

# Covid19 Report

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## 1 The *CRISTINA* project

This report is part of a research project “**CoRona vIrus SpaTial aNAlysis**” (*CRISTINA*) which examines the time series progress of COVID-19 events in 177 countries of the world.

## 2 Greece

A series of visualizations for the progress of COVID-19 for **Greece**. We use absolute numbering scale and logarithmic scale to visualize the progress of “*confirmed cases*”, “*deaths*” and “*recovered cases*”. We also indicate the goverment interventions as dots on top of each line.

2.1 Confirmed Cases

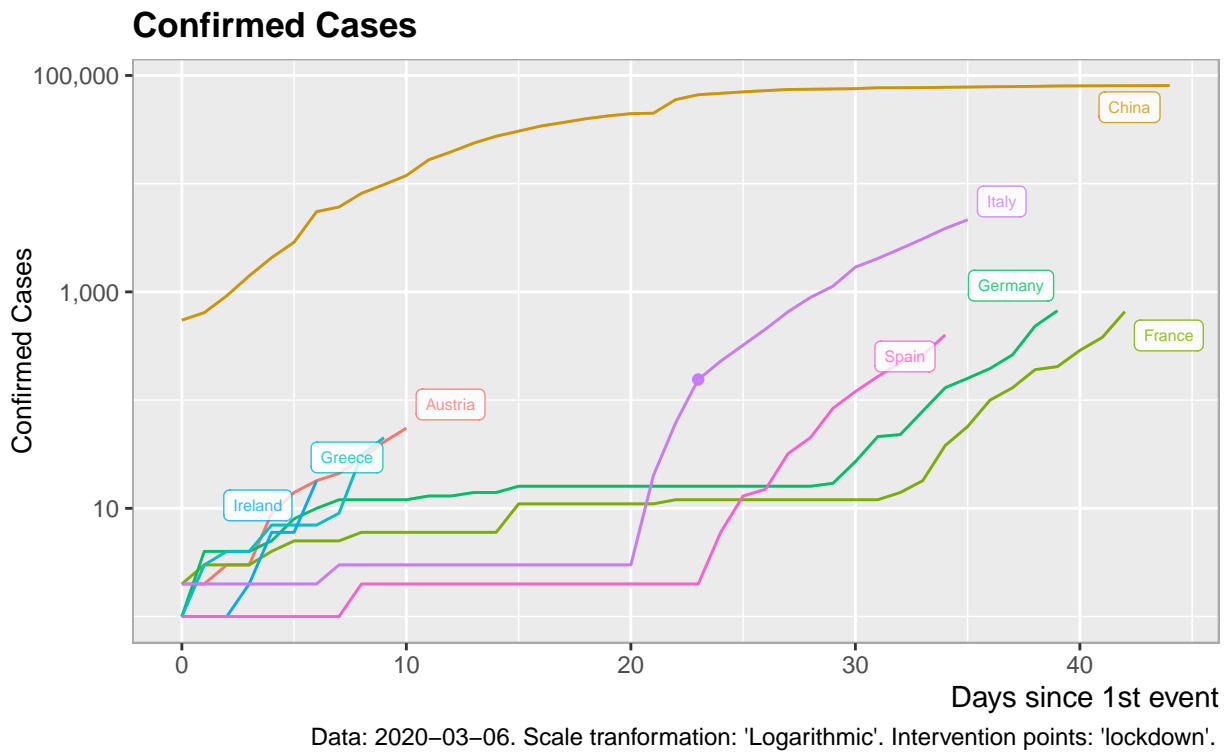


Figure 1: Confirmed Cases

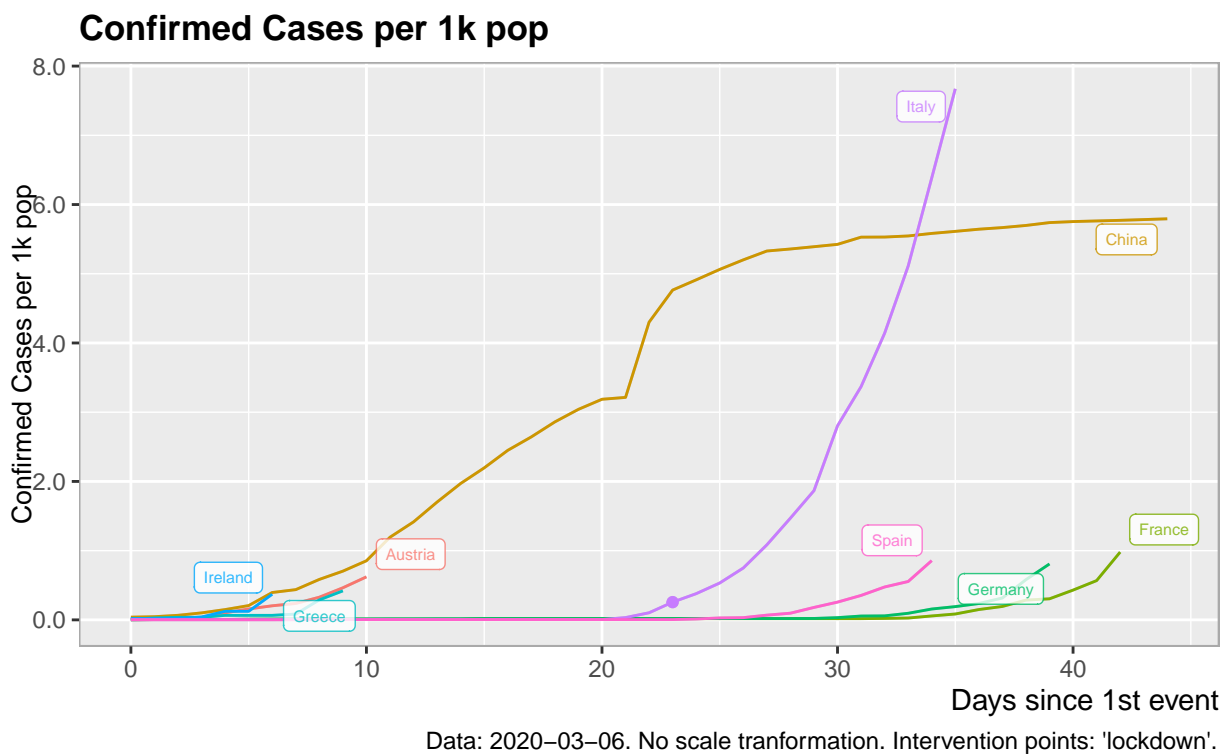


Figure 2: Confirmed Cases by 1000 population

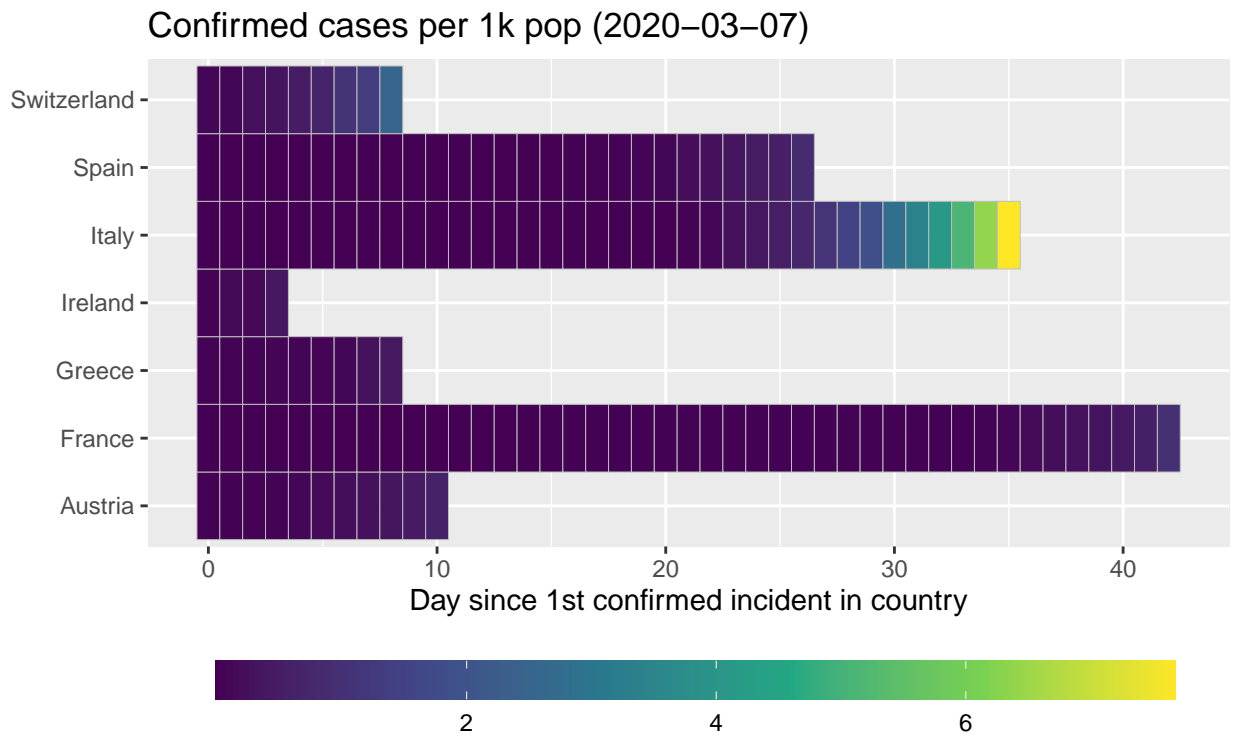


Figure 3: Confirmed Cases by 1000 population

2.2 Deaths

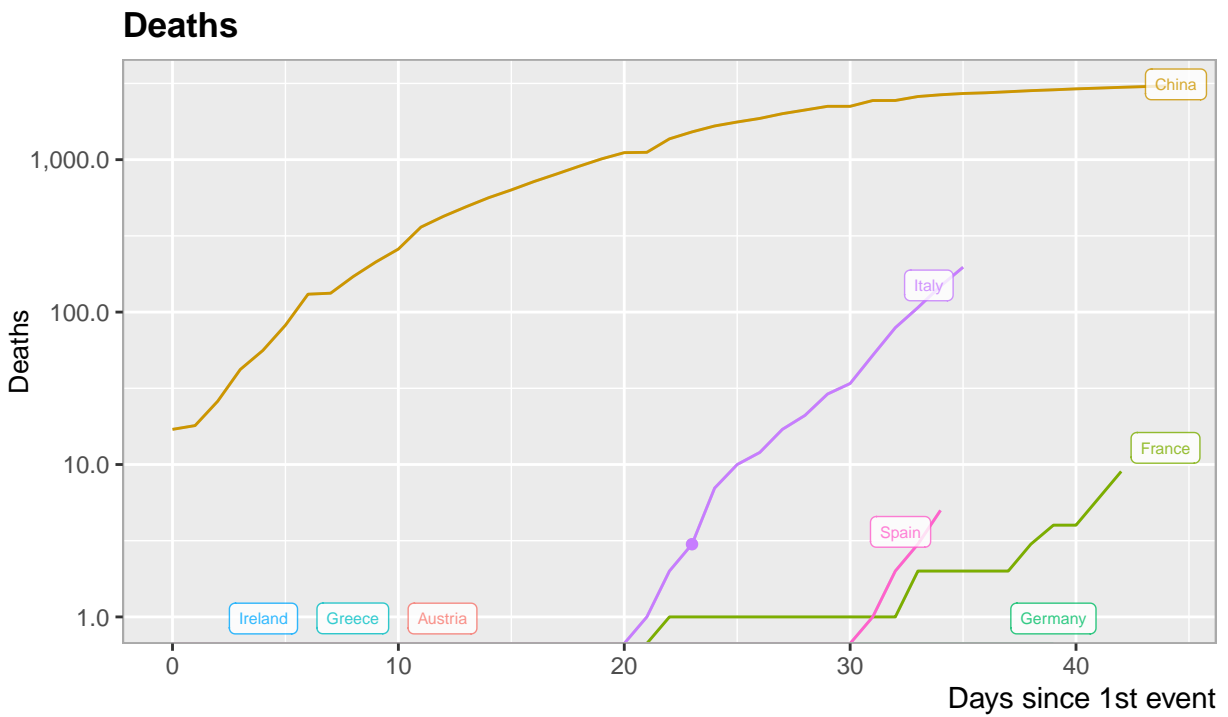


Figure 4: Number of deaths by country

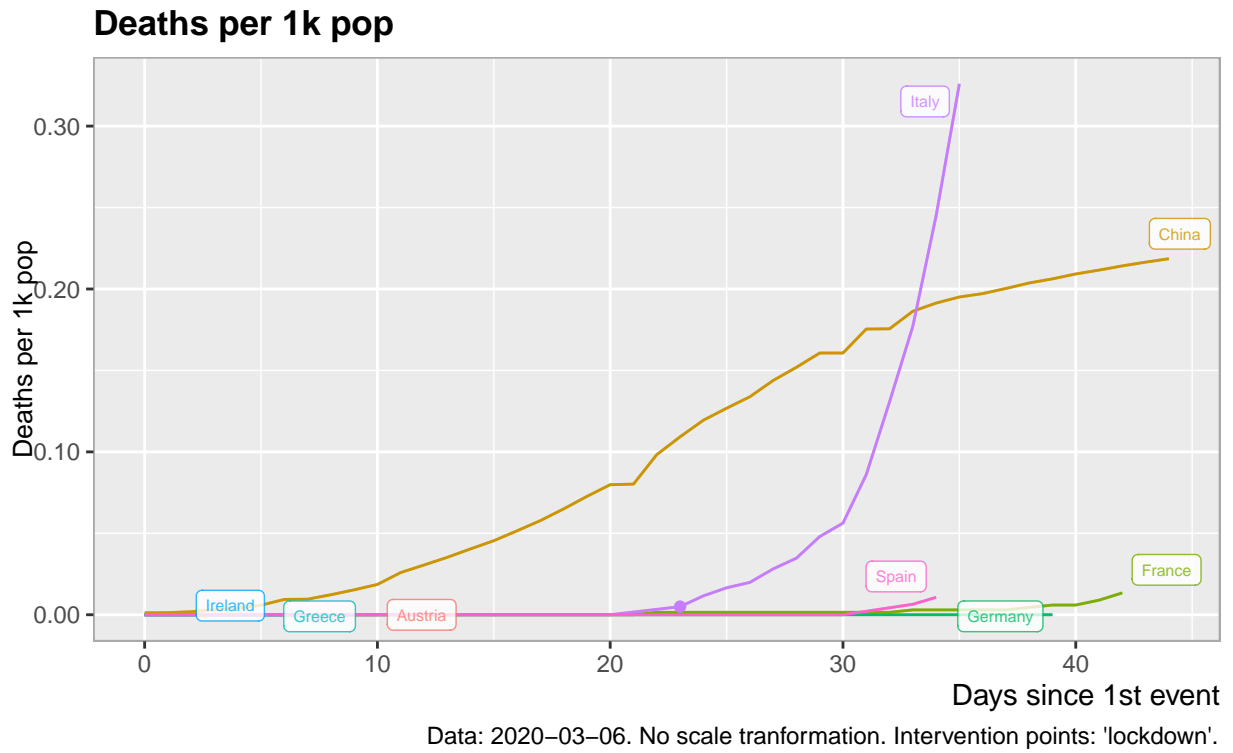


Figure 5: Deaths by 1000 population

### 3 Rate of change over time

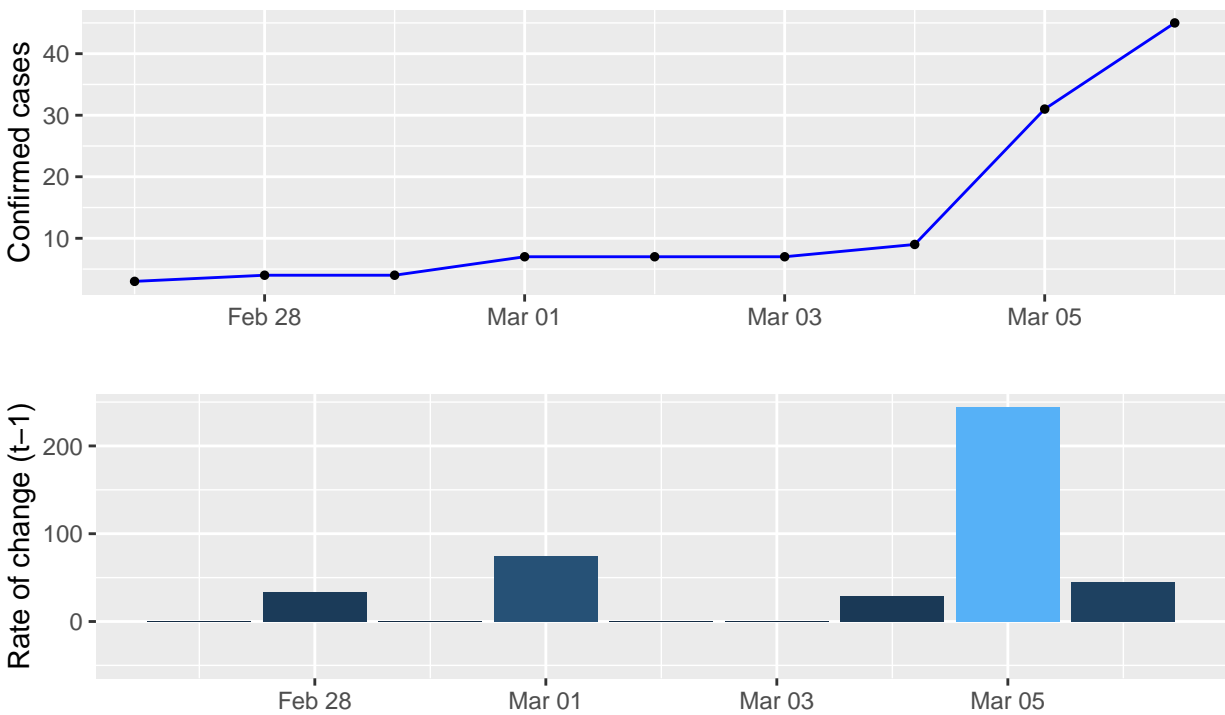


Figure 6: Rate of change of confirmed cases

## 4 Estimations

We estimate the future projection of *confirmed cases* for the next 5 days in Greece with two methods.

### 4.1 ARIMA projection

#### Projection of 'confirmed' cases for 5 ahead

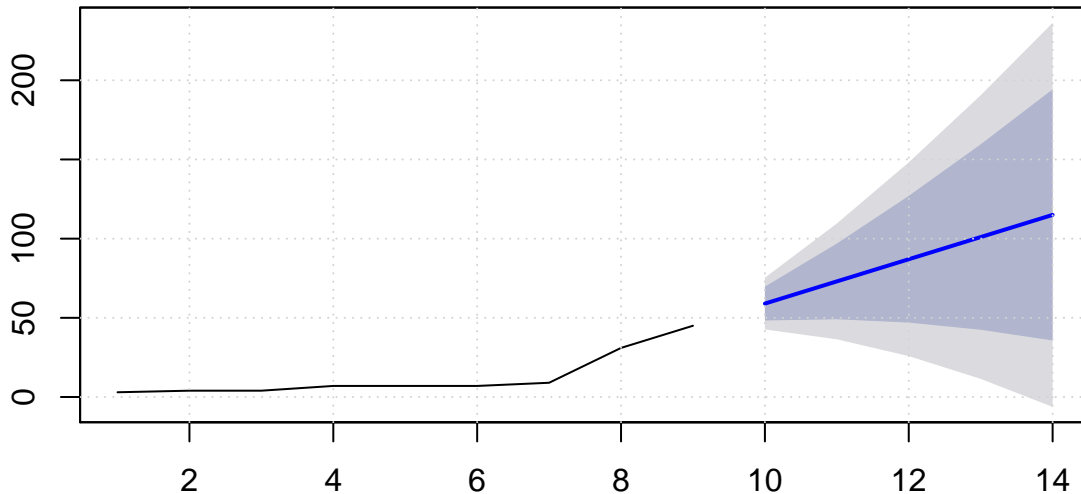


Figure 7: ARIMA projection

Table 1: ARIMA of 'confirmed cases' for 5 days ahead

	Estimation	Confidence 95% (Low)	Confidence 95% (High)
<b>t+1 (2020-03-07)</b>	59	42.65	75.35
<b>t+2 (2020-03-08)</b>	73	36.44	109.6
<b>t+3 (2020-03-09)</b>	87	25.83	148.2
<b>t+4 (2020-03-10)</b>	101	11.46	190.5
<b>t+5 (2020-03-11)</b>	115	-6.24	236.2

- We cannot estimate the detection percentage yet. We need more data.
- With data up to 2020-03-06 in Greece we have 45 confirmed cases and 0 deaths.
- Estimated doubling time (based on 5 days time window) is approximately 1.3 days

## 4.2 PROPHET projection

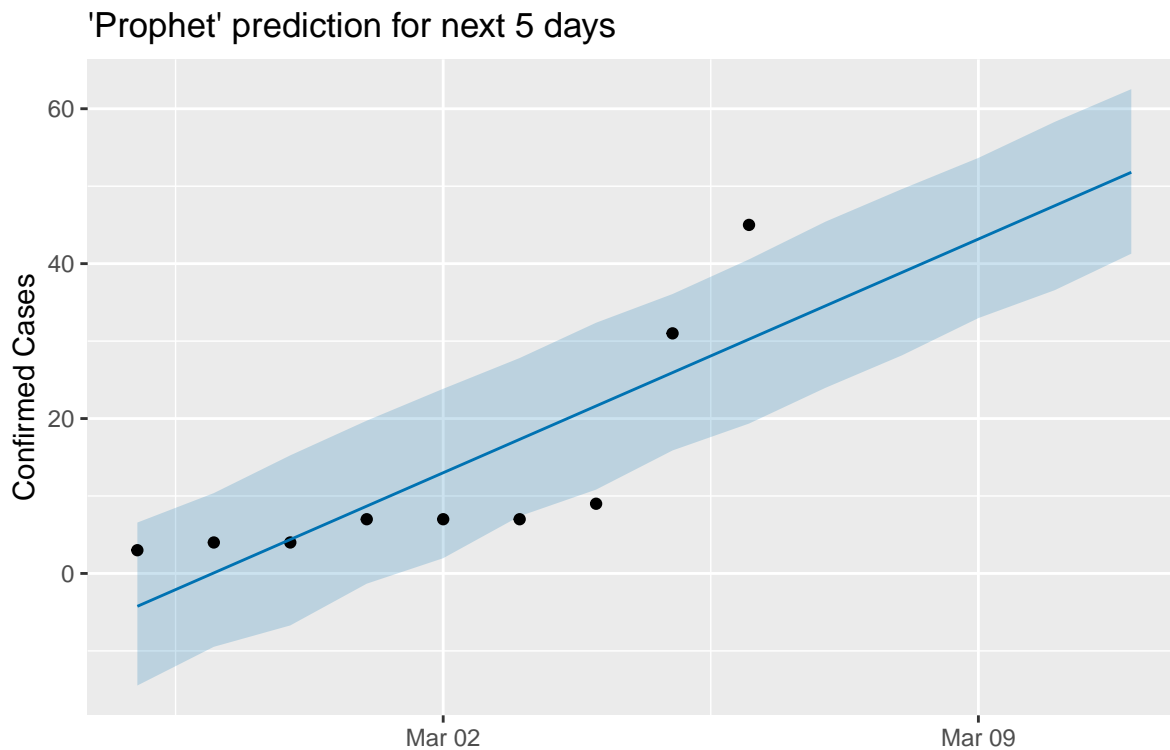


Figure 8: PROPHET Projection of confirmed cases over the next 5 days for Greece

Table 2: PROPHET of 'confirmed cases' for 5 days ahead for Greece

	Future_Date	Estimation	Confidence 95% (Low)	Confidence 95% (High)
<b>t+1</b>	2020-03-07	34.55	23.97	45.42
<b>t+2</b>	2020-03-08	38.86	28.16	49.63
<b>t+3</b>	2020-03-09	43.17	32.97	53.65
<b>t+4</b>	2020-03-10	47.48	36.58	58.31
<b>t+5</b>	2020-03-11	51.79	41.29	62.53