
Subject: Tropics

Posted by [Anonymous](#) on Thu, 25 Jul 1985 14:44:42 GMT

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Originally posted by:

@S1-A.ARPA,@MIT-MC.ARPA:Houser.DODCSC@MIT-MULTICS.A RPA

Article-I.D.: mordor.2803

Posted: Thu Jul 25 10:44:42 1985

Date-Received: Sat, 27-Jul-85 01:19:03 EDT

Sender: daemon@mordor.UUCP

Organization: S-1 Project, LLNL

Lines: 13

From: Houser@MIT-MULTICS.ARPA

A book I was reading recently mentioned that over time the angle of the plane of the ecliptic changes. The consequence is that the latitude of the tropics also move. While this makes sense, the book also stated that there is no formula which describes the motion over time. Is this really true? The context was that certain archeological sites are solstice oriented and could be accurately dated if it was known in what year a Tropic was at X latitude. Just curious.

jim@tycho

Subject: Re: Tropics

Posted by [brent](#) on Mon, 29 Jul 1985 13:37:43 GMT

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Article-I.D.: phoenix.1250

Posted: Mon Jul 29 09:37:43 1985

Date-Received: Wed, 31-Jul-85 02:16:42 EDT

References:

Organization: AT&T Information Systems, Lincroft NJ

Lines: 35

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>archeological sites are solstice oriented and could be accurately
>dated if it was known in what year a Tropic was at X latitude. Just
>curious.

As far as I know, this process is known as "nutation".
The earth's axis of rotation precesses around a point in
space with a period of 20,000 years or so. Superimposed on this
motion is another motion with a much shorter period.
I think nutation is caused by sun-moon gravitational effects on
the earth's equatorial bulge and tidal friction.

The effect over time is that the season's slowly shift around the
year, so that in 11,000 years time you'll be eating lettuce salads
for Christmas dinner like New Zealanders do!

As far as I know - nutation IS predictable. There is even a clock
somewhere with extra dials for years, centuries etc. The slowest
movement is the nutation dial.

Interestingly, the earth is not fixed to it's axis of rotation.
The north & south poles can move tens of yards every year.
I've seen a map showing the south pole moving erratically
(drunken walk) within a radius of 100 yards or so.
I don't think this movement is predictable. I guess they
have the barber pole on wheels . :-)

--

Made in New Zealand --> Brent Callaghan
AT&T Information Systems, Lincroft, NJ
{ihnp4|mtuxo|pegasus}!phoenix!brent
(201) 576-3475

Subject: Re: Tropics
Posted by [Anonymous](#) on Mon, 29 Jul 1985 20:09:38 GMT
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Originally posted by: @S1-A.ARPA,@MIT-MC.ARPA:mcgeer%ucbkim@Berkeley

Article-I.D.: mordor.2849
Posted: Mon Jul 29 16:09:38 1985
Date-Received: Wed, 31-Jul-85 22:43:16 EDT
Sender: daemon@mordor.UUCP
Organization: S-1 Project, LLNL
Lines: 37

From: mcgeer%ucbkim@Berkeley (Rick McGeer (on an aaa-60-s))

>
> A book I was reading recently mentioned that over time the
>angle of the plane of the ecliptic changes. The consequence is that
>the latitude of the tropics also move. While this makes sense, the
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>archeological sites are solstice oriented and could be accurately
>dated if it was known in what year a Tropic was at X latitude. Just
>curious.

>
> jim@tycho
>

Wrongo. The phenomenon you're referring to is called the "precession of the equinox" and the values have been calculated *very* precisely. Roger Bacon first pointed out the phenomenon in the 13th Century, and showed that if the Julian calendar were not changed, then sometime in the 30th Century Easter would occur in midsummer (the rate of precession is about .75 days/century). The solution he proposed was the one adopted in the Gregorian calendar, in which Leap Years are not held in century years and are held every 400th year: so there was no leap year in 1900, there will be one in 2000, but there won't be one in any of 2100, 2200, 2300.

Incidentally, the world shifted to the Gregorian calendar at varying times. The Roman Catholic world did it first, in the 16th Century -- but that was after the Schism, and so England didn't follow suit. For 200 years England's calendar trailed the European by first 9, then 10, then 11 days. England finally converted in the mid-18th Century, to riots (11 days were dropped from the calendar at the stroke of a pen). Russia converted after the Bolshevik revolution; this is why the "October revolution" was really held, by Western calendars, in November.

Rick.

Subject: Re: Tropics
Posted by [msb](#) on Mon, 29 Jul 1985 23:58:30 GMT
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Article-I.D.: Isuc.738

Posted: Mon Jul 29 19:58:30 1985
Date-Received: Mon, 29-Jul-85 21:23:10 EDT
References:
Reply-To: msb@lsuc.UUCP (Mark Brader)
Organization: Law Society of Upper Canada, Toronto
Lines: 19
Xref: utcs net.space:3814 net.astro:832
Summary: Reposted from net.space as cross-posting to net.astro

This item entered net.space from the Arpa side. On Usenet it obviously belongs in net.astro. I'm reposting it as a cross-posting so that followups will go both to Usenet net.astro types and to the Arpans who originated it.

Reposted by Mark Brader

> From: Houser@MIT-MULTICS.ARPA

>
>

> A book I was reading recently mentioned that over time the
> angle of the plane of the ecliptic changes. The consequence is that
> the latitude of the tropics also move. While this makes sense, the
> book also stated that there is no formula which describes the motion
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> dated if it was known in what year a Tropic was at X latitude. Just
> curious.

>
>

jim@tycho

Subject: Re: Tropics
Posted by [markb](#) on Wed, 31 Jul 1985 16:37:20 GMT
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Article-I.D.: sdcrcdf.2212
Posted: Wed Jul 31 12:37:20 1985
Date-Received: Sun, 4-Aug-85 08:11:51 EDT
References:
Reply-To: markb@sdcrcdf.UUCP (Mark Biggar)
Organization: System Development Corp. R+D, Santa Monica
Lines: 18
Summary:

In article @S1-A.ARPA,@MIT-MC.ARPA:mcgeer%ucbkim@Berkeley writes:
> Incidentally, the world shifted to the Gregorian calendar at varying

>times. The Roman Catholic world did it first, in the 16th Century -- but
>that was after the Schism, and so England didn't follow suit. For 200 years
>England's calendar trailed the European by first 9, then 10, then 11 days.
>England finally converted in the mid-18th Century, to riots (11 days were
>dropped from the calendar at the stroke of a pen). Russia converted after
>the Bolshevik revolution; this is why the "October revolution" was really
>held, by Western calendars, in November.

The British changeover (here to as we were still colonies) happened in 1752 (try running "cal 1752" and looking at Sep). If I had been there I would have rioted too. People didn't object to the dropping of the days from the calendar, what they objected to was that all the landlords were charging a full months rent for Sep even though it was 11 days short.

Mark Biggar

{allegra,burdvax,cbosgd,hplabs,ihnp4,akgua,sdcsvax}!sdcrcdf!markb

Subject: Re: Tropics
Posted by [Anonymous](#) on Fri, 02 Aug 1985 17:22:31 GMT
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Originally posted by: @S1-A.ARPA,@MIT-MC.ARPA:jrv@mitre-bedford

Article-I.D.: mordor.2921
Posted: Fri Aug 2 13:22:31 1985
Date-Received: Sun, 4-Aug-85 05:48:19 EDT
Sender: daemon@mordor.UUCP
Lines: 13

From: jrv@Mitre-Bedford

> Incidentally, the world shifted to the Gregorian calendar at varying
> times. The Roman Catholic world did it first, in the 16th Century -- but
> that was after the Schism, and so England didn't follow suit. For 200 years
> England's calendar trailed the European by first 9, then 10, then 11 days.
> England finally converted in the mid-18th Century, to riots (11 days were
> dropped from the calendar at the stroke of a pen)...

I believe the reason for the riots was that people were forced to pay a whole month's rent for the short month.

- Jim Van Zandt

Subject: Re: Tropics
Posted by [Anonymous](#) on Fri, 02 Aug 1985 19:41:30 GMT
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Originally posted by: @S1-A.ARPA,@MIT-MC.ARPA:mcgeer%ucbkim@Berkeley

Article-I.D.: mordor.2924
Posted: Fri Aug 2 15:41:30 1985
Date-Received: Sun, 4-Aug-85 05:49:15 EDT
Sender: daemon@mordor.UUCP
Lines: 26

From: mcgeer%ucbkim@Berkeley (Rick McGeer (on an aaa-60-s))

>> Incidentally, the world shifted to the Gregorian calendar at varying
>> times. The Roman Catholic world did it first, in the 16th Century -- but
>> that was after the Schism, and so England didn't follow suit. For 200 years
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>> dropped from the calendar at the stroke of a pen)...

>
>I believe the reason for the riots was that people were forced to pay a whole
>month's rent for the short month.

Rents in those days were charged by the quarter. Anyway, you're right, but that was, sad to say, secondary. People were really upset because they'd been made 11 days older at the stroke of a pen..."Give us back our 11 days", they cried...

A notable exception to this nonsense was an American planter named Washington. In the middle of the kerfuffle, he simply changed his birthdate in the family bible from February 11 to February 22. An eminently sensible individual.

Rick.

Subject: Re: Tropics
Posted by [lowry](#) on Sat, 10 Aug 1985 01:56:37 GMT
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Article-I.D.: fortune.5457

Posted: Fri Aug 9 21:56:37 1985

Date-Received: Tue, 13-Aug-85 00:58:46 EDT

References:

Reply-To: lowry@fortune.UUCP (John lowry)

Organization: Fortune Systems, Redwood City, CA

Lines: 3

I seem to recall reading that one or more of the Nordic countries adjusted their calendar in a way that caused the minimum of difficulty: they simply didn't have any leap years for about 40 years.