UYGULAM 1: YUMA YÖRÜNGE FORMATI ve UYDU KOORDİNAT HESABI

YUMA Yörünge Formatı:

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******** Week 762 almanac for PRN-01 ********
ID:                         01                  Uydu numarası
Health:                     000                 Uydunun durumu (0:çalışıyor, diğer)
Eccentricity:               0.2850055695E-002   e   [ ]
Time of Applicability(s):  233472.0000          t0  [s] (Yörünge ve saat referans anı)
Orbital Inclination(rad):   0.9608256444        i0  [rad]
Rate of Right Ascen(r/s):  -0.8034620388E-008   Δℓ  [rad/s]
SQRT(A)  (m 1/2):           5153.623047         a^0.5 [m^0.5]
Right Ascen at Week(rad):  -0.6929155253E+000   ℓ0  [rad]
Argument of Perigee(rad):   0.326578368         w0  [rad]
Mean Anom(rad):             0.1616346493E+001   M0  [rad]
Af0(s):                     0.6675720215E-005   a0  [s]
Af1(s/s):                   0.0000000000E+000   a1  [ ]
week:                        762                Değiştirilmiş GPS Haftası
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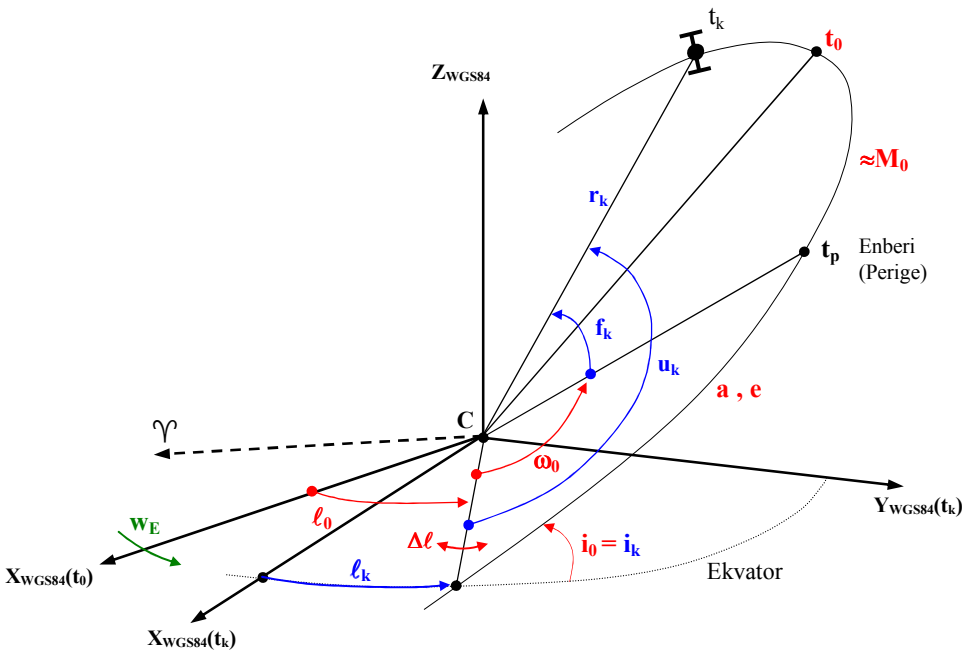

w_E= 7292115.1467e-11rad/s=*0.0046423046848 g/s* **μ=GM=3.986005e5 km³/s²**

t = 208800.0 s
$t_k = t - t_0$

$M_k = M_0 + n\ t_k$ = *-126.19510151292*^{g} $n = \sqrt{\mu/a^3}$

$E_k = M_k + e \sin E_k$ = *-126.36120755149*^{g} $\left|E_k^{(i+1)} - E_k^{(i)}\right| \le 1e-14$ ($E_k^{(0)} = M_k$)

$$f_k = arctg\left\{\frac{\sqrt{1-e^2}\ \sin E_k}{\cos E_k - e}\right\} = \ 273.47278135074^g$$

$u_k = w_0 + f_k =$ *294.263405980374 g*
$i_k = i_0 =$ *61.16806030229*^{g}
$\ell_k = \ell_0 + (\Delta\ell - w_E)\, t_k - w_E\, t_0 =$ *-213.41297085513 g*
$r_k = a(1 - e\cos E_k) =$ *26590.287095 km*

		r_{yuma}	r_{pre}	$r_{pre}-r_{yuma}$
$X_k = r_k\,(\cos\ell_k\cos u_k - \sin\ell_k \sin u_k \cos i_k)$	=	5512.538989 km	5513.232130	0.693141
$Y_k = r_k\,(\sin\ell_k\cos u_k + \cos\ell_k \sin u_k \cos i_k)$	=	14334.386314 km	14334.394632	0.008318
$Z_k = r_k \sin u_k \sin i_k$	=	-21706.695988 km	-21706.885960	-0.189972
$\delta = a_0 + a_1 t_k$	=	6.675720 μs	6.698218	0.022498