RES

PURPOSE

This is the single most important DATAPLOT keyword. It is an internal DATAPLOT variable into which the residuals are automatically placed whenever the FIT, PRE-FIT, SPLINE FIT, LOWESS, SMOOTH, ANOVA, and MEDIAN POLISH commands are executed.

DESCRIPTION

In general, the residuals are defined as

> raw data - predicted values

where the predicted values are the "fitted values" from fitting, pre-fitting, spline fitting, smoothing, ANOVA, locally weighted least squares fitting, and median polish. RES can be used by the analyst in whatever fashion desired. Residuals are extremely important because they serve as the base for testing model adequacy via the battery of techniques known as residual analysis. Typical operations with these residuals include:

1. plotting the residuals versus any independent variable to check for latent relationships (e.g., PLOT RES X);

2. generating a lag plot of the residuals to check for autocorrelation (e.g., LAG PLOT RES);

3. generating a histogram of the residuals to check for general distributional structure (e.g., HISTOGRAM RES);

4. generating a normal probability plot of the residuals to check for normality (e.g., NORMAL PROBABILITY PLOT RES).

SYNTAX

None

EXAMPLES

WRITE X Y PRED RES
PLOT RES X
LET RES2=ABS(RES)

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

PRED	=	A variable where predicted values are stored.
RESSD	=	A parameter where the residual standard deviation is stored.
RESDF	=	A parameter where the residual degrees of freedom is stored.
REPSD	=	A parameter where the replication standard deviation is stored.
REPDF	=	A parameter where the replication degrees of freedom is stored.
LOFCDF	=	A parameter where the lack of fit cdf is stored.
FIT	=	Carries out a least squares linear or non-linear fit.
EXACT RATIONAL FIT	=	Carries out an exact rational fit.
PRE-FIT	=	Carries out a least squares pre-fit.
SPLINE FIT	=	Carries out a spline fit.
LOWESS	=	Carries out a locally weighted least squares fit.
SMOOTH	=	Carries out a smoothing.
ANOVA	=	Carries out an ANOVA.
MEDIAN POLISH	=	Carries out a median polish.
PLOT	=	Generates a data/function plot.

APPLICATIONS

Fitting

IMPLEMENTATION DATE

Pre-1987

PROGRAM

      . ALASKA PIPELINE RADIOGRAPHIC DEFECT BIAS CURVE
      . PERFORM A LINEAR REGRESSION
      SKIP 25
      READ BERGER1.DAT MEAS TRUE
      FIT MEAS TRUE

      .
      MULTIPLOT 2 2
      MULTIPLOT CORNER COORDINATES 0 0 100 100
      TITLE ORIGINAL DATA
      X1LABEL TRUE DEPTH (IN .001 INCH)
      Y1LABEL MEASURED DEPTH
      CHARACTERS X
      LINES BLANK
      PLOT MEAS TRUE
      TITLE PREDICTED VALUES
      PLOT MEAS PRED VS TRUE
      TITLE RESIDUALS
      Y1LABEL
      PLOT RES VS TRUE
      X1LABEL
      TITLE NORMAL PROBABILITY PLOT
      NORMAL PROBABILITY PLOT RES
      END OF MULTIPLOT