
Subject: CURVEFIT for multiple datasets

Posted by [chloesharrocks](#) on Thu, 31 Jan 2008 12:55:11 GMT

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Dear all

I'm trying to fit an exponential curve to multiple data sets which have been overplotted on a graph. To get a feel for CURVEFIT (as I'm a novice at IDL and CURVEFIT), I wrote the following 2 programs (based on the one given in IDL help), which produce a nice exponential curve when there's only ONE dataset:

```
=====
```

```
PRO gfunct, x, t_a, f_t, PDER
```

```
t_bx = EXP(t_a[1]*x)
```

```
f_t = t_a[0] * (t_bx) + t_a[2]
```

```
;If the procedure is called with four parameters, calculate the  
partial derivatives
```

```
IF N_PARAMS() GE 4 THEN $
```

```
  pder = [[t_bx], [t_a[0]*x*t_bx], [replicate(1.0, N_ELEMENTS(x))]]
```

```
END
```

```
=====
```

```
and
```

```
=====
```

```
PRO CURVE_FITTING
```

```
x=FLOAT(indgen(10))
```

```
y=[12.0, 11.0, 10.2, 9.4, 8.7, 8.1, 7.5, 6.9, 6.5, 6.1]
```

```
weights=1.0/y ;Define a vector of weights
```

```
A=[10.0, -0.1, 2.0] ;Provide an initial guess of the function's  
parameters
```

```
yfit=CURVEFIT(x,y,weights, A, FUNCTION_NAME='gfunct') ;Compute the  
parameters
```

```
print, 'Function parameters: ', A
```

```
loadcolors
```

```
pson, filename='Curve_fitting.ps'
```

```
plot, x, y, yrange=[5,13], ystyle=1, xrange=[0, 11], xstyle=1, psym=1,  
color=0
```

```
oplot, x, yfit, linestyle=1, color=5
```

```
psoff
```

```
END
```

```
=====
```

How can I extend this for the case when I have say 2 data sets, ie:

```
x=[[indgen(10)], [indgen(10)]]
y=[[12.0, 11.0, 10.2, 9.4, 8.7, 8.1, 7.5, 6.9, 6.5, 6.1], [11.5, 10.8,
10.3, 9.5, 8.6, 7.8, 7.5, 6.4, 6.4, 5.9]]
```

and I want to plot an exponential curve through all of this data?
Eventually, I would like my program to be able to plot an exponential curve through 2000+ data sets all of which have been plotted on the same graph and seem to show an exponential trend.

Thanks very much
Chloé
