Subject: Re: 3D congrid without interpolation
Posted by JD Smith on Fri, 13 Apr 2007 22:57:37 GMT
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On Thu, 12 Apr 2007 15:40:07 -0700, mgalloy@gmail.com wrote:

> On Apr 12, 3:19 pm, David Fanning <n...@dfanning.com> wrote:
>> Humm. Hard for me to imagine what you are using to
>> do this that is interpolating anything for you.
>> CONGRID is normally used, but that won't interpolate
>> unless you explicitly tell it to.
>
> CONGRID interpolates 3-dimensional arrays by default. From the online
> help for the INTERP keyword for CONGRID:
>
> INTERP
> Set this keyword to force CONGRID to use linear interpolation when
> resizing a 1- or 2-dimensional array. CONGRID automatically uses
> linear interpolation if the input array is 3-dimensional. When the
> input array is 1- or 2-dimensional, the default is to employ nearest-
> neighbor sampling.

How is "nearest neighbor sampling" not interpolation? Does it explicitly avoid knowledge of how the new array cell is positioned w.r.t. the old one, and simply grab averages of nearby neighbors? Why would this ever be preferable to a linear interpolation?

BTW, there has be a good deal of progress on interpolators, especially for image data, which IDL hasn't taken advantage of. For example, when downsizing, you need to take care to avoid moire artifacts and aliasing.

Here's a classic comparison of various interpolators:

http://www.all-in-one.ee/~dersch/interpolator/interpolator.h tml

JD