NAME

    crosscorr − calculate Pearson's cross-correlation from time-series data

SYNOPSIS

    crosscorr [**−x** colnum] [**−y** colnum] [**−l** numlags] csvfile > output.csv

DESCRIPTION

    Crosscorr will provide a correlation between two time series or two waveforms. The observations of one series are correlated with the observations of another series at various lags and leads. Cross-correlations help identify variables which are leading indicators of other variables or how much one variable is predicted to change in relation the other variable. In this analysis, the Pearsons Product Moment correlation value, *r,* is calculated many times by time-shifting the one data set relative to the other data set. Each shift is called a *lag*, and the lag time is simply the sampling period of the two time-series data sets. A typical cross-correlation shows enough lags in both negative and positive directions to show the cyclical relationship of the two sets of data.

    The *csvfile* argument, which must be specified, gives the name of the ASCII file of comma-separated values for the two waveforms to be compared. The input must have at least two columns of numbers, but if it has more you can specify which ones to use. If you want to use the standard input, specify − as the input file name.

    The output is also an ASCII series of comma-separated values, giving the lag numbers and corresponding *r* value. The output goes to the standard output, which can be piped to another program, or redirected to a file. A file name suffix of **.csv** is recommended for this output file.

  Options

    −x *colnum*

        Specifies the column number for the first variable (default is 1).

    −y *colnum*

        Specifies the column number for the second variable (default is 2).

    −l *numlags*

        Specifies the number of lags to be calculated in either direction (default is 150).

    −−help

        Causes the program to output a summary of command usage and options.

EXAMPLES

    crosscorr −l150 apj402-56.csv | genplot -yf- -yc2 -yw0 | xhpgl

        Simple plot of cross-correlation of first two columns in data file.

SEE ALSO

    getwfdata(1), genplot(1)

    http://www.scrc.umanitoba.ca/doc/tutorial/tutorial_14.html

        for more information on using crosscorr in a cross-correlation analysis.