Subject: Re: What is the problem ?
Posted by Ruby on Thu, 29 Oct 2009 01:56:42 GMT
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> On Oct 27, 8:28 pm, Ruby <wuqiao...@gmail.com> wrote:
>
>
>
>> I wrote a simple program to caculate the distance between two location
>> (lon1,lat1), (lon2,lat2)
>
>> function earth_dis ,lon1,lon2,lat1,lat2
>
>> b1 = !pi*lat1/180.0
>> b2 = !pi*lat2/180.0
>> a1 = !pi*lon1/180.0
>> a2 = !pi*lon2/180.0
>
>> dis = 6378.1*acos(cos(b1)*cos(b2)*cos(a1-a2)+sin(b1)*sin(b2))
>
>> RETURN,dis
>> END
>
>> But When I tried to test the program, the results turned to be like
>> IDL> print,earth_dis(4.0,4.0,4.0,4.0)
>> -NaN
>> IDL> print,earth_dis(8.0,8.0,8.0,8.0)
>> 2.20215
>
>> In both cases, the result should be straightforwardly equal 0. Then
>> what is the problem with my program or IDL ?
>
> Check out the wikipedia entry on great circle
distances:http://en.wikipedia.org/wiki/Great-circle_distance
>
> The formula you use doesn't work well on a computer with the distance
> is small (roundoff errors become large). They reference a better
> formula. Alternatively, use the GCIRC function in the IDL Astronomy
> user's library.
>
> Chris

thanks, both of you