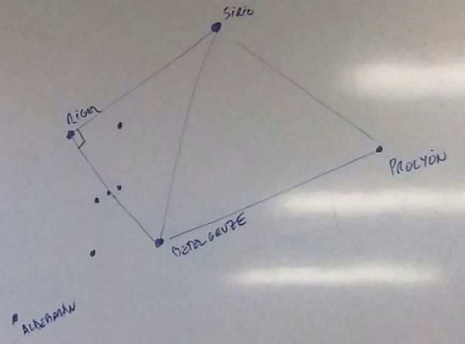
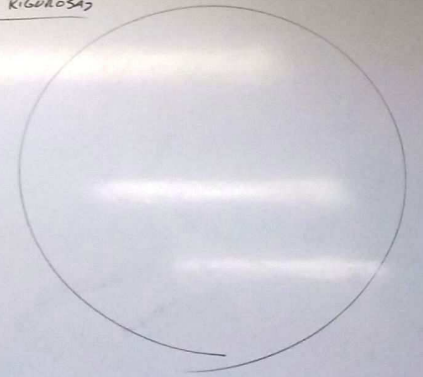


PRECESIÓN: FORM. RIGUROSAS

Polo inicial P_0

Polo Final P



- HOY: ENTREGA
- 21: NO CLASE
- 23: RECUPERACION PRACTICO
- 10:00
- 24: P. ABERTAS

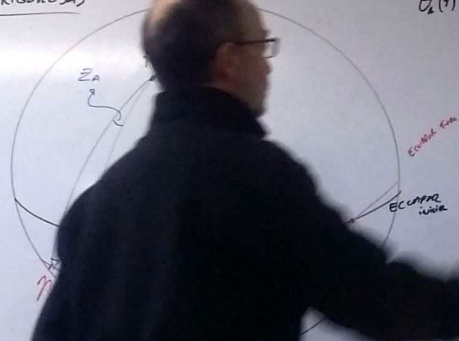
PARCIAL:
 28/5
 10:00

PRECESIÓN: FORM. RIGOROSAS

Polo inicial P_0

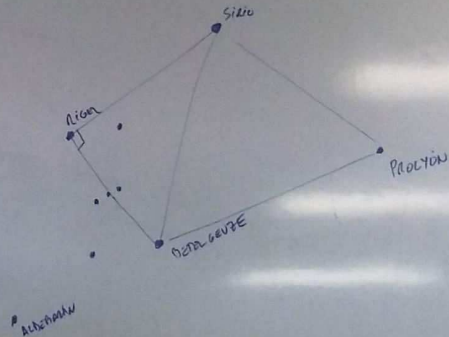
Polo Final P

P RESPECTO A P_0



TEORÍA PRECESIÓN GRAL.

$$\theta_A(t), \zeta_A(t), z_A(t)$$



HOY: ENTREGA

21: NO CLASE

23: RECUPERACIÓN
PRÁCTICO

10:00

24: P. ABIERTAS

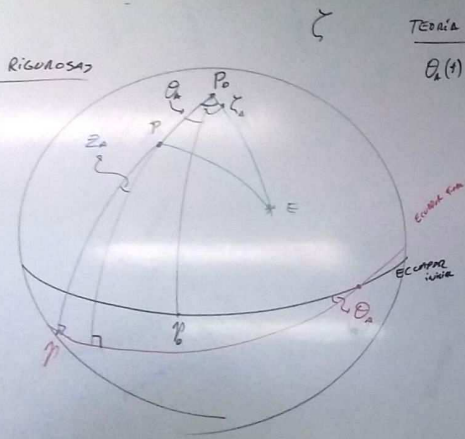
PARCIAL:

28/5

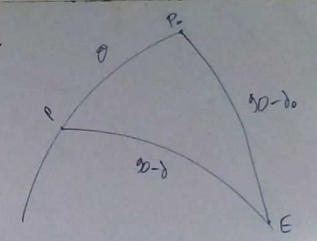
10:00

RESUMEN: Fórmulas rigurosas

P_0
 P
 P_0
 $t_0 (\alpha_0, \delta_0)$
 t



TEORÍA PROCESOS GRAL:
 $\theta_s(t), \zeta_s(t), z_s(t)$



H07: ENTREGA
 21: NO CLASE
 23: RECUPERACIÓN PRÁCTICO
 10:00
 24: P. ABIEGMS

PARCIAL:
 28/5
 10:00

PRECESIÓN: Form. Rigurosas

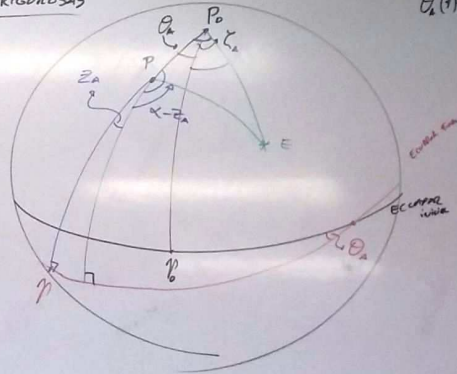
Polo inicial P_0

Polo Final P

P respecto a P_0

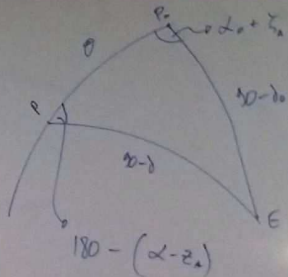
COORD. EN INST t_0 (α_0, δ_0)

$\Rightarrow (\alpha, \delta)$ en t



TEORÍA PRECESIÓN GRAL:

$$\theta_a(t), \zeta_a(t), \varpi_a(t)$$



$$(\alpha_0, \delta_0) \rightarrow (\alpha, \delta)$$

R

PRECESIÓN: Form. Rigurosas

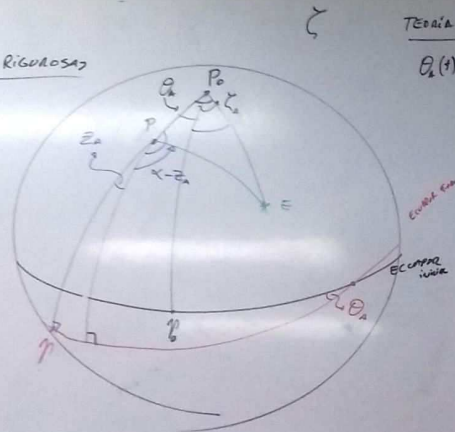
Polo inicial P_0

Polo Final P

P RESPECTO A P_0

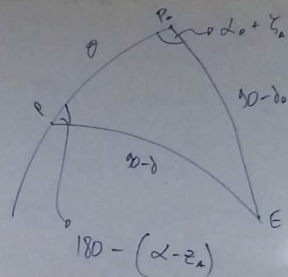
COORD. EN INST t_0 (α_0, δ_0)

$\Rightarrow (\alpha, \delta)$ en t



TEORÍA PRECESIÓN GRAL:

$$\theta_A(t), \zeta_A(t), z_A(t)$$

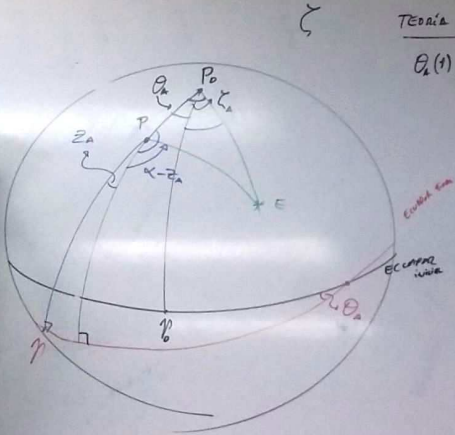


$$\begin{matrix} (\alpha_0, \delta_0) & \longleftrightarrow & (\alpha, \delta) \\ & \uparrow & \\ & \theta, \zeta, z & \end{matrix}$$

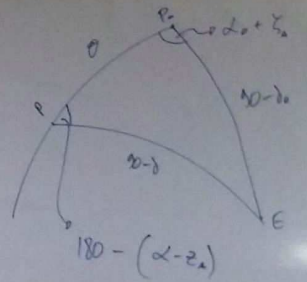
$$P(t_0, t) = R_z(-z_A) \cdot R_y(-\theta_A) \cdot R_z(-z_A)$$

↑
MATRIZ
PRECESIÓN

POS. MEDIA STANDARD: 2000.0
 ↓ PRECESION GERAL + MOV. PROPRIO
 POS. MEDIA DE LA FECHA (2011)



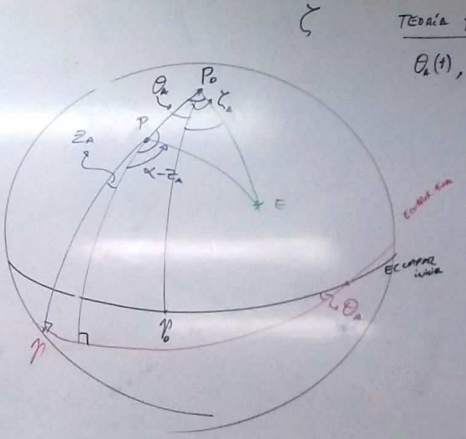
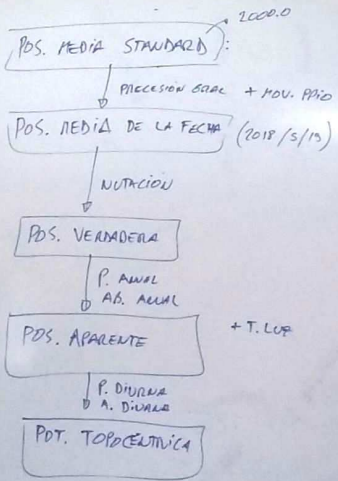
TEORÍA PRECESIÓN GERAL:
 $\theta_a(t), \zeta_a(t), z_a(t)$



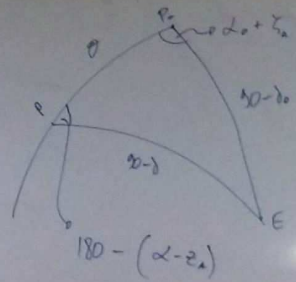
$(\alpha_0, \delta_0) \leftrightarrow (\alpha, \delta)$
 \uparrow
 θ, ζ, z

$$P(t_0, t) = R_z(-z_a) \cdot R_y(-\theta_a) \cdot R_x(-\zeta_a)$$

↑
 MATRIZ PRECESIÓN



Teoría Precesión GRAL:
 $\theta_n(t), \zeta_n(t), z_n(t)$

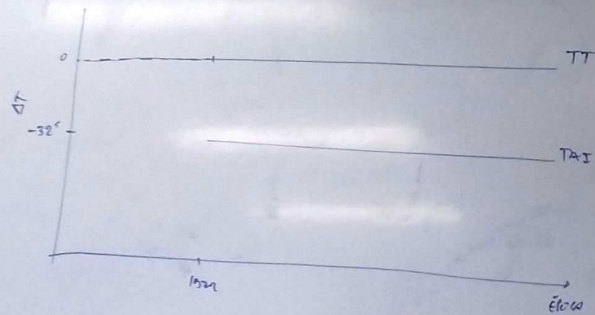


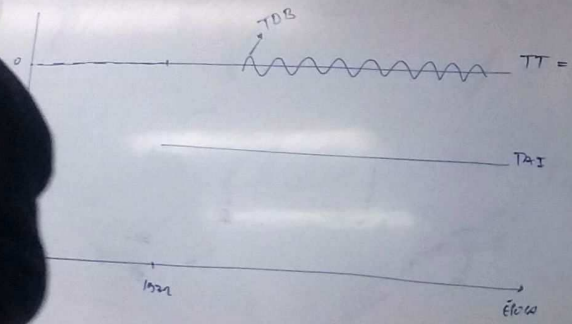
$$\begin{matrix}
 (\alpha_0, \delta_0) & \leftrightarrow & (\alpha, \delta) \\
 & \uparrow & \\
 & \theta, \zeta, z &
 \end{matrix}$$

$$P(t_0, A) = R_z(-z_n) \cdot R_y(-\theta_n) \cdot R_x(-\zeta_n)$$

↑
 MATRIZ PRECESION

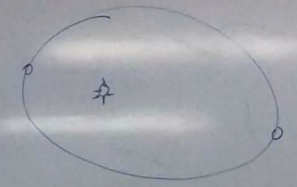
TIEMPO





$$TDB - TT \sim 0.00166$$

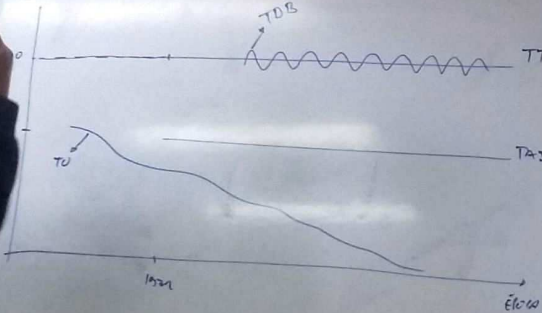
$$TT = TAI + 32^s.184$$



TIEMPO

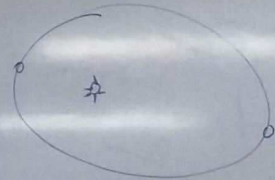
TUC

1950



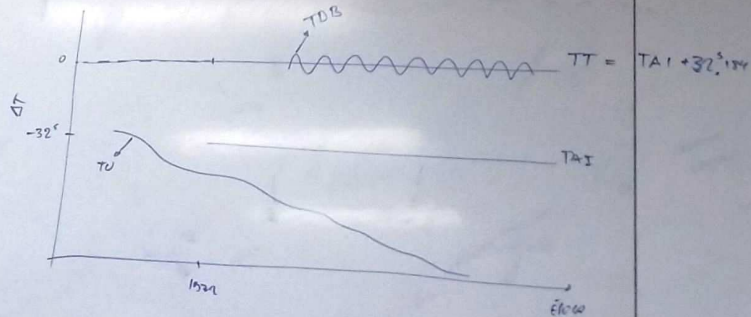
$$TDB - TT \sim 0.00166$$

$$TT = TAI + 32^s.184$$



TIEMPO

TUC: Tiempo Universal
COORDINADO



$$TDB - TT \sim 0.000166$$

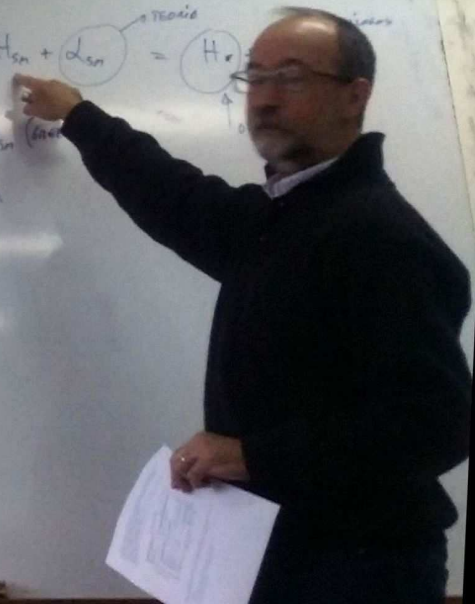
$$TT = TAI + 32.184^s$$

$$TSL = H_{sm} + \Delta_{sm} = H_0$$

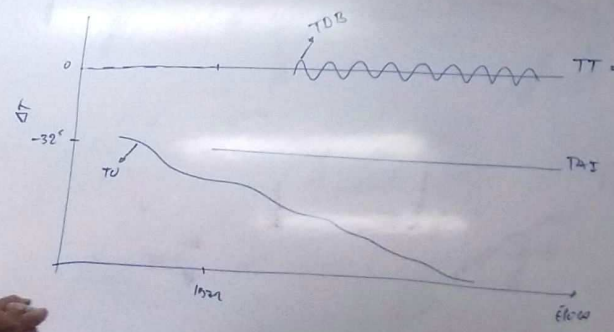
→ TDB

$$TU = 12^s + H_{sm}$$

$$T_{local} = TU + \lambda$$



TEMPO
TUC



$$TDB - TT \sim 0.00166$$

$$TSL = H_{sm} + \Delta_{sm} = H_o + \Delta_o$$

↑ TEGAR
↑ COTA INCLINADA

$$TU = 12^{\circ} + H_{sm} \text{ (SOLARCO)}$$

$$T_{Lorel} = TU + (\times)$$

$$H_{sm} \rightarrow UT0 + \text{CORR. PAR. POLAR} \rightarrow UT1$$

TIEMPO

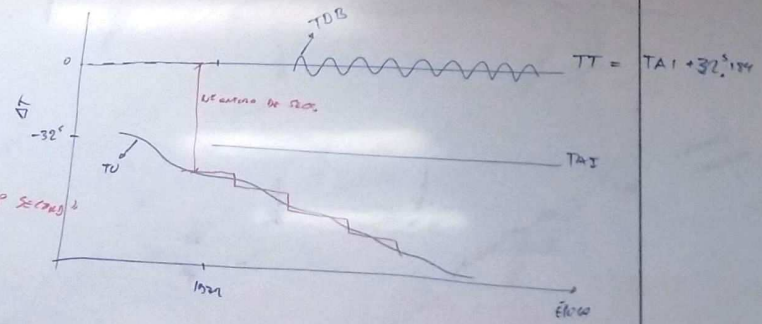
TUC : Tiempo Universal
COORDINADO

23:59:59

23:59:60

24:00:00

LEAP SECOND



$TDB - TT \sim 0.00166$

$TSL = H_{sm} + \Delta_{sm} = H_o + \Delta_o$

(Annotations: "TDB" above Δ_{sm} , "obs." below H_o , "calculated" above Δ_o)

$TU = 12^h + H_{sm}$ (observada)

$T_{local} = TU + (\Delta)$

$H_{sm} \rightarrow UT0 + \text{CORR. MOV. POLAR} \rightarrow UT1$

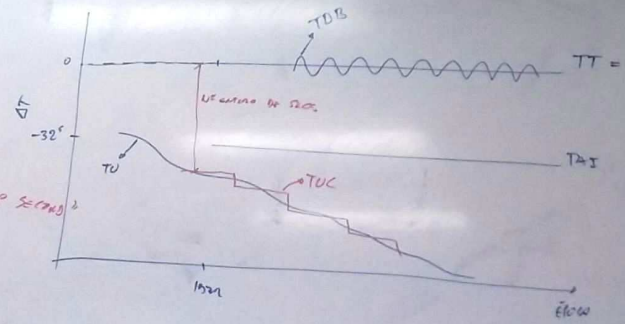
TIEMPO

TUC : Tiempo Universal
COORDINADO

23:59:59

23:59:60 ← LEAP SECOND

24:00:00



$TDB - TT \sim 0.00166$

$TT = TA1 + 32.184$

$TSL = H_{sm} + \Delta_{sm} = H_o + \Delta_o$

(Annotations: H_{sm} and Δ_{sm} are circled. Arrows point to 'Tercio' above H_{sm} and 'segundo' above Δ_{sm}. Below H_o and Δ_o are circled, with an arrow pointing to 'seg.' below H_o.)

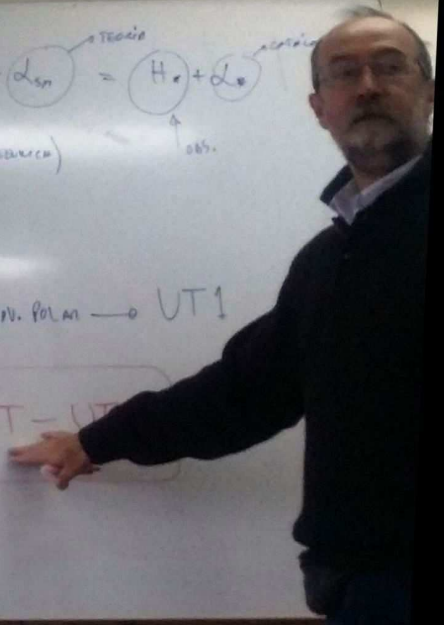
$TU = 12^h + H_{sm}$ (Greenwich)

$T_{local} = TU + (\text{X})$

$H_{sm} \rightarrow UT0 + \text{CORR. MOV. POLAR} \rightarrow UT1$

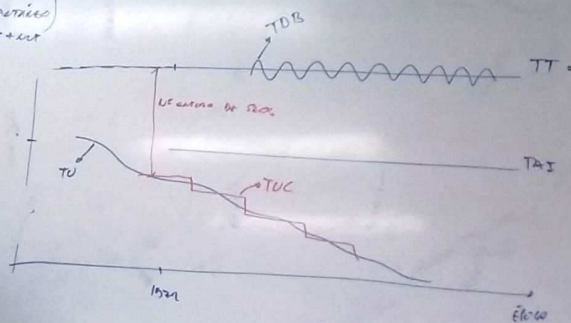
$\frac{1}{24 \times 60 \times 60}$

$\Delta T = TT - UT$



TIEMPO

TS → μ VEROVARIA (INSTABILIDAD) μ_{OC+XUT}
 μ μ MEDIO (PRECISION)



$$TDB - TT \sim 0.00166$$

$$TT = TAI + 32^s.184$$

$$TSL = H_{SM} + \Delta_{SM} = H_{O} + \Delta_{O}$$

\uparrow TERCIO
 \uparrow COTERMINOS

$$TU = 12^s + H_{SM} \text{ (SOLAR)} \quad \uparrow \text{ OBS.}$$

$$T_{LORA} = TU + (X)$$

$$H_u \rightarrow UT0 + \text{CORR. INV. POLAR} \rightarrow UT1$$

$$\frac{1}{24 \times 60 \times 60}$$

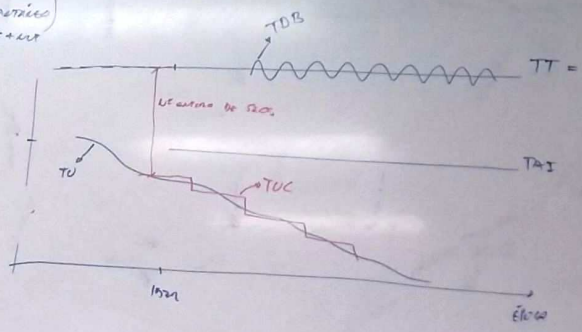
$$\Delta T = TT - UT1$$

TIEMPO

TS \rightarrow μ Verdadero (Instruico) TS aparente $\mu_{oc} + \mu_{at}$
 μ Medio (Percipio)

$\mu_v - \mu_n =$ Ecuacion de los Equinoccios

$= \Delta \Psi \cdot \cos \epsilon$
 \uparrow
 oblicuidad



$TDB - TT \sim 0.00166$

$TT = TAI + 32^s.184$

$TSL = H_{sm} + \alpha_{sm} = H_o + \alpha_o$
 (Labels: α_{sm} = Tercio, α_o = Cota de las)

$TU = 12^h + H_{sm}$ (observa)

$T_{local} = TU + (\times)$

$H_{sm} \rightarrow UT0 + \text{CORR. MV. POLAR} \rightarrow UT1$

$\frac{1}{24 \times 60 \times 60}$

$\Delta T = TT - UT1$

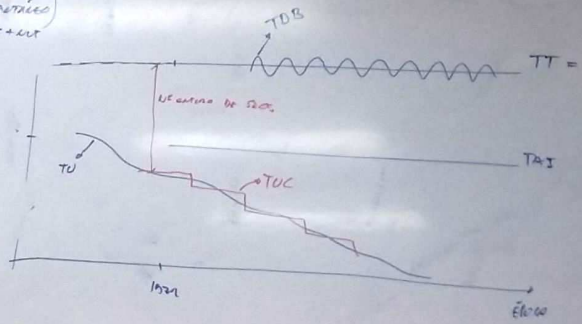
TIEMPO

$TS \rightarrow \begin{cases} \uparrow \text{Verdadero (Instantáneo)} \\ \text{TS Actual} \\ \text{TS Medio (Precisión)} \end{cases}$

$n_v - n_n = \text{Ecuación de los Equinoccios}$

$= \Delta \Psi \cdot \cos \epsilon$
 ↑
 oblicuidad

$12^h \text{ TDB } 1/1/2000 : \text{JD } 2451545.0$
 $MJD = \text{JD} - 2400000.0$



$TDB - TT \sim 0.00166$

$TT = TAI + 32^s.184$

\uparrow
 365.2422 . días medios
 365.2564
 365.2556

