

## FuncFitMD

CONST={ <i>constants</i> }	Sets the values of constants in the fitting function. So far, only two built-in functions take constants: exp_XOffset and dblexp_XOffset. They each take just one constant (the X offset), so you will have a “list” of one number inside the braces.
EPSW= <i>epsilonWave</i>	Specifies a wave holding epsilon values. Use only with a user-defined fitting function to set the differencing interval used to calculate numerical estimates of derivatives of the fitting function.
STRC= <i>structureInstance</i>	Specifies an instance of the structure to FuncFit when using a structure fit function. <i>structureInstance</i> is an instance that was initialized by a user-defined function that invokes FuncFit. This keyword (and structure fitting functions) can be used only when calling FuncFit from within a user-defined function. See <b>Structure Fit Functions</b> on page III-261 for more details.

For more details, and for examples of sums of fit functions in use, **Fitting Sums of Fit Functions** on page III-244.

### See Also

The **CurveFit** operation for parameter details. See also **FuncFitMD** for user-defined multivariate fits to data in a multidimensional wave.

The best way to create a user-defined fitting function is using the Curve Fitting dialog. See **Using the Curve Fitting Dialog** on page III-181, especially the section **Fitting to a User-Defined Function** on page III-190.

For details on the form of a user-defined function, see **User-Defined Fitting Functions** on page III-250.

## FuncFitMD

**FuncFitMD [flags] fitFuncName, cwaveName, waveName [flag parameters]**

The FuncFitMD operation performs a curve fit to the specified multivariate user defined *fitFuncSpec*. FuncFitMD handles gridded data sets in multidimensional waves. Most parameters and flags are the same as for the **CurveFit** and **FuncFit** operations; differences are noted below.

*cwaveName* is a 1D wave containing the fitting coefficients, and *functionName* is the user-defined fitting function, which has 2 to 4 independent variables.

FuncFitMD operation parameters are grouped in the following categories: flags, parameters (*fitFuncName*, *cwaveName*, *waveName*), and flag parameters. The sections below correspond to these categories. Note that flags must precede the *fitFuncName* and flag parameters must follow *waveName*.

**Flags**

/L= <i>dimSize</i>	Sets the dimension size of the wave created by the auto-trace feature, that is, /D without destination wave. The wave <i>fit_waveName</i> will be a multidimensional wave of the same dimensionality as <i>waveName</i> that has <i>dimSize</i> elements in each dimension. That is, if you are fitting to a matrix wave, <i>fit_waveName</i> will be a square matrix that has dimensions <i>dimSize X dimSize</i> . <b>Beware:</b> <i>dimSize</i> =100 requires 100 million points for a 4-dimensional wave!
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**Parameters**

<i>fitFuncName</i>	User-defined function to fit to, which must be a function taking 2 to 4 independent variables.
<i>cwaveName</i>	1D wave containing the fitting coefficients.
<i>waveName</i>	The wave containing the dependent variable data to be fit to the specified function. For functions of just one independent variable, the dependent variable data is often referred to as "Y data". You can fit to a subrange of the wave by supplying ( <i>startX,endX</i> ) or [ <i>startP,endP</i> ] for each dimension after the wave name. See <b>Wave Subrange Details</b> below for more information on subranges of waves in curve fitting.

**Flag Parameters**

These flag parameters must follow *waveName*.

/E= <i>ewaveName</i>	A wave containing the epsilon values for each parameter. Must be the same length as the coefficient wave.
/T= <i>twaveName</i>	Like /X except for the T independent variable. This is a 1D wave having as many elements as <i>waveName</i> has chunks.
/X= <i>xwaveName</i>	The X independent variable values for the data to fit come from <i>xwaveName</i> instead of from the X scaling of <i>waveName</i> . This is a 1D wave having as many elements as <i>waveName</i> has rows.
/Y= <i>ywaveName</i>	Like /X except for the Y independent variable. This is a 1D wave having as many elements as <i>waveName</i> has columns.
/Z= <i>ywaveName</i>	Like /X except for the Z independent variable. This is a 1D wave having as many elements as <i>waveName</i> has layers.
/NWOK	Allowed in user-defined functions only. When present, certain waves may be set to null wave references. Passing a null wave reference to FuncFitMD is normally treated as an error. By using /NWOK, you are telling FuncFitMD that a null wave reference is not an error but rather signifies that the corresponding flag should be ignored. This makes it easier to write function code that calls FuncFitMD with optional waves.  The waves affected are the X wave or waves (/X), the Y spacing wave (/Y), the Z spacking wave (/Z) the T spacing wave (/T), weight wave (/W), epsilon wave (/E) and mask wave (/M). The destination wave (/D=wave) and residual wave (/R=wave) are also affected, but the situation is more complicated because of the dual use of /D and /R to mean "do autodestination" and "do autoresidual". See /AR and /AD.  If you don't need the choice, it is better not to include this flag, as it disables useful error messages when a mistake or run-time situation causes a wave to be missing unexpectedly.

**Note:** To work properly this flag must be the last one in the command.

**Details**

Auto-residual (/R with no wave specified) and auto-trace (/D with no wave specified) for functions having two independent variables are plotted in a separate graph window if *waveName* is plotted as a contour or image in the top graph. An attempt is made to plot the model values and residuals in the same way as the input data.