Subject: Re: Best fit line for sinusoid
Posted by liam.steele on Wed, 30 Sep 2015 16:07:24 GMT
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On Wednesday, 30 September 2015 15:23:01 UTC+1, liam....@gmx.co.uk wrote:
> Hi all,
>
> I was wondering if there was a 'simple' way to get IDL to plot a best fit line for a sinusoidally-varying data set. For example, say temperatures were recorded each hour for 5 days at a certain location, with each measurement having an error of 2 deg C. Then we would have something like:
>
> day = findgen(121)/24
> temp = 15 + 10*sin(10*!pi*findgen(121)/120) + 5*randomu(seed, 121)
> error = fltarr(121)+2
>
> Is it possible from these three arrays for IDL to work out and plot a best fit line? I have searched online, and can't really find what I'm looking for. (surprisingly I have never had to plot a best fit line to anything before!)
>
> Cheers,
>
> Liam

Thanks for the tips everyone. I've managed to get something which I think looks correct, so that's good! I'll add the error bar plot when I work on the real data. The code I used was this:

```
day = findgen(121)/24
temp = 15 + 10*sin(10*!pi*findgen(121)/120)+5*randomu(seed, 121)
error = fltarr(121)+2
meanval = mean(temp)

expr = 'P[0] + P[1]*sin(P[2]*2*!pi*findgen(P[3])/(P[3]-1) + P[4])'
start = [meanval, (max(temp)-min(temp))/2, 5., 121, 0.]

result = MPFITEXPR(expr, day, temp, error, start)
fitline = result[0] +  result[1]*sin(result[2]*2*!pi*findgen(result[3])/(result[3]- 1) + result[4])

plot, day, temp, psym=sym(2)
oplot, day, fitline
```