

Estimation of the size of the coronavirus epidemic in The Netherlands

Results

```
date
```

```
ans =  
'24-Mar-2020'
```

```
fitVirus03(@getDataNetherlands);
```

```
**** Estimation of epidemy size for Netherlands  
Initial guess K = 4307.07 r = 0.548915 A = 22348.8  
Regression parameters for complet data set  
mdl =  
Nonlinear regression model:  
y ~ fitVirus03(fun(b,X))
```

Estimated Coefficients:

	Estimate	SE	tStat	pValue
K	11344	917.34	12.366	1.2112e-11
r	0.23462	0.0058743	39.94	9.443e-23
A	482.26	23.509	20.514	2.7789e-16

Number of observations: 26, Error degrees of freedom: 23

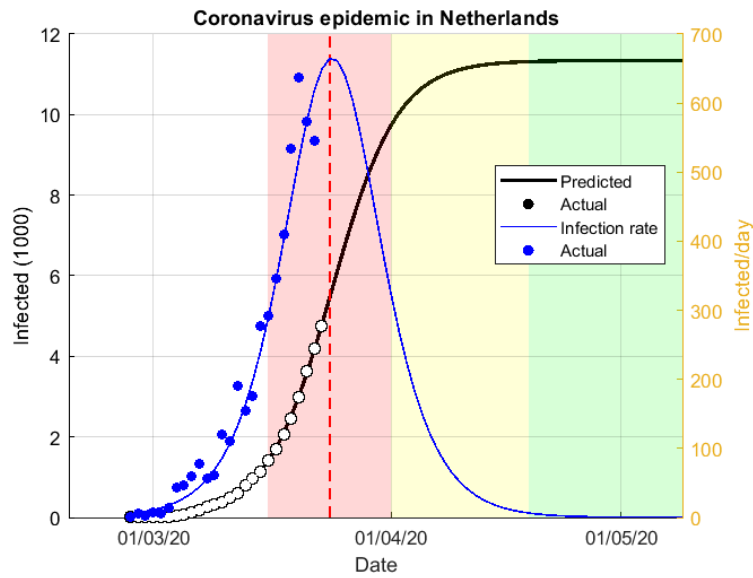
Root Mean Squared Error: 39.6

R-Squared: 0.999, Adjusted R-Squared 0.999

F-statistic vs. zero model: 1.73e+04, p-value = 1.09e-38

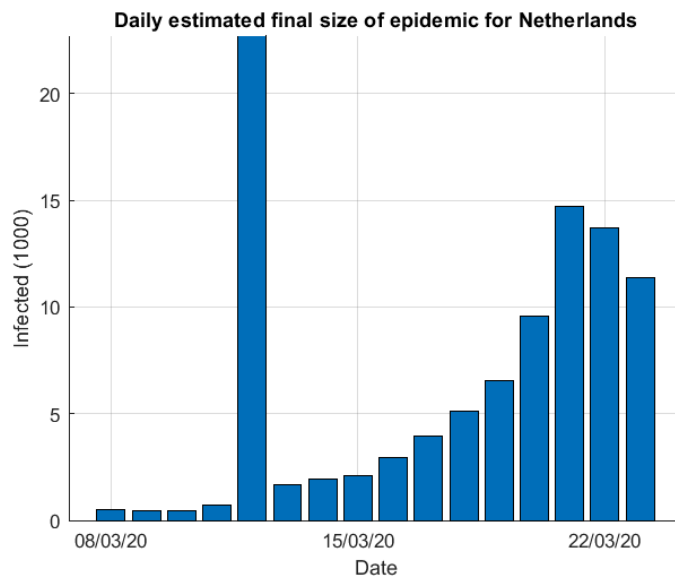
Evaluation of model parameters for Netherlands

day	date	C (cases)	K (cases)	r (1/day)	C0 (cases)	Tau (day)	end	dCdt (c/day)	tpeak (day)	peak	R2
11	08-Mar-2020	265	493	0.608	1	6	16-Mar-2020	74	9	07-Mar-2020	0.999
12	09-Mar-2020	321	437	0.641	1	6	16-Mar-2020	69	9	07-Mar-2020	0.999
13	10-Mar-2020	382	468	0.612	1	6	16-Mar-2020	71	9	07-Mar-2020	0.999
14	11-Mar-2020	503	694	0.477	3	8	20-Mar-2020	82	11	09-Mar-2020	0.995
15	12-Mar-2020	614	338145	0.267	15	14	11-May-2020	22586	37	04-Apr-2020	0.983
16	13-Mar-2020	804	1682	0.343	8	11	28-Mar-2020	144	15	13-Mar-2020	0.994
17	14-Mar-2020	959	1957	0.331	9	12	30-Mar-2020	161	16	14-Mar-2020	0.996
18	15-Mar-2020	1135	2101	0.324	9	12	30-Mar-2020	170	16	14-Mar-2020	0.997
19	16-Mar-2020	1413	2963	0.296	12	13	03-Apr-2020	218	18	16-Mar-2020	0.997
20	17-Mar-2020	1705	3958	0.277	15	14	07-Apr-2020	274	20	18-Mar-2020	0.998
21	18-Mar-2020	2051	5121	0.263	17	15	09-Apr-2020	336	21	19-Mar-2020	0.998
22	19-Mar-2020	2460	6542	0.252	19	15	13-Apr-2020	411	23	21-Mar-2020	0.999
23	20-Mar-2020	2994	9588	0.237	23	16	17-Apr-2020	568	25	23-Mar-2020	0.999
24	21-Mar-2020	3631	14705	0.225	26	17	23-Apr-2020	828	28	26-Mar-2020	0.999
25	22-Mar-2020	4204	13686	0.227	25	17	21-Apr-2020	778	27	25-Mar-2020	0.999
26	23-Mar-2020	4749	11343	0.235	23	17	19-Apr-2020	665	26	24-Mar-2020	0.999



Short-term forecasting for Netherlands

day	date	actual	predict	error %	c./day act.	c./day pred.	error %
21	18-Mar-2020	2051	2093	2.05	346	371	7.23
22	19-Mar-2020	2460	2523	2.56	409	430	5.13
23	20-Mar-2020	2994	3013	0.63	534	490	8.24
24	21-Mar-2020	3631	3560	1.96	637	547	14.13
25	22-Mar-2020	4204	4157	1.12	573	597	4.19
26	23-Mar-2020	4749	4791	0.88	545	634	16.33
27	24-Mar-2020	-	5450	-	-	659	
28	25-Mar-2020	-	6114	-	-	664	
29	26-Mar-2020	-	6766	-	-	652	
30	27-Mar-2020	-	7390	-	-	624	
31	28-Mar-2020	-	7971	-	-	581	
32	29-Mar-2020	-	8499	-	-	528	



Summary

date: 23-Mar-2020 day: 26
start date: 27-Feb-2020
number of cases: 4749
estimated epidemic size (cases): 11343
estimated epidemic rate (1/day): 2.346236e-01
estimated initial state (cases): 23
estimated initial doubling time (day): 3.0
estimated duration of fast growth phase (day): 17
estimated peak date: 24-Mar-2020 day: 26
estimated peak rate (cases/day): 665
estimated end of transition phase: 19-Apr-2020 day: 52
epidemic phase: 3/5 fast growth deceleration phase
Statistics: total R2 = 0.999, rate R2 = 0.972