Subject: Re: Nautical Miles to Lat/Lon Degrees
Posted by thompson on Thu, 09 Sep 1999 07:00:00 GMT
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Struan Gray <struan.gray@sljus.lu.se> writes:

> David Fanning, davidf@dfanning.com writes:

>> Does anyone know off-hand the formula for converting nautical
>> miles to degrees of latitude and longitude for a given
>> latitude and longitude? Pointers to appropriate reference
>> materials is also appreciated.

> If I remember correctly, one nautical mile is defined as one
> minute of latitude at the equator. My data book (Kaye and Laby
> 14th Ed.) says one n.m. equals 1.852 km.

> Struan

Here's a pretty authoritative source, which gives 1 n.m = exactly 1.852 km.

http://physics.nist.gov/cuu/Units/outside.html

and also

http://ts.nist.gov/ts/htdocs/230/235/appxc/$temp.htm

which includes the following notation

> The international nautical mile of 1 852 meters (6 076.115 49...feet) was adopted effective July 1, 1954, for use in the United States. The value formerly used in the United States was 6 080.20 feet = 1 nautical (geographical or sea) mile.

Note, by the way, that this is very close one minute of latitude at the equator if one assumes a circumference of exactly 40000 kilometers. In fact, the original definition of a meter was one ten-millionth of the distance from the equator to the North Pole along a meridian passing through Dunkirk and Barcelona, i.e. a quarter circumference of exactly 10000 kilometers.

William Thompson

Subject: Re: Nautical Miles to Lat/Lon Degrees
Posted by jph on Thu, 09 Sep 1999 07:00:00 GMT
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One nautical mile was defined to be one minute of arc
on the earth's surface. So moving north or south, the
displacement in degrees of latitude is (naut miles)/60.
Since the lines of longitude converge at the poles, the
the displacement east or west in degrees of longitude is
given by (naut miles)/(60*cos(latitude)).
  But how accurate must this be? The foregoing assumes
a spherical earth, which is not quite true ...

Cheers,
Patrick Harrington

In article <37D7E259.83B9EFB6@ssec.wisc.edu>, Liam Gumley <Liam.Gumley@ssec.wisc.edu>
writes:
|> David Fanning wrote:
|> > Does anyone know off-hand the formula for converting nautical
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|> > latitude and longitude? Pointers to appropriate reference
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|>
|> David, the following may prove helpful:
|>
|> According to my freshman physics text (Halliday and Resnick), 1 nautical
|> mile = 1.852 kilometers.
|>
|> For computing the distance in kilometers between a pair of lat/lons,
|> nothing beats the COMPASS routine from the ESRG library, available at
|>
|> http://www.astro.washington.edu/deutsch-bin/idllibsrch?keywo rd=compass
|>
|> Cheers,
|> Liam.
|>
|> --
|> Liam E. Gumley
|> Space Science and Engineering Center, UW-Madison
|> http://cimss.ssec.wisc.edu/~gumley

Subject: Re: Nautical Miles to Lat/Lon Degrees
Posted by davidf on Thu, 09 Sep 1999 07:00:00 GMT

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Struan Gray (struan.gray@sljus.lu.se) writes:

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> minute of latitude at the equator. My data book (Kaye and Laby
> 14th Ed.) says one n.m. equals 1.852 km.

Duh. I've got to get better reference material. :-(

Thanks,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Nautical Miles to Lat/Lon Degrees
Posted by Liam Gumley on Thu, 09 Sep 1999 07:00:00 GMT
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Cheers,
Liam.

--
Liam E. Gumley
Space Science and Engineering Center, UW-Madison
http://cimss.ssec.wisc.edu/~gumley

Subject: Re: Nautical Miles to Lat/Lon Degrees
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Struan

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> miles to degrees of latitude and longitude for a given
> latitude and longitude? Pointers to appropriate reference
> materials is also appreciated.

Yikes! Ol' Miss Buchanan is rolling in her grave!
Pointers *are* appreciated. :-)

Cheers,

David

--
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