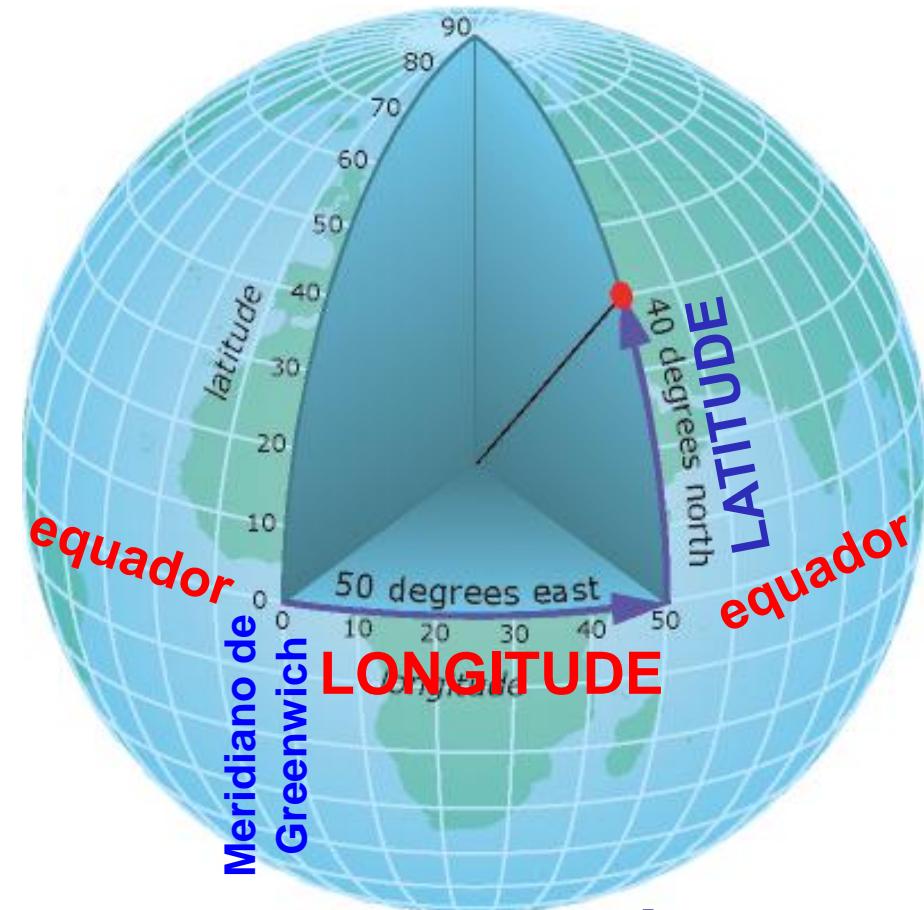


Sistema de coordenadas HORÁRIO

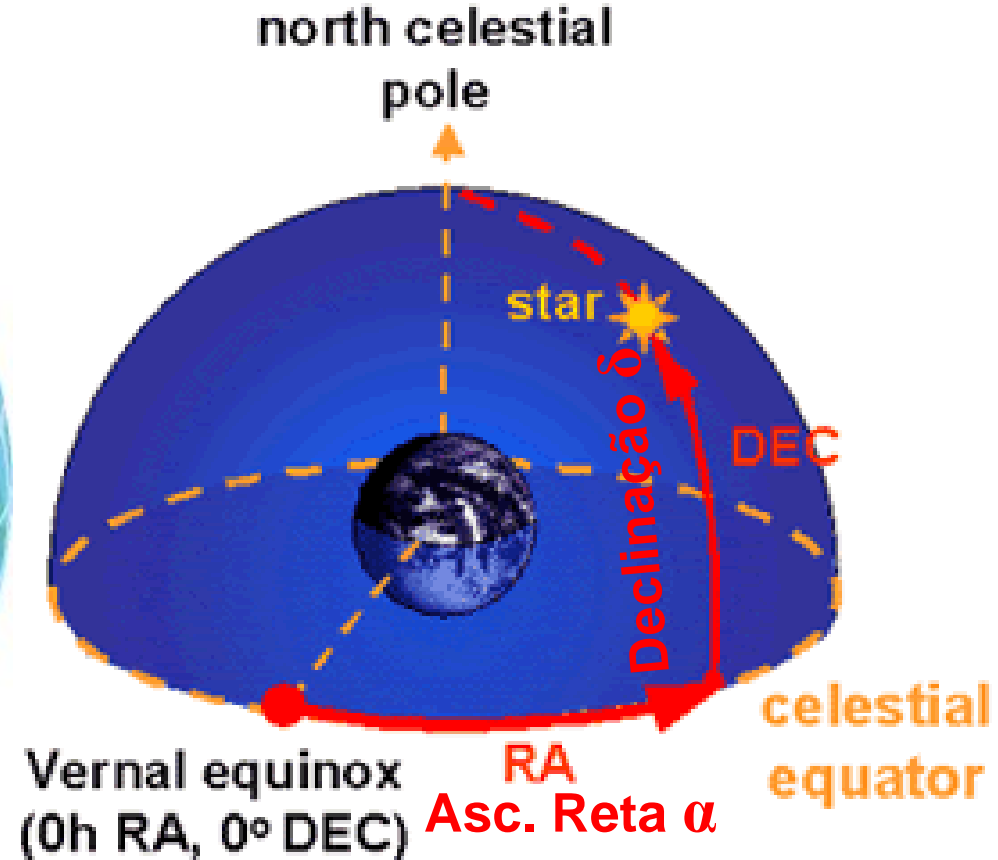
**J. Melendez,
baseado/R. Boczko**

IAG - USP

Sistemas de coordenadas GEOGRÁFICAS e EQUATORIAIS



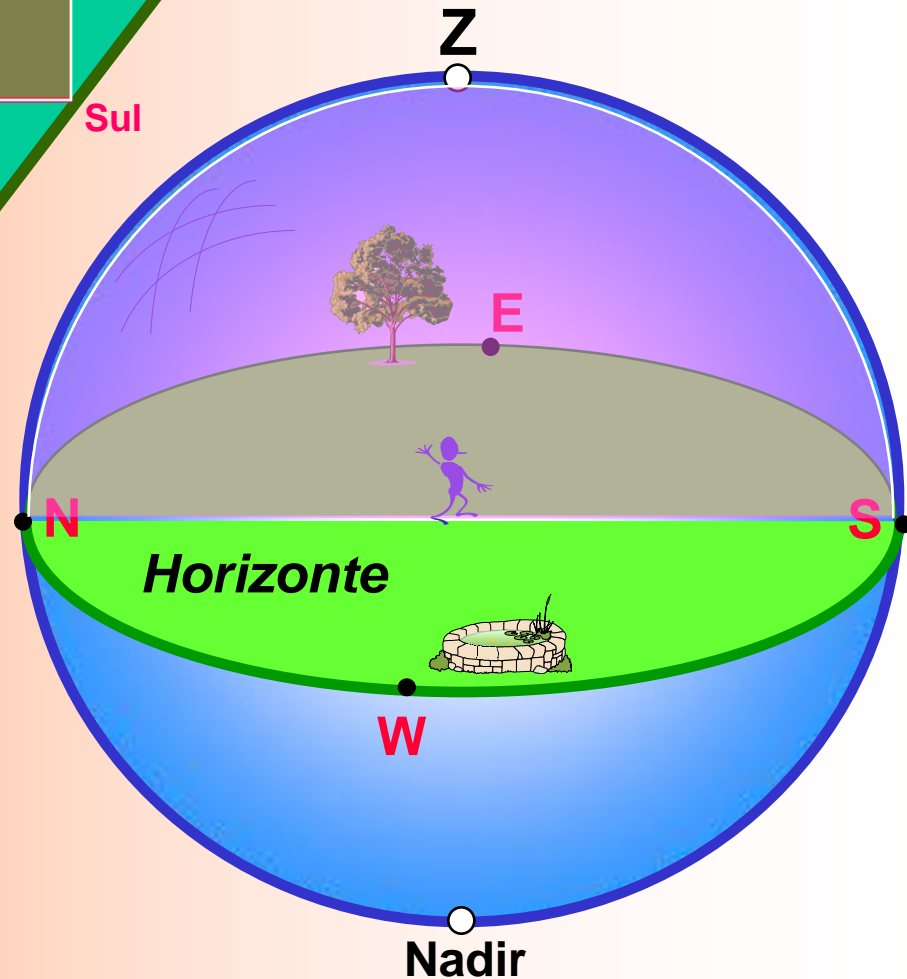
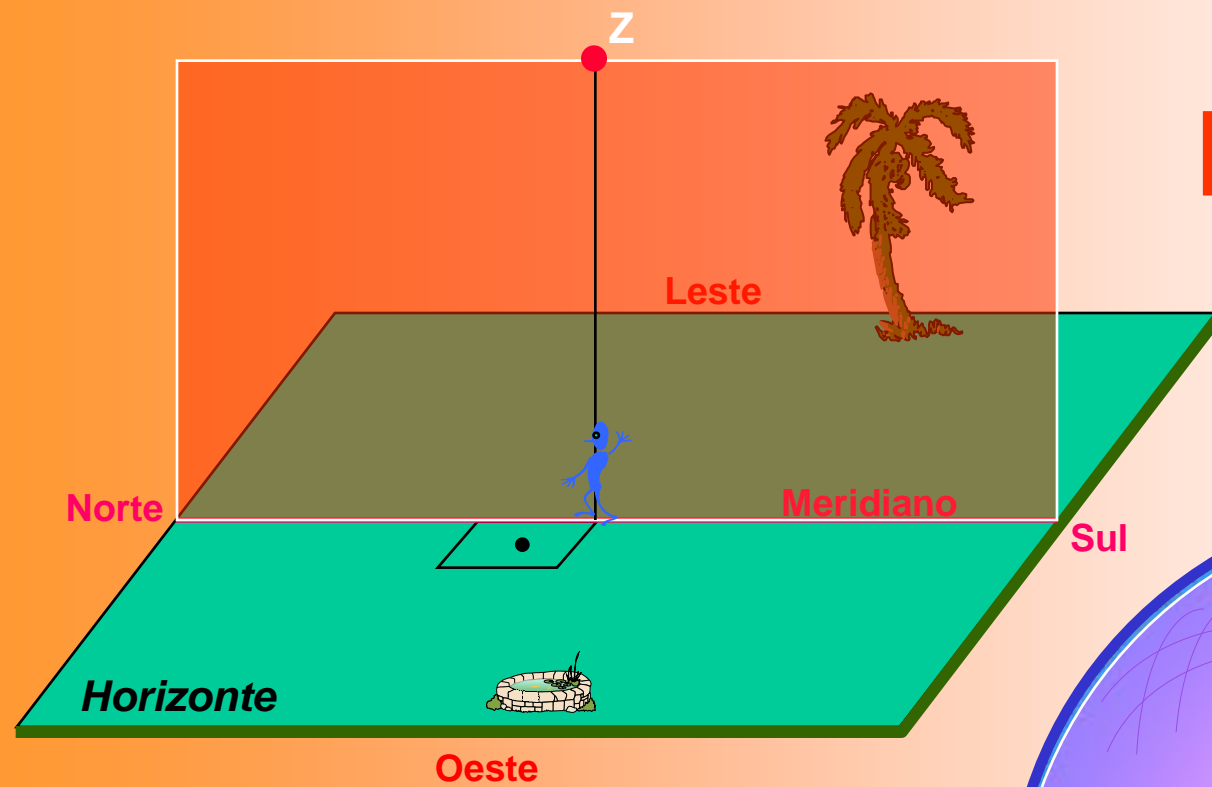
Sistema geográfico



Sistema equatorial

Classificação dos meridianos

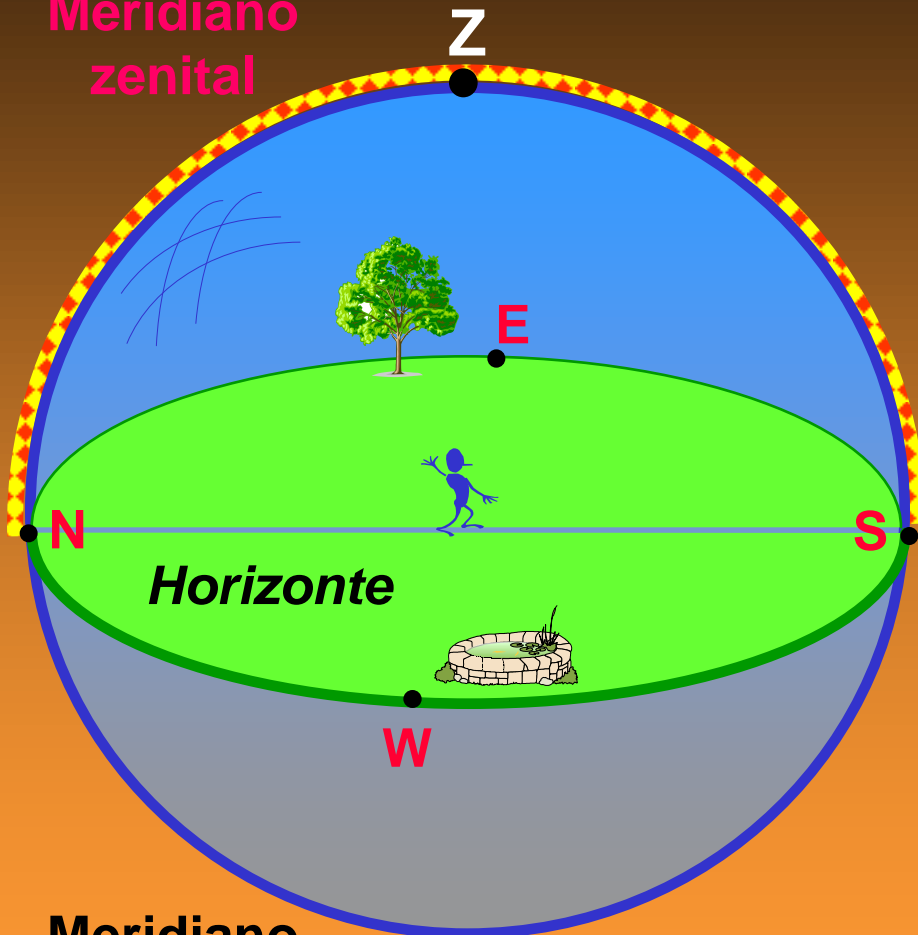
Meridiano Local



Meridiano:
Plano (círculo) que
passa pelos pontos
N, S e Z.

Tipos de Meridianos

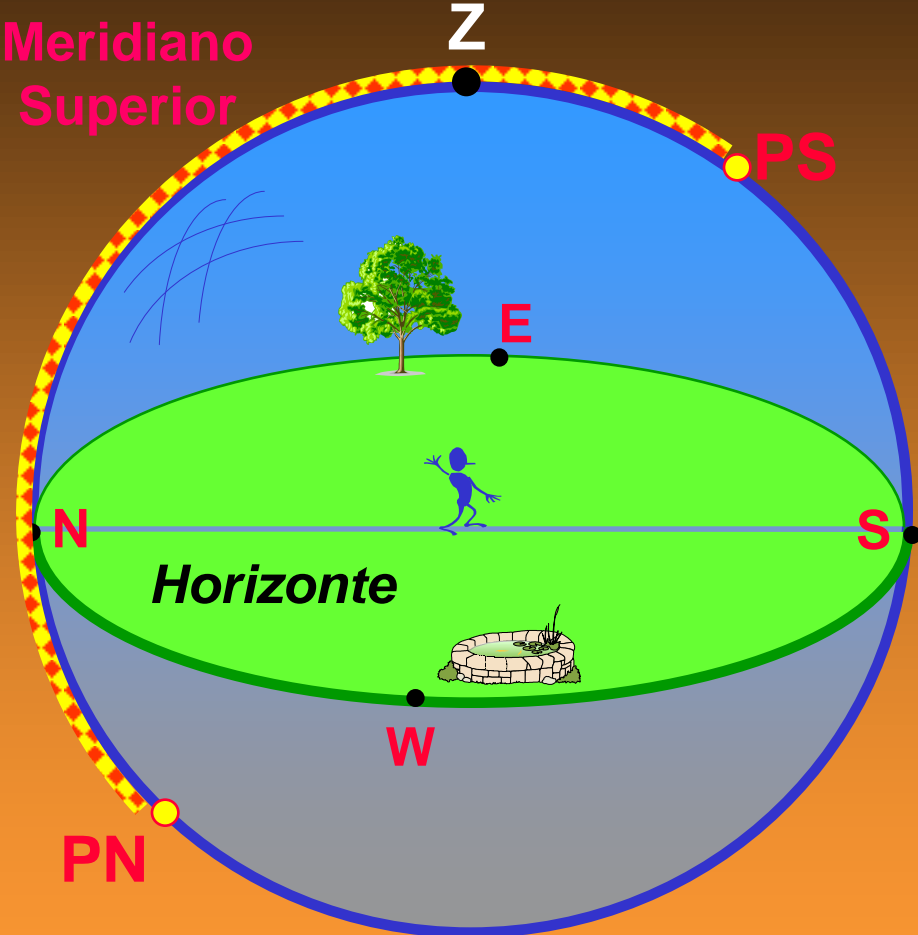
NZS
Meridiano
zenital



Meridiano
nadiral
NÑS

Ñ
Nadir

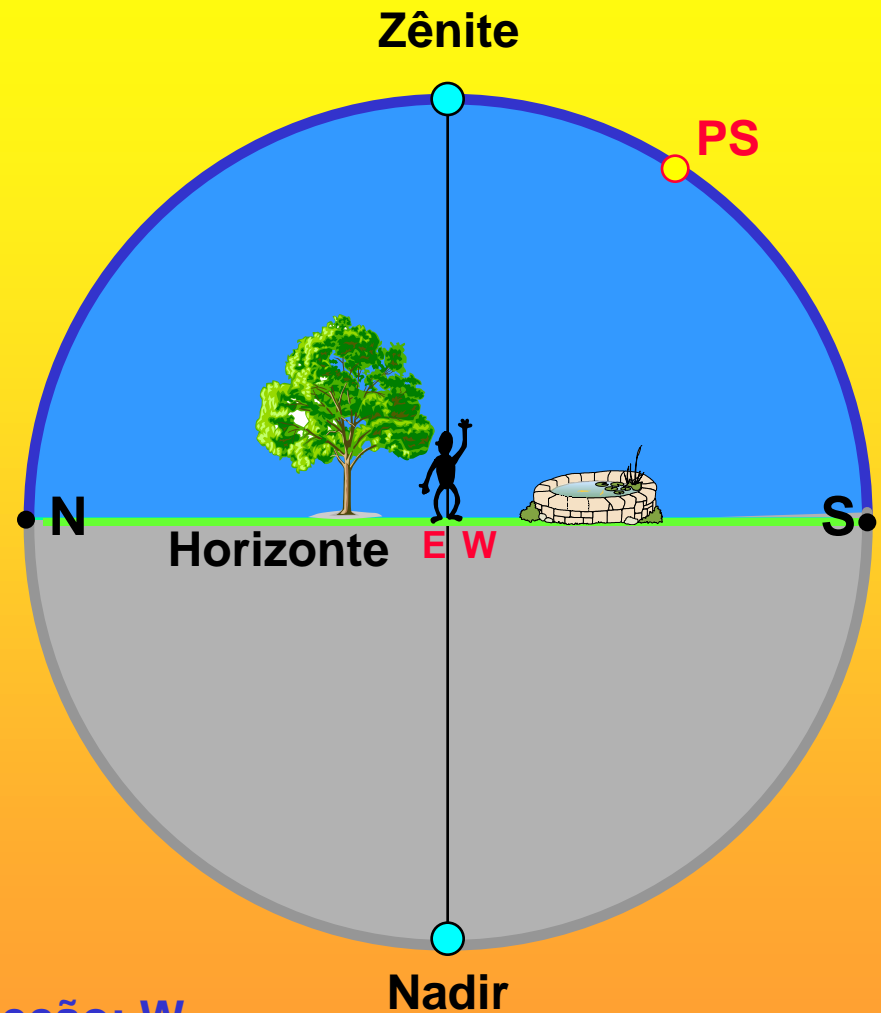
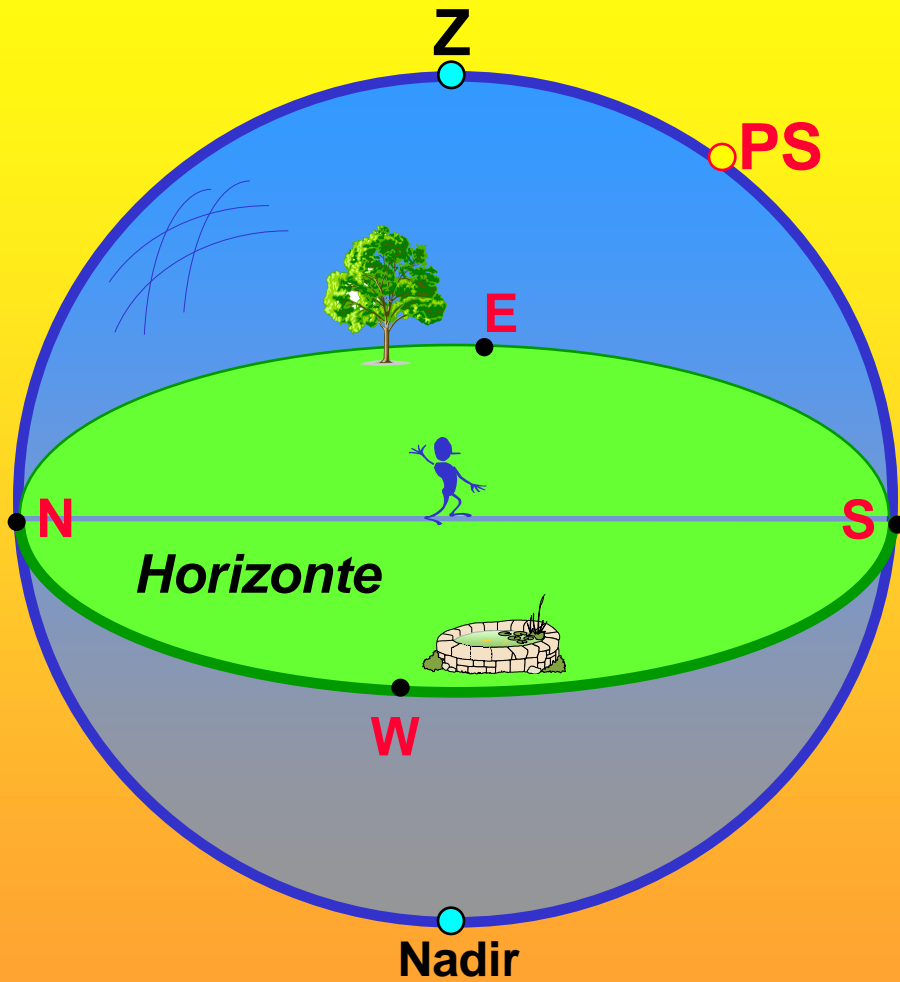
PN-Z-PS
Meridiano
Superior



Meridiano
Inferior
PN-Ñ-PS

Ñ
Nadir

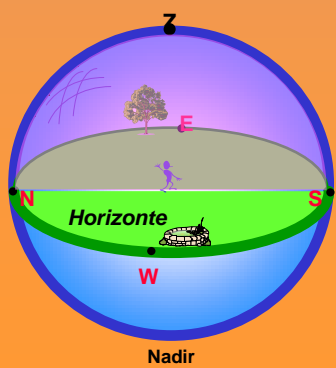
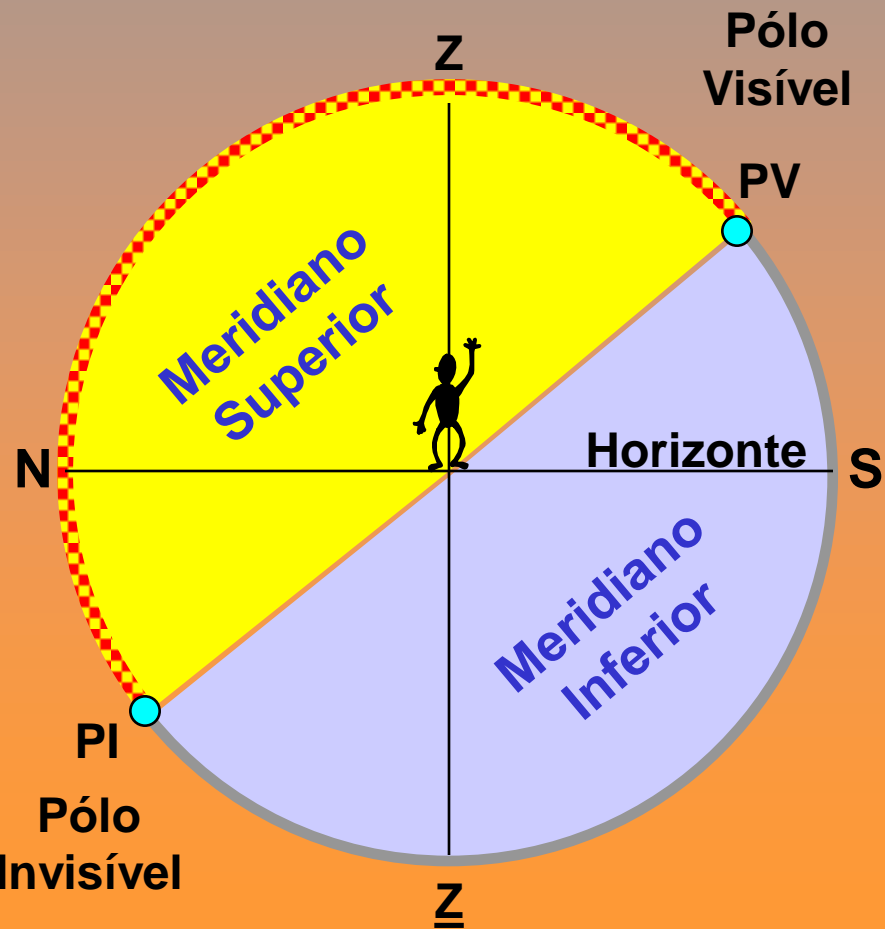
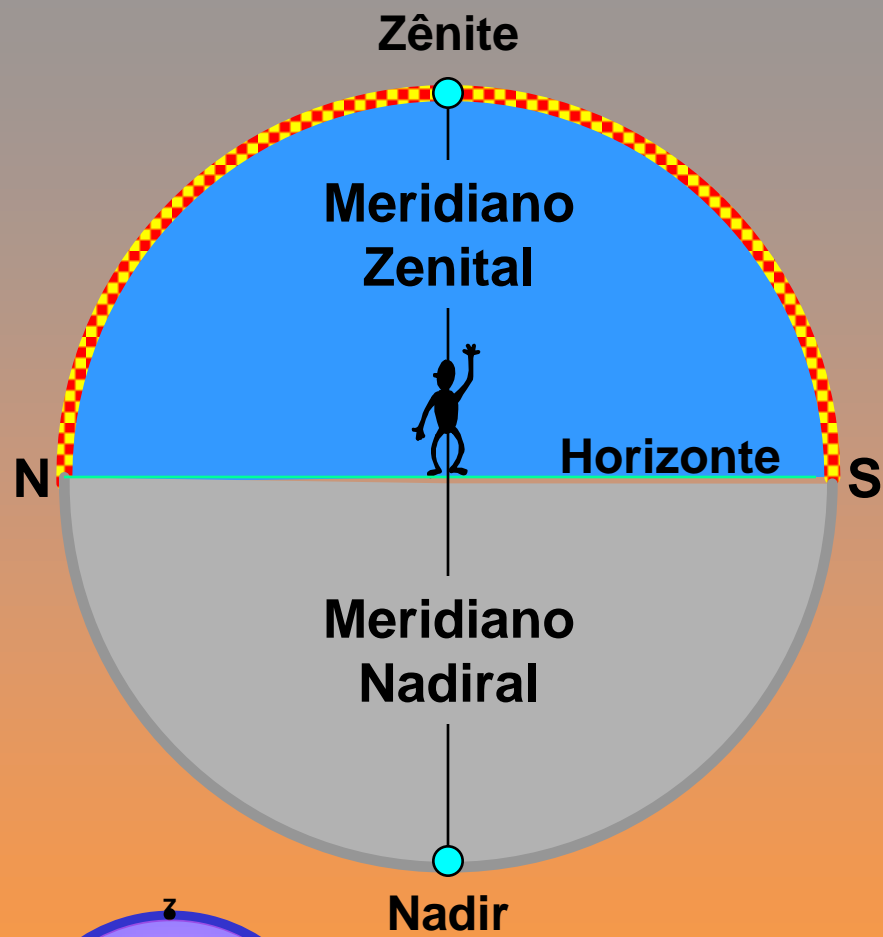
Projeção no Meridiano Local



Foco de projeção: W_{∞}
Projeção cilíndrica ortogonal
Plano de projeção: plano meridiano

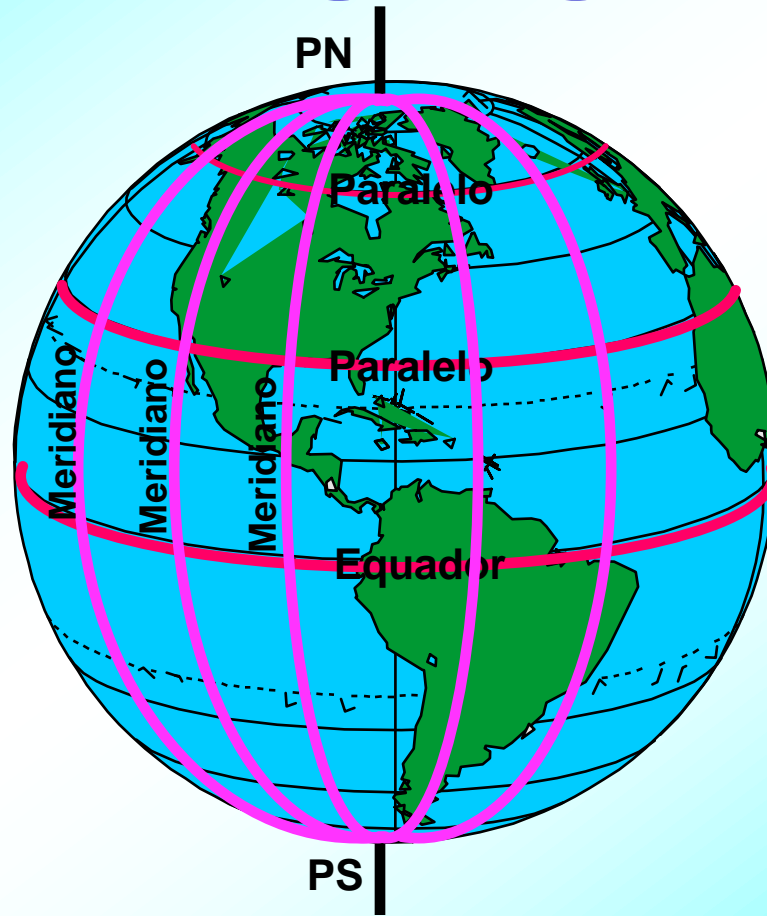
Tipos de Meridianos

(Observador no HS)



Fixação dos sistemas de coordenadas

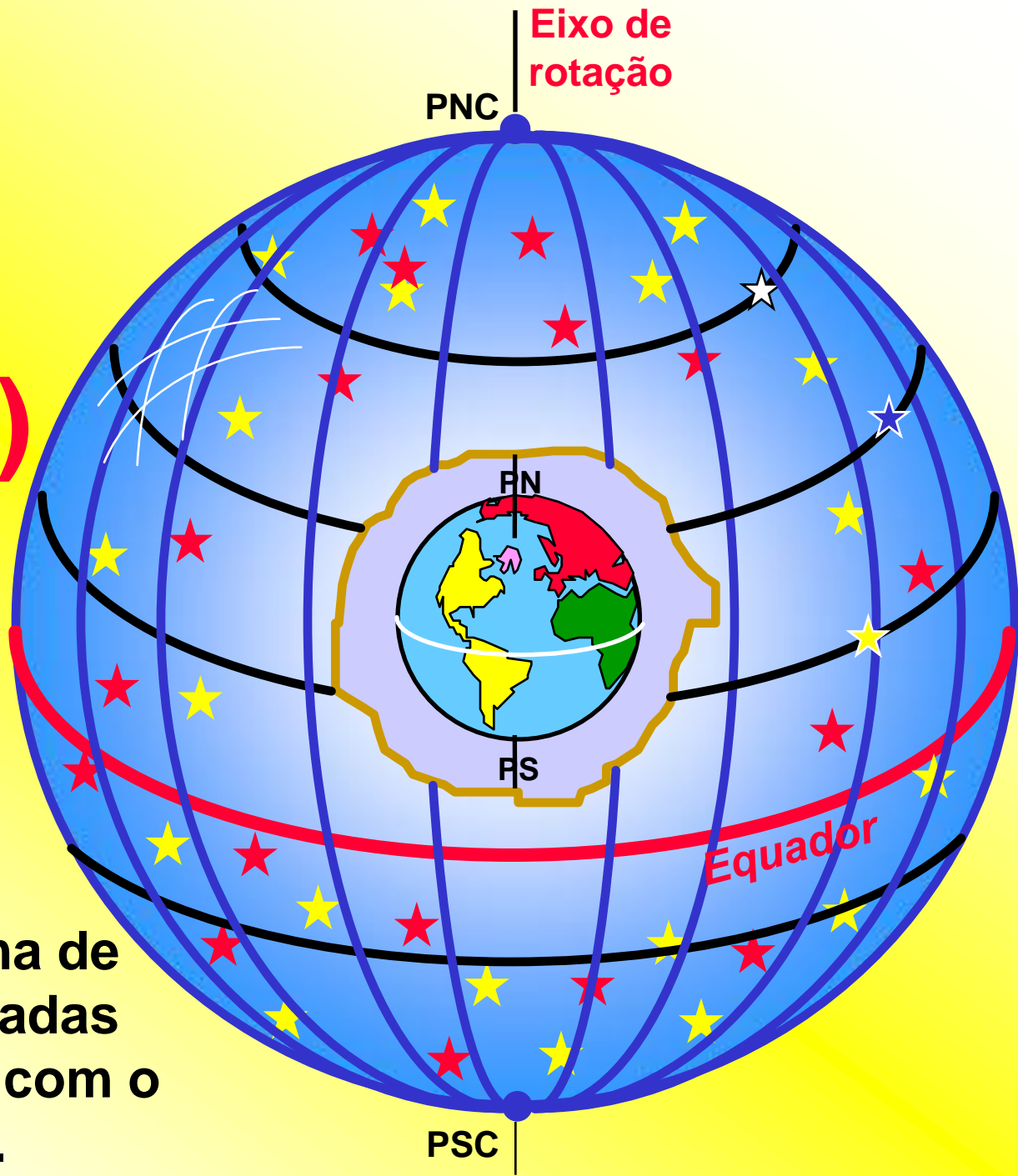
Sistema fixo à Terra: Sistema geográfico



O sistema de coordenadas gira junto com a Terra.

Sistema fixo ao céu (sistema equatorial)

O sistema de
coordenadas
gira junto com o
céu.



Sistema Equatorial de Coordenadas

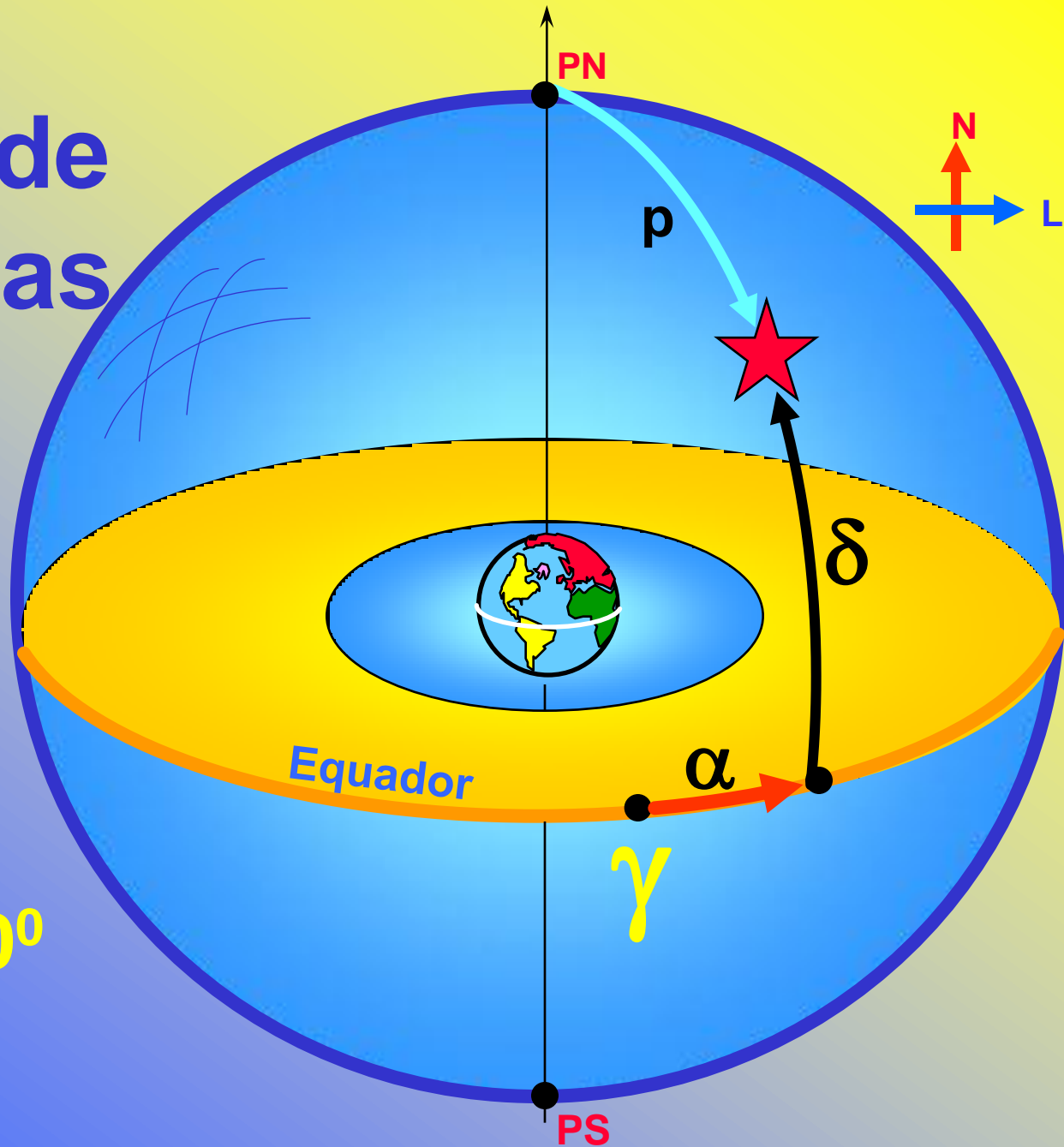
★ (α, δ)

α = ascensão reta

δ = declinação

p = distância polar

$$p + \delta = 90^\circ$$



Sistema Horário

Sistema Horário

É um sistema mixto

uma coordenada constante:

declinação δ

uma coordenada variável:

ângulo horário H

(medido sobre o equador desde o meridiano local até o círculo horário que passa pelo astro)

Sistema Horário de Coordenadas

ângulo horário

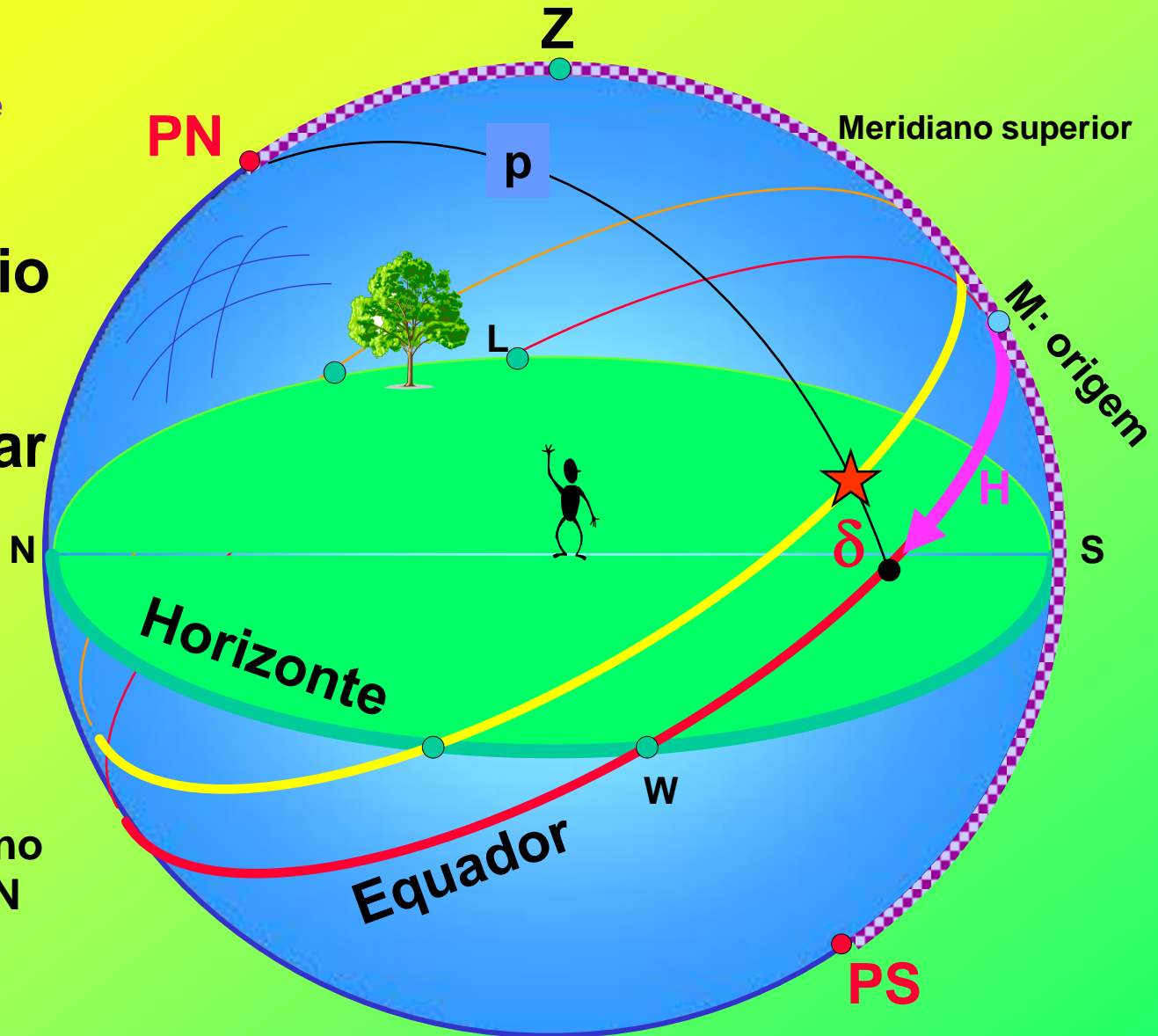
(medido sobre o equador desde o meridiano local até o círculo horário do astro)

H = ângulo horário

δ = declinação

p = distância polar

★ (H, δ)



Observador no hemisfério N

Sistema Horário de Coordenadas

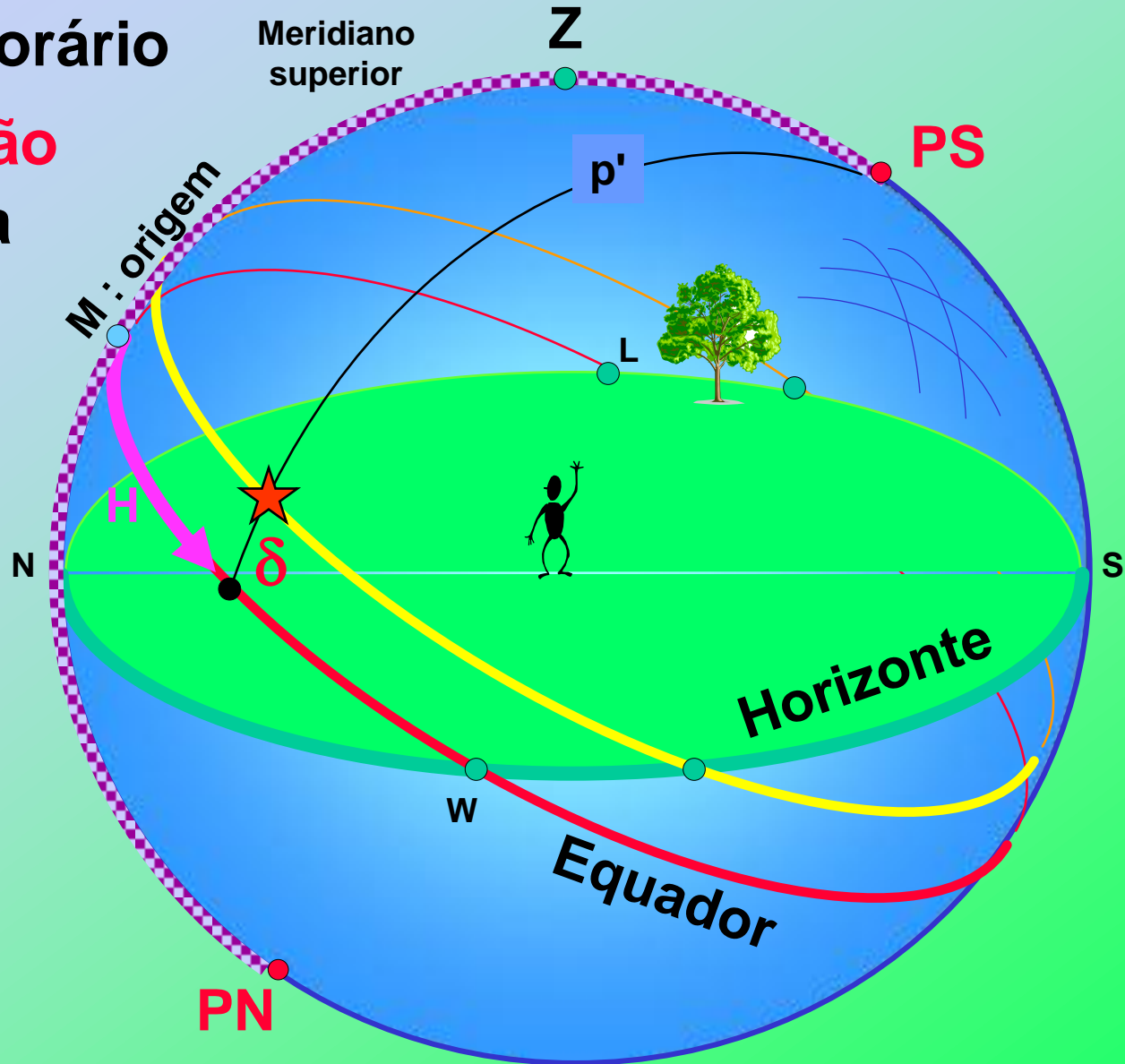
H = ângulo horário

δ = declinação

p' = distância polar sul

★ (H, δ)

Observador no hemisfério sul



Unidades

Ângulo horário

$$(E) -180^{\circ} \leq H \leq +180^{\circ} (W)$$

Declinação

$$(S) -90^{\circ} \leq \delta \leq +90^{\circ} (N)$$

$$0^{\circ} \leq p \leq +180^{\circ}$$

Definição

$$1 \text{ hora} \equiv 15^{\circ}$$

$$(E) -12^h \leq H \leq +12^h (W)$$

Grafia das unidades Graus e Horas na forma sexagesimal

Graus

10^o 20' 30"

Horas

(correto)

10 h 20 min 30 s

$$1 \text{ h} = 15^{\circ}$$

$$1 \text{ m} = 15'$$

$$1 \text{ s} = 15''$$

Horas

(simplificado)

10 h 20 m 30 s

Horas

(uso prático)

10^h 20^m 30^s

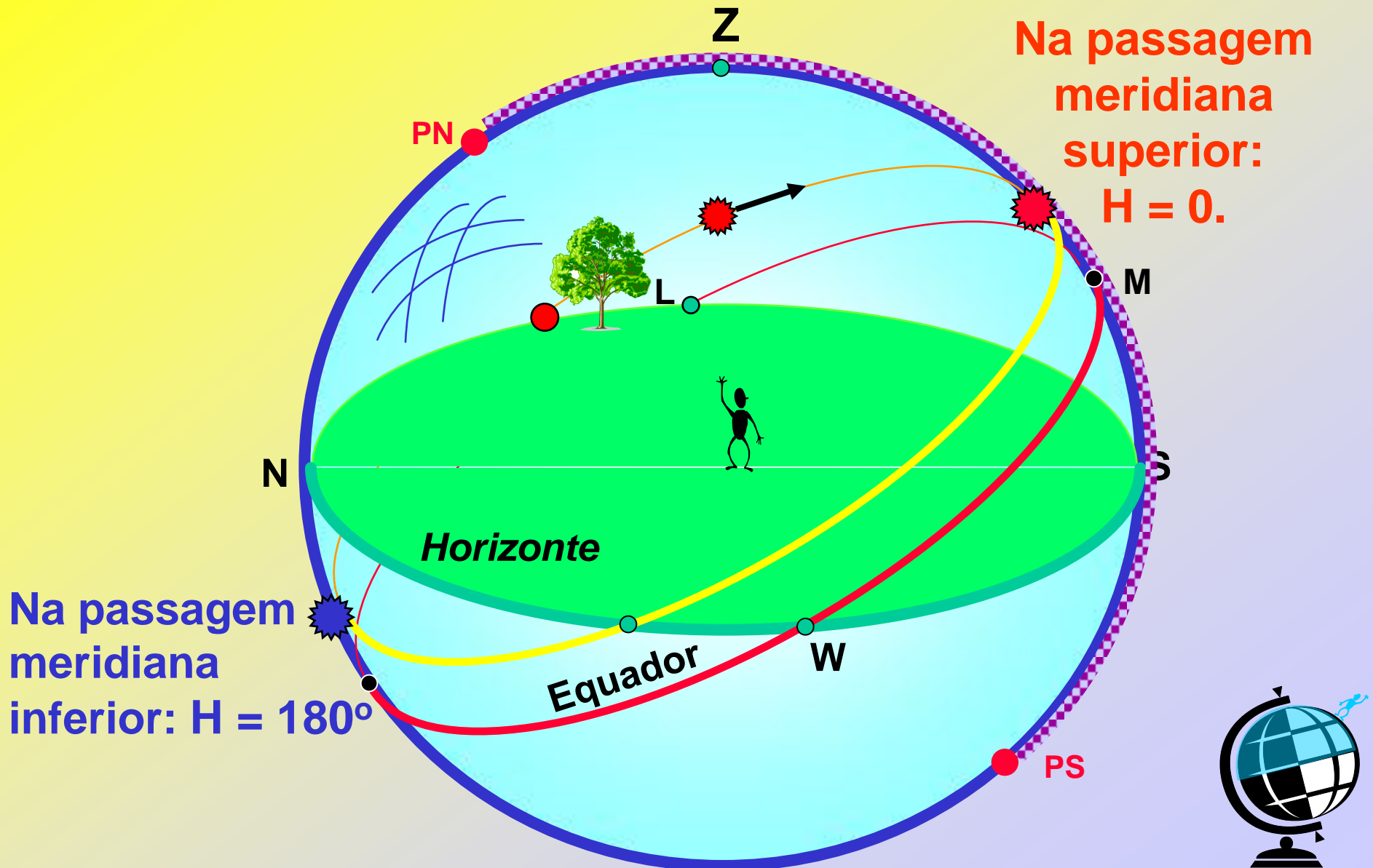


1'' ≠ 1^s

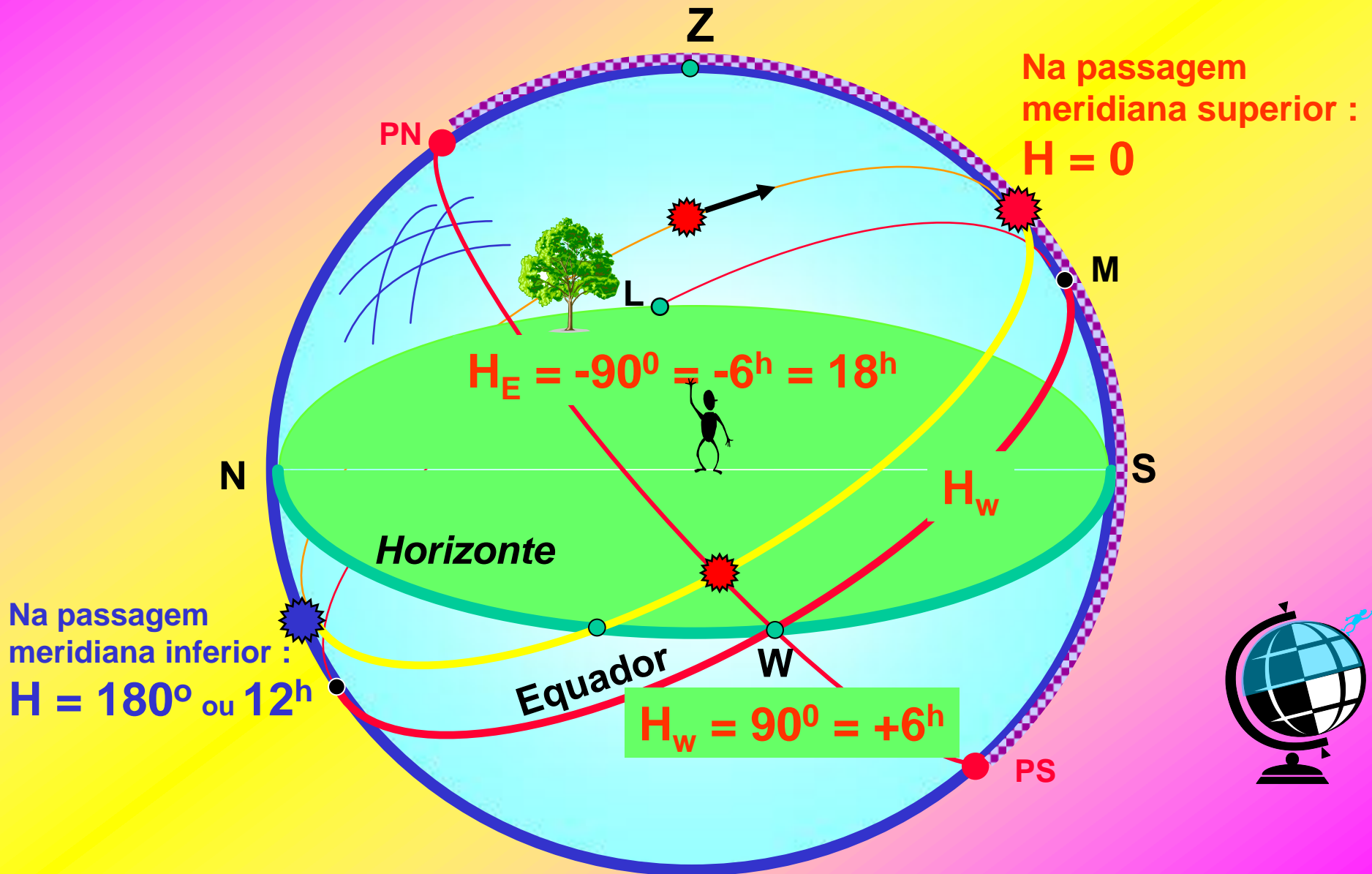
Cuidado!

Culminações ou passagens meridianas

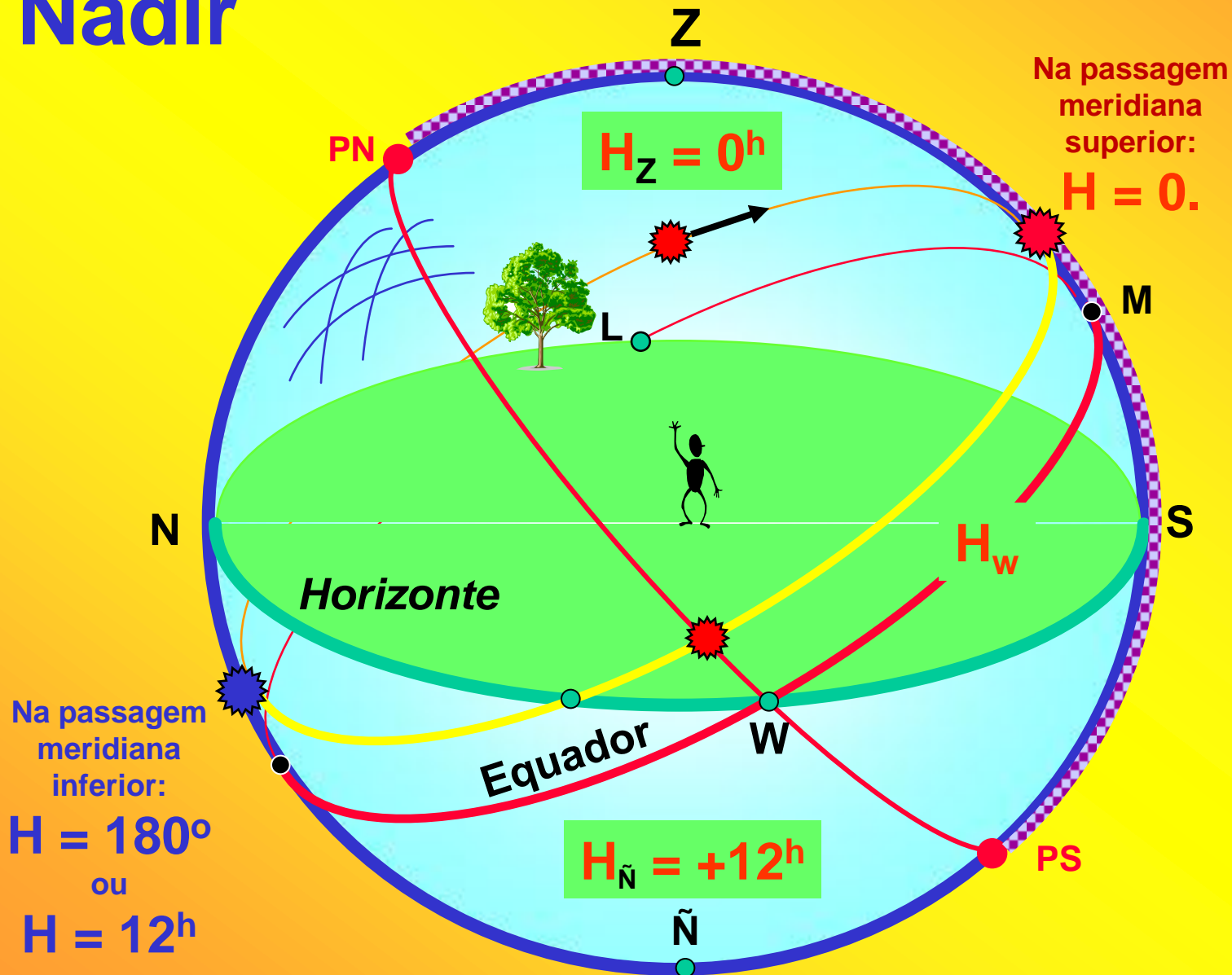
Culminação ou passagem meridiana



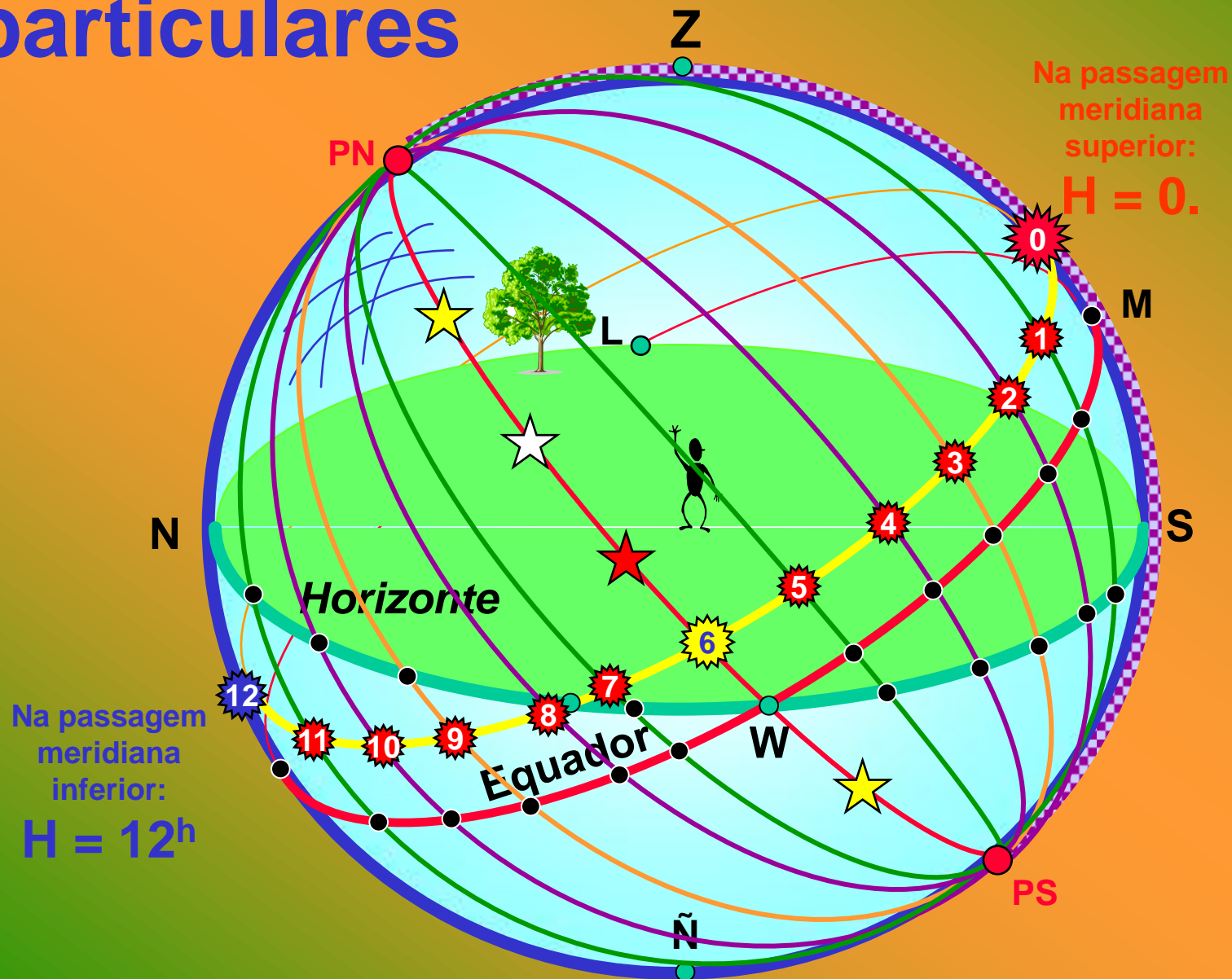
Ângulo horário dos pontos W e E



Ângulo horário dos pontos Zênite e Nadir



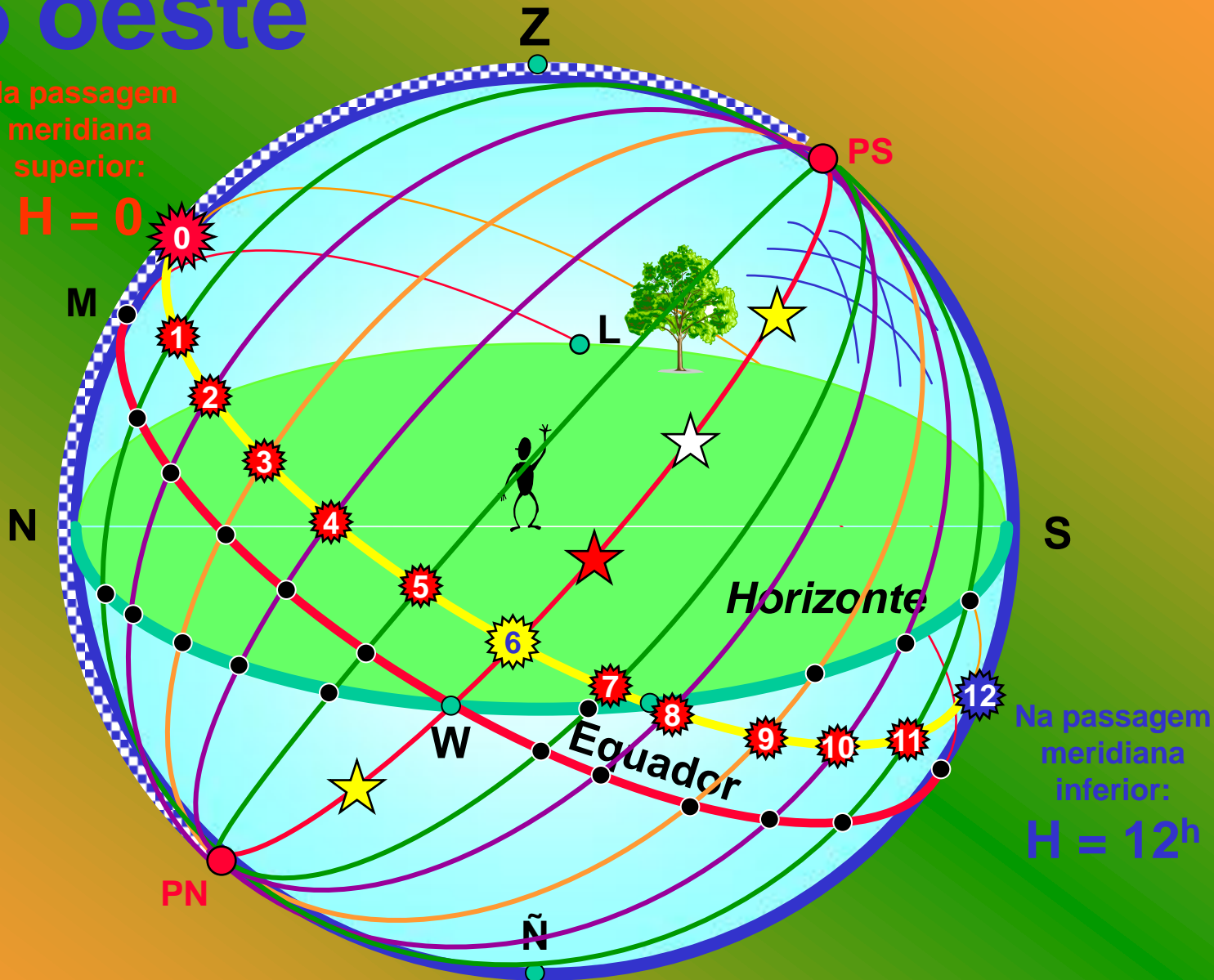
Ângulos horários particulares



Ângulos horários particulares no lado oeste

Na passagem meridiana superior:
 $H = 0$

$H = 0$



Na passagem meridiana inferior:
 $H = 12^h$

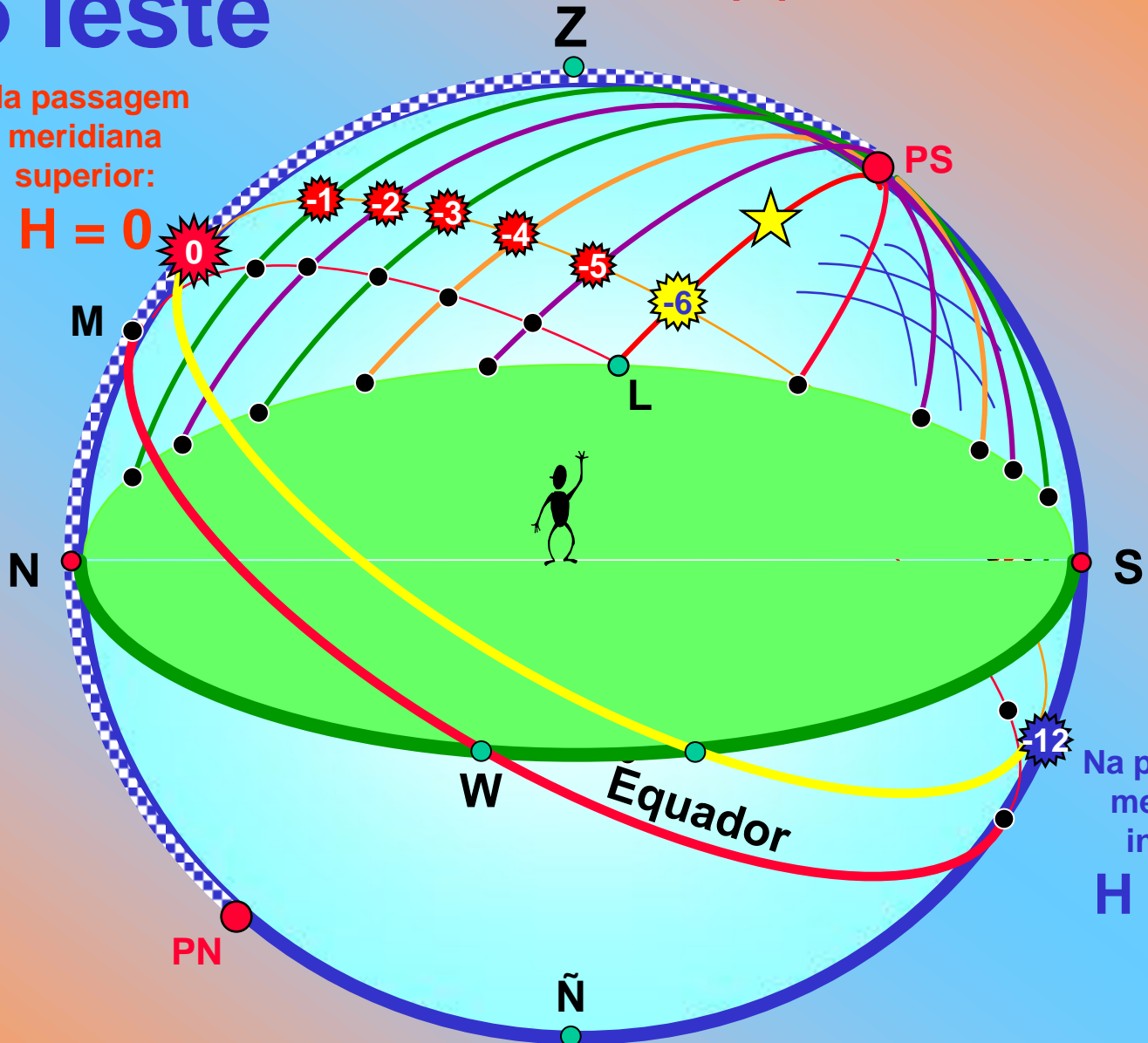
$H = 12^h$



Ângulos horários particulares no lado leste

(E) $-12^h \leq H \leq +12^h$ (W)

Na passagem
meridiana
superior:
 $H = 0$

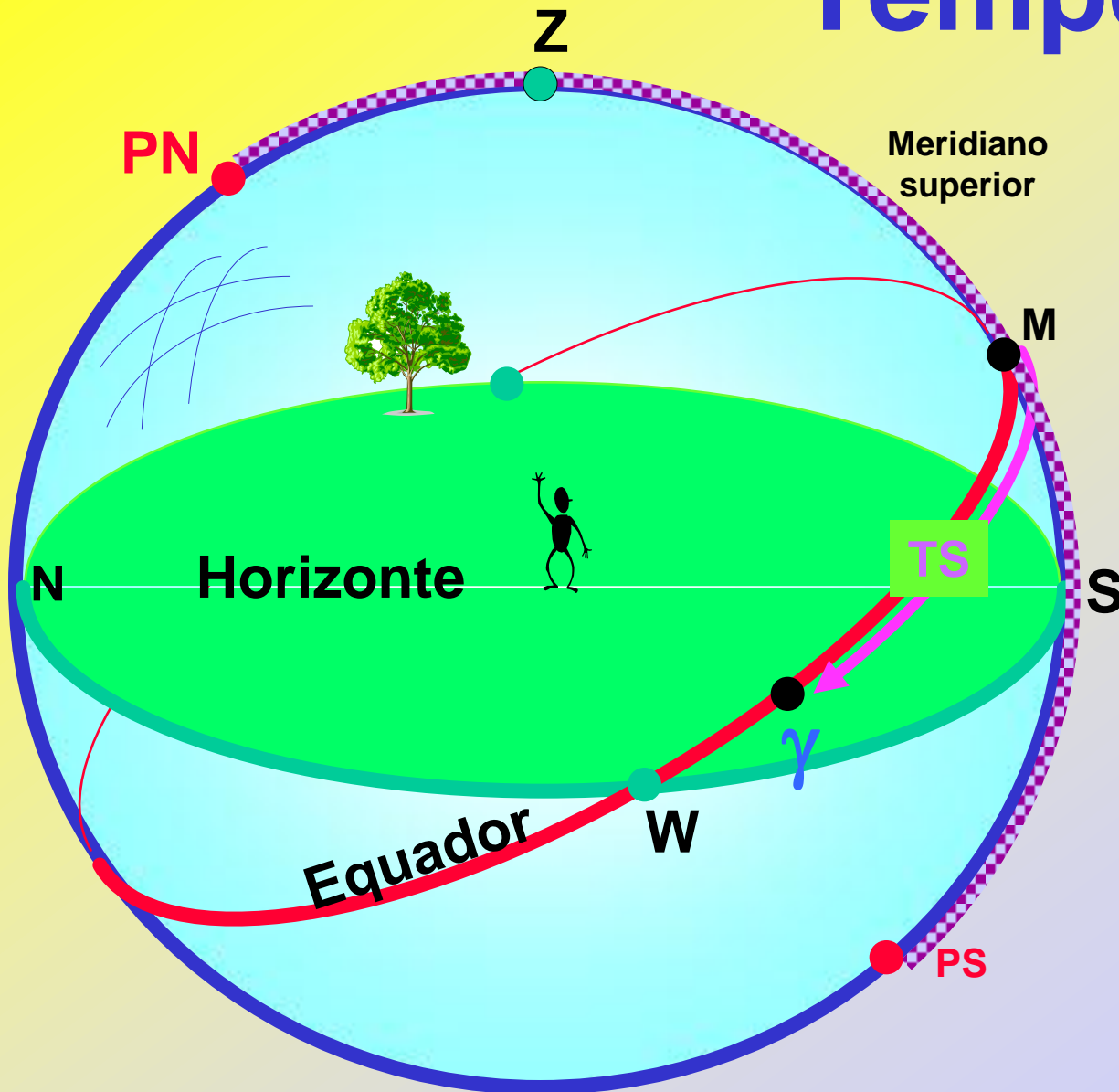


Na passagem
meridiana
inferior:
 $H = 12^h$



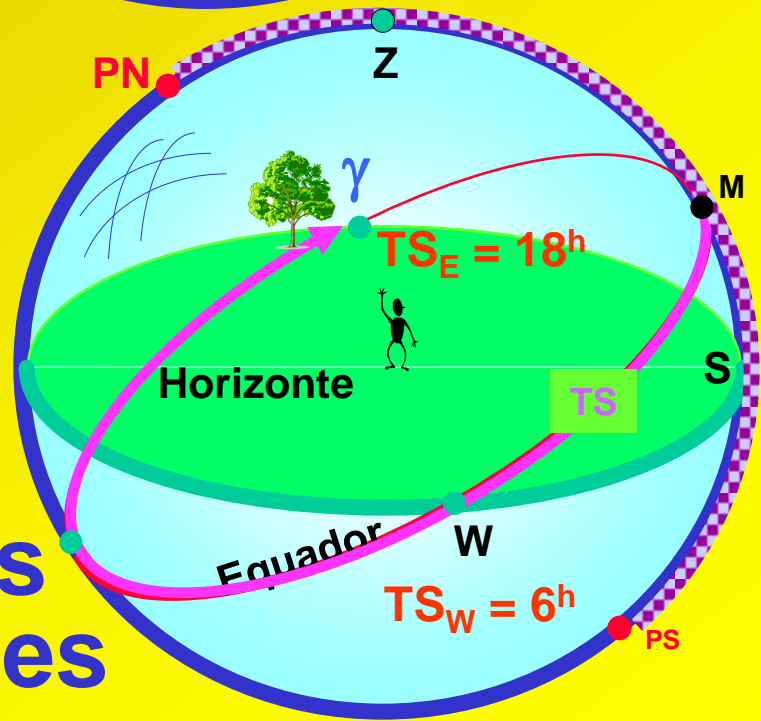
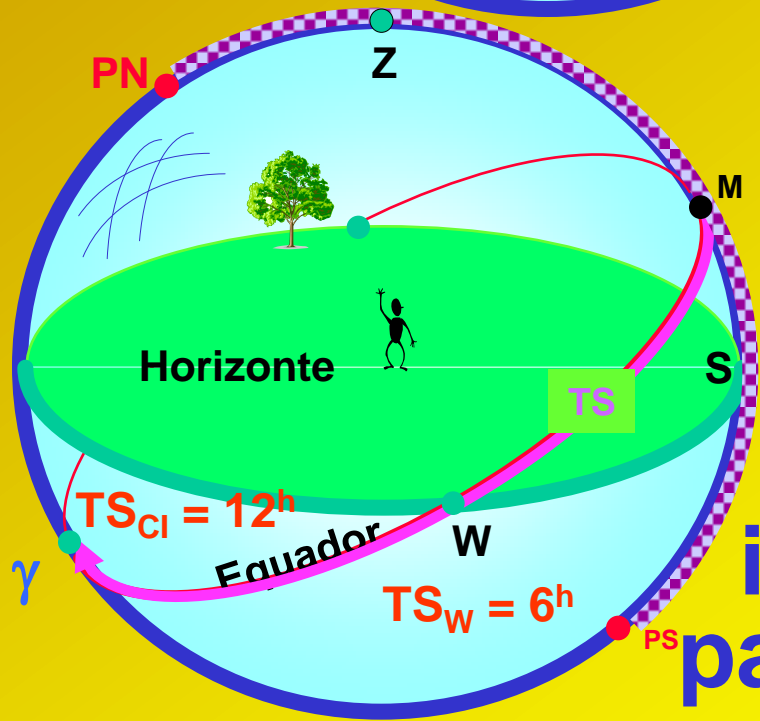
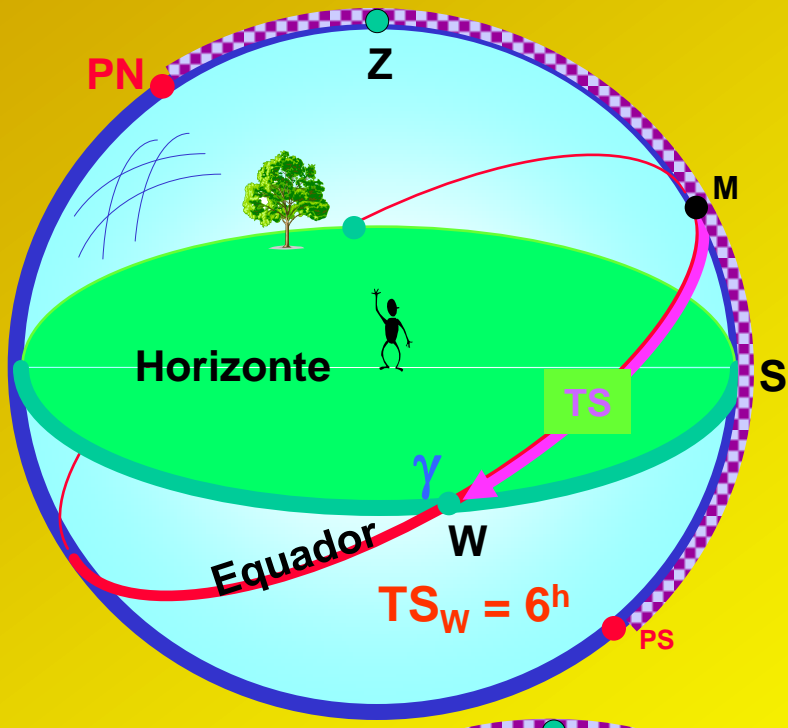
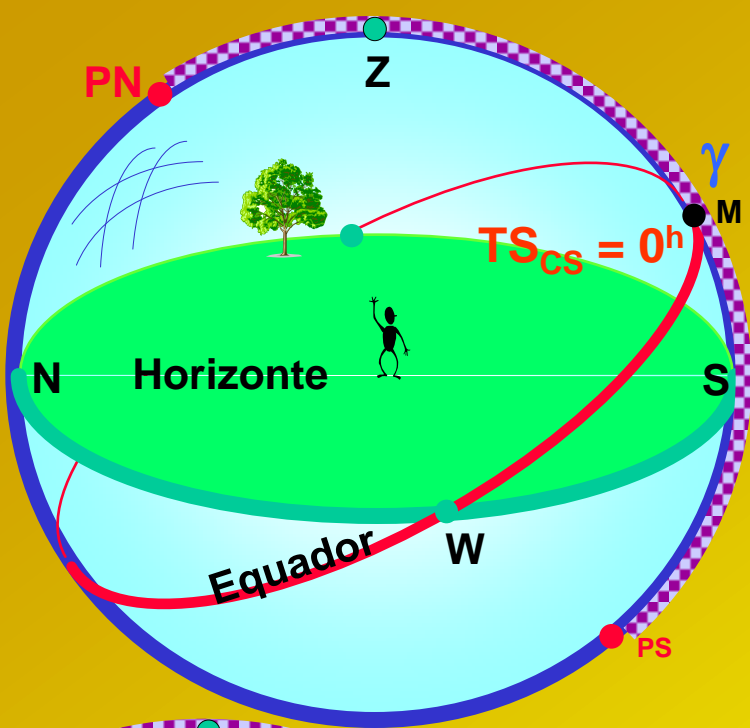
Tempo sideral

Tempo sideral



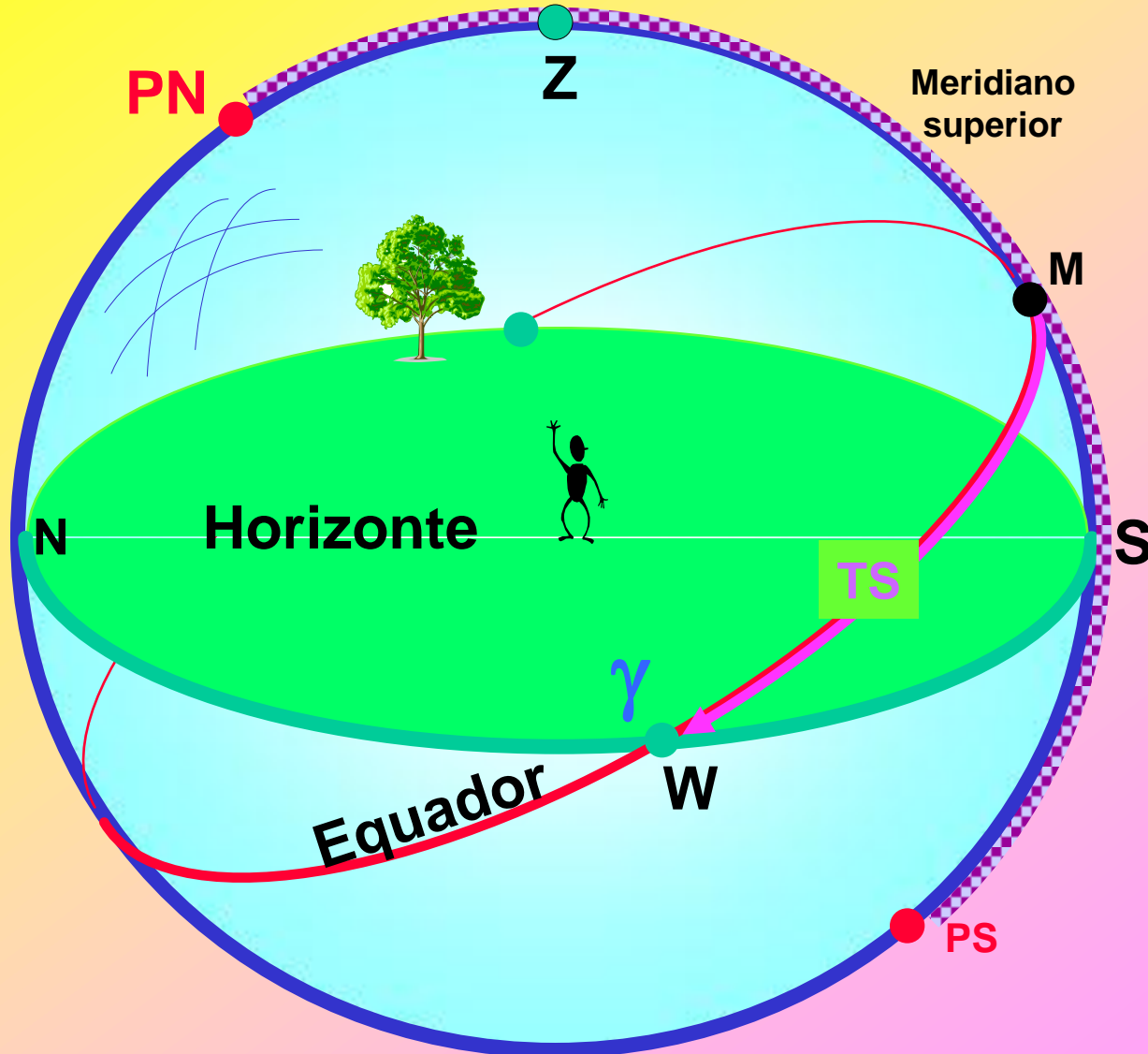
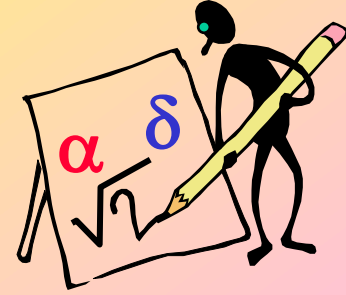
Tempo sideral é o
ângulo horário do
ponto γ

$$TS \equiv H_{\gamma}$$



Tempo sidereal em instantes particulares

Tempo sideral, no ocaso do ponto γ



$$TS \equiv H_{\gamma}$$

$$H_w = +6^h$$

$$TS_{\text{Ocaso de } \gamma} = +6^h$$

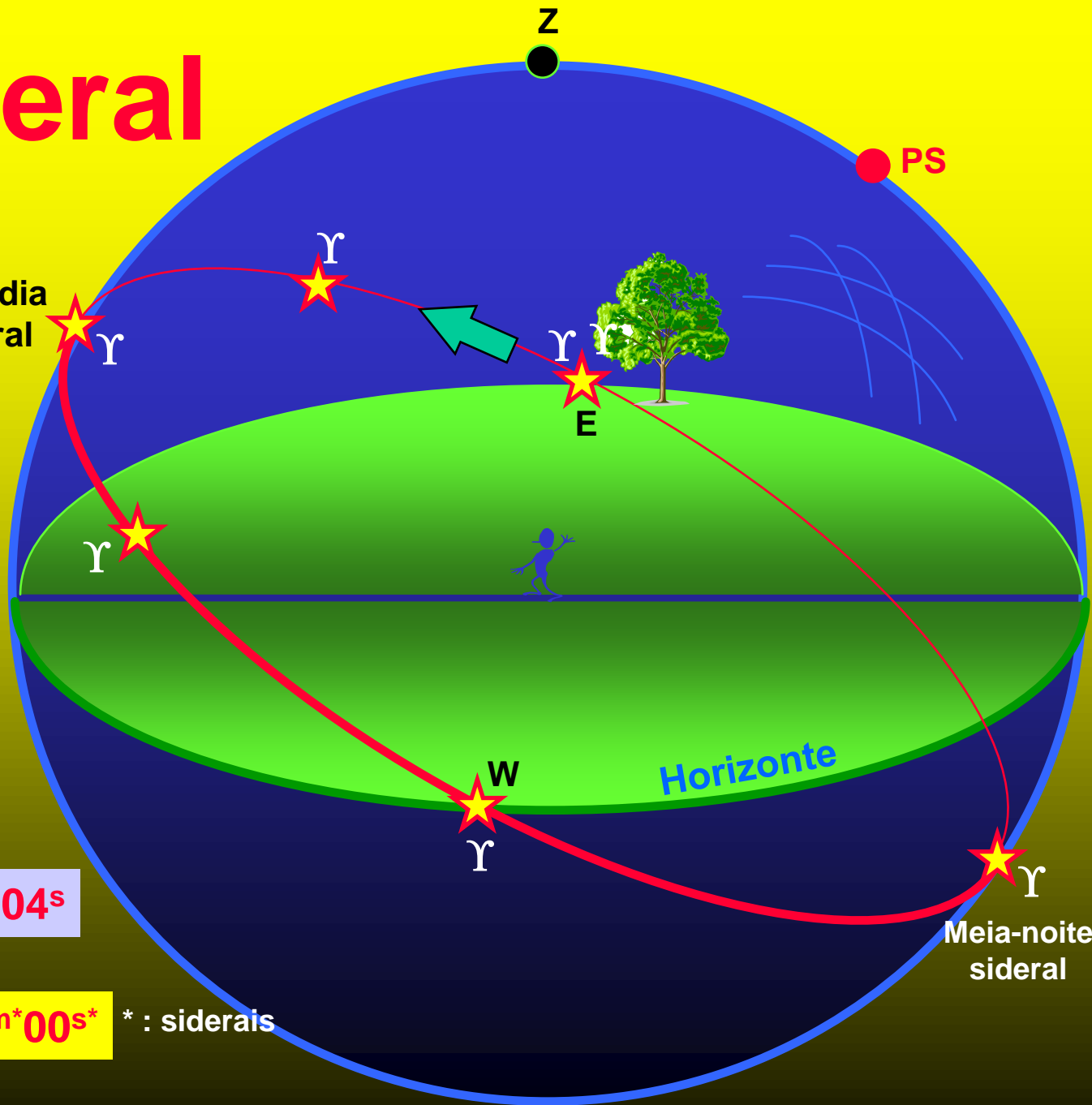
Dia sideral

Meio-dia sideral

Dia sideral:
Intervalo de tempo para que o Ponto Gama passe duas vezes sucessivas por um dado meridiano do local.

Dia sideral $\cong 23^h56^m04^s$

Dia sideral $\cong 24^h00^m00^s$ * : siderais



Fim