

Covid19 Report

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Contents

1	The <i>CRISTINA</i> project	1
2	Greece	1
2.1	Confirmed Cases	2
2.2	Deaths	3
3	Rate of change over time	4
4	Estimations	5
4.1	ARIMA projection	5
4.2	PROPHET projection	6

1 The *CRISTINA* project

This report is part of a research project “**Co**Rona vIrus **Spa**Tial **aNA**lysis” (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

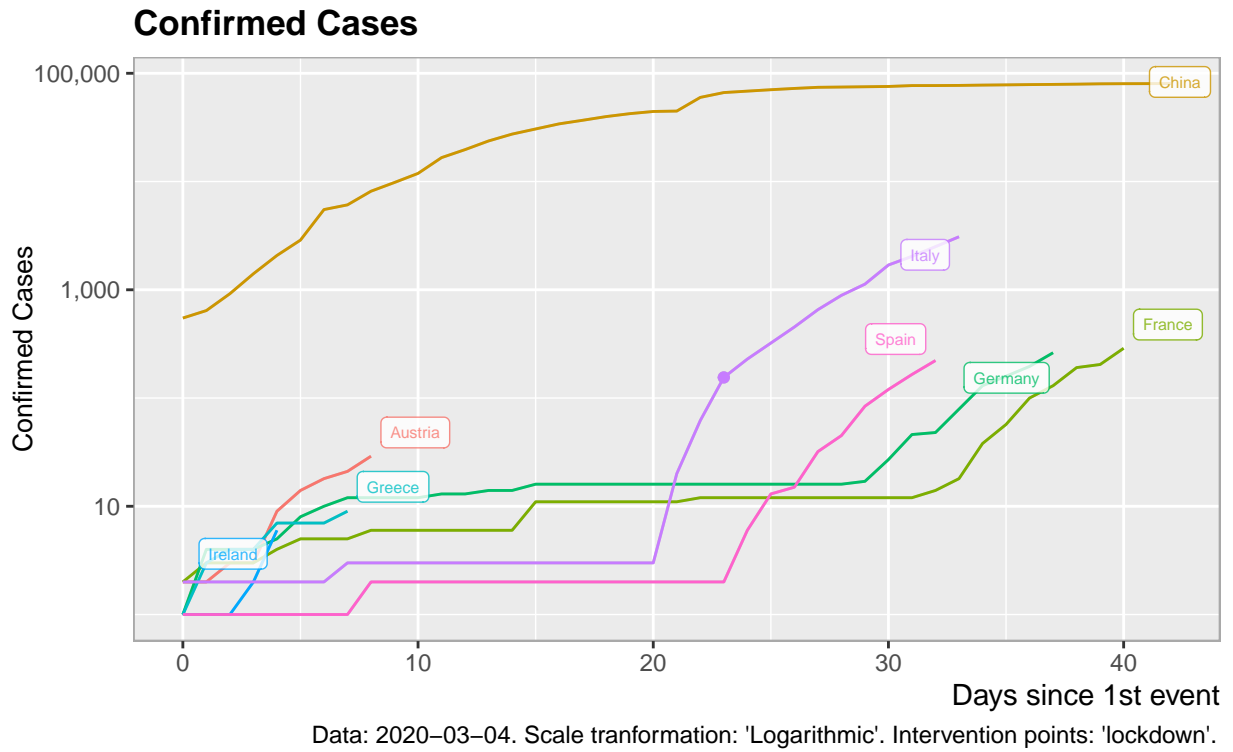


Figure 1: Confirmed Cases

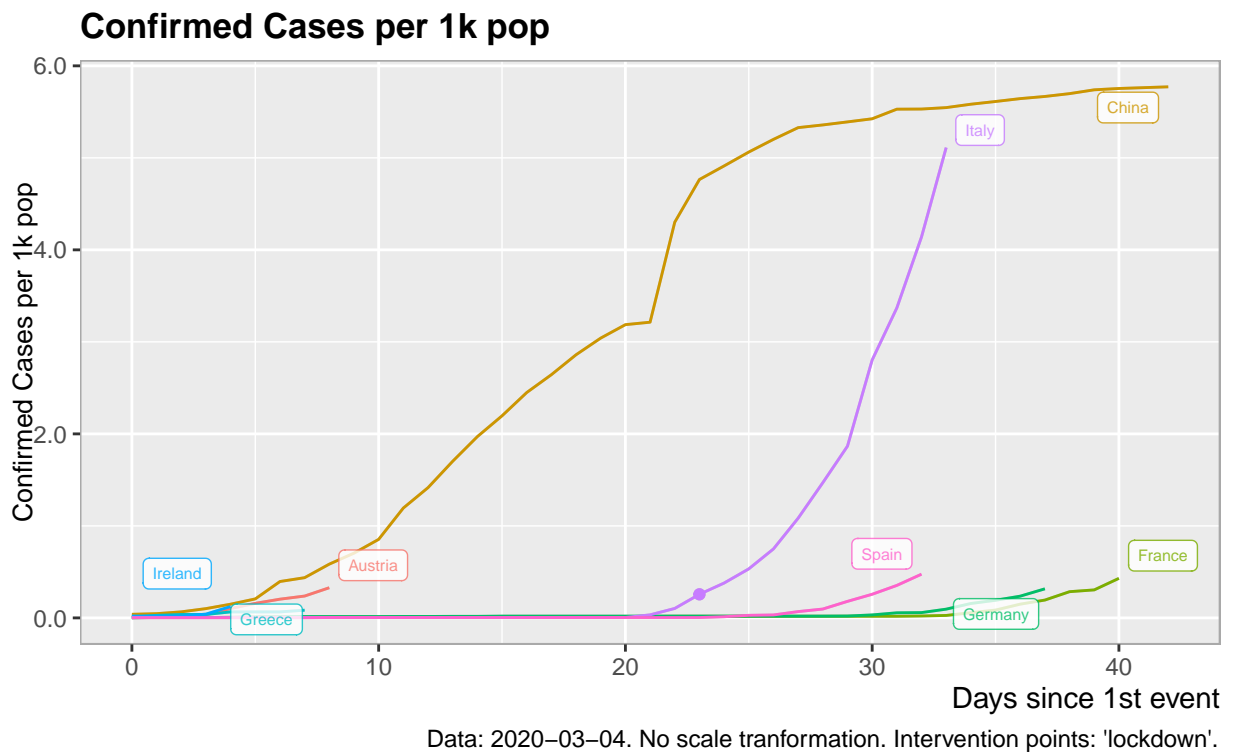


Figure 2: Confirmed Cases by 1000 population

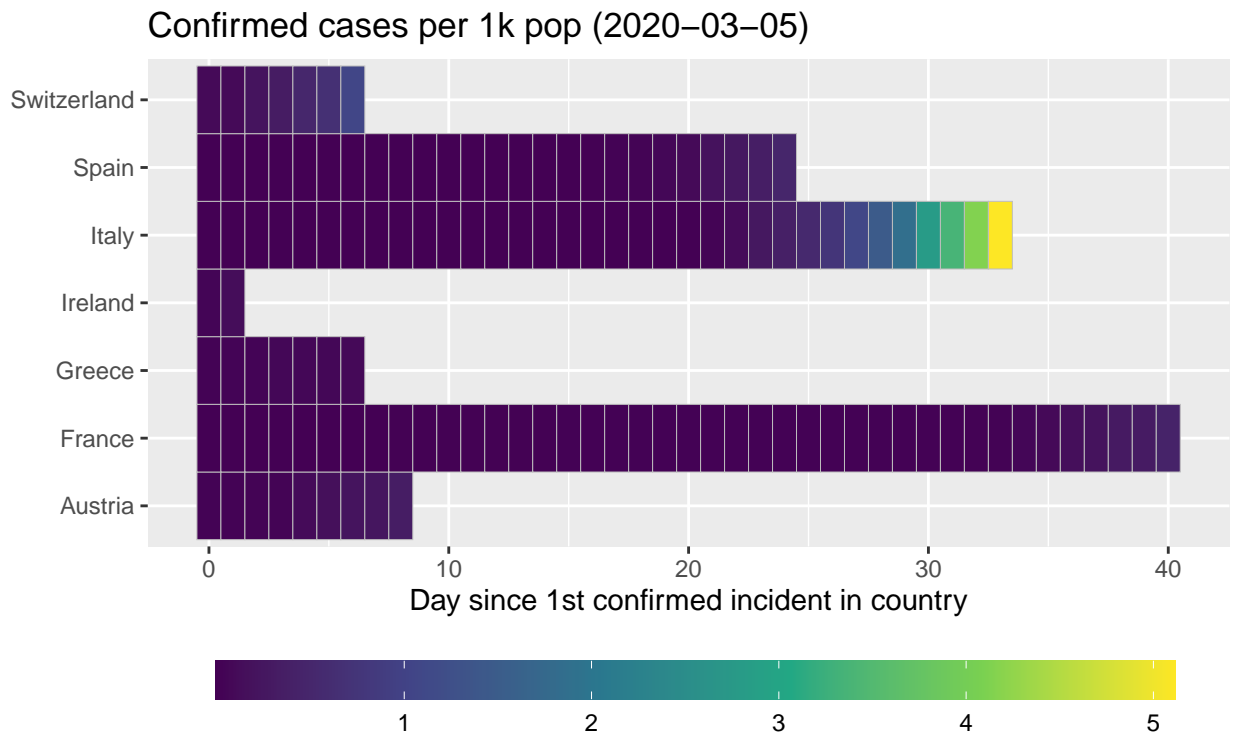
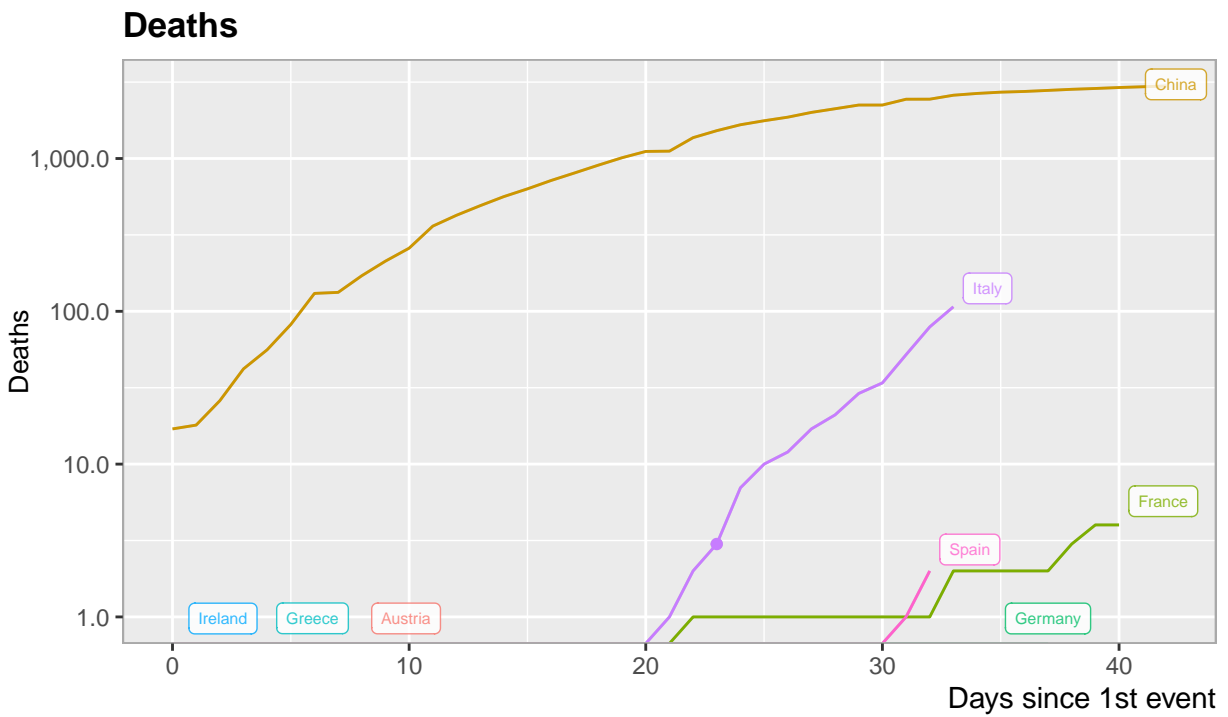


Figure 3: Confirmed Cases by 1000 population

2.2 Deaths



Data: 2020-03-04. Scale tranformation: 'Logarithmic'. Intervention points: 'lockdown'.

Figure 4: Number of deaths by country

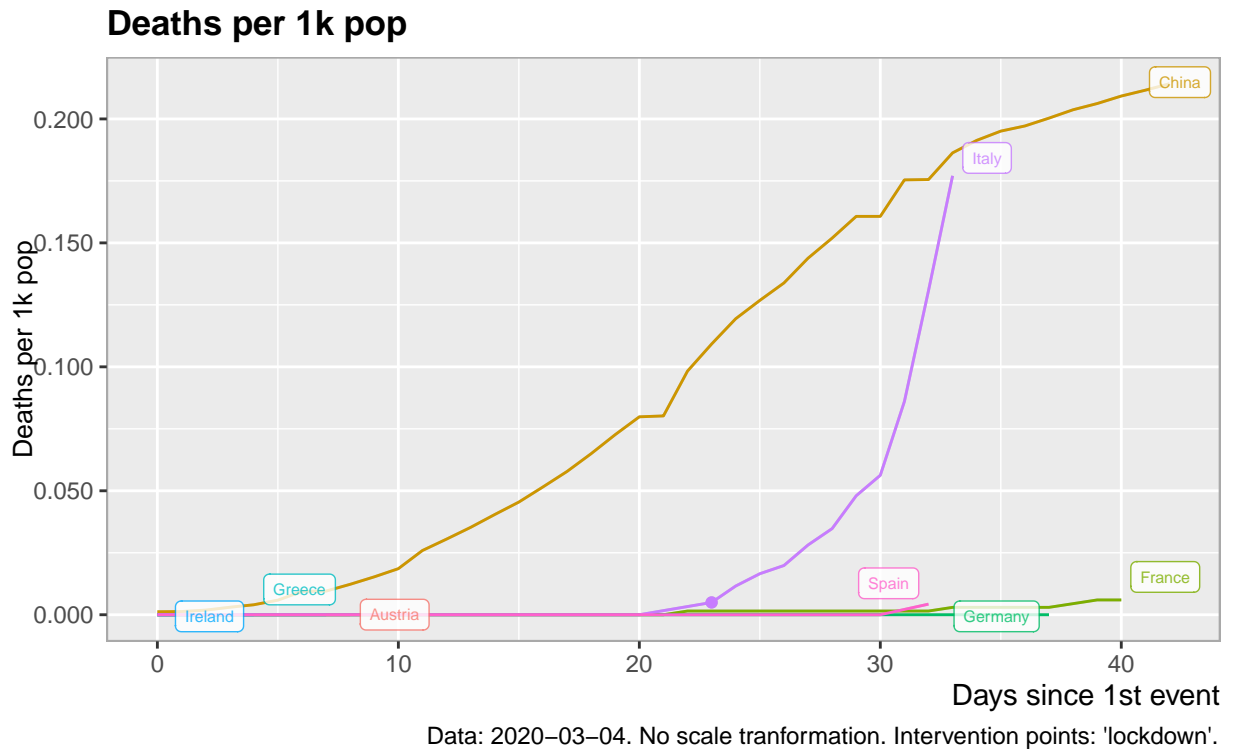


Figure 5: Deaths by 1000 population

3 Rate of change over time

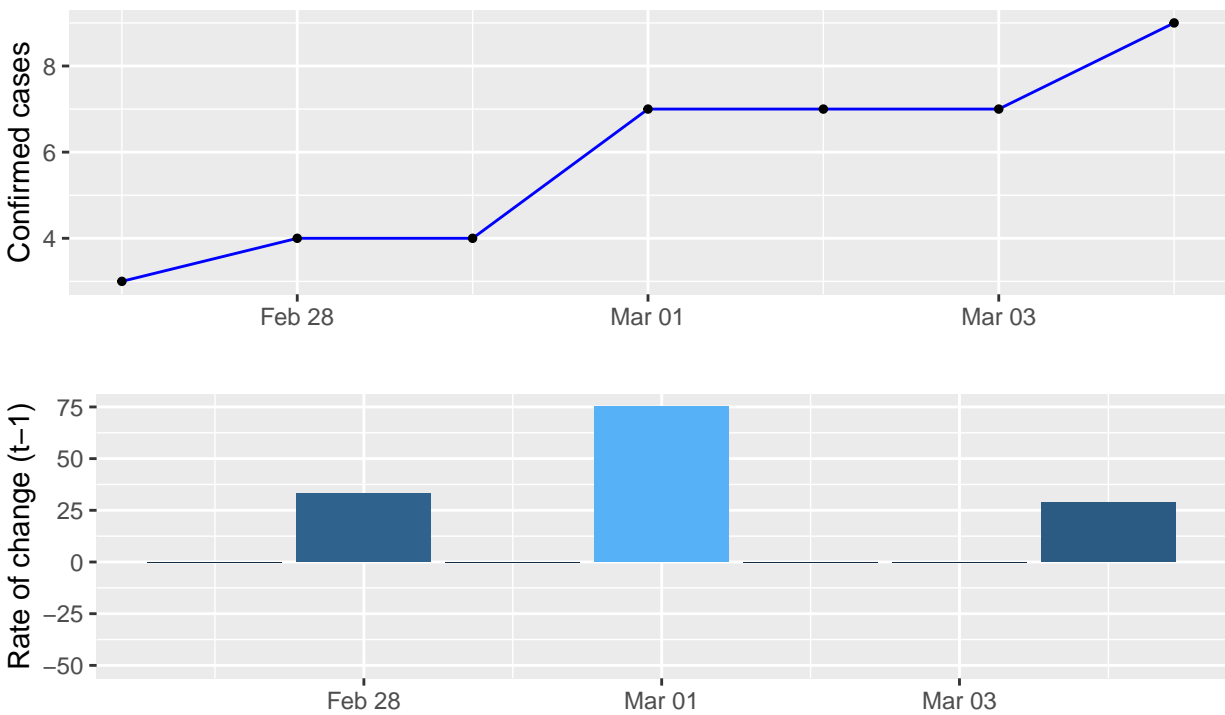


Figure 6: Rate of change of confirmed cases

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

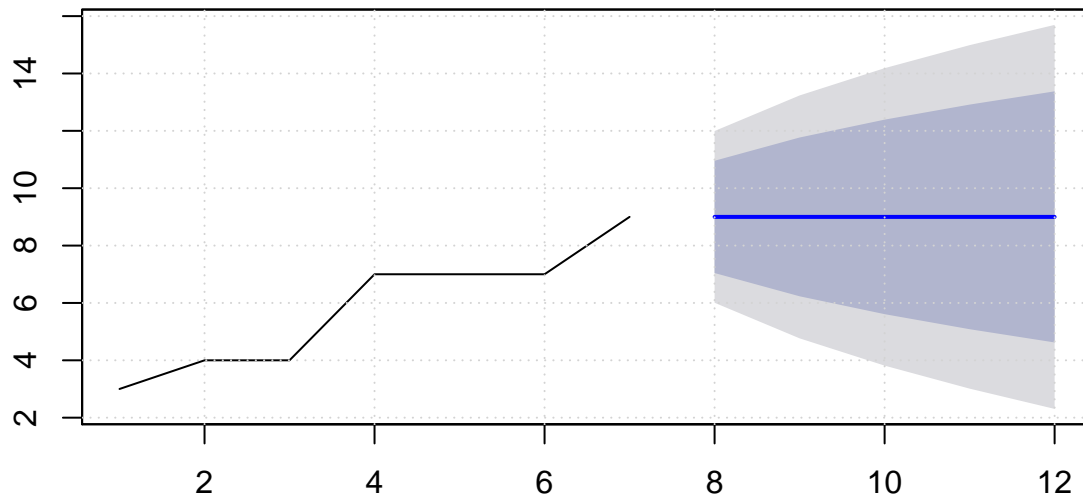


Figure 7: ARIMA projection

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

	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1 (2020-03-05)	9	6.006	11.99
t+2 (2020-03-06)	9	4.766	13.23
t+3 (2020-03-07)	9	3.814	14.19
t+4 (2020-03-08)	9	3.012	14.99
t+5 (2020-03-09)	9	2.305	15.69

- We cannot estimate the detection percentage yet. We need more data.
- With data up to 2020-03-04 in Greece we have 9 confirmed cases and 0 deaths.
- Estimated doubling time (based on 5 days time window) is approximately 4.3 days

4.2 PROPHET projection

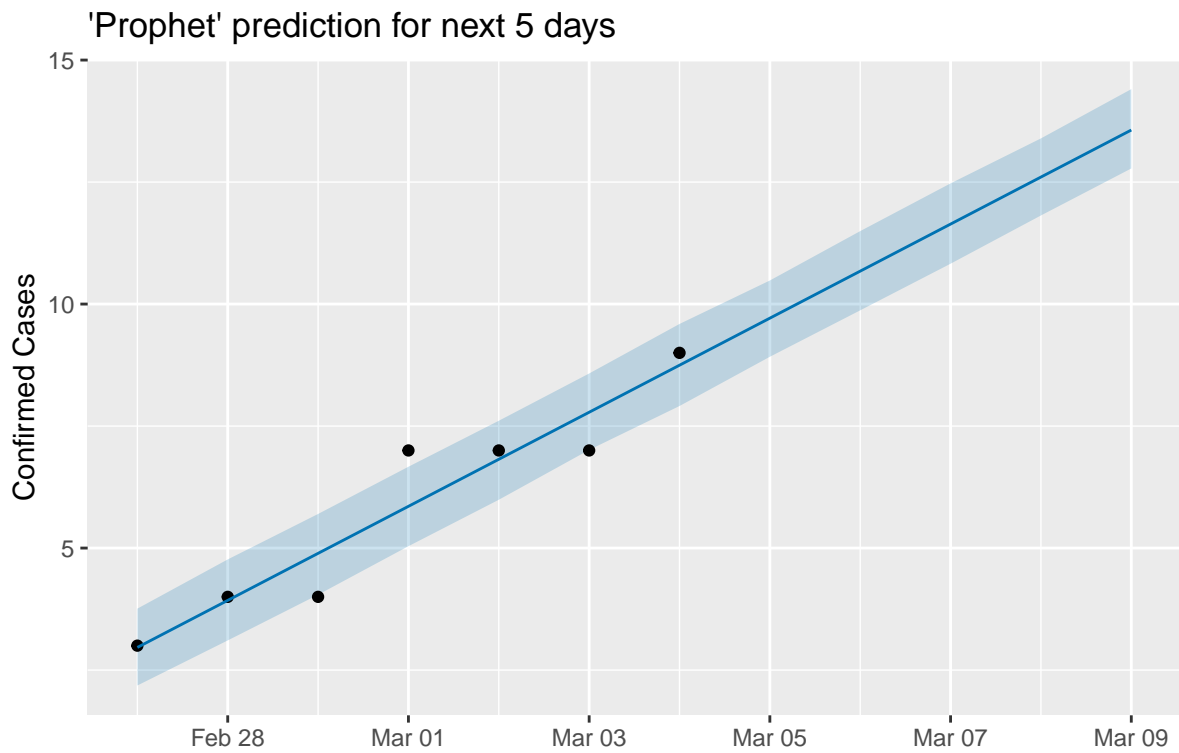


Figure 8: PROPHET Projection of confirmed cases over the next 5 days for Greece

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

	Future_Date	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1	2020-03-05	9.711	8.919	10.48
t+2	2020-03-06	10.67	9.872	11.5
t+3	2020-03-07	11.64	10.83	12.47
t+4	2020-03-08	12.6	11.82	13.39
t+5	2020-03-09	13.57	12.78	14.4