Subject: Re: spherical harmonics
Posted by John C. Wright on Fri, 13 Oct 2000 07:00:00 GMT
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On Fri, 13 Oct 2000, Klaus Gottschaldt wrote:

> Subject: spherical harmonics
>
> Hallo!
>
> I want to analyze data on a sphere, representing them by spherical
> harmonic coefficients.
> This is somehow like a Fourier transform, but based on Legendre
> polynoms, which are
> defined on the surface of a sphere.
> Unlike wavelets, this transform is global.
> My data are given in the form [longitude, latitude, data_value], where
> longitude, latitude
> and data_value are vectors of the same length.
> Data points are randomly scattered over the sphere with a resolution of
> approx. 100km
> on the Earth's surface.
>
> Does somebody know, how to do this transform with idl?
>
> Klaus

Hi Klaus,
I may be in need of such a transform in the near future, also. But for now, the MIDL library has a function, legendre_pol.pro, that returns associated legendre polynomials, then it would be possible to build the transform, though I recognize this would be a bit of work, though the longitudinal transform could be done with IDL's FFT.

A word of warning, there are many different Spherical Harmonic decompositions, so make sure your basis functions and normalizations are the same between applications. Let the list know if you find any publicly available solutions, I for one, would be interested.

-john