

## A GUIDE TO *MESOSAUR*: A PROGRAM FOR THE STATISTICAL ANALYSIS OF TIME SERIES

*MESOSAUR* is a computer program for the statistical analysis of time series which has been created by a team of programmers and statisticians at the *Central Economics and Mathematics Institute: CEMI* in Moscow. In some respects, it is a model of software engineering. It runs very swiftly, even on machines which are virtually obsolete, and it is very sparing in its demands for computer memory. It has an well-designed interface based on menus and key-commands which makes all of its functions readily accessible. Embedded in the program is a reference section which explains the basic terms in time-series analysis and which describes the methods and models applied in the program. This amounts to a small textbook.

### Accessing the Program

**The Network.** To access the program from a computer tied to the network, one must begin by typing `login` and by providing the file-server with a user number and a password. On being admitted to the network, the user will be confronted with a small menu which specifies some of the services which are provided. The service which is required is `ECF Economic Forecasting`. If this does not appear on the menu, then the user must press `<Insert>` and proceed to locate `ECF Economic Forecasting` on a larger menu which lists all of the available services. When the option has been selected, press `<Return>`.

The user will now be faced with a screen which bears the prompt sign `G>` but which is otherwise empty. The prompt signifies that the user is located within their own personal directory on the virtual disc labelled `G`. *MESOSAUR* is now invoked by typing

```
meso
```

**Configuration.** The program responds by displaying various configuration options. First, the program lists the various graphics adaptors which are supported. Pressing `<Return>` instructs the program to detect the graphics adaptor automatically. Next, the program demands to know where the data which is to be analysed is located. The following prompt is printed on the screen:

```
Default data directory [G:\DATA]:
```

This indicates that *MESOSAUR* expects to find the data in a directory labelled `DATA` located on the virtual disc `G` which is where the student user keeps their own files. In fact, there is, as yet, no such data directory. Therefore

*MESOSAUR* should be pointed in the direction of the **DEMO** data directory which stands beside the program itself on the virtual disc **J** within the directory **APPS** which contains other programs or “Applications”. To achieve this, you should type

J:\APPS\MESO

followed by <Return>.

Next, you will be confronted by the prompt

Default import directory [G:\IMPEX]:

Respond by typing

F:\MOREDATA\DATDATA

followed by <Return>. This will inform *MESOSAUR* of the presence of another data directory called **MOREDATA** residing on the virtual disc **F** to which you have read-only access and to which the course organiser alone has write access.

The final act in configuring the program is to accept the default choice of the so-called archive directory by typing a <Return> following the prompt

Default archive directory [G:\ARCHIVE]:

## Operating the Program

*MESOSAUR* now confronts you with its title screen which is dismissed by typing <Return>. This will bring you to the upper level of the program. Across the top of the screen, just below a prompt line, will be found a menu bar bearing the following labels

System I/O Variable VisualAnalysis Statistics Models
--

You pass from one item on the menu to another by using the horizontal arrow keys <←> and <→>. As you do so, the directories associated with each menu item are displayed. To select a command from within the current menu directory, you may either press the keys which are indicated, or else you may select the command by using the <↑> and <↓> keys and by typing <Return>.

**Opening A Data File.** To open a data file, you must move to the **I/O** menu. To select one of the files in the **DEMO** data directory which stands beside the program on the **J** disc, execute the command **File** within the directory of the **I/O** menu by typing <Ctrl-F> or by another means. You will be presented with the **DATA FILE DIRECTORY** which lists the file **DEMO** as the only item. This must be opened. Now follow the instruction given at the bottom of the screen

which is to press <Insert>. A local menu pops up. Select **Open**—by pressing <O> or by selecting the command via the arrow keys and by pressing <Enter>.

The full list of variables or time series in the **DEMO** directory is now displayed. One of the variables in the table—the current variable—is highlighted. To choose another variable, move up or down the list via the arrow keys <↑> and <↓>. When the appropriate variable has been selected—say, for example, **airpass**—it may be read into the memory of the computer by pressing <Insert> to access the local menu again and by selecting the **Read** command. Had the **Read** command been applied to the **DEMO** directory before opening it and selecting a variable, then its entire contents would have been read into the memory.

To return to the upper level of the program—ie. to the menu bar—press the <Esc> key and respond to the queries which the program poses via a dialogue box. *MESOSAUR* will alert you to the danger of exiting the program by pressing the <Esc> Key too often and rising too far. With the data in memory, one is able to perform operations of analysis and display. Usually, the immediate concern is to plot the series by issuing the relevant command under the menu **VisualAnalysis**.

To select one of the files in the **DATDATA** directory within the **MOREDATA** directory on the F disc, you must access the **Import->** command under the **I/O** menu. The command has a sub-menu where various options are displayed. Press <Return> to access the sub-menu. Since the data in **DATDATA** is stored as Text, the **ASCII** option must be selected from the sub-menu. This option will lead to a dialogue box where the name of a data file must be entered. Unless you have scanned the directory in advance, you will not know the name of any data file. Pressing <Ctrl-F> will bring a list of the files into view. A file may be selected from this list and read by pressing <Return>.

## The Location and the Contents of the Data Files

There are three sources of data which you may access. The first source is the **DEMO** data in the direction of which the program may have been pointed in the process of configuration. The data in this directory is stored in the native file format of *MESOSAUR*. However, this data may be exported in a variety of formats including the ASCII format; and, therefore, it may be conveyed to other programs. A brief description of an item in the **DEMO** directory can be obtained, once it has been read into memory, by issuing the **Comment** command under the **Variables** Menu.

A second source of data is to be found in the directory **DATDATA** which is at the end of the path **F:\MOREDATA\DATDATA**. The data in this directory is stored in ASCII format, i.e. as plain text, which explains why it must be read into the program via the **Import** command of the **I/O** menu. As the course progresses, various items will be added to the **DATDATA** directory.

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A third source of data is to be found in the `TXTDATA` directory which stands beside the `DATDATA` directory at the end of the path `F:\MOREDATA\TXTDATA`. This data, which has been collected from various sources and entered by various hands, is stored in ASCII format. However, *MESOSAUR* will usually balk at reading it for the reason that each item is prefaced by a brief textual description which throws the program into confusion. To make it acceptable to *MESOSAUR*, the data must be “tidied” by removing the header and by setting the numbers in a single column. These operations may be performed using the DOS editor `edit` or by reading the data into a spreadsheet and manipulating it therein. The contents of the files within the `TXTDATA` directory are listed in a file under the name of `CATALOG` which can be opened and read using the DOS editor. The data to be found within the `DATDATA` directory is, in fact, a subset of the data in the `TXTDATA` directory.