

A quick introduction to the use of ITSM2000.

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Once you have unzipped the downloaded file from <http://extras.springer.com> the program **ITSM.exe** will be located in the folder **ITSM2000**. Double-click on the ITSM.exe icon or the ITSM shortcut icon to open the ITSM2000 window. (You may wish to copy and paste the ITSM shortcut icon to the desktop or some other convenient location from which it can also be accessed.).

When the program is running, click Help->Contents->Getting Started for detailed information on how to use it. When you click on Help, you may get a message from Microsoft asking you to download a supplementary program (not yet available for Windows 10) to activate this feature. To avoid this problem, the Help files are all contained in **ITSM\_HELP.PDF**. You can navigate through this file by clicking on the underlined links and by scrolling to the top of the file to the table of contents. For further assistance see the final Appendix of **Introduction to Time Series and Forecasting**.

For a simple introduction, open the included project airpass.tsm as follows:

- (i) Click File->project->open,
- (ii) select univariate, and
- (iii) double click on airpass.tsm.

Then use the third yellow button to plot the sample and model acf/pacf and the sixth yellow button to plot a histogram of the data. (Until you specify or fit a model, the assumed model is white noise with acf 1 at lag 0 and zero otherwise.)

**Note:** If the buttons disappear from the top of the full-screen ITSM window they can be restored by partially shrinking the window then restoring it to full size.

At this point you should select Window->Tile in order to see the effects of the following transformations.

To apply a Box-Cox transformation to the data to stabilize the variability::

Click Transform->Box Cox.

Move the slider until the variability stabilizes (BC=0).

You can then difference the data twice (at lags 1 and 12) by selecting

Transform->Difference

and specifying the appropriate lag.

Then fit a preliminary AR model to the transformed data as follows:

Click on the blue button labelled PRE.

Click Yes to subtract the mean from the data.

Ensure that YW estimation is selected.

Check the box, Find AR model with min AICC.

Click OK

At this point the model acf/pacf should match the sample acf/pacf lags up to the order of the selected autoregression. You can inspect the properties of the residuals using the green buttons.