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
