Subject: Re: Algorithm for lat/lon searching
Posted by Terence on Fri, 18 Aug 2006 22:28:17 GMT
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Can I suggest building two tables of the globe, which maps surface area units as a small number of very approximately square areas (except near the poles when they could become triangular)? The two tables refer to two sets of such maps that overlap so that the centre of one area is on the boundary of a similar area of the second map.
The northern and southern triangles are just displaced by longitude in a similar relationship.

You build your two tables of the globe as area numbers which corresponding to a numbering of the centre points based on known latitude and longitude. Now you take your table of lat/lon points data and assign the two individual map area numbers to each point on one pass by rounding and truncating the exact coordinates so that the high-order digits match the area centre lat/lon numbers and allow direct assignment of the areas they have in common.

On a second pass, all numbers with the same index in either mapping are close neighbours. If both indices are identical they are very close neighbours within half an area unit. You choose a mapping resolution suitable for the work to be done

Then you could order the data points by the new index numbers and so process the globe data in a sequential manner that treats neighbouring points in order.

Terence Wright