Subject: Re: spherical harmonics
Posted by Kenneth P. Bowman on Thu, 16 Jun 2011 17:58:35 GMT

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In article
<15555635-f0d5-41cc-9550-65c5ca2600b3@n11g2000yqf.googlegroups.com>,
 parama mukherjee <parama2all@gmail.com> wrote:

> Hi,
> I downloaded the Spherepack application but meanwhile also chanced
> upon the following code (I am posting only parts of it) in IDL that
> claims to do spherical harmonic transforms. I did not want to use a
> fortran/C code as I need to do transforms at every time step of my
> calculation and thought going to and fro between IDL and Fortran may
> not be very efficient.

Note the comment in the code snippet you provided: "Currently all
work is done in idl, but future version may want to call C or Fortran
routines for efficiency reasons."

SH transforms (like the FFTs they include) are complex. You have to
weight the benefits of having a well-tested and highly-efficient
implementation in Fortran against the difficulty of linking an
external library.

You might want to start with Ronn Kling's book on calling C and
C++ from IDL.

> The problem with the code right now is I cannot follow what
> it means by collocation points.

Collocation points are the points at which the functions are
evaluated.

See, for example

  http://en.wikipedia.org/wiki/Collocation_method

Ken Bowman