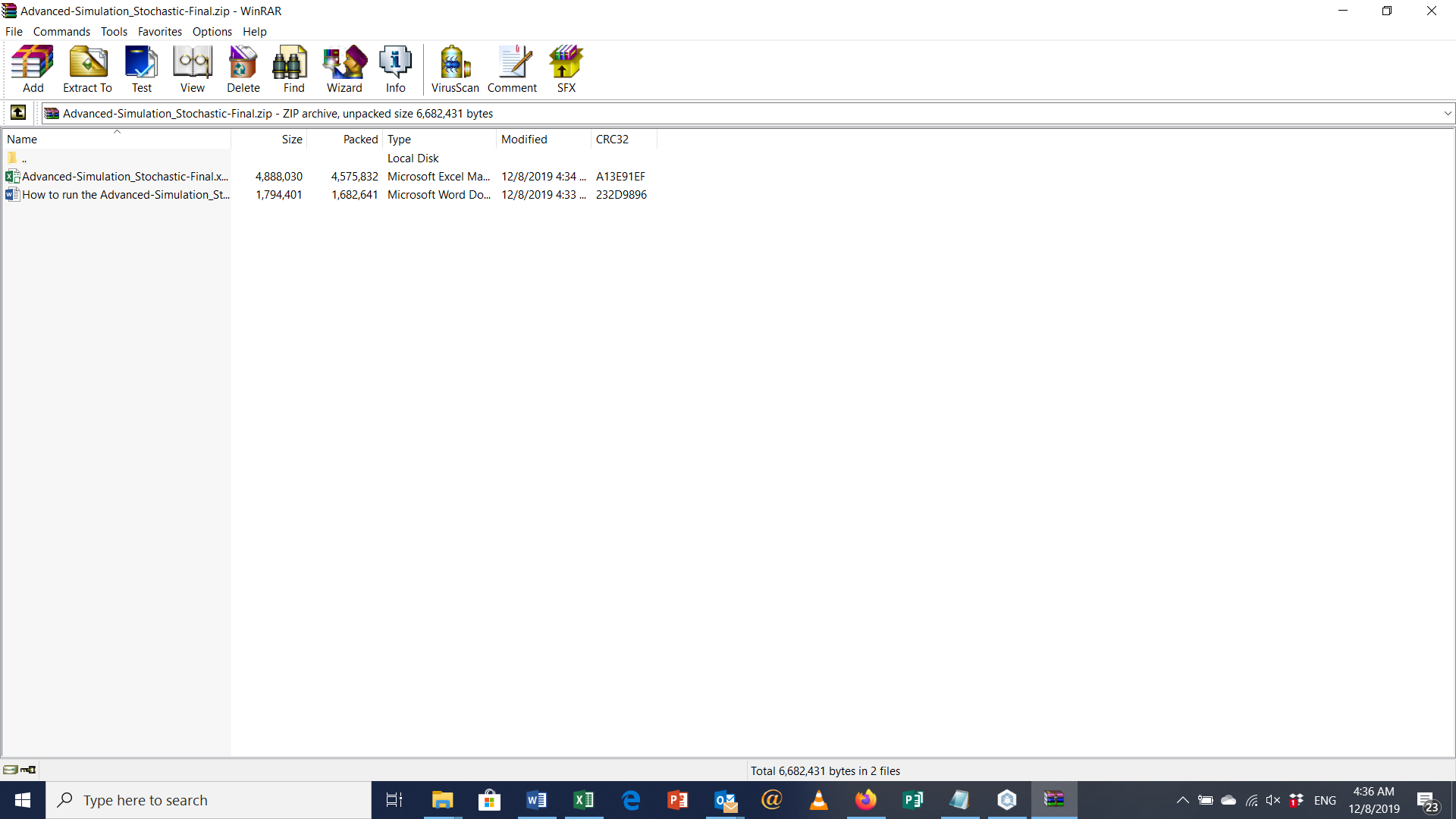
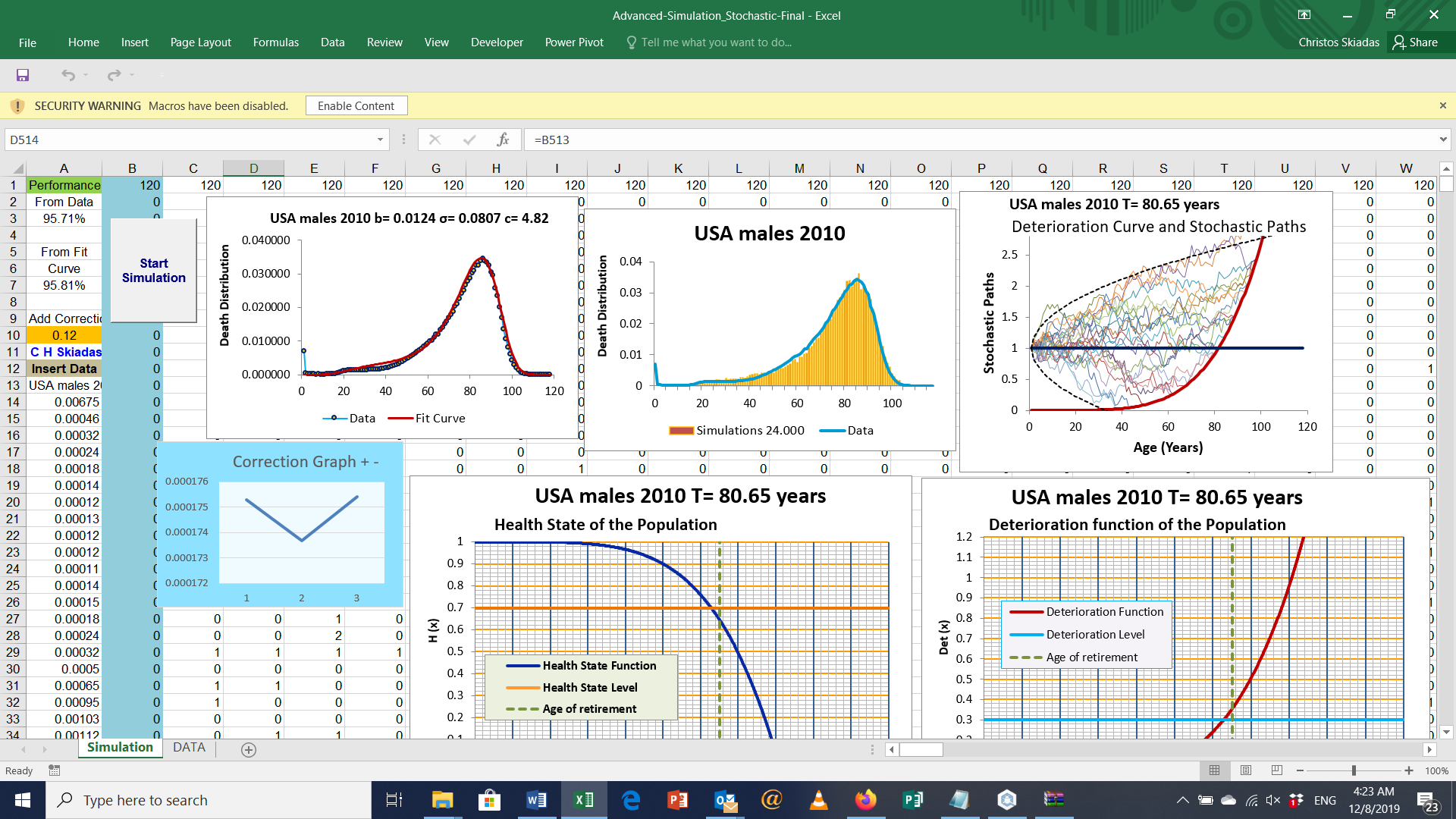
|  |
| --- |
|  |
| Download the Advanced-Simulation\_Stochastic-Final.zip - ZIP archive, unpacked size 4,831,410 bytes |

When you open this zip file it will appear the following screen:



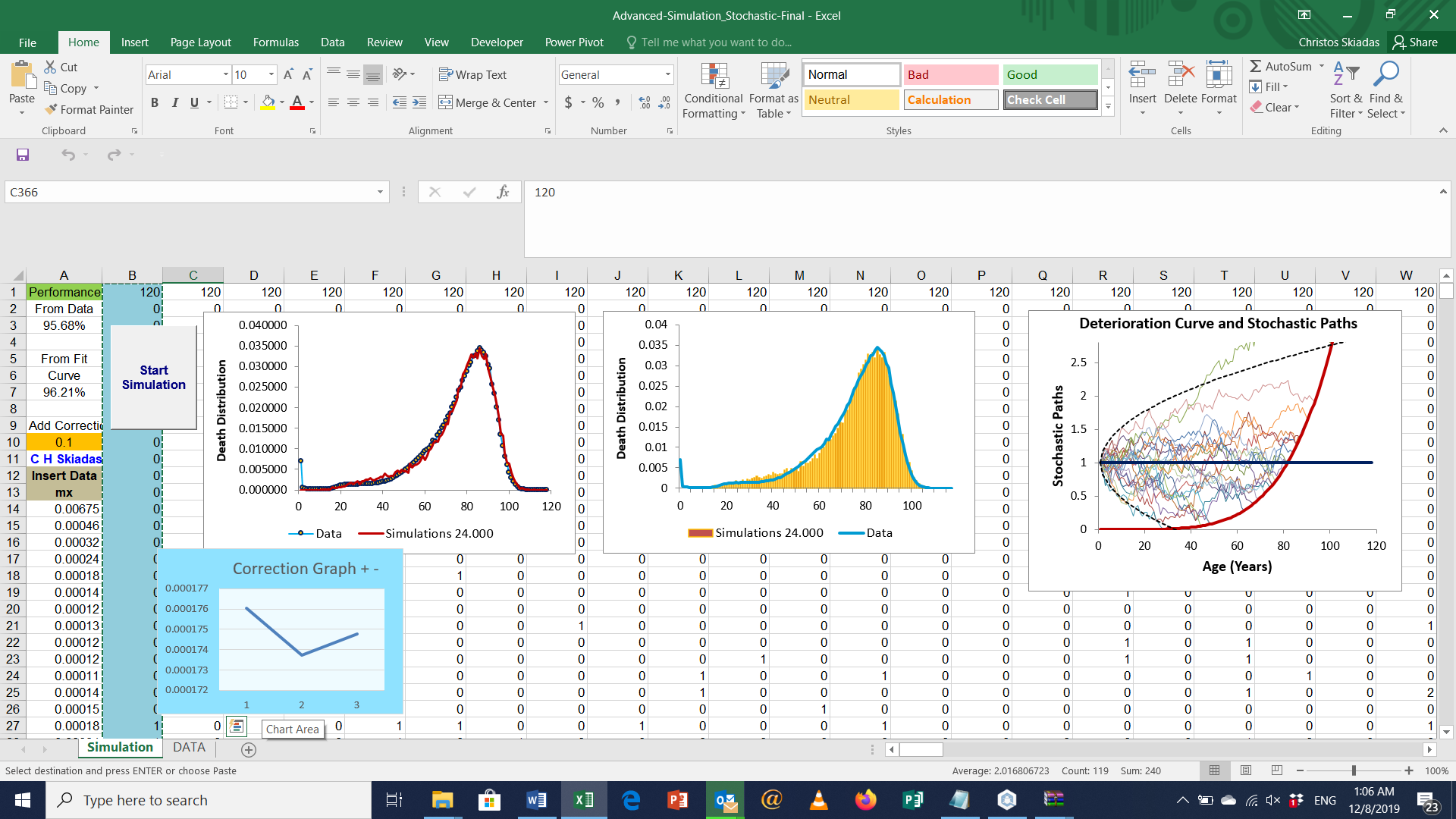
Click the Excel file Advanced-Simulation\_Stochastic-Final.xlsm

The following screen will appear



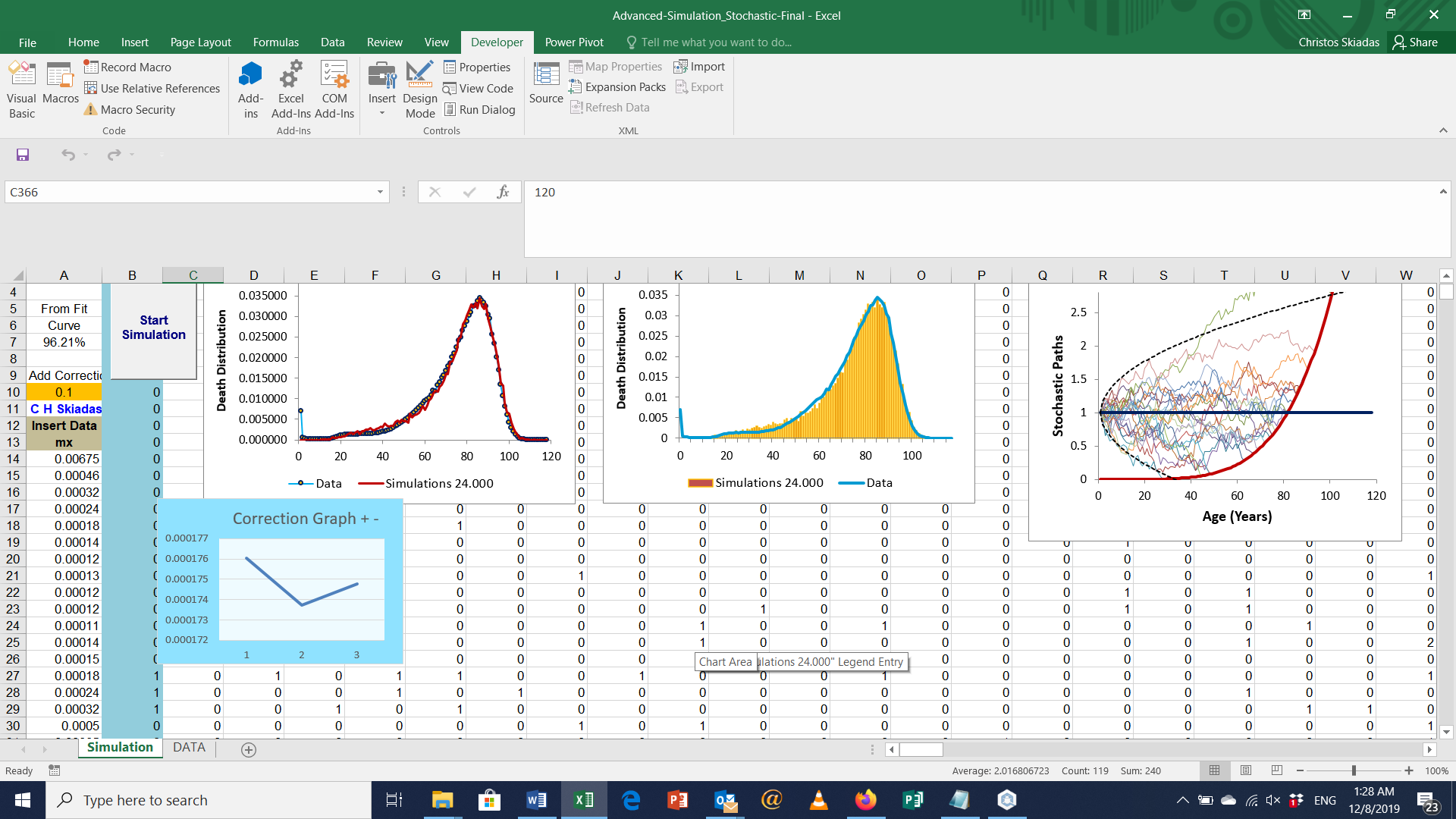
A yellow sign appears in the upper part with a SECURITY WARNING for disabled macros click: “Enable Content”

Now you are ready to use the software.

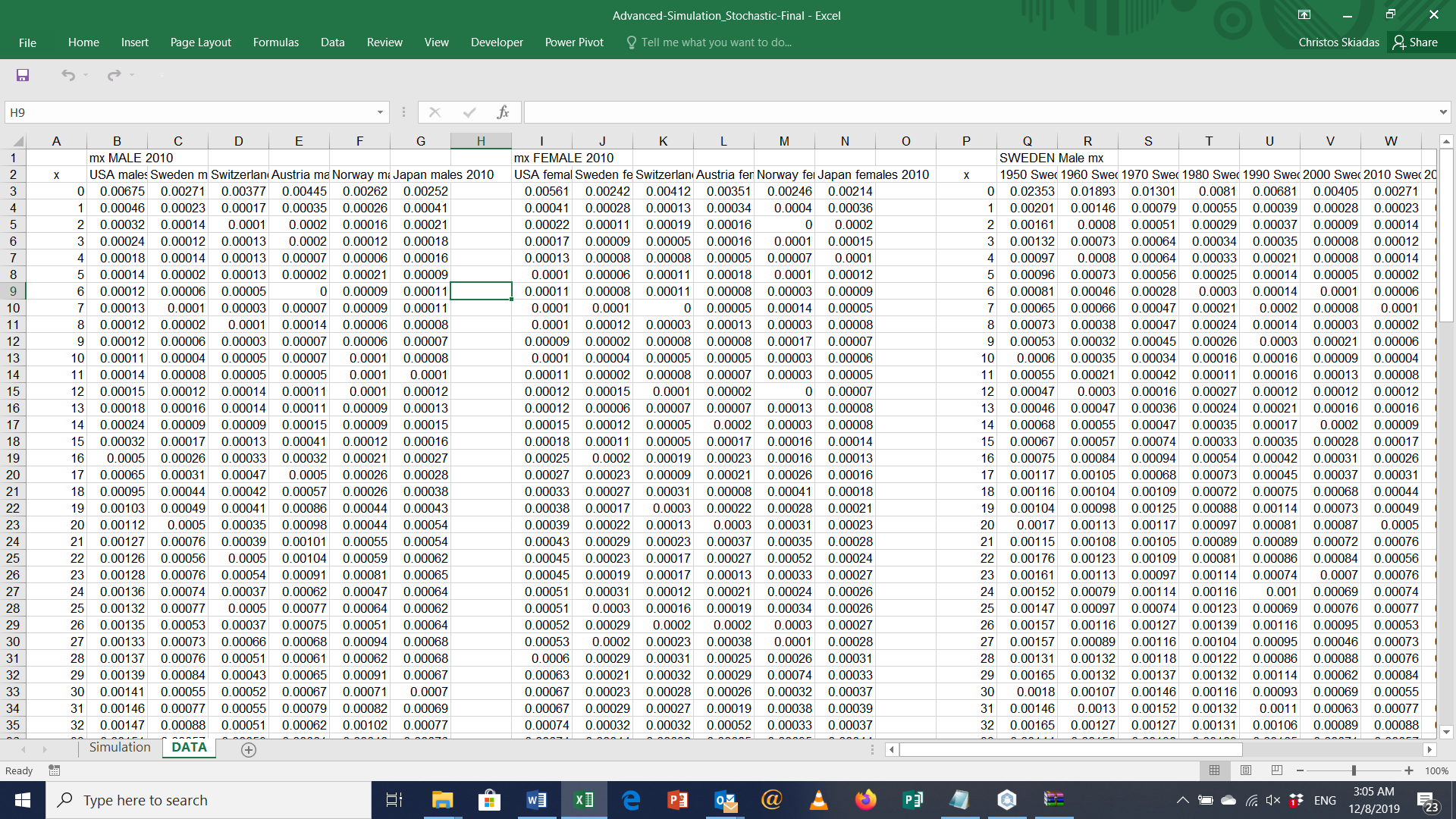
To make sure that the automatic function is ready click the button “Start Simulation” If this button is not functioning check if the “Macros” option is enabled. Check for this option in the “Developer” in the upper green line of the screen. Usually, the Macros are automatically enabled when you have clicked the “Enable Content” in the previous stage.

Now you are ready to make applications.

For simplicity, in the left hand side at the button you will find the DATA option next to Simulation.

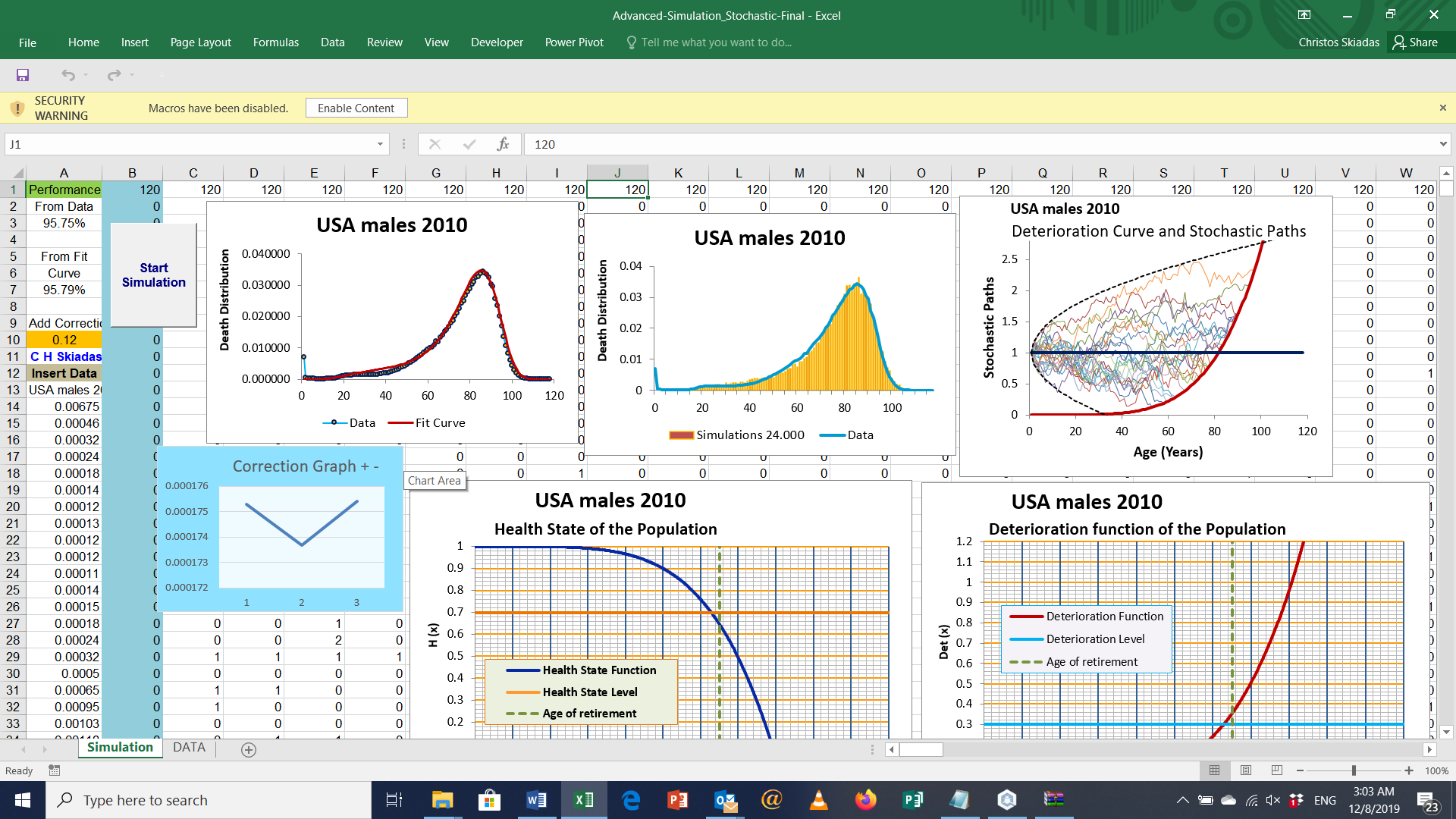


Click this option to find few data cases. You select and copy data from a column of these tables, go back to Simulation and paste in the appropriate column A of Excel starting from A13. Make sure that you added the countries details in A13. By means that you copy these details from the DATA option.



We provide data for 6 countries, males and females from age 0 to 110+ and data for Sweden males and females from 1950-2016 for 10 years periods.

After having pasted the data selected you need to manually make changes in A10 with the yellow color until to have a form like a **V** in the **correction graph.** In the example for USA males in 2010 the correction at A10 is 0.12. It could be + or – depending on the specific case ranging in most cases close to 0. Make manually few changes in A10 to be more familiar. For Sweden males in 2010, A10 should be 0.06. For Japan females in 2010, A10 should be 0.43.



Then click the “Start Simulation” and you will have to result in few seconds.

You will see the various simulation steps until 24.000 simulations. Then several figures will appear in the screen. You can collect, copy and use in your applications.

Some remarks.

The data you entered are mortality data mx.

The program uses the data to estimate the parameters of the probability density function g(t). Where t refers to age also called as x in other applications. The parameters are b for the age of zero mean health state level, c for the curvature of the health state curve and σ is the standard deviation.

The Health State H(t)is given by

The Deterioration function is given by

The Deterioration is 1 when the mean zero health state is zero, that is at age T=1/b

For USA males in 2010, b=0.0124 corresponding to T=1/b=80.65 years

C=4.82 and σ=0.0807. Note that the parameter σ is very important to do simulations and to estimate the confidence intervals. For σ=0 only the mean health state is estimated.









