NASA TECH BRIEF

Marshall Space Flight Center

Generalized Curve Fit and Plotting (GECAP) Program

The problem:

A generalized plotting program was needed for a small computer.

The solution:

The Generalized Curve Fit and Plotting (GECAP) program has been developed for generating graphs on 8-1/2- by 11-inch paper. The program is designed to be used by engineers and scientists who are not necessarily professional programers.

How it's done:

The program is written to provide a fast and efficient method for the display of plotted data without having to generate any additional FORTRAN instructions. Various output options are available to the program user for displaying data in three different types of formatted plots. These options include discrete linear, continuous, and histogram outputs. The continuous option performs a least-squares curve fit on the user-supplied input data. The best fit polynomial is selected based on an analysis-of-variance technique.

Various types of statistical analyses can be added to the program. These include the capability to group data automatically, to calculate the mean and standard deviation, and to plot out a cumulative distribution graph. GECAP can also be used as a subroutine in connection with a large master program. GECAP requires more than the normal 8000-word core used on the IBM 1130 computing system; however, the entire program can be executed by using the overlay capability of the system.

Notes:

1. This program was written in FORTRAN IV and ASSEMBLER for the IBM 1130 computer, using the IBM 1627 plotter.

2. Inquiries concerning this program should be directed to:

   COSMIC
   112 Barrow Hall
   University of Georgia
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   Reference: MFS-22728

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