Subject: Re: Minimum curvature surface problem
Posted by Med Bennett on Tue, 22 Oct 2002 17:16:55 GMT
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Med Bennett wrote:

> James Kuyper wrote:
>
>> Med Bennett wrote:
>>>
>>> I'm having a problem using the min_curve_surf function. I am feeding it
>>> data where X and Y are in UTM coordinates (like 650000, 4073500) and Z
>>> ranges from 0.25 to 27,300. The result from min_curve_surf in IDL is a
>>> paraboloid looking surface with a minimum of 2.4E+10 and a max of
>>> 1.2E+15. Needless to say, this is dramatically wrong. I also tried
>>> subtracting off the minimums from the X and Y values to reduce the
>>> number of sig figs, but this does not seem to help. I can compute a
>>> minimum curvature surface with the same data in another software package
>>> (Surfer, Golden Software) and it gives me a reaasonable result. What's
>>> wrong with the IDL implementation, or what am I doing wrong?
>>
>> If you're plotting geo-referenced data covering a significant portion of
>> the Earth, then you should probably be using the /SPHERE keyword. If you
>> are using /SPHERE, then X and Y need to be latitude and longitude in
>> degrees, rather than UTM coordinates.
>>
>> Other than that, I can't think of anything obvious. It might help to
>> post your code.
>
> Hi James,
>
> The area in question is only 4000 meters east-west and 2000 meters
> north-south, so I don't think the earth's curvature is a problem. My code is
> really just the command
>
> mcs = min_curve_surf(cddata,cx,cy,xout=xax,yout=yax)
>
> where xax and yax are just the grid definition. My data looks like
>
> IDL> for i=0,57 do print,cddata[i],cx[i],cy[i]
> 2.50000 654388.42 4074227.3
> 2.50000 653843.10 4074772.3
> 2.50000 653290.98 4074706.9
> 2.50000 653323.82 4075362.3
> 2.50000 653851.11 4074328.6
> 2.50000 653848.19 4073995.6
> 0.250000 653290.04 4074263.0
> 2.50000 653305.74 4073885.9

```
>       35.6000      652827.10      4074199.2
>       2.50000      652820.14      4074587.5
>       2.50000      652750.34      4074996.8
>       2.50000      652349.49      4074956.4
>       73.1000      652244.41      4074843.5
>       1630.00      652355.23      4074634.6
>       664.000      652379.22      4074291.0
>       1990.00      652375.85      4073980.2
>       2.50000      652046.13      4073952.2
>       3000.00      652031.08      4074295.9
>       151.000      652034.06      4074628.9
>       1230.00      651699.00      4074401.0
>       2.50000      651713.84      4074068.3
>       8830.00      652951.30      4073778.5
>       5.00000      653031.97      4073758.4
>       186.000      651272.11      4074506.6
>       3690.00      651429.43      4074507.6
>       20100.0      651464.52      4074536.9
>       3500.00      651552.10      4074610.7
>       2770.00      651545.20      4074794.1
>       93.7000      651540.86      4075159.0
>       2.50000      650900.82      4074493.5
>       11600.0      652630.78      4073856.0
>       24500.0      652701.20      4073805.4
>       14100.0      652717.04      4073748.5
>       27300.0      652619.43      4073929.3
>       251.000      651228.38      4074786.7
>       11200.0      651343.95      4074680.8
>       2.50000      652661.85      4073649.9
>       9.10000      652528.42      4073788.9
>       2.50000      652527.30      4073773.8
>       2350.00      652648.33      4073675.5
>       2080.00      652648.17      4073683.7
>       12.3000      652647.31      4073705.1
>       2.50000      652704.45      4073637.8
>       2.50000      652706.39      4073645.0
>       2.50000      652706.39      4073645.0

    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^ bad!

>
>       2.50000      652796.01      4073604.5
>       2.50000      652978.58      4073553.7
>       3600.00      652700.44      4073719.5
>       10300.0      652772.18      4073722.6
>       4900.00      653065.91      4073832.9
>      0.600000      653198.66      4073806.5
>       13900.0      651645.66      4074401.0
```

> 5.00000 651053.48 4075268.2
> 5.00000 650699.44 4075252.1
> 5.00000 650653.14 4074709.0
> 670.000 651331.96 4075131.0
> 1630.00 651127.30 4074695.9
> 20.0000 650907.27 4075118.6
>
> I'd be happy to mail a couple of gif's illustrating the results if you're
> interested. Thanks, Med

How embarassing - it appears that the one duplicate X,Y data point I had in my arrays was causing min_curve_surf to blow up. Not the first time I've tripped up by @#$&* duplicates! These are analytical chemistry data and they often have duplicate analyses from the same location. sorry sorry sorry - M
