
Subject: Re: Distance - geodesic - Vincenty - very accurate

Posted by [nneilson](#) on Sun, 21 Mar 2010 09:41:19 GMT

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Mindtraveller wrote on Sun, 21 March 2010 08:44Cool.

What is the accuracy/drift of your calculations?

The Vincenty formulas are VERY accurate. With the Python code running it through a series of locations using the

Inverse formula and the returned values input to the Direct formula the result coincided usually to 10 decimal places

but did not exceed +/- 1 in the 9th decimal place. 9 decimal places is one billionth of a meter.

The accuracy will not be

affected by the calculations. The accuracy of data input for locations, distance and starting angle, for all intent and

purposes, will determine the accuracy of the output.

The calculations are just math, no drift. Any "drift" would come from the input data.

Here is data on Tectonic Plate velocity or "drift"

<http://hypertextbook.com/facts/ZhenHuang.shtml>

using 5 cm per year

$.05 / (365 * 24 * 60 * 60) = \text{meters per second}$ so the code

`Distance<<=Format("m/sec %.9f", .05 / (365 * 24 * 60 * 60));`

returns m/sec 0.000000002

2 in the 9th decimal place so it would take only 5 sec to make a

change in the 8th decimal place. 8 decimal places is the highest I have in the Distance app.
