

COVID19

This package contains a main program named COVID19. The input to the program are M-files containing data of total infections or deaths in any country. The data are defined by the one dimensional array (Y). The data M-file is saved under some name. The program is activated by entering COVID19('file name')

For example, if the data are saved in the file named(France), the program is activated by entering

>>COVID19('France')

The program reads the data defined as Y in the file named France, carry out fitting to the equation

$$N = e^{a_1 \tanh\left[\frac{(t-a_2)}{a_3}\right]} + a_4$$

N is the number of infections or deaths, t is the time in days, a1-a4 are free fitting parameters. The program makes corrected extrapolations to estimate the upper and lower corona leveling off and the expected dates for leveling offs.

There are about 20 files for data of infections and 10 files for data on deaths in some countries. The data are up to date until June-1-2020. They can be updated further from

<https://www.worldometers.info/coronavirus/>

The user can make his own data M-files similar to those attached for the country required. The only restriction is defining the data as Y

Y=[.....];

The outputs of the software are a plot containing current data, its extrapolated fit, modified projected data and their two extrapolated fits. Numerical results are

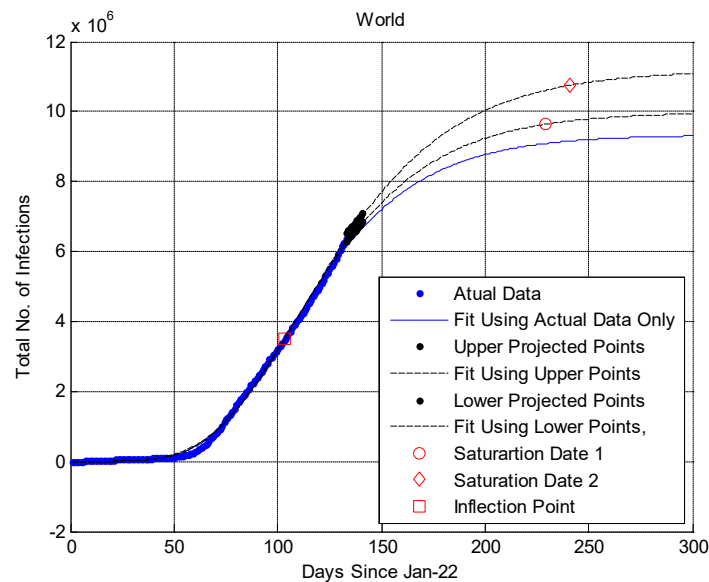
- 1- The data inflection point (In days after January 22 2020)
- 2- The upper limit of infections or deaths estimated
- 3- The lower limit of infections or deaths estimated
- 4- The estimated upper and lower dates for the leveling off (In days post January 22 2020)

The software may produce unrealistic results if the data are not sufficient to produce a good fit

N.B :This software is for academic purposes only and the author does not accept any responsibility for its commercial or otherwise uses.

Example:

>>COVID19('World')



World

Inflection_Point =

103

ans =

After January-22-2020

Upper_Limit =

1.1084e+007

Lower_Limit =

9.9352e+006

Upper_Date =

241

ans =

After January-22-2020

Lower_Date =

229

ans =

After January-22-2020

Summary =

103	1.1084e+007	9.9352e+006	241	229
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