Subject: Re: polar interpolation
Posted by wmconnolley on Fri, 10 Jan 2003 10:28:12 GMT
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Thomas Gutzler <tgutzler@ee.uwa.edu.au> wrote:
> I am looking for a function that can do a polar interpolation of a
> [2,n]-array.
> What I don't want is to convert polar koordinates to rect, interpolate,
> and reconvert them to polar.

Converting coordinates can be done by convert_coord routine.

-W.

--
William M Connolley | wmc@bas.ac.uk | http://www.nerc-bas.ac.uk/icd/wmc/
Climate Modeller, British Antarctic Survey | Disclaimer: I speak for myself
I'm a .signature virus! copy me into your .signature file & help me spread!

Subject: Re: polar interpolation
Posted by James Kuyper on Fri, 10 Jan 2003 16:05:24 GMT
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Thomas Gutzler wrote:
>
> Good morning,
>
> I am looking for a function that can do a polar interpolation of a
> [2,n]-array.
> What I don't want is to convert polar koordinates to rect, interpolate,
> and reconvert them to polar.

If you have data that comes close to the pole, that's precisely what you should do. Otherwise, you're going to see some very bizarre results in that vicinity. The pole is a singular point in that coordinate system, and you can only approach it by using a coordinate system where it isn't a singular point.

If you don't come close to the pole, you should be able to use ordinary interpolation routines, treating rho, theta as if they were x and y. That won't produce exactly the right results, but anything that produces exactly the right results is going to be mathematically equivalent to converting back to rectangular coordinates.

Subject: Re: polar interpolation

Posted by Thomas Gutzler on Mon, 13 Jan 2003 02:33:17 GMT
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James Kuyper wrote:
> Thomas Gutzler wrote:
>
>> Good morning,
>>
>> I am looking for a function that can do a polar interpolation of a
>> [2,n]-array.
>> What I don't want is to convert polar koordinates to rect, interpolate,
>> and reconvert them to polar.
>
> If you have data that comes close to the pole, that's precisely what you
> should do.

define 'close' :)
I think the smallest distance to the pole will be 1/10 of the maximum
distance which is between 300 and 1000.

I should write both functions, compare, and then decide again if I want
to use the conversion-method. Just wanted to know _if_ there is another
way to do it.

Tom

Subject: Re: polar interpolation
Posted by Stein Vidar Hagfors H[2] on Mon, 13 Jan 2003 17:12:56 GMT
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James Kuyper <kuyper@saicmodis.com> writes:

> Thomas Gutzler wrote:
>>
>> Good morning,
>>
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>> [2,n]-array.
>> What I don't want is to convert polar koordinates to rect, interpolate,
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>
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> should do. Otherwise, you're going to see some very bizarre results in
> that vicinity. The pole is a singular point in that coordinate system,
> and you can only approach it by using a coordinate system where it isn't
> a singular point.
>

> If you don't come close to the pole, you should be able to use ordinary
> interpolation routines, treating rho, theta as if they were x and y.
> That won't produce exactly the right results, but anything that produces
> exactly the right results is going to be mathematically equivalent to
> converting back to rectangular coordinates.

Wouldn't it be better to do the interpolation close to the pole in a
rotated (i.e. translated) polar coordinate system? Tilt the polar axis
by 90 degrees, interpolate, tilt back?

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Stein Vidar Hagfors Haugan
ESA SOHO SOC/European Space Agency Science Operations Coordinator for SOHO

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