ASSIGNMENT 1. ORGANIZING TIME SERIES DATA IN MATLAB STRUCTURES

1. Following the instructions in the notes, select your three sets of time series and put them into time series matrices. Save the matrices in .xls files. Likewise write and store ascii .txt files with metadata on the time series. Each of the required data sets (V1, V2 and V3) should have a time series matrix and corresponding .txt file.
2. Run geosa1.m, which reads the time series matrices and .txt files and stores all data in a single .mat storage file.
3. If geosa1 ran successfully, you end up with three Matlab figure windows. Copy those figure windows into text boxes in a MS Word document. Within MS Word add captions (see appendixb.pdf).
4. Save the MS word document with a .doc file whose filename is made up of your last name and the assignment number (e.g., meko1.doc). In the captions to each figure answer the questions below.
5. (Caption to Fig 1). Why did you select these time series for your response variables?
6. (Caption to Fig 2). Why did you select these time series for your input variables?
7. (Caption to Fig 3). Why did you select these time series for your "trendy" time series?
8. Zip together the following files into meko1.zip, with your last name replacing "meko":
    a. meko1.doc
    b. the 3 .xls files with your time series matrices
    c. the 3 corresponding .txt files with the metadata
    d. the .mat output file that was created when you ran geosa1
9. Email the zipped file to me as an attachment.

BREVITY. As a rule of thumb for this assignment and other assignments in the course, keep each figure-caption answer under 100 words. Often fewer than 100 words will suffice, and sometimes short sentence is adequate. Using arrows and text annotation from the Figure window can often reduce the need for text in the caption.

Running goesa1.m

1. >geosa1
2. Message box introduces geosa1. Click OK to proceed.
3. Respond to menu -- do you want to organize V1, V2, or V3 time series now?
4. Click/open the desired .txt metadata file in the file window
5. Text information about your data file appears in the command window. Respond to the menu question on whether that data information looks OK. If not, click abort and go back and correct the problem.
6. A message box appears listing the series labels read from row 1 of the xls file and comparing them with the labels used in your .txt files. Click OK to close this message box.
7. A question box asks if "Order is OK?". If the series names matched properly in the previous window, click Yes. If not click No and make necessary changes.
8. File window appears. Asks you to specify (click on or enter name of) the output file that is to hold your time series structures. Respond by entering a filename or clicking on a file. I use "spring07.mat" for the class demo file, so do not use that. I suggest your name with the year. For example, if your name is Jones, use jones07.mat
9. A message window may appear informing you whether a file of the same name already exists, and if so, asking whether you want to replace.it. Usually, answer YES.
10. A message window appears informing about the present status of the time series structure (V1, V2 or V3) in the output .mat file. Click OK.
11. A menu appears asking whether to continue with saving the output file or to abort. Usually, click continue.
12. The menu (see #3 above) re-appears. You may choose to quit now, or to enter another data type (e.g., V2 or V3). Then repeat steps 4-11.
13. Three figure windows appear, summarizing the data types V1, V2, V3. You will put answers the assignments in captions to those figures (see Appendix B). A menu also appears prompting you either to quit, or select another data set for adding to the .mat file. The usual procedure is to do the V1 series, then the V2, then the V3, then quit. But you can do this in any order, and do not need to organize all three series at the same time. If you click on another data type (V1, V2, or V3), your will be back at step (3) above. If you elect to Quit, you will do step 11 below.
14. The script geosa1 ends, leaving the three figure windows.

Sample output

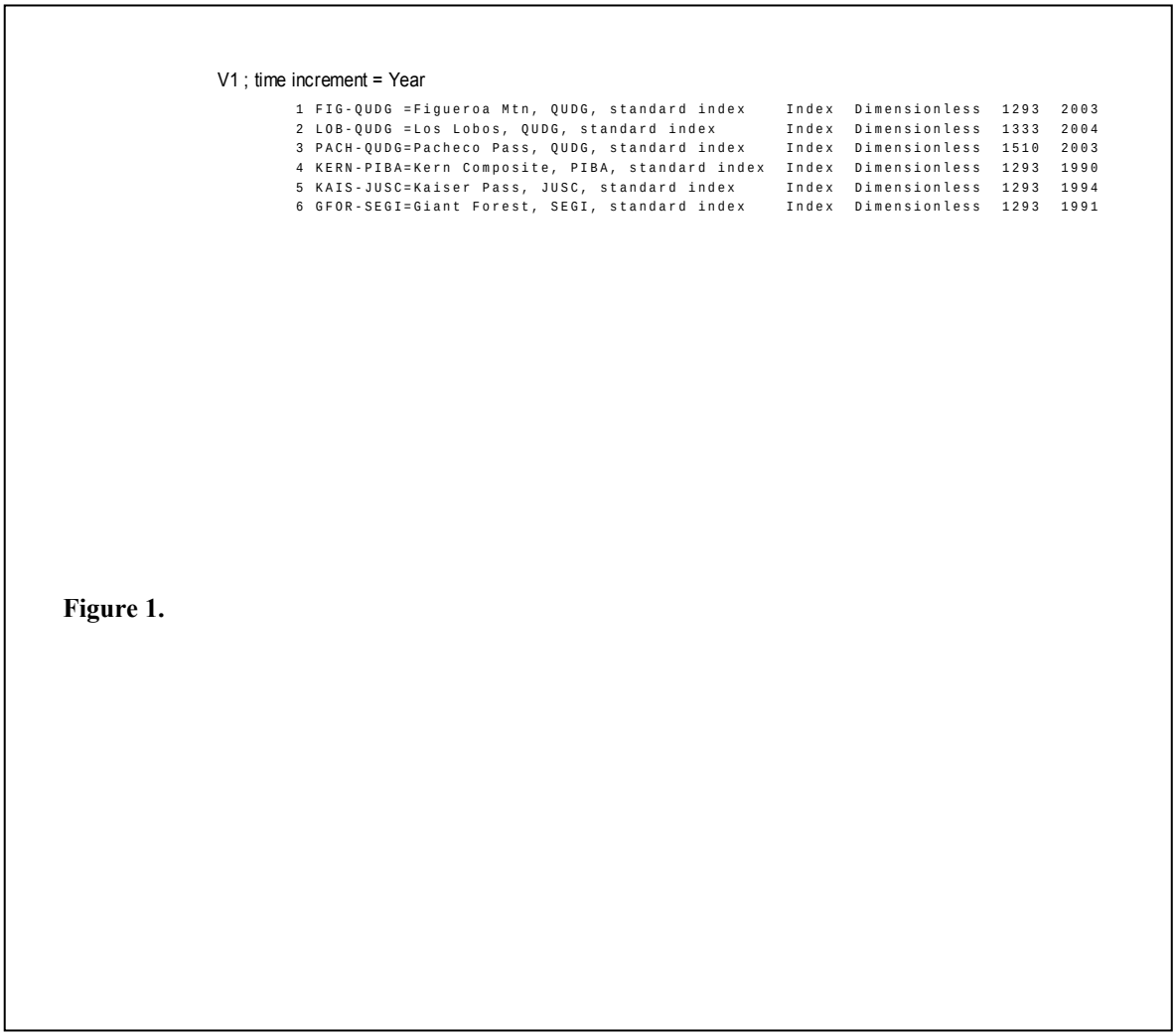

Figure 1.

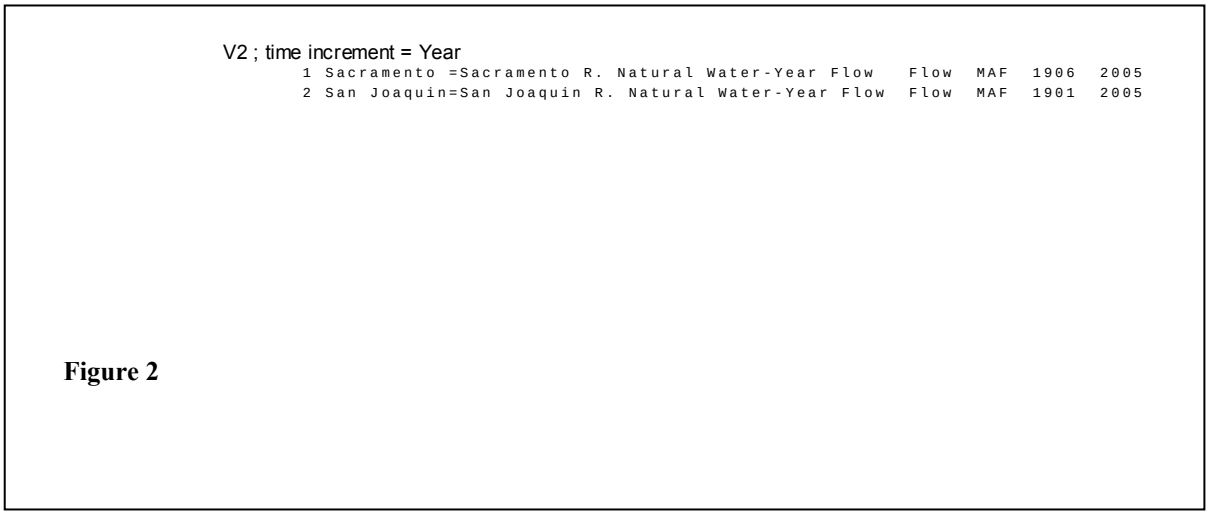
V2 ; time increment = Year
1 Sacramento =Sacramento R. Natural Water-Year Flow Flow MAF 1906 2005
2 San Joaquin=San Joaquin R. Natural Water-Year Flow Flow MAF 1901 2005

Figure 2

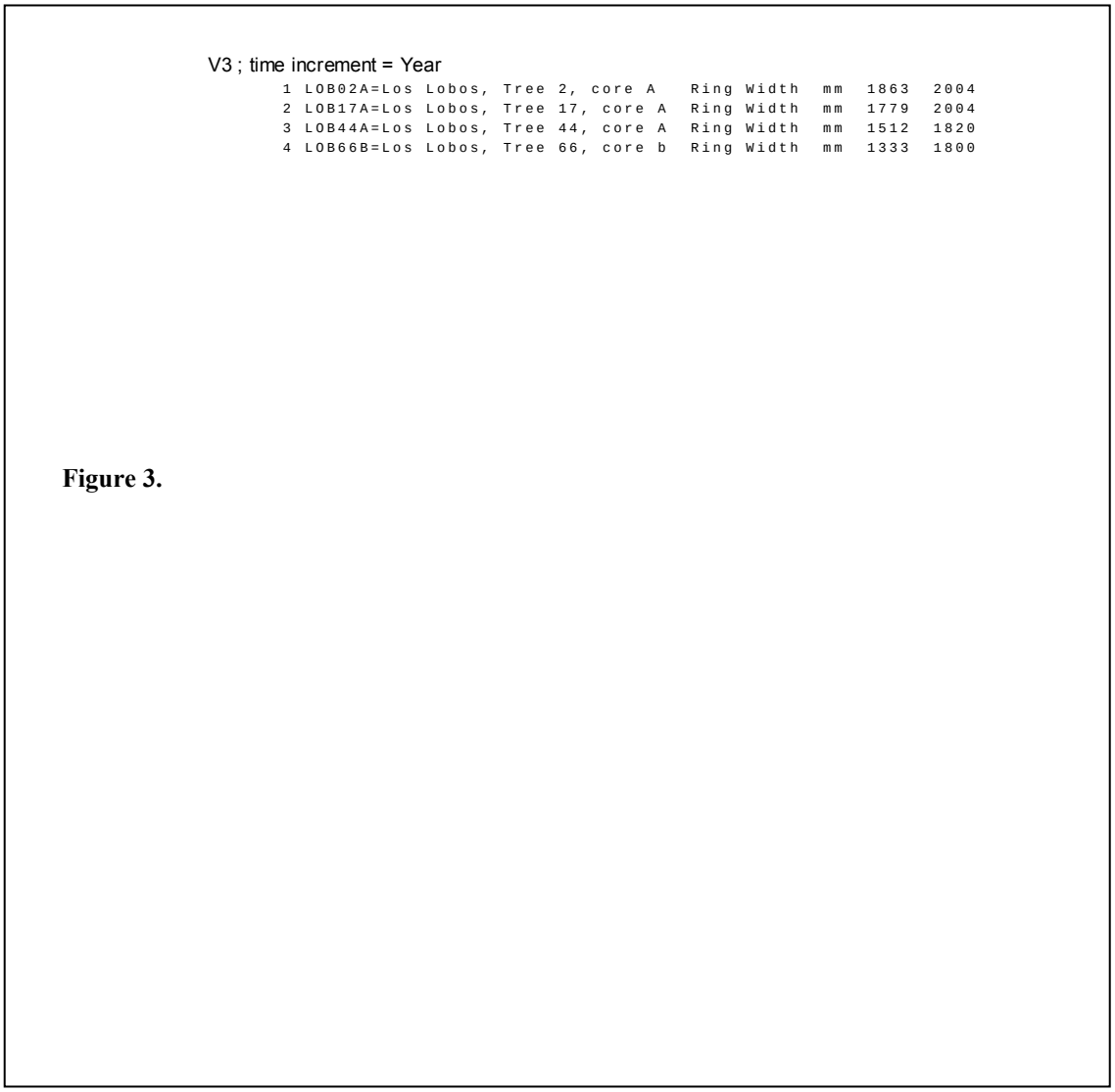
V3 ; time increment = Year
1 LOB02A=Los Lobos, Tree 2, core A Ring Width mm 1863 2004
2 LOB17A=Los Lobos, Tree 17, core A Ring Width mm 1779 2004
3 LOB44A=Los Lobos, Tree 44, core A Ring Width mm 1512 1820
4 LOB66B=Los Lobos, Tree 66, core b Ring Width mm 1333 1800

Figure 3.