By following the sequence of commands recorded in this log, you will be able to extract a trend-cycle component from the monthly data on U.S. Retail Sales. The end effects are controlled by inserting an extrapolation between the end and the beginning of the circularly wrapped data, which morphs the seasonal pattern of the final year into the pattern of the first year.

IDEOLOG.PAS: Ideal Filters and their Approximations

1. Page Parameters
→ **1**

SPECIFY THE PAGE PARAMETERS

Do you want to output in Postscript Y/N?
→ **N**

Specify the frame surrounding the graph.
5cm x 3cm <= width x height <= 13.5cm x 9.5cm.

For two diagrams per page use 9cm times 6cm
For three diagrams per page use 9cm times 3.75cm

Specify the width
→ **99**
Specify the height
→ **99**

2. Get the Data and/or Transform the Data
→ **2**

GET THE DATA

1. Read the Data
→**1**

READ A DATA FILE

Name the Data File =
→ **salesus.txt**

DECIDE! Do you wish to construct a univariate series
By joining the lines? Y/N
→ **Y**

There are 144 data points
What is the interval between observations?

(m) Monthly
→ **m**

NAME THE DATA

By default the data will be described as
<<an unidentified data series>>

Do you wish to rename the data Y/N?
→ **N**

GET THE DATA

3. Transform the Data
→ **3**

TRANSFORM THE DATA

2. Take Natural Logarithms
→**2**

7. Return to the Main Menu
→ **7**

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5. Polynomial Regression
→ **5**

FIT A POLYNOMIAL TREND

1. Fit by Ordinary Least-Squares Regression
→ **1**

What is the degree of the polynomial?
→ **1**

<<A polynomial of degree 1 interpolated through
144 points of an unidentified data series>>
→ **<RETURN>**

<<The residual sequence from fitting a polynomial of
degree 1 to 144 points of an unidentified data series>>
→ **<RETURN>**

Do you wish to replace the data series by the residual series Y/N?
→ **Y**

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2. Get the Data and/or Transform the Data
→ **2**

GET THE DATA

5. Extrapolate and/or Taper the Data
→ **5**

EXTRAPOLATE AND/OR TAPER THE DATA

5. Extrapolate by Circular Morphing
→ **5**

EXTRAPOLATE BY CIRCULAR MORPHING

What proportion of the original data length is in the extension
Specify the proportion as a percentage
→ **33**

The number of points in the data extension is 48

<<The data with the extrapolated segment at the end>>
→ **<RETURN>**

<<The data rotated to place the extrapolated segment in the
middle. The segment will be divided between the two ends>>
→ **<RETURN>**

EXTRAPOLATE AND/OR TAPER THE DATA

6. Return to the Data Menu
→ **6**

GET THE DATA

6. Plot the Periodogram
→ **6**

<<The periodogram of an unidentified data series>>
→ **<RETURN>**

7. Return to the Main Menu
→ **7**

PERIODOGRAM ANALYSIS

Do you wish to save the periodogram ordinates, Y/N?
→ **N**

7. Return to the Main Menu
→ **7**

IDEOLOG.PAS: Ideal Filters and their Approximations

9. Frequency Domain Filters
→ **9**

SPECIFY AND APPLY A LOWPASS FILTER

1. Lowpass Filter
→ **1**

Choose a letter in the set [A..B]
→ **A**

Specify the cut-off point in degrees
→ **22.5**

Specify the number of differencing operations
→ **0**

DISCARD THE EXTRAPOLATIONS

The data have been supplemented by 24 points at each end.
Do you wish to discard the extrapolated data points Y/N?
→ **Y**

<<A low frequency cyclical component extracted from 144
points of an unidentified data series by a Fourier Method>>
→ **<RETURN>**

<<The residual sequence from de-trending 144 points of
an unidentified data series by a Fourier method>
→ **<RETURN>**

THE TREND-CYCLE COMPONENT

Do you wish to plot the trend-cycle component Y/N?
→ **Y**

<<The trend cycle component derived by adding the interpolated
polynomial to the low-frequency components of the residual sequence>>
→ **<RETURN>**

SPECIFY AND APPLY A FREQUENCY DOMAIN FILTER

4. Return to the Main Menu
→ **4**