Subject: Re: MPFIT parameter errors -0.00000
Posted by Craig Markwardt on Thu, 12 May 2011 14:31:40 GMT
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On May 9, 4:35 pm, JoeM <josephmeir...@gmail.com> wrote:
> Hello,
>
> I was wondering about something strange that seems to be going on
> with MPFIT in IDL. MPFIT seems to be working and producing a fine
> looking fit, but the errors on some of the parameters are identically
> -0.00000. These parameters are not limited or tied to anything at the
> moment, so they should be producing some parameter error. Output is
> attached below, MPFIT is ending with a "2" status. Any idea what is
> going on here? This only seems to happen for a specific data file, for
> other fits it seems to be working fine.
>
> Cheers,
> Joe
>
> IDL>
> % MPFIT: WARNING: data is DOUBLE but parameters are FLOAT
> % MPFIT: (converting parameters to DOUBLE)
> Iter 1 CHI-SQUARE = 148.65044 DOF = 99
> P(0) = 2.70126E+16
> P(1) = 2.02481E+16
> P(2) = 32.2569
> P(3) = 37.7481
> P(4) = 0.000100000
> P(5) = 71.0903
> P(6) = 0.273900
> P(7) = 0.273900
> P(8) = 930.748
> P(9) = 930.748
> Iter 1 CHI-SQUARE = 148.65044 DOF = 99
> P(0) = 2.70126E+16
> P(1) = 2.02481E+16
> P(2) = 32.2569
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> P(6) = 0.273900
> P(7) = 0.273900
> P(8) = 930.748
> P(9) = 930.748
>
> STATUS
> 2
>

>   PERROR
>   -0.00000   -0.00000   0.492911   1.38439   0.00000
> 0.930223   0.00000
>   0.00000   0.00000   0.00000

You might find helpful information in the FAQ, in particular...
  http://www.physics.wisc.edu/~craigm/idl/fitqa.html#parstep

It looks like you have a dynamic range problem, given that they cover a range of 1e20!!! Consider re-writing your user function so that the parameter values are roughly the same magnitude, and also vary by about the same magnitude. (Which may mean in your case to fit an offset to a large value instead of the large value itself.)

Also, this error message,
> % MPFIT: WARNING: data is DOUBLE but parameters are FLOAT
> % MPFIT: (converting parameters to DOUBLE)
is ominous. You should strive to maintain consistent numerical system, either all single precision or all double precision.

These suggestions will be true, no matter which fitting software you use.

Happy fitting,
Craig Markwardt
