Subject: Re: finite difference method (iteration) in IDL
Posted by Kenneth P. Bowman on Tue, 07 Sep 2010 15:29:16 GMT
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In article
<1709922f-995d-48fa-be2f-bc430c4beb77@w15g2000pro.googlegroups.com>,
 mahesh <mkmvarma@gmail.com> wrote:

> I have a heat transfer problem that needs to be solved using finite
> difference method. I have all the equations at all nodal points (it is
> a 2 X 200 array). I was trying to solve this using microsoft excel but
> turns out that the numbers I am getting for each nodal points are not
> reasonable. Anybody have any idea how this could be set up in IDL and
> solve these equations iteratively using finite difference method.
> Thanks very much,
> Mahesh

Your question is too general to be answered in a forum like this.

This is a problem that is straightforward in principal, but
has many technical details that need to be carried out correctly.
There can be issues of stability and convergence, as with any
finite-difference scheme.

Once you have a proper scheme, it is usually relatively easy
to implement in IDL. You can use the SHIFT operator to compute
finite differences. For implicit schemes there are tri-diagonal
solvers and other matrix operators.

Hope that helps,

Ken Bowman