Subject: Re: "Numerical Recipes" implementation complaints
Posted by Wayne Landsman on Sat, 26 Apr 1997 07:00:00 GMT
View Forum Message <> Reply to Message

Mirko Vukovic wrote:

> I am somewhat surprised that RSI uses numerical recipes. I like that
> code very much, but listening to experts and the NR authors themselves,
> the code does not claim to be state of the art -- which is fine for 90%
> of the users.
>
> However, from a 1500$ piece of software, I might expect more robust and
> state of the art numerical routines (espetially since it fails in other
> respects, like lacking polar surface and contour plotting routines --
> see my outburst of two weeks ago :-) ).

Despite my earlier complaint about how some of the NR routines are implemented in IDL, I support the choice of NR as the IDL math package. I will grant that NR is not a state-of-the art package, and that many professional numerical analysts will belittle it. (But note that most claims of bugs in NR fall into the category of urban legend -- see http://nr.harvard.edu/nr/bug-rebutt.html). But I believe that this drawback of NR is offset by the following advantages:

1. It does no good to have state-of-the art numerics if most users don't know how to take advantage of it. The NR routines are all described in readable prose in the NR books, which are written from the viewpoint of a typical IDL user -- someone who wants to use a numerical routine for data analysis, without having the time to fully delve into courses in numerical analysis.

2. The NR books are extremely popular (more than a quarter-million copies in print), so that any quirks or peculiarities in the code are well-known on the Net, and IDL users explaining their data analysis methods (e.g. "the function was integrated using the NR code QSIMP") will be understood by the majority of the scientific community.

3. Since IDL is primarily a data analysis package, I would argue that it doesn't need the complete sophistication of say the NAG mathematical software. For example, there are many classes of differential equations which are not handled by the NR code, but I doubt that adding this capability to IDL is high on the priority list of most users. (People who do need to solve such equations would probably be using, say parallel FORTRAN, rather than IDL.)

--Wayne Landsman landsman@mpb.gsfc.nasa.gov