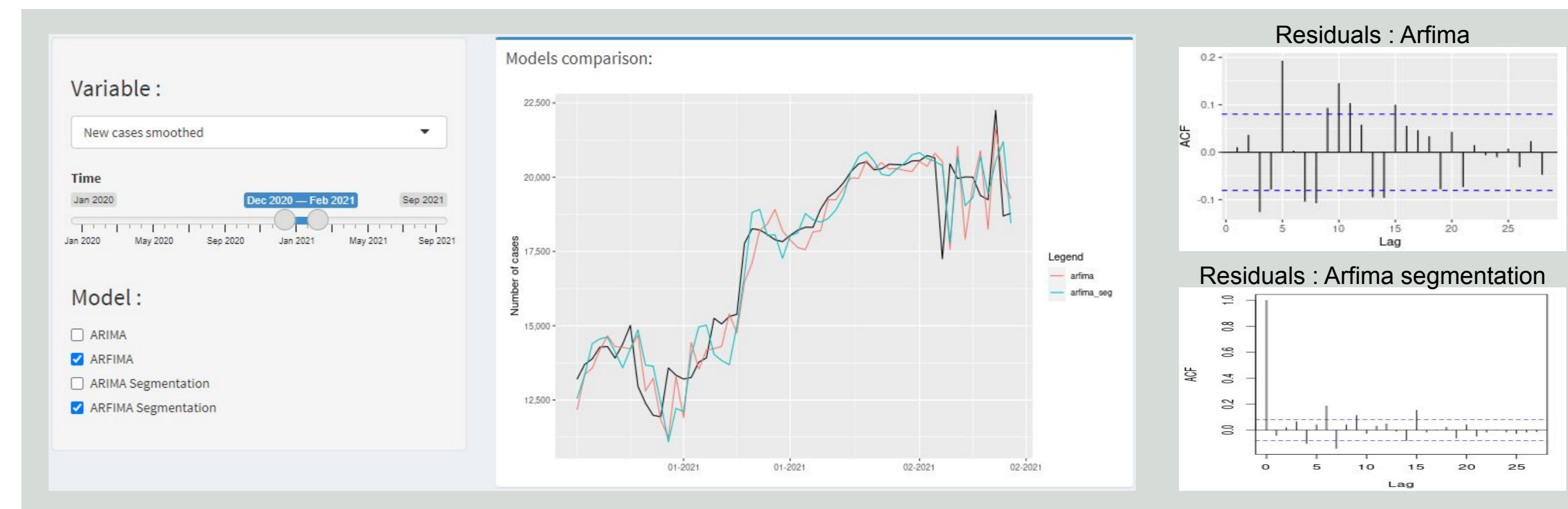
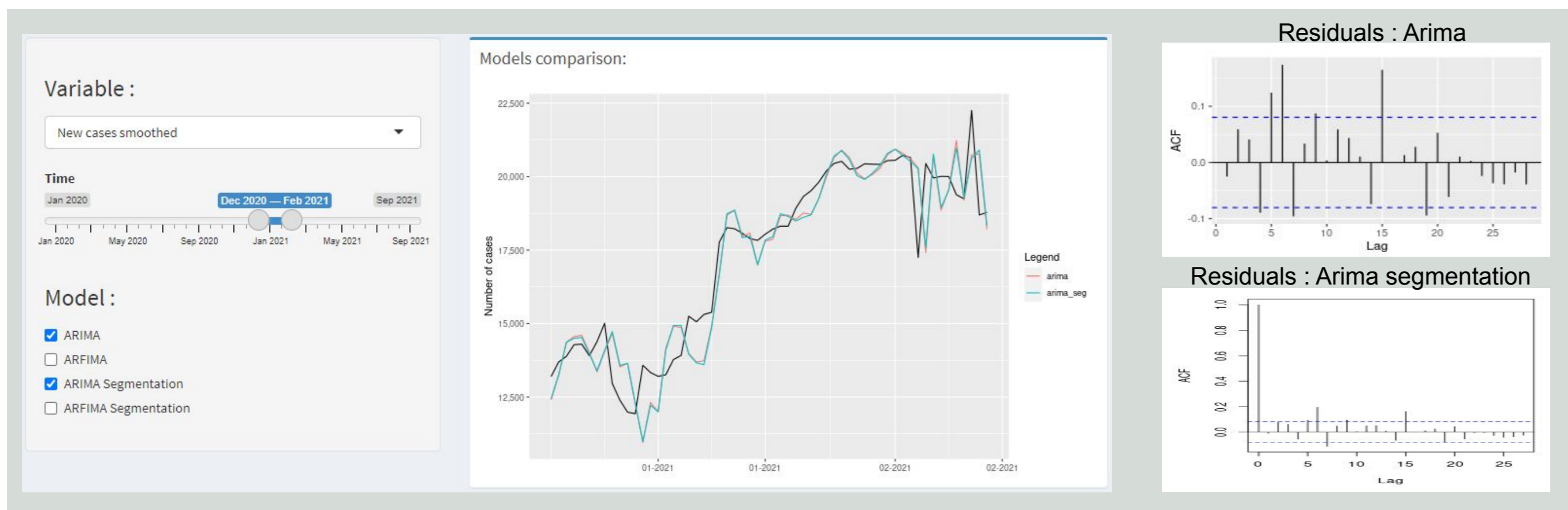
Vaccinations

We have represented the vaccinations of the different countries with the Arima model



Models comparison

Comparing the different models, we can see that segmentation allows us to be closer to the real data



Conclusion

The aim of this project is to find the best model to predict the next days' data. For example, on 9 September 2021, there were 116,429 new deaths, while our arima model predicted :

Point Forecast	Lo 80	Hi 80	Lo 95	Hi 95
112.89	91.41	134.37	80.04	145.74