

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

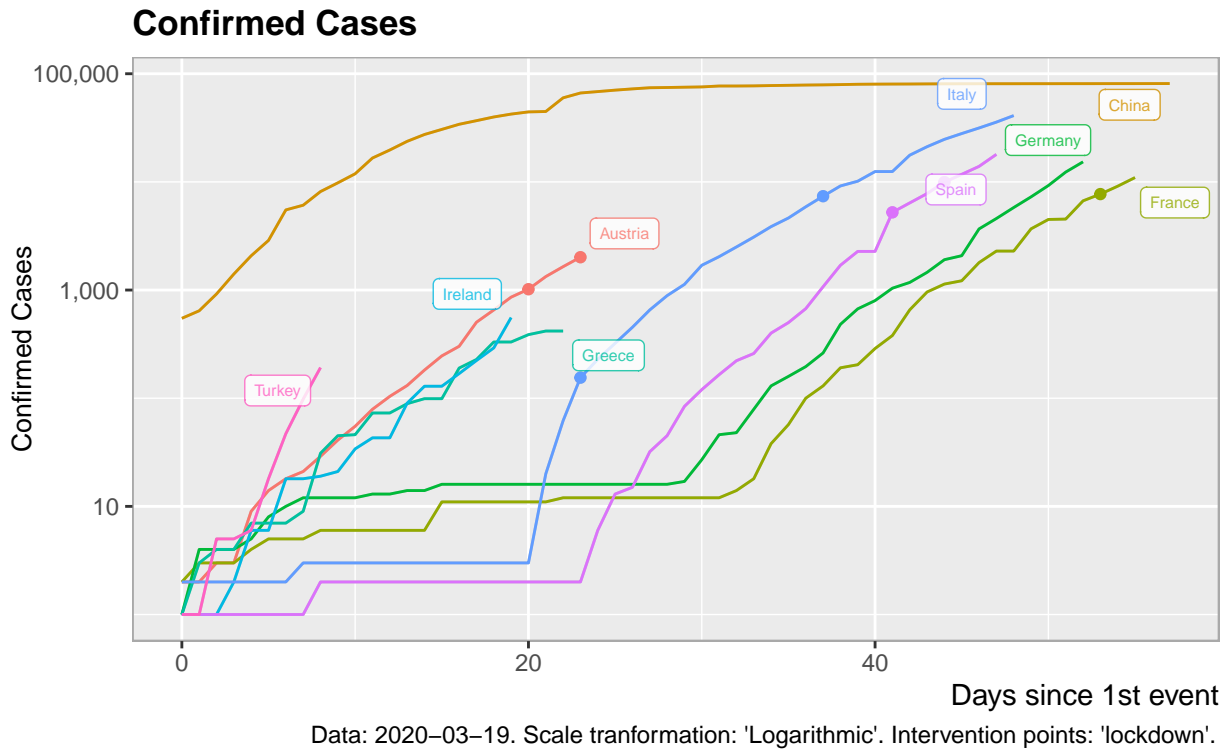


Figure 1: Confirmed Cases

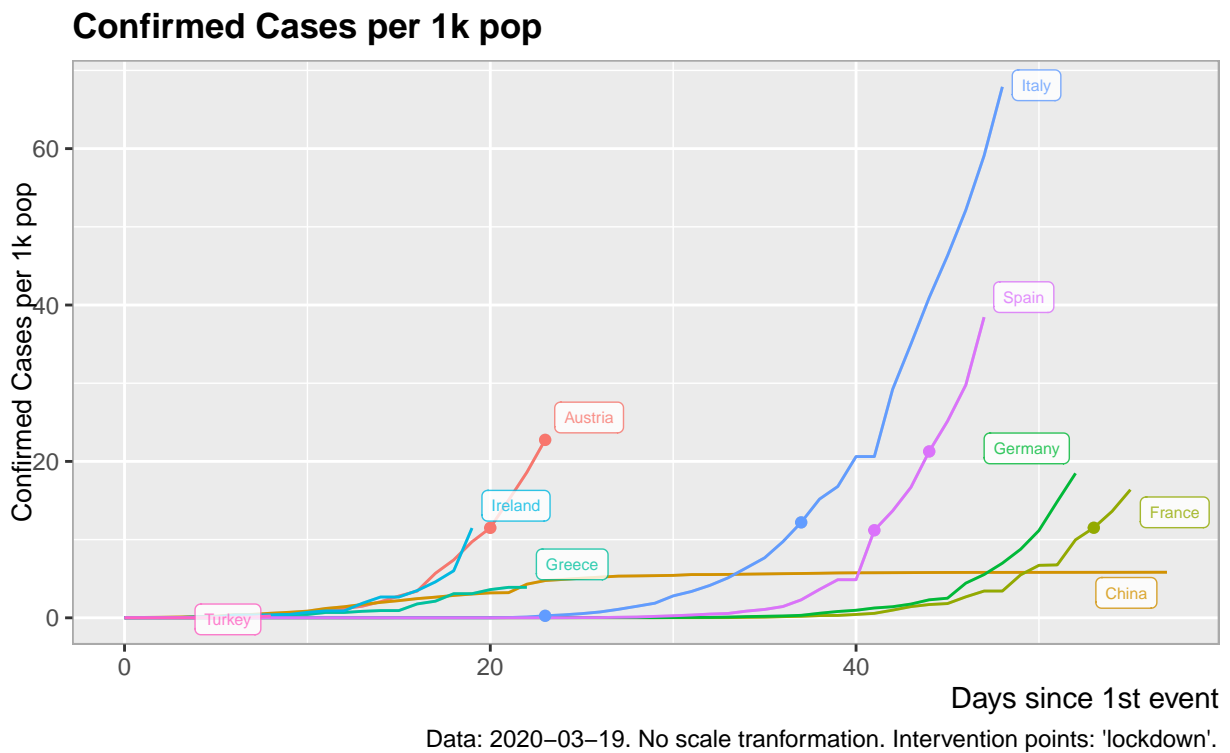


Figure 2: Confirmed Cases by 1000 population

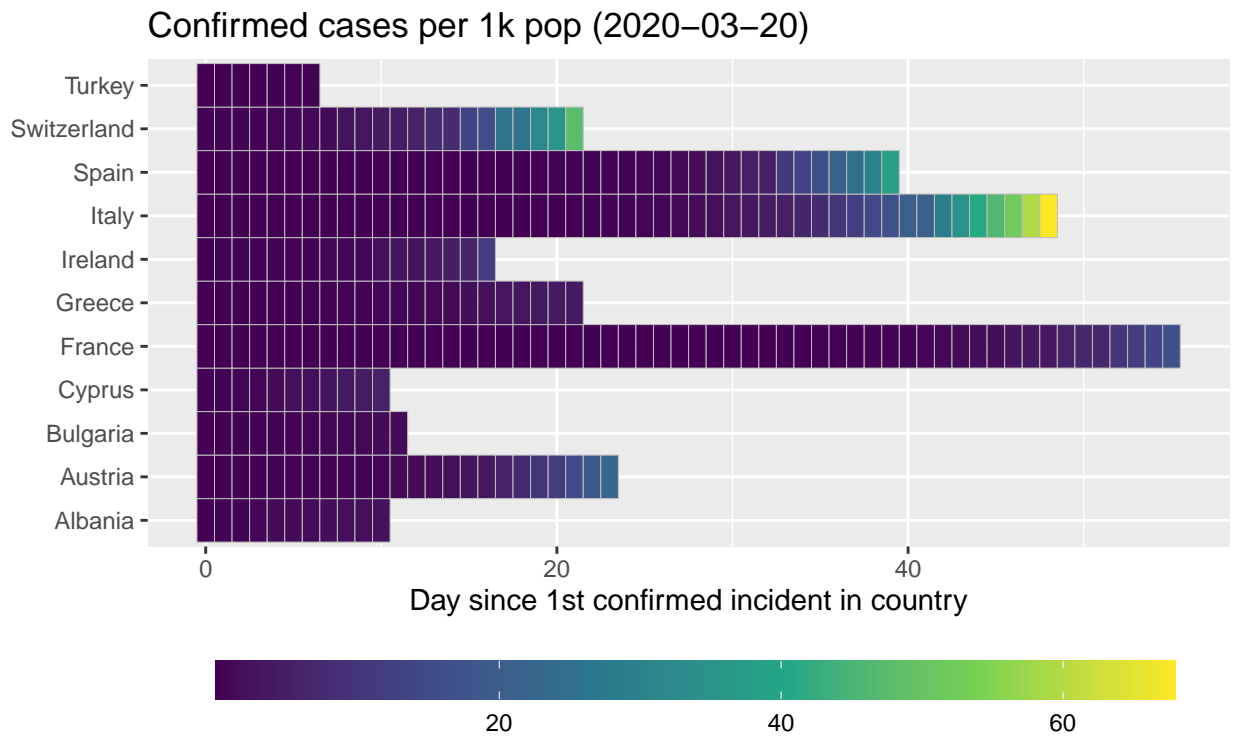


Figure 3: Confirmed Cases by 1000 population

2.2 Deaths

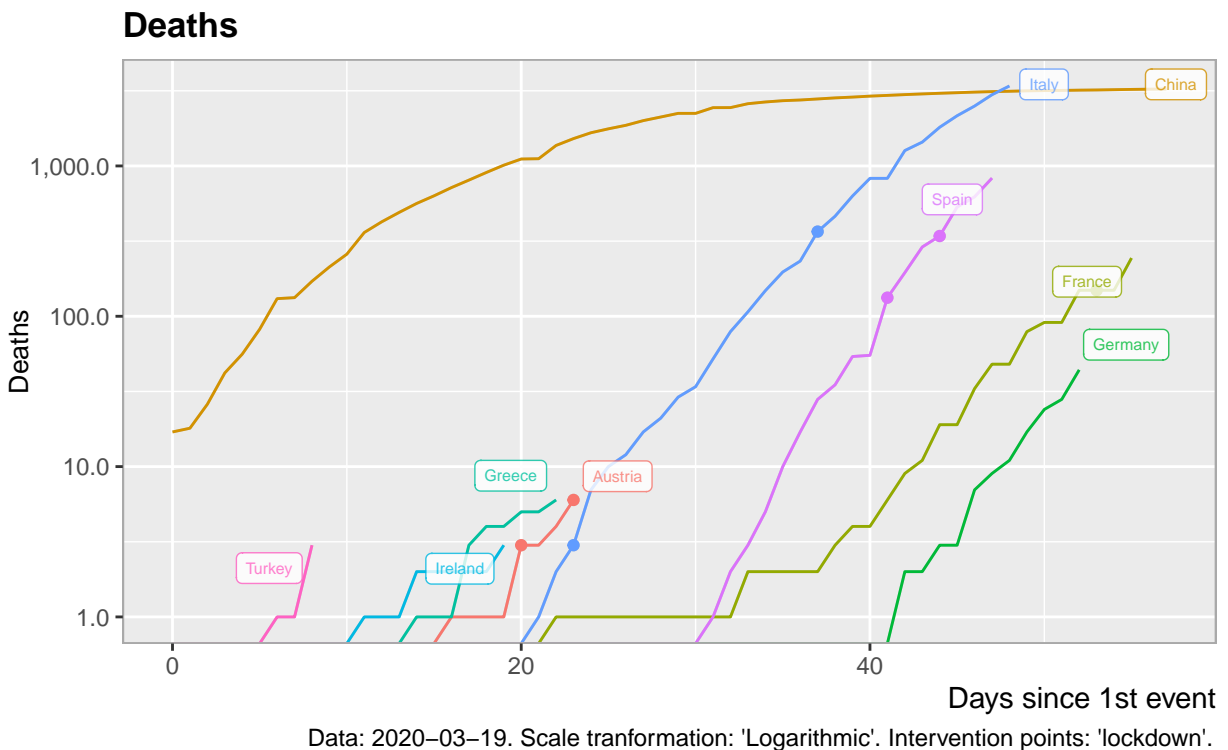


Figure 4: Number of deaths by country

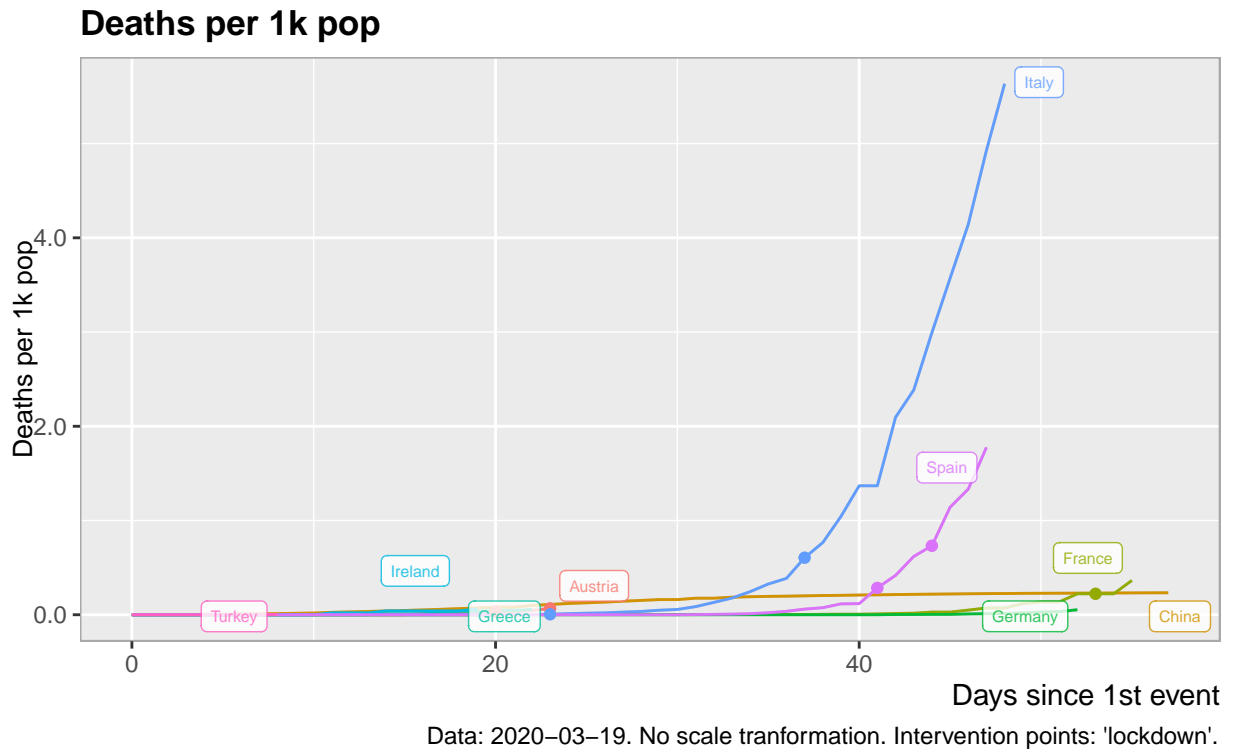


Figure 5: Deaths by 1000 population

3 Rate of change over time

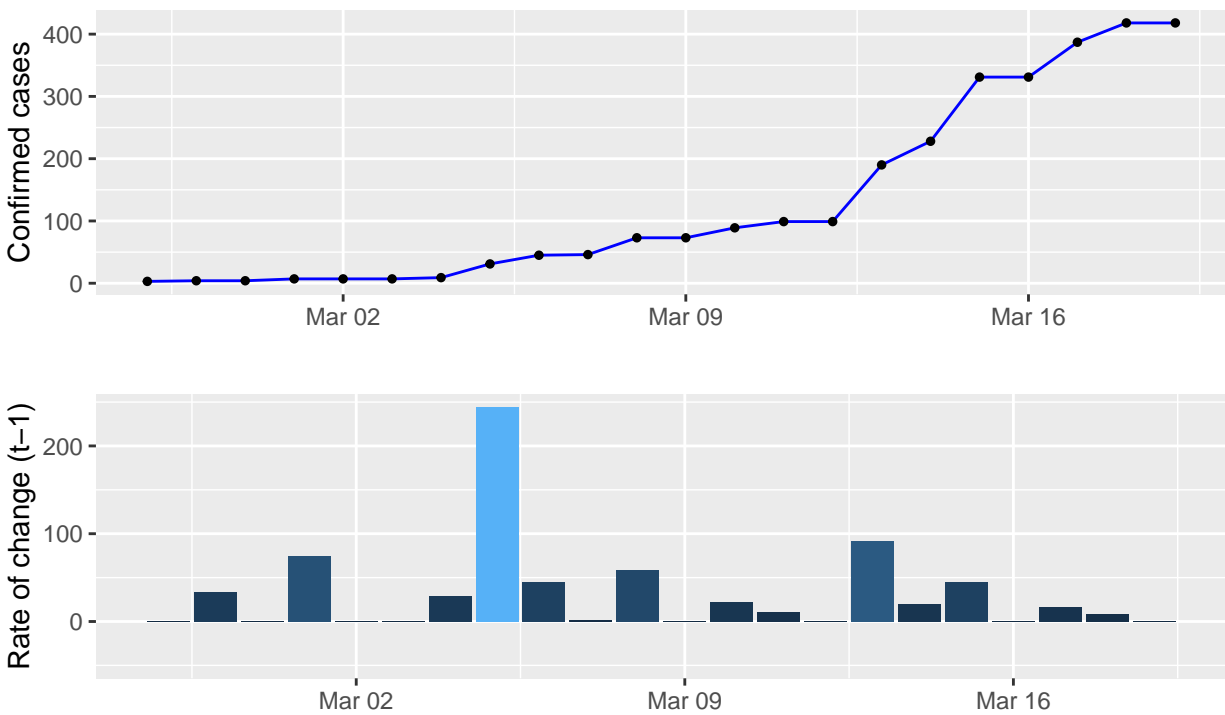


Figure 6: Rate of change of confirmed cases

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

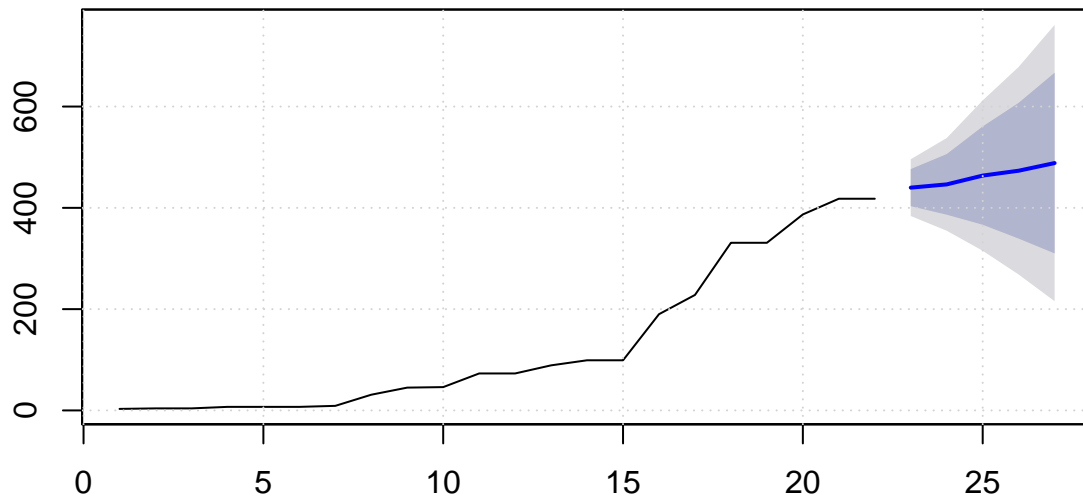


Figure 7: ARIMA projection

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

	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1 (2020-03-20)	439.9	383.9	495.9
t+2 (2020-03-21)	446.3	354.8	537.9
t+3 (2020-03-22)	463.7	315.3	612.1
t+4 (2020-03-23)	473.3	268.3	678.3
t+5 (2020-03-24)	488.4	215.6	761.3

- We cannot estimate the detection percentage yet. We need more data.
- With data up to 2020-03-19 in Greece we have 418 confirmed cases and 6 deaths.
- Estimated doubling time (based on 5 days time window) is approximately 9.9 days

4.2 PROPHET projection

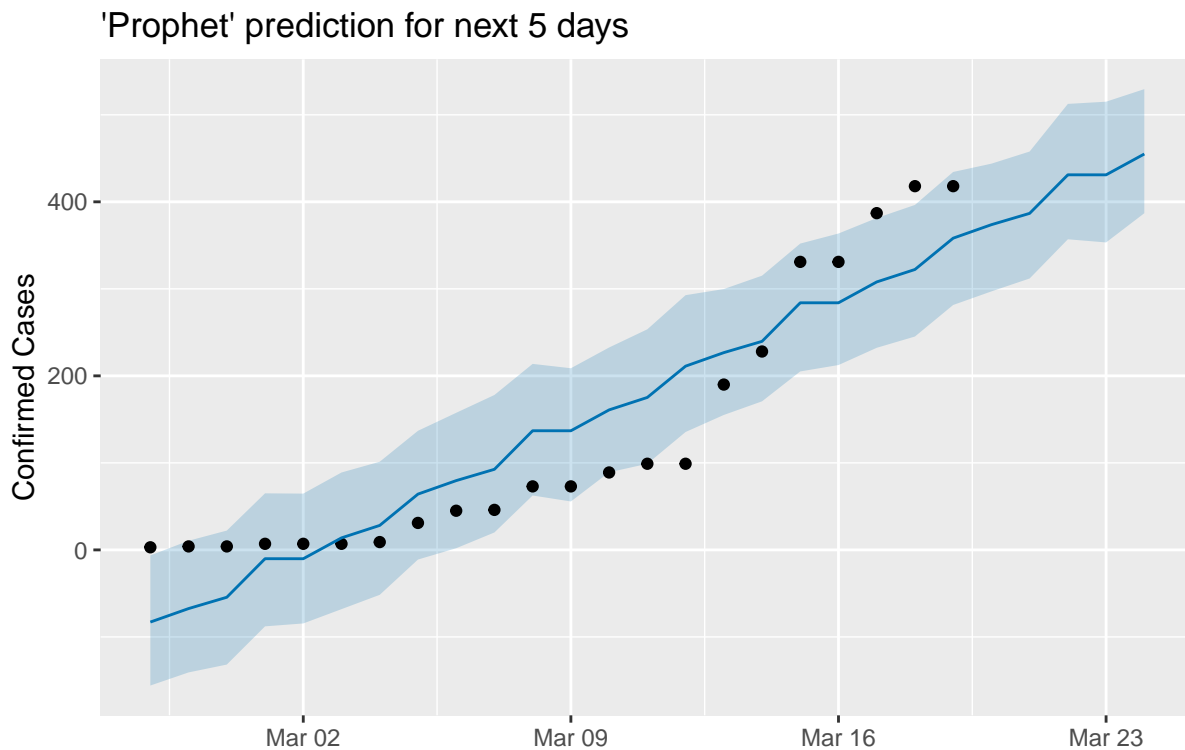


Figure 8: PROPHET Projection of confirmed cases over the next 5 days for Greece

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

	Future_Date	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1	2020-03-20	373.7	297	443.8
t+2	2020-03-21	386.7	311.9	457.8
t+3	2020-03-22	431	356.9	512.5
t+4	2020-03-23	431	353.3	515.1
t+5	2020-03-24	455	386.9	529.5