Earth Gyroscope2

General solution for the two most important gyroscopic precession cycle

x axis is left to right of the screen, y axis is low to hight the screen, z axis is perpendicular to the screen, I is gyroscope inertia, w is angular speed, M is the torque, then:

I(0''x) = M – iw(0'z) , (equation 1),

I(0''z) = Iw(0')x , (equation 2),

(0'z) = w(0x) , (equation 3),

(0''x) = M/I - (w^2)(0x) ,

(0''x) + (w^2)(0x) = M/I , (equation 4),

The resolution of this equation is:

0x = e ^(-jwt) + M/[I(w^2)] , (equation 5),

0'x = (-jw)e^(-jwt) , (equation 6),

As 0'z = w(0x) then fron equation 5 :

0'z = (w)e^(-jwt) + M/(Iw) , (equation 7),

For t = T/2, then:

(0'z) maxima = (w)e^(-.5jwT) + M/(Iw) = 2[(360 degrees)/P] , (for t = T/2), (equation 8),

because 0'z maxima is twice the mean value of 0'z,

As M/(Iw) = (360 degrees)/P , then from equation 8:

e^(-.5jwT) = (360 degrees)/(wP) = M/[I(w^2)] , (equation 9),

(w)e^(-.5jwT) = (360 degrees)/P = M/(Iw) , (equation 10),

(w)e^(-.5jwT) = M/(Iw) , (equation 11),

From equation 8 and equation 11 :

(0'z) maxima = 2[(w)e^(-.5jwT)] , (equation 12),

For constant acceleration:

(0'z) mean value = (1/2)[(0'z) maxima] , (equation 13), From equation 12 and equation 13:

(0'z) mean value = (1/2)[2we^(-.5jwT)] , (equation 14),

For relation between T and P we are only to do the ratio of the mean value for (0'z)(P) and (0'x)(T) and for:

(0'z) mean value = (1/2)[2(w)e^(-.5jwT)] , (equation 14),

From equation 6, for t = T/2 :

(0'x) maxima = [(-jw)e^(-.5jwT)] , (equation 15),

(0'x) mean value = (1/2)[(0'x) maxima] , (equation 16),

From equation 16 and equation 15:

(0'x) mean value = (1/2)[(-jw)e^(-.5jwT)], (equation 17),

[(0'z) mean value](P/2) = (180 degrees), (equation 18),

(1/2)[2(w)e^(-.5jwT)](P/2) = (180 degrees), (equation 19),

[(0'x) mean value](T/2) = (variabilty angle),

(1/2)[(-jw)e^(-.5jwT)](T/2) = (variability angle), (equation 20)

(equation 19)/(equation 20):

[(2P)/(-jT)] = (180 degrees)/(variability angle), (equation 21),

For absolute value:

2[(variability angle)/(180 degrees)]P = T , (equation 22),

This is a general resolution and for the earth this equation is also good even if there is 2 precession cycle T and 2 precession cycle P ;
for earth gyroscope stir up by Moon, try variability angle = 2.4 degrees, and equinox precession P = 26 000 years, then:

2[(2.4 degrees)/(180 degrees)](26 000 years) = T,

693.33 years = T,

I give here the good value for Earh gyroscope:
Change Iw(0'z) from equation 1 by:

[Iw(0'z)]cos (66.5) = (.4)Iw(0'z) and this is about constant, also change Iw(0'x) from equation 2 by:

$(.4)Iw(0'x)$,then the resolution of equation 1 and 2 is:

$0x = e^{(-.4jwt)} + M/[I(.4w)^2]$, (equation 23),

$[(0'z1) - (0'z2)](P/2) = (180 \text{ degrees})$,

$(180 \text{ degrees}) = (.4w)[e^{(-.4jwt1)} - e^{(-.4jwt2)} + A + B](P/2)$, (equation 24),

$A = M1/[I(.4w)^2]$, $B = M2/[I(.4w)^2]$,

$[(0'x1) - (0'x2)](T/2) = (\text{variability angle})$,

$(\text{variability angle}) = (-.4jw)[e^{(-.4jwt1)} - e^{(-.4jwt2)}](T/2)$, (equation 25),

(equation 24)/(equation 25) : [from $t1 = (T1)/2$ and $t2 = (T2)/2$],

$(180 \text{ degees})/(\text{variability angle}) = -2P/(jT)$,

For absolute value:

$T = [2(\text{variability angle})/(180 \text{ degrees})]P$, (equation 26),

It is the same equation that equation 22 and from variability angle = 2.4 degrees and equinox precession P = 26 000 years, T = 693.33 years.

I have found 2 curve temperature for the last 2000 years,
please choice curve light green and red and notice that there is 2 minima between
about 900 and 1600, the sediments for this two curve have been took in North hemisphere, here the web page:

http://www.wikipedia.org/wiki/File:2000_Year_Temperature_Comparison.png