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MESA/PC

Inductive Time Series Modeling Program for PC

MESA/PC is a non-linear least squares spectral analysis program, which can be used to determine the dominant cycles or characteristics of time series. Assuming that there are cycles in nature, selected time series were analyzed and expressed as cyclic mathematical functions. In addition, the exponential behavior of population growth has been incorporated into the models. Polynomial and auto-regressive expression are also considered. **MESA/PC** attempts to fit a mathematical model to a time series with the ultimate purpose of driving the residual time series to white noise.

MESA/PC is written in FORTRAN. All computation is done in double precision, except for the plotting call where the GAE graphics package is used for PC version of the code. Analysis of time series data is aimed at constructing mathematical functions, which describe as many major features of the data as possible. A trend function is fit to the data, removed, and the resulting residuals analyzed for any significant behavior.

In analysis,

a) Obvious or hidden trends in the data are removed by fitting the appropriate mathematical functions and
b) The periodogram, Fourier, and **MESA/PC** spectra of the residual time series are studied to detect other trends. Steps (a) and (b) are repeated until the residuals resemble white noise.

The total number of time series that can be analyzed is five. There should be no more than 300 points per time series. The same time series can be determined and analyzed by appropriate subroutine within the program.

We **at Galaxy Advanced Engineering, Inc (GAE)** have taken the steps to produce the PC version, i.e. **MESA/PC**. Currently the program is operating on IBM/PC AT or 10% compatibles under PC/DOS of MS/Windows95/98/2000/XP/ME and NT operating system. To order this code, please contact us at (650) 740-3244