
Subject: SVDFIT docs bug

Posted by [Mark Fardal](#) on Wed, 14 Apr 1999 07:00:00 GMT

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Hi,

SVDFIT has a rather serious documentation bug.

The hyperhelp gives the prescription $\text{weights}=1/\sigma^2$ (which is like the weights in CURVEFIT):

WEIGHTS

Set this keyword equal to a vector of weights for Y_i . This vector should be the same length as X and Y . The error for each term is weighted by WEIGHTS_i when computing the fit. Frequently, $\text{WEIGHTS}_i = 1.0/s^2(i)$, where s is the measurement error or standard deviation of Y_i (Gaussian or instrumental weighting), or $\text{WEIGHTS} = 1/Y$ (Poisson or statistical weighting). If WEIGHTS is not specified, WEIGHTS_i is assumed to be 1.0.

the code itself (svdfit.pro) has a different view, $\text{weights}=1/\sigma$:

```
sig = 1/weights ;Apply weights
```

the comments in svdfit.pro have a confused mishmash of the two:

```
; WEIGHTS: A vector of weights for Y[i]. This vector must be the same
; length as X and Y. If this parameter is omitted, 1's
; (No weighting) are assumed. The error for each term is
; weighted by Weight[i] when computing the fit. Gaussian or
; instrumental uncertainties should be weighted as
; Weight = 1/Sigma where Sigma is the measurement
; error or standard deviations of Y. For Poisson or statistical
; weighting use Weight=1/Y, since Sigma=sqrt(Y).
```

this is with IDL 5.1 or 5.2. Needless to say this plays havoc with the values of chi-squared and parameter errors and also affects the choice of fit.

I filed this with RSI and they agree it's a problem.

According to DejaNews, SVDFIT has been around at least since 1995. This raises several possibilities:

1) the documentation bug was introduced fairly recently. This seems unlikely to me, documentation tends to be static unless a problem is found with it.

2) The people who used SVDFIT all independently figured out the problem with the documentation and used correct weights, though they neglected to tell anyone else. Well, possibly.

3) A lot of erroneous chi-squared values and incorrect fits have been made with SVDFIT in the last few years. This seems fairly alarming. Wonder if I've read any papers that used this routine.

4) Even more alarming: nobody looks at the value of chi-squared.

cheers,
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