Subject: Re: Spherical Harmonics.
Posted by ahlquist on Fri, 14 Apr 1995 07:00:00 GMT
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James Tappin (sjt@xuna.sr.bham.ac.uk) wrote:
: Does anyone have either of the following:

: 1) A routine to fit (low order) spherical harmonics to data. That is take
: data tabulated at selected latitude & longitude values and return
: spherical harmonic coefficients of the best fit.

I have some old software that may do some of what you want.
It is in Fortran. Check our anonymous ftp site: ftp.met.fsu.edu
(note that ftp is part of the site address).
Check in directory /pub/spherical_harmonics.
(I'm currently working with a grad student on updated software,
but it isn't ready to release yet and probably won't be until fall.)

: or failing that:

: 2) A routine to return the value of a spherical harmonic function of
: given order at a given location?

Version 2 of Numerical Recipes has function plgndr() which computes
the value of an associated Legendre function.
A more complete source would be "spherepack" which is a spherical
harmonics package. It has been a long time since I retrieved
this package, but I believe that it is available by anonymous
ftp at ftp.ucar.edu (ucar = university corporation for
atmospheric research). Check in directory /dsl/catalog
for a list of software packages (dsl = distributed software libraries).
Check the appropriate subdirectory in directory /dsl/lib
for the Fortran source code.

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