Subject: Problem with REGRESS.PRO
Posted by landsman on Sun, 11 Aug 1991 04:51:56 GMT
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We recently have been having trouble interpreting results using the REGRESS function in the IDL User's Library. We found the culprit was that REGRESS is not a faithful implementation of the Bevington function REGRES when one is using relative weights. For example, the documentation to REGRESS says that for no weighting one should set the weight vector W equal to 1 for all points. This will give the correct function coefficients, but the incorrect deviations of the coefficients (parameter SIGMA). The reason is that REGRESS has to know that the input W vector contained relative weights, so that it can estimate the "real" weights from the fitted data. This is done with the MODE parameter in the Bevington routine.

As a tentative fix, we have added a keyword RELATIVE_WEIGHT to the function, which one would include when the W vector contains relative weights. The following line in the program

```
sigma = sqrt(array(indgen(nterm)*(nterm+1))/wmean/(nfree*sigmax^2))
```

is then changed to (c.f. Bevington p. 175)

```
IF KEYWORD_SET(relative_weight) then varnce = chisq $
                        else varnce = 1./wmean
sigma =  sqrt(array(indgen(nterm)*(nterm+1))*varnce/(nfree*sigmax^2))
```

As a side remark, I wish the visual appearance and program comments of some of the User Library routines were cleaned up. (FIX THOSE PROGRAMS WRITTEN IN ALL CAPS.) It's not a big deal, but these program often serve as the main examples while learning to program in IDL