Representação do céu visto de diferentes latitudes

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IAG - USP

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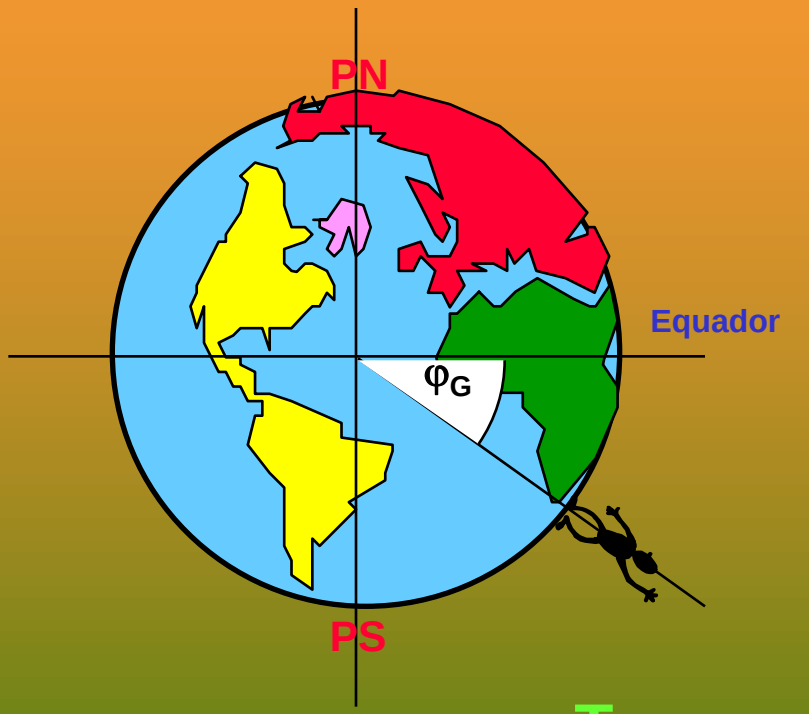
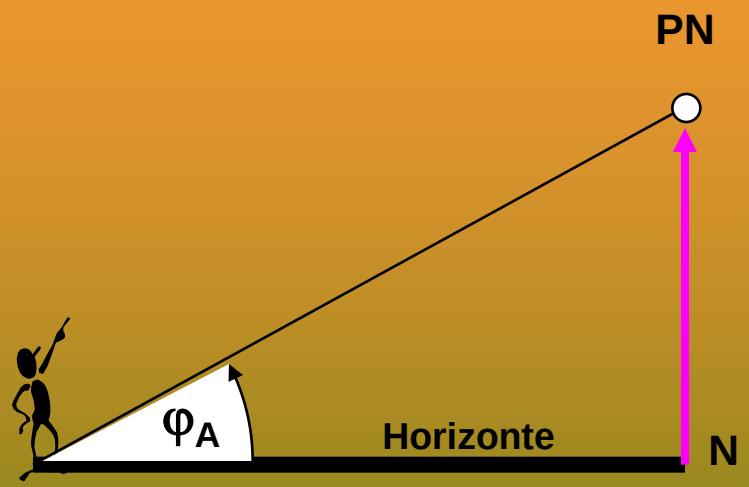
09
2011

Relação entre Latitudes Astronômica e Geográfica



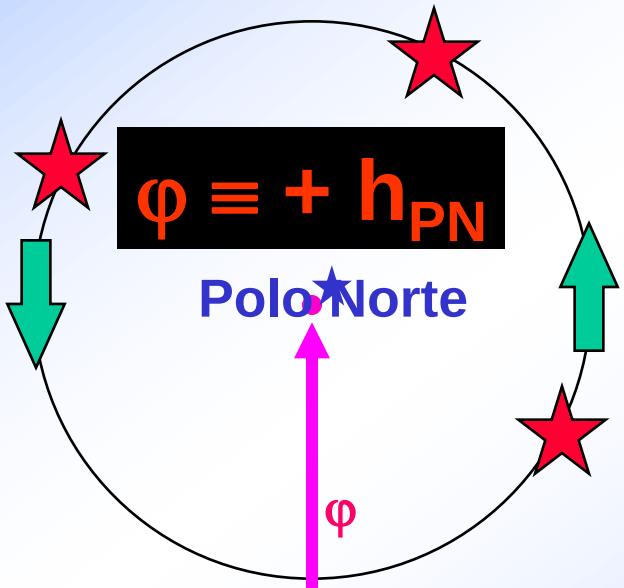


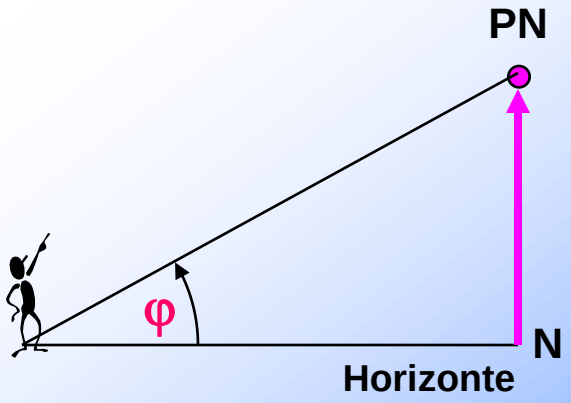
Terra suposta esférica

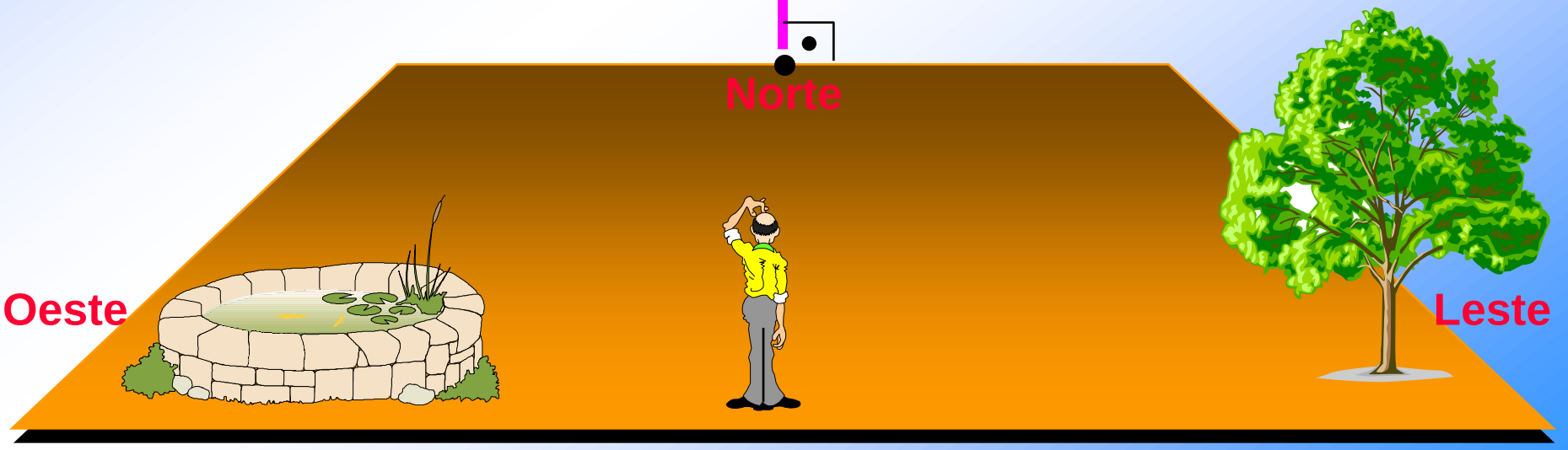
$$\varphi_{Astronômica} = \varphi_{Geográfica}$$

Latitude astronômica

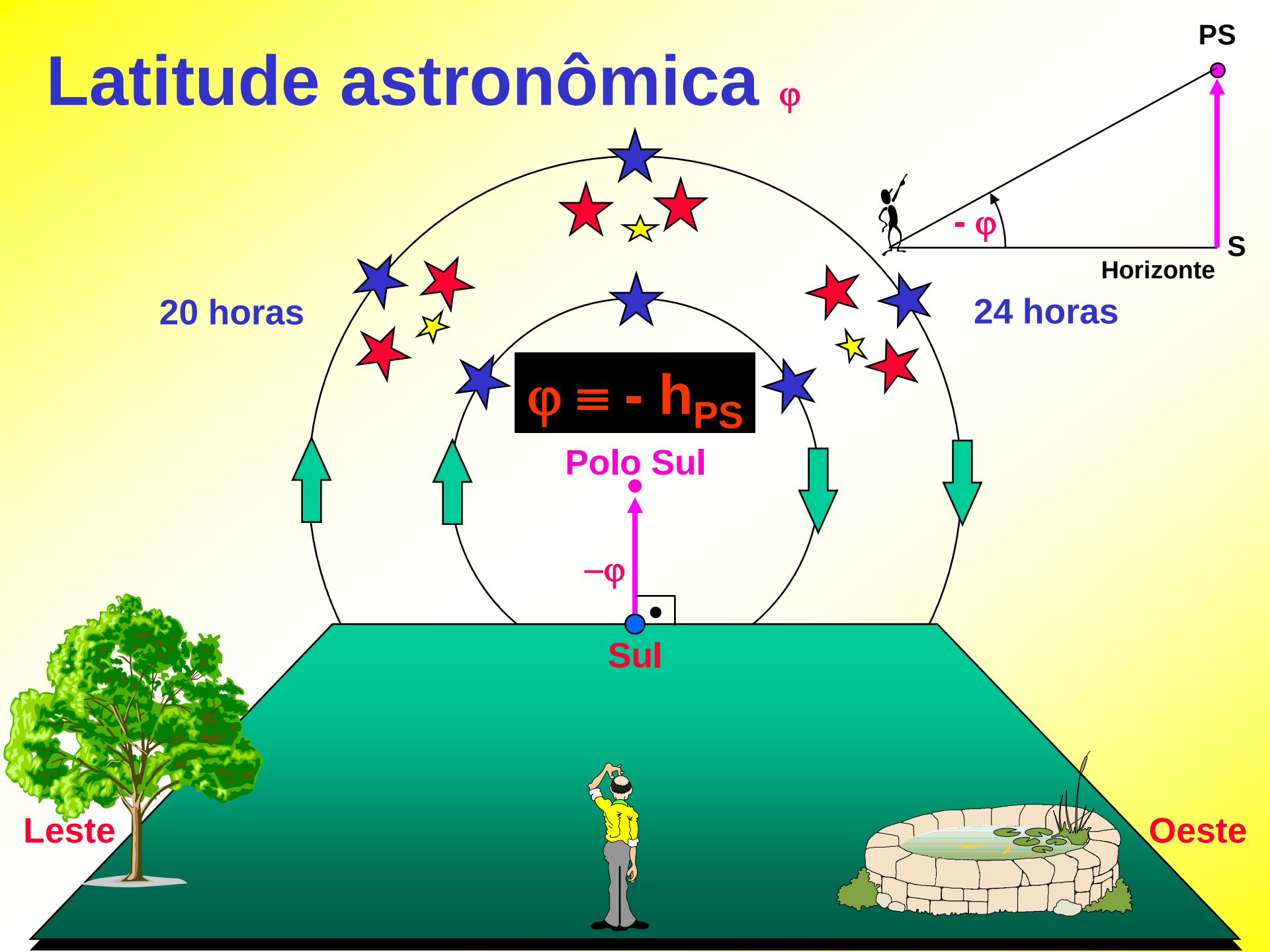
Latitude astronômica φ







Latitude astronômica φ



Latitude astronômica

φ

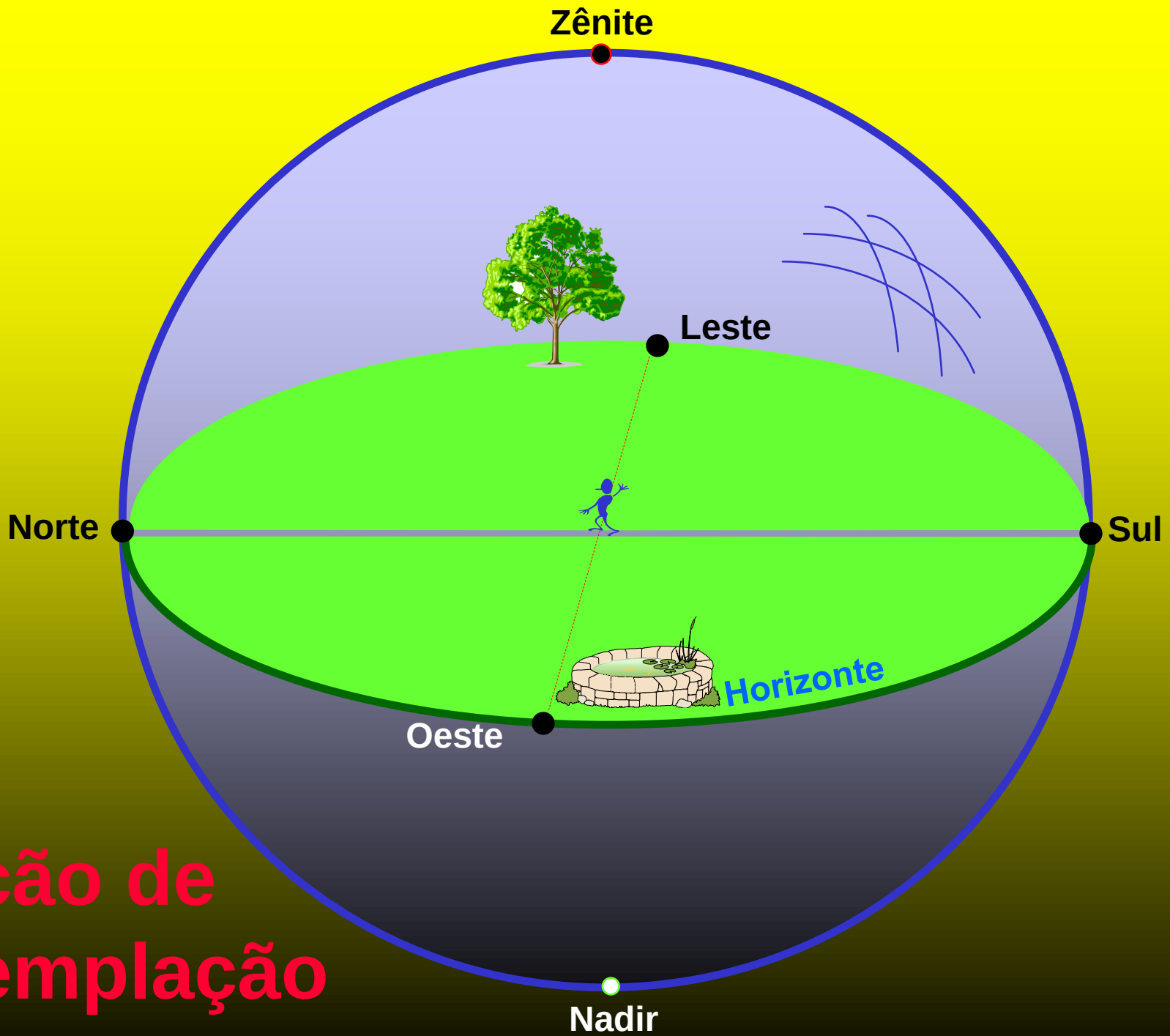
É a altura do Polo Norte 'visto' do local considerado.

$\varphi \equiv + h_{PN}$

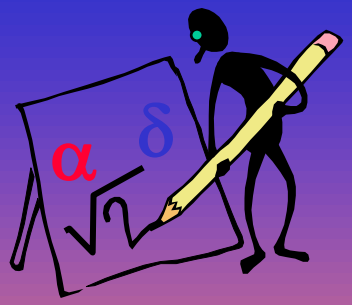
É a altura do Polo Sul 'visto' do local considerado, impondo o sinal negativo.

$\varphi \equiv - h_{PS}$

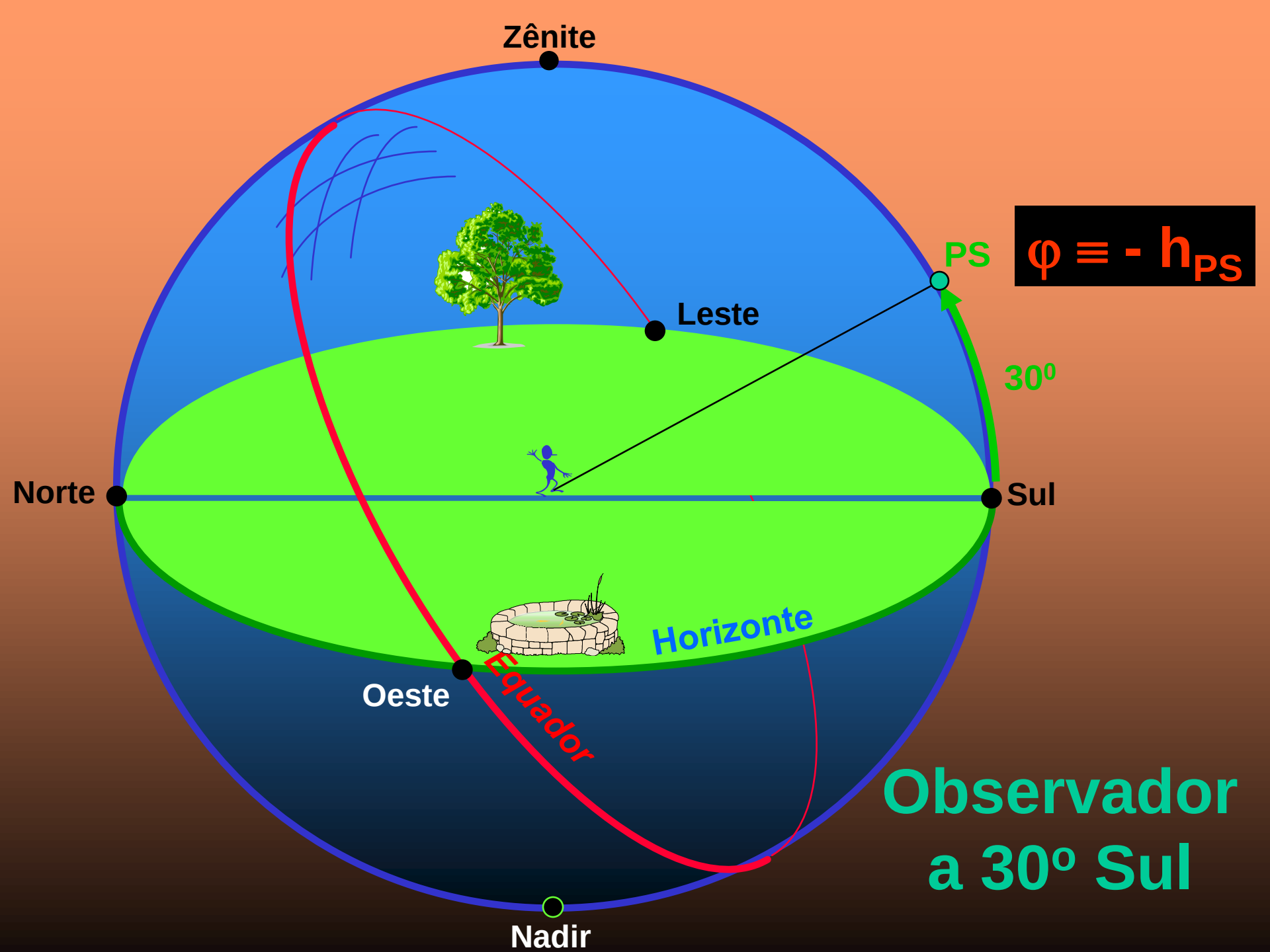
Elementos do céu



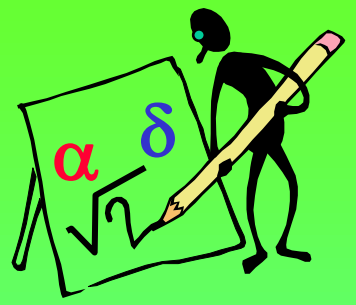
Posição de contemplação



Desenhando o céu de acordo com a latitude do observador

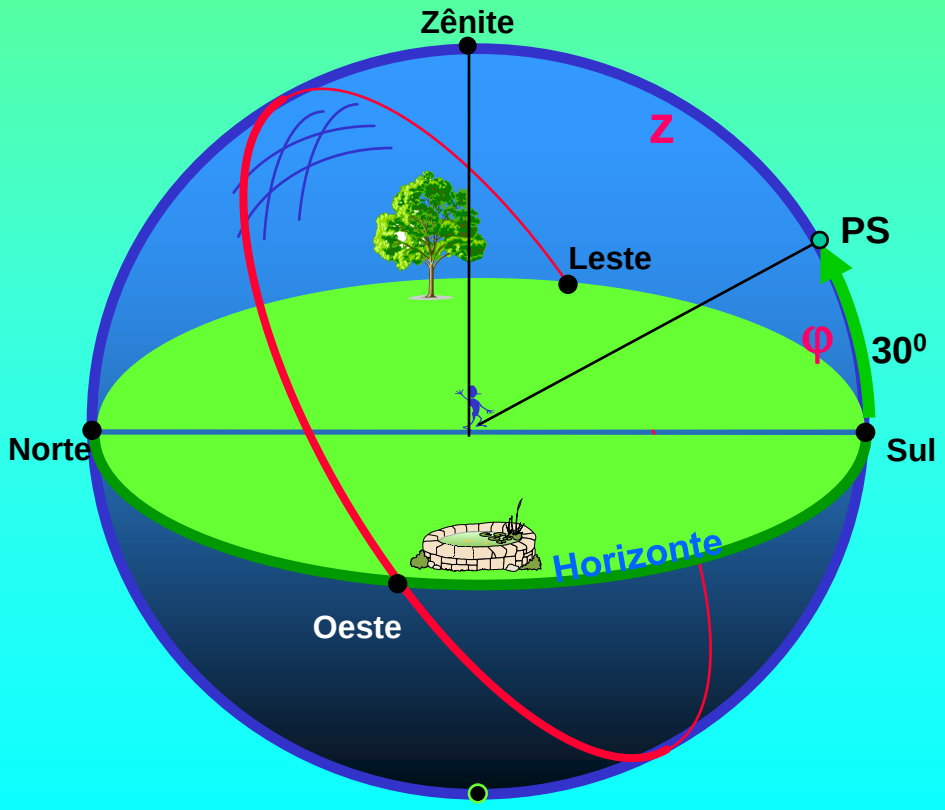

Zênite
PS
$\varphi \equiv - h_{PS}$
Leste
30^0
Norte
Sul
Horizonte
Oeste
Equador
Nadir
Observador
a 30º Sul

Posição do pólo visível



Enunciado:

Qual o ângulo entre o pólo sul e o zênite de um observador com latitude astronômica de -30^0?



$$z + |\varphi_{PV}| = 90^0$$

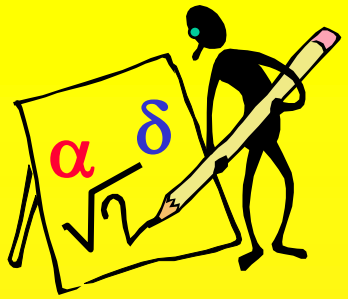
$$z + |-30| = 90^0$$

$$z + 30 = 90^0$$

$$z = -30 + 90^0$$

$$z = 60^0$$

Posição do equador



Enunciado:

Qual o ângulo entre o equador e o zênite de um observador com latitude astronômica de -30⁰?

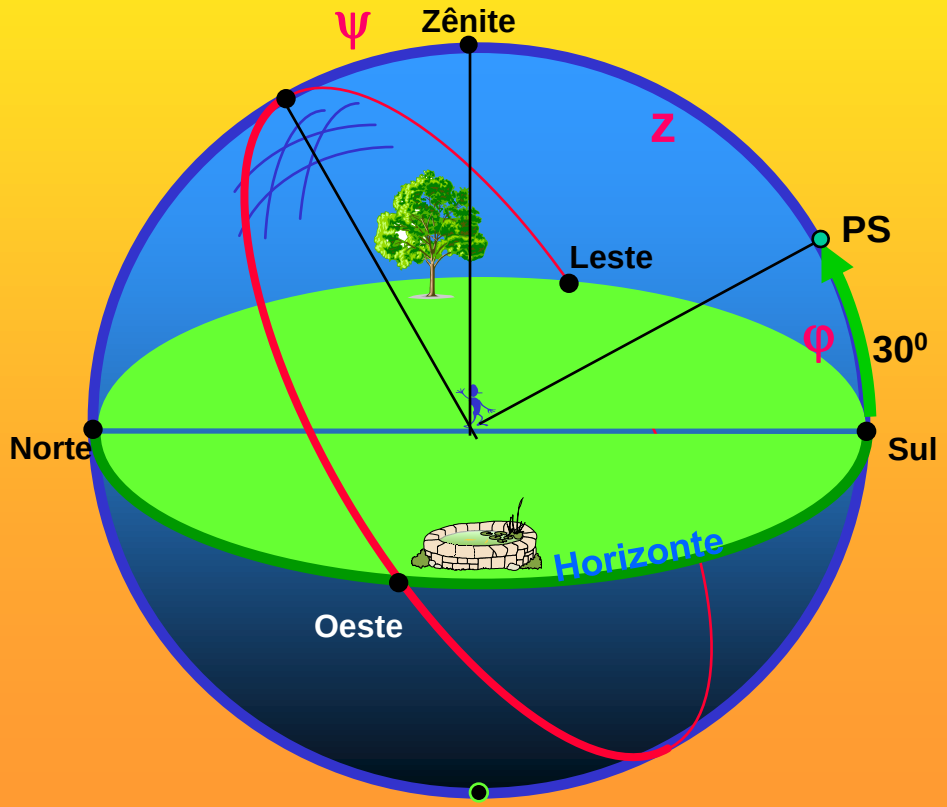
$z + |\varphi| = 90^0$

$z + \psi = 90^0$

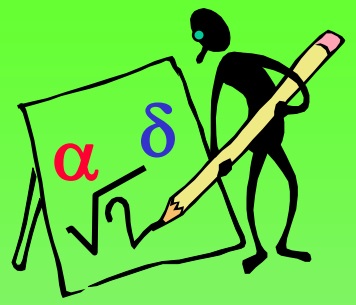
$z + \psi = z + |\varphi|$

$\psi = |\varphi|$

$\psi = 30^0$



Posição do equador



Enunciado:

Qual o ângulo entre o equador e o horizonte de um observador com latitude astronômica de -30⁰?

$\psi = |\varphi|$

$\eta + \psi = 90^0$

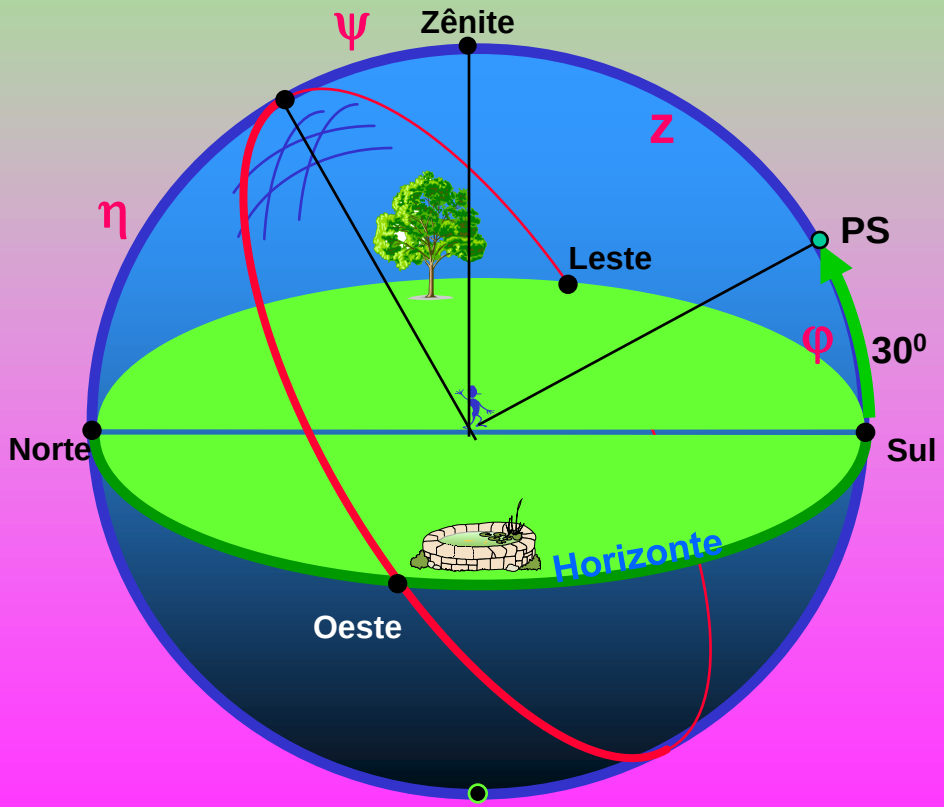
$\eta = 90^0 - \psi$

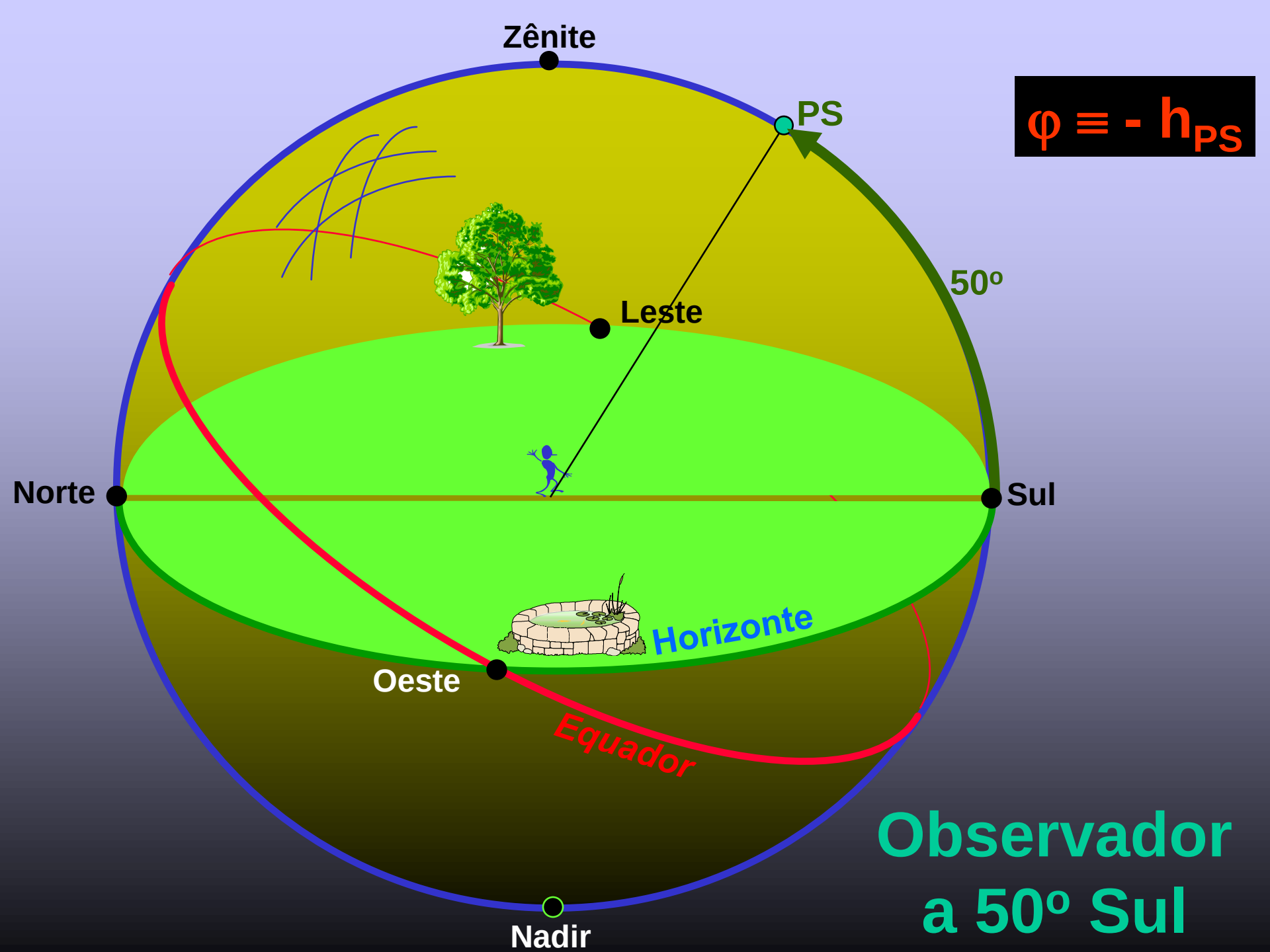
$\eta = 90^0 - |\varphi|$

$\eta = 90^0 - |-30^0|$

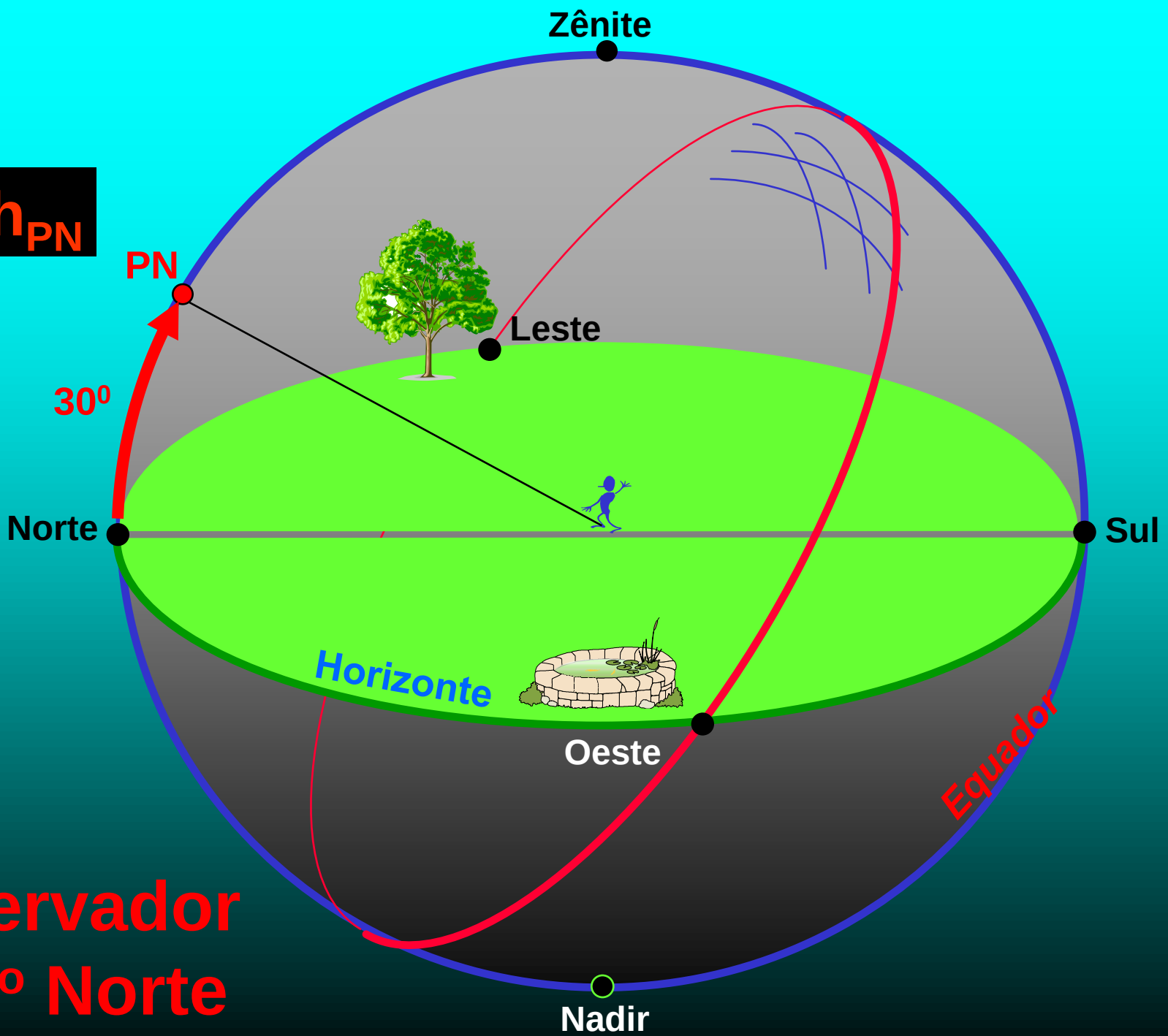
$\eta = 90^0 - 30^0$

$\eta = 60^0$



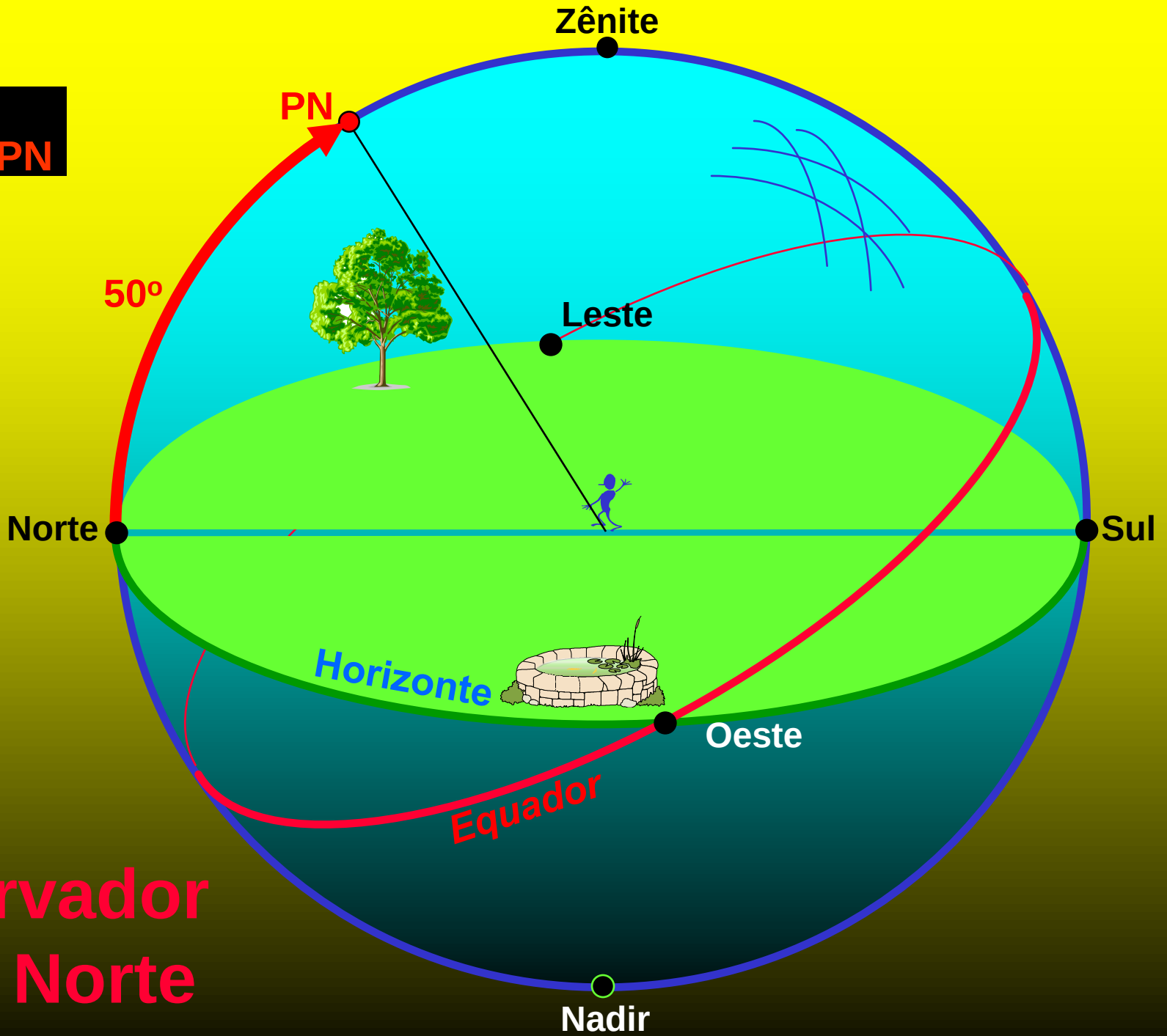

Zênite
PS
$\varphi \equiv - h_{PS}$
50º
Leste
Norte
Sul
Horizonte
Oeste
Equador
Nadir
Observador
a 50º Sul

$\varphi \equiv + h_{PN}$



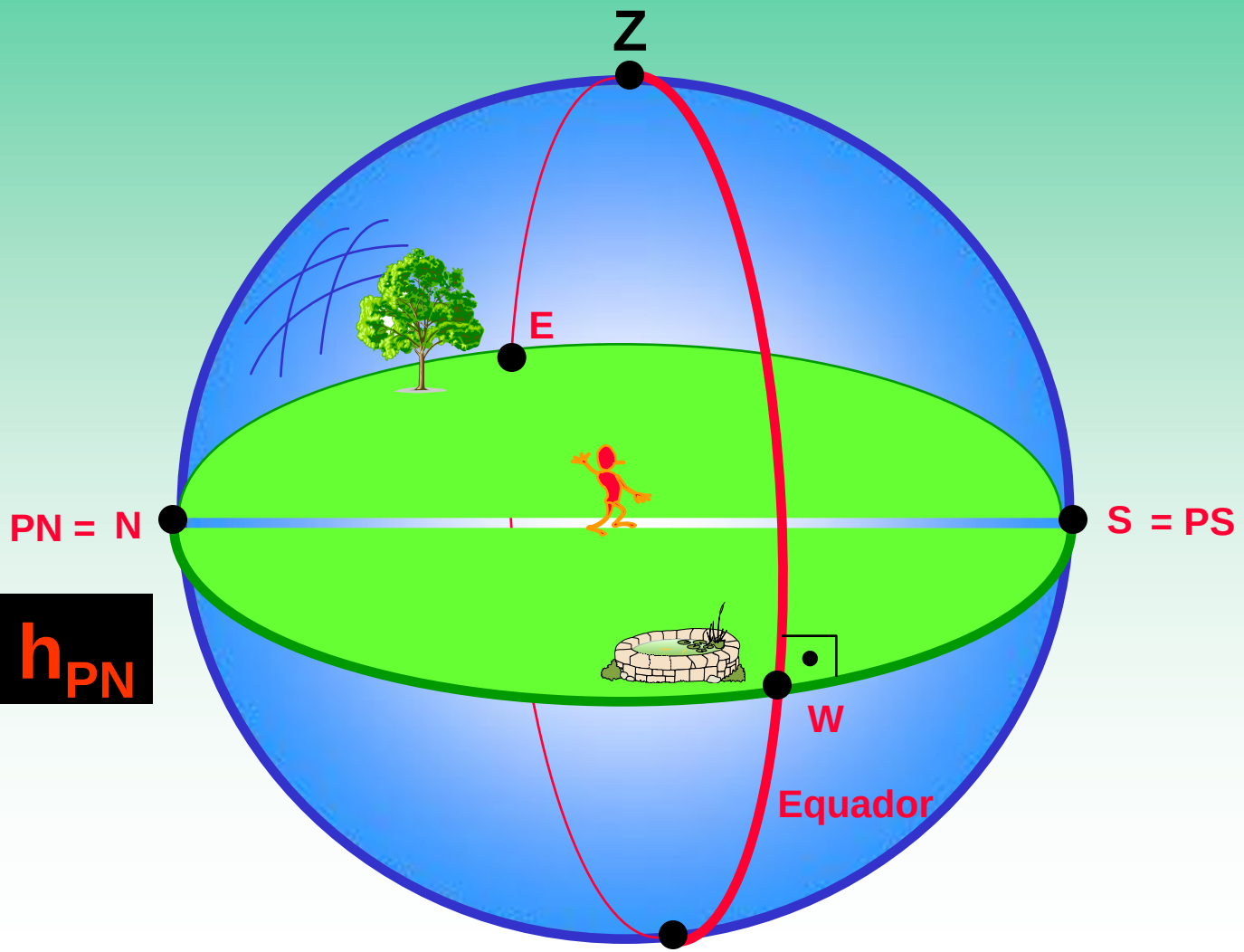
Observador a 30º Norte

$\varphi \equiv + h_{PN}$



Observador a 50º Norte

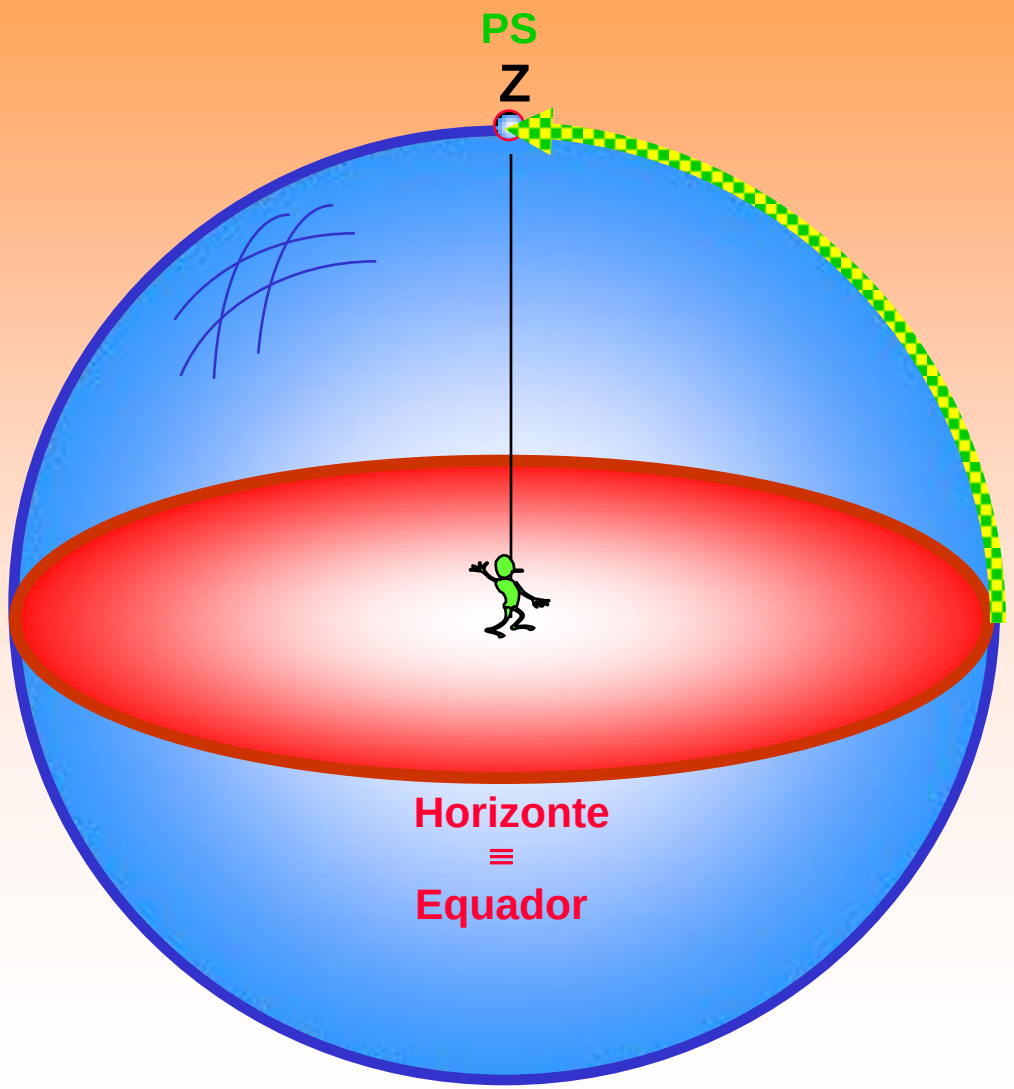
Observador no equador: Latitude 0º



$\varphi \equiv + h_{PN}$

Observador no Polo Sul: Latitude -90º

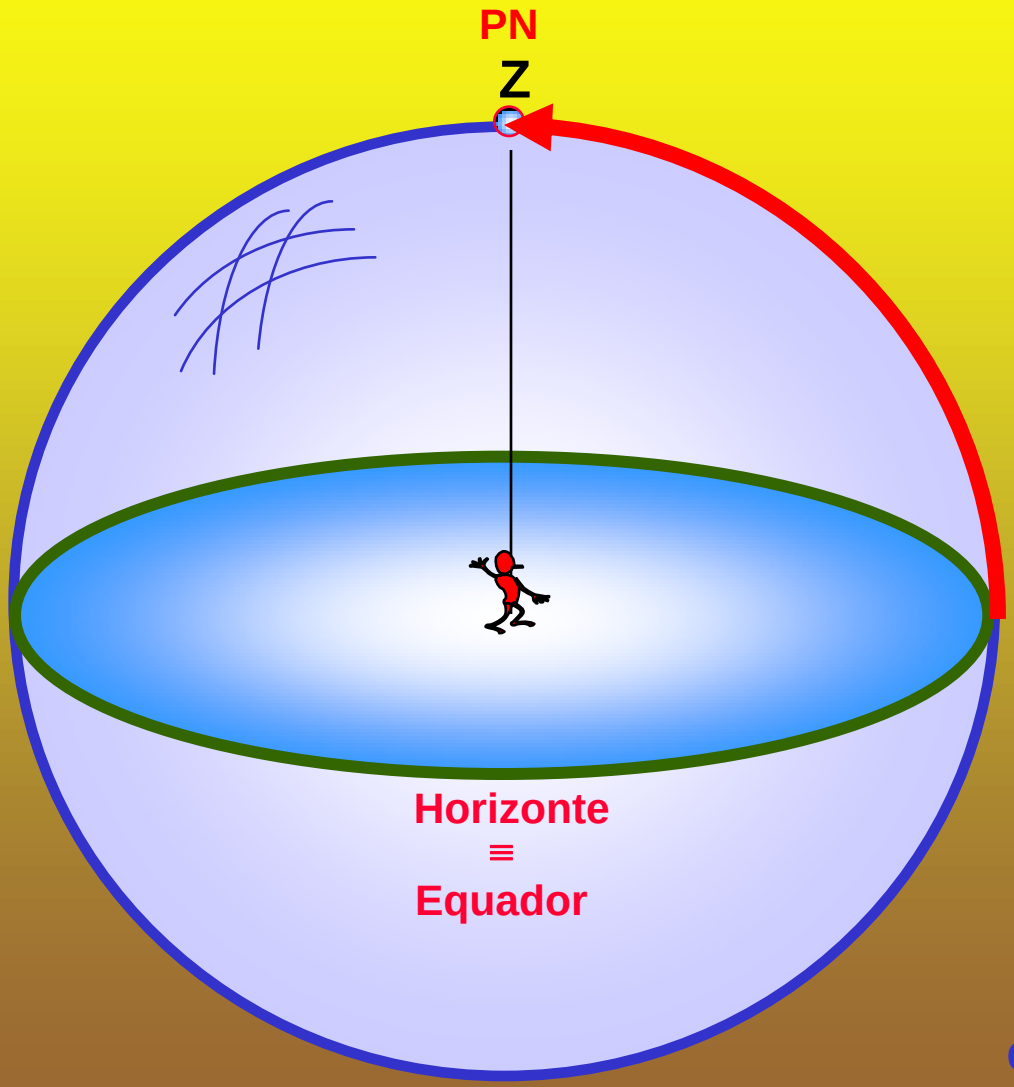
$\varphi \equiv - h_{PS}$



Os pontos cardeais não estão definidos

Observador no Polo Norte: Latitude +90º

$\varphi \equiv + h_{PN}$



Os pontos cardeais não estão definidos

Fim