Subject: Re: area enclosed by a poylgon on a sphere
Posted by Struan Gray on Wed, 04 Aug 1999 07:00:00 GMT
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Ronn Kling, ronn@rlkling.com writes:

> I found out how to do this today. For a spherical
> triangle the solid angle subtended is the sum (in
> radians) of the interior angles - Pi.

I'm sure you probably know this, but it's worth pointing out that the 'interior angles' are those measured on the surface of the sphere, and not the angles between chords joining the points. That is, you can't plug the cartesian coordinates of your vertices into the familiar vector formulea for angles and distances. Instead, you have to construct the two great circles which bound each vertex and calculate the complement of the angle between their normal vectors. For small areas on a large sphere it makes no difference, but the case of three points spaced equally around, and just north of, the equator makes the distinction clear: one method gives you zero, the other gives 2*pi.

One of the public IDL libraries (idlastro I *think*) has useful utility routines for great circle calculations.

Struan