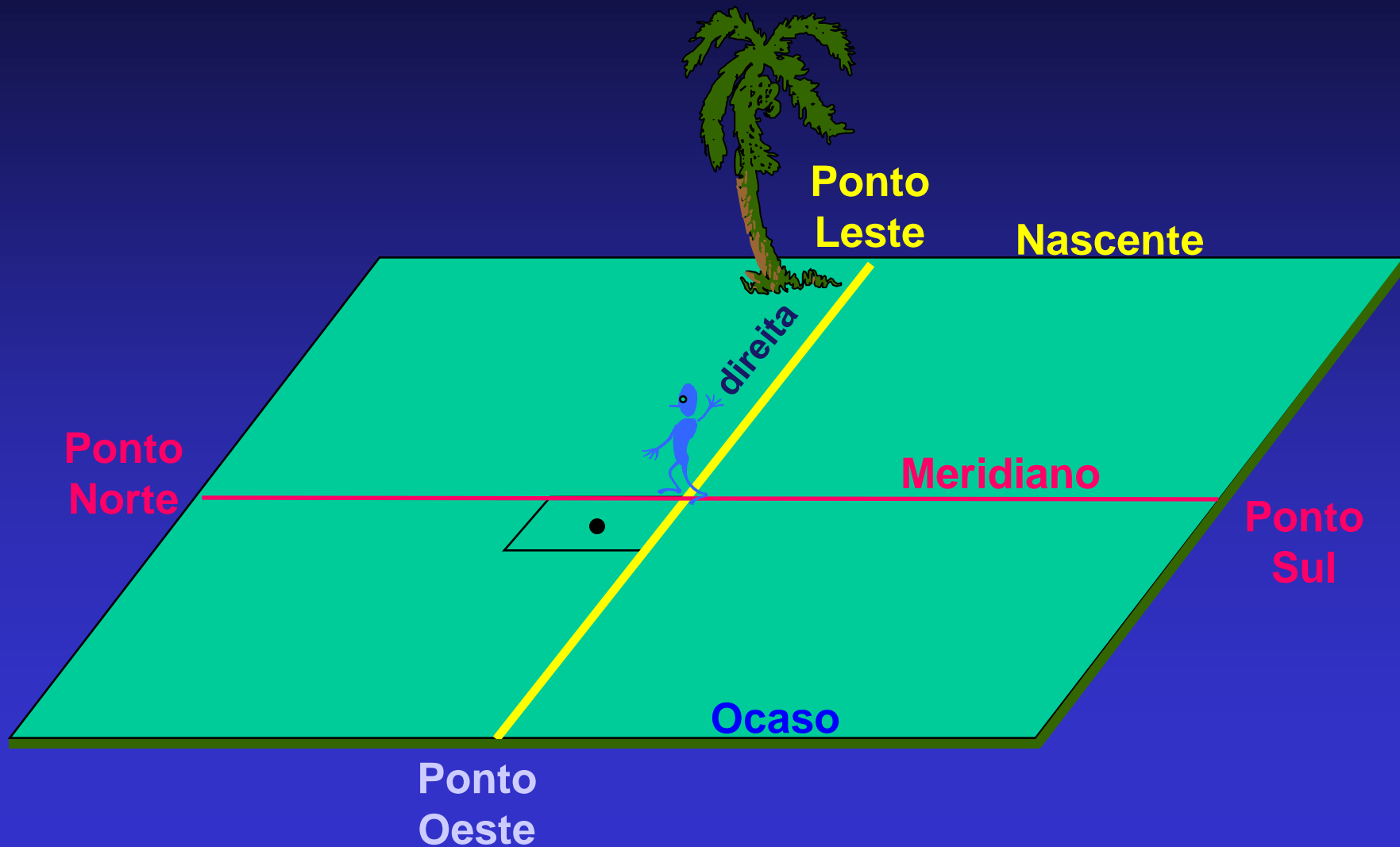


Declinação Magnética

J. Melendez, baseado/R. Boczko

IAG - USP

Pontos ou Direções Cardeais



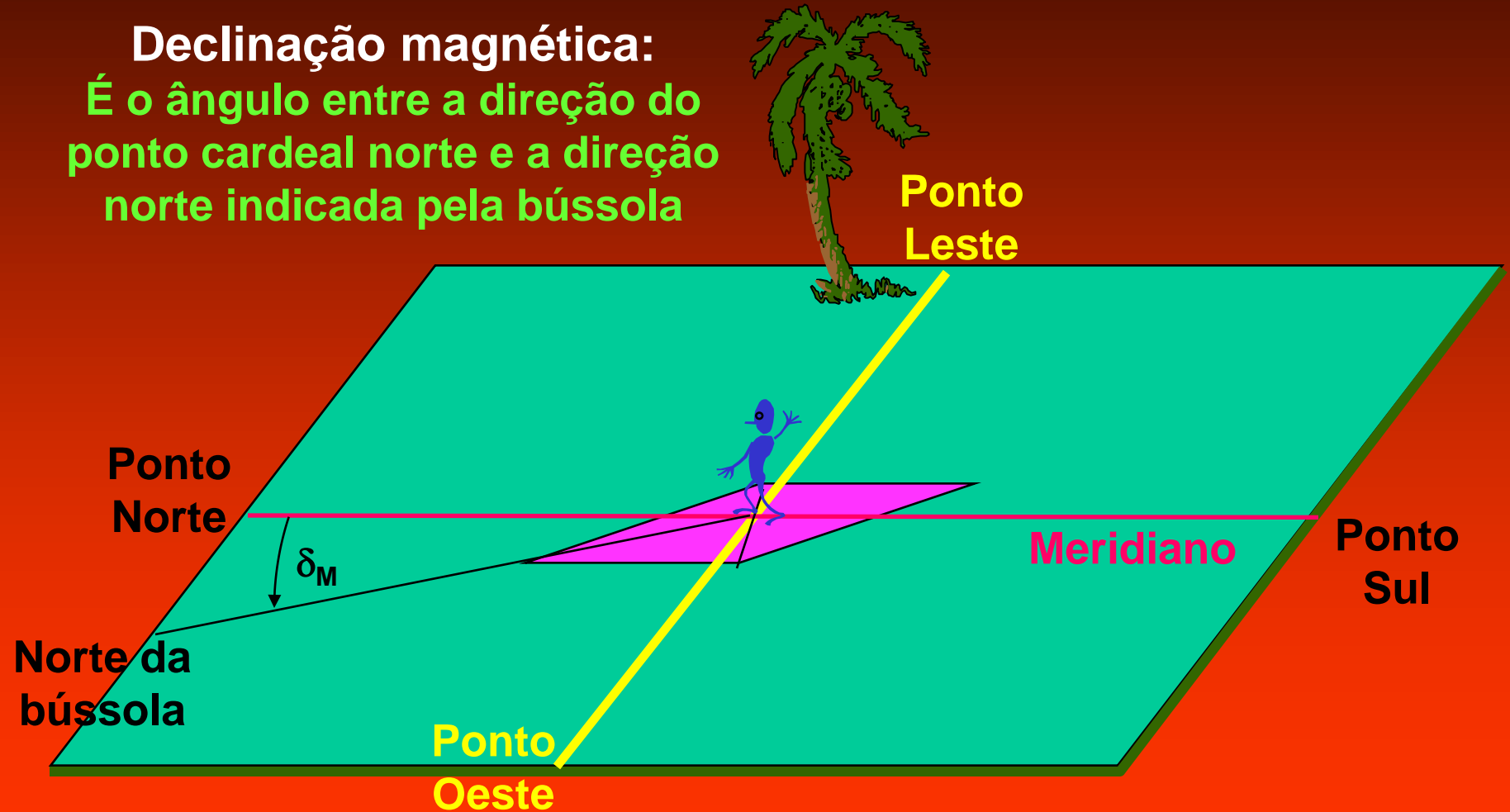
Para onde aponta a bússola?

ES: brújula, EN: compass



Declinação magnética

Declinação magnética:
É o ângulo entre a direção do ponto cardinal norte e a direção norte indicada pela bússola



Declinação magnética: descoberta pelos portugueses?



Infante D. Henrique funda, em 1417 a **Escola de Sagres**, reunindo pilotos, astrônomos, matemáticos cartógrafos e construtores de navios da época.

Provavelmente não foi uma escola, mas um local de reunião de mareantes e cientistas



Rio Douro visto do Palacio de Cristal



Outra ponte sobre o Rio Douro



Ponte D. Luis, Rio Douro

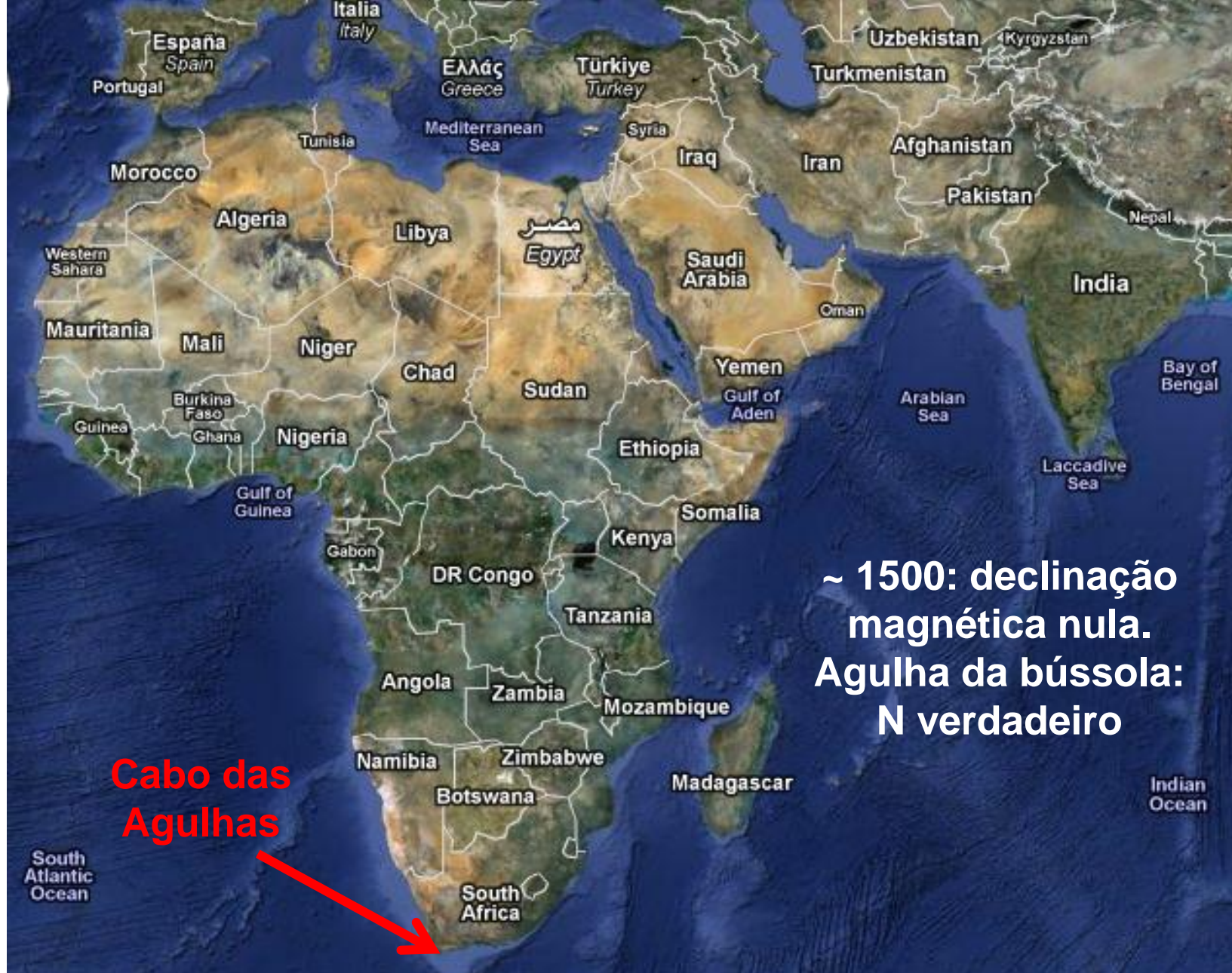


Ribeira, Ponte D. Luis, Rio Douro



Era dos Descobrimentos





~ 1500: declinação
magnética nula.
Agulha da bússola:
N verdadeiro

**Cabo das
Agulhas**

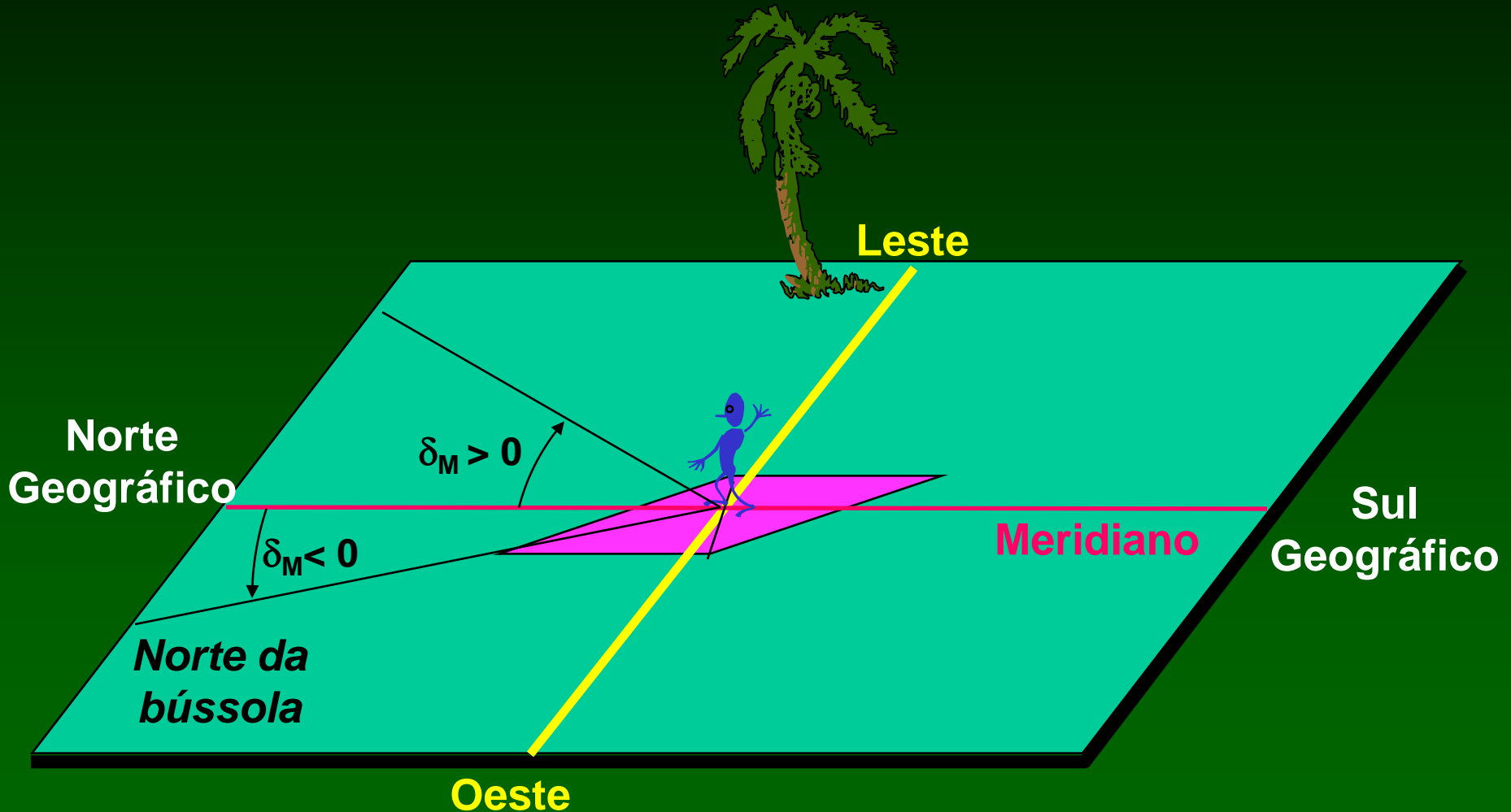
Declinação magnética em SP

Norte geográfico

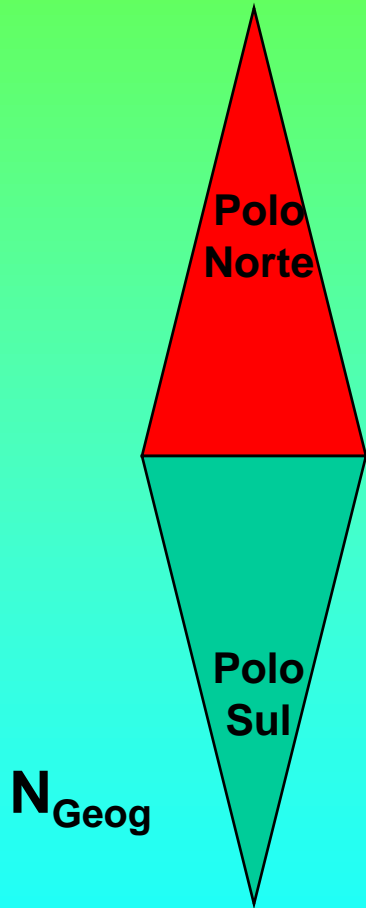
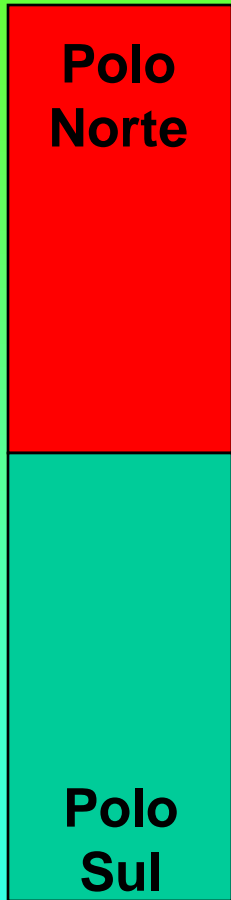
Norte indicado pela bússola



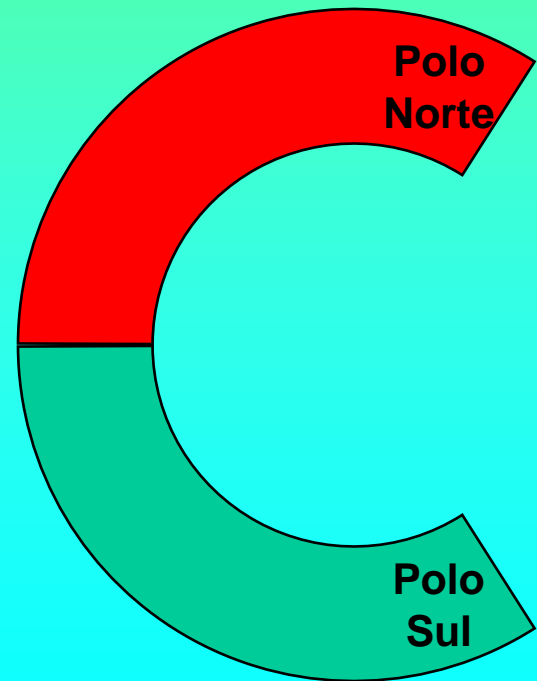
Sinal da Declinação magnética



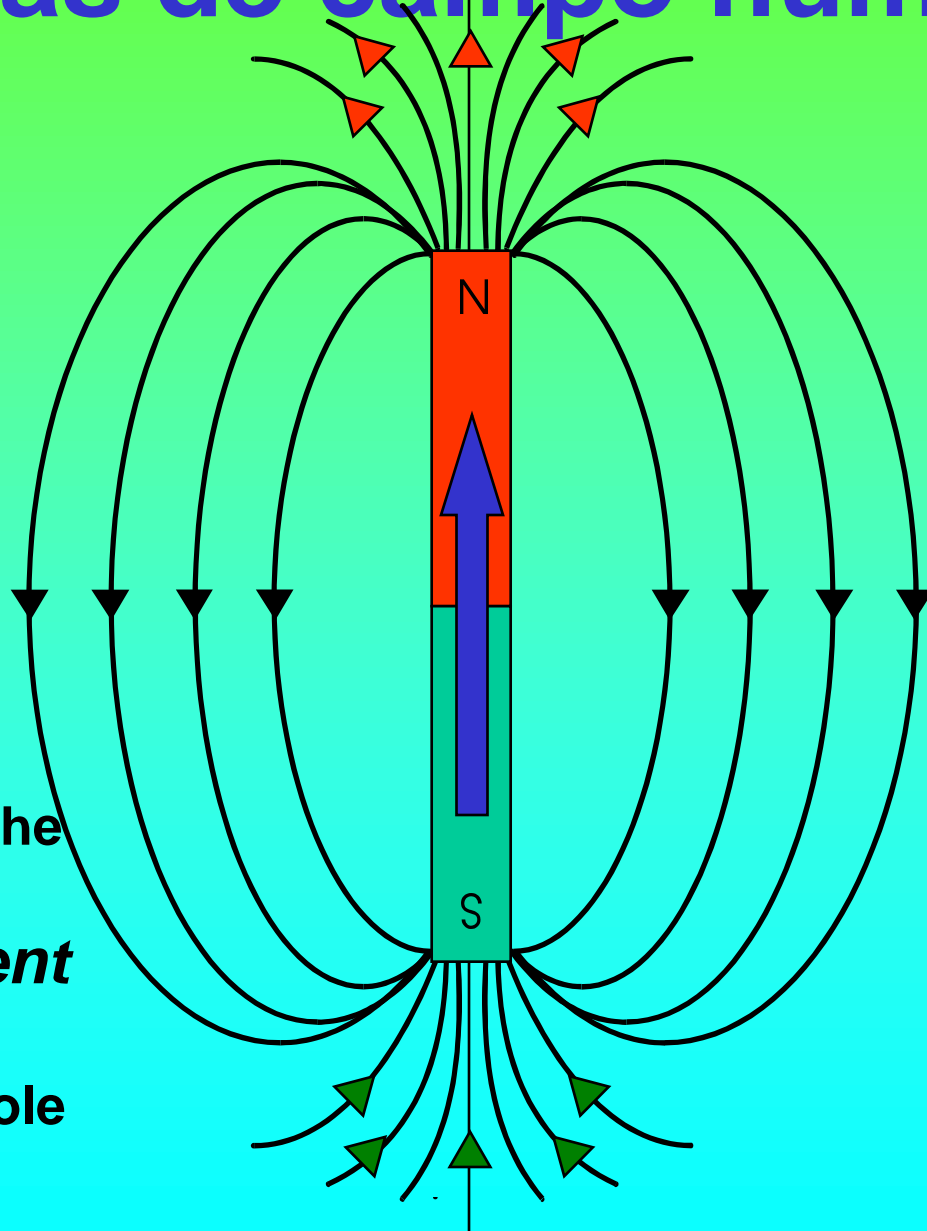
Campos magnéticos num Ímã



Ímã



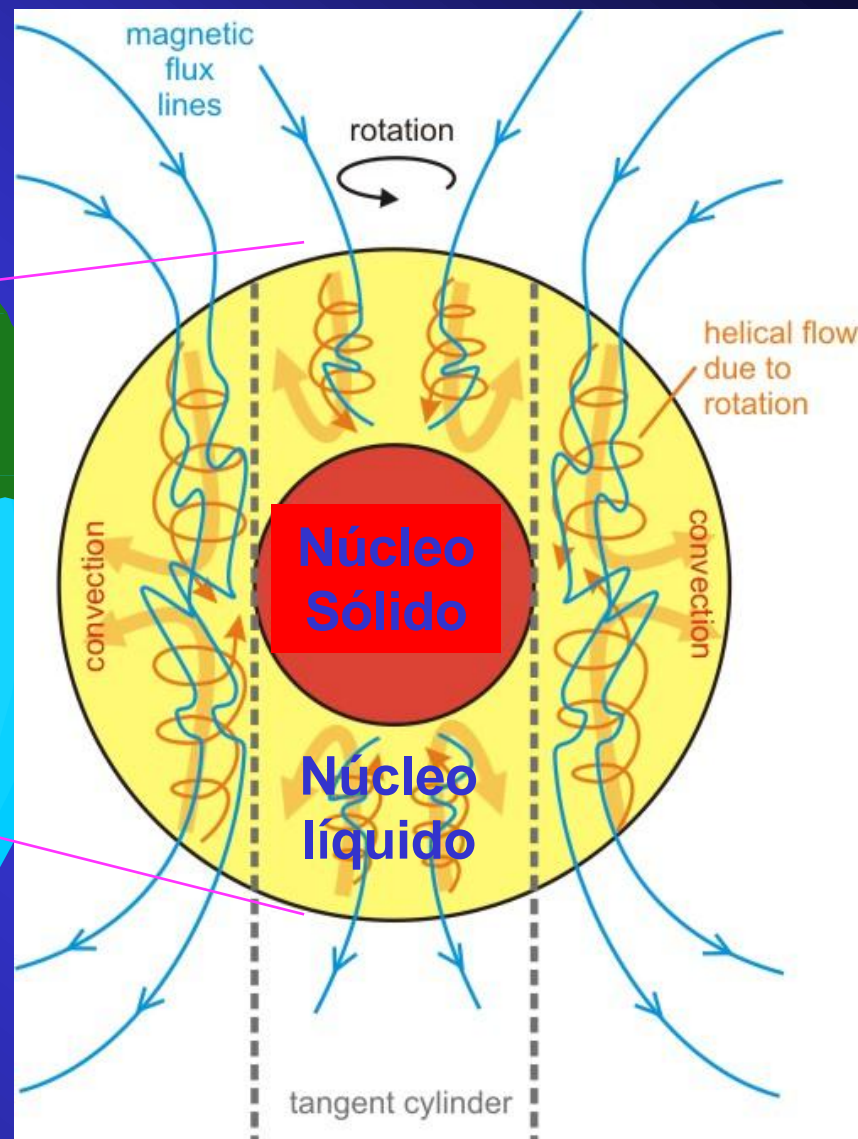
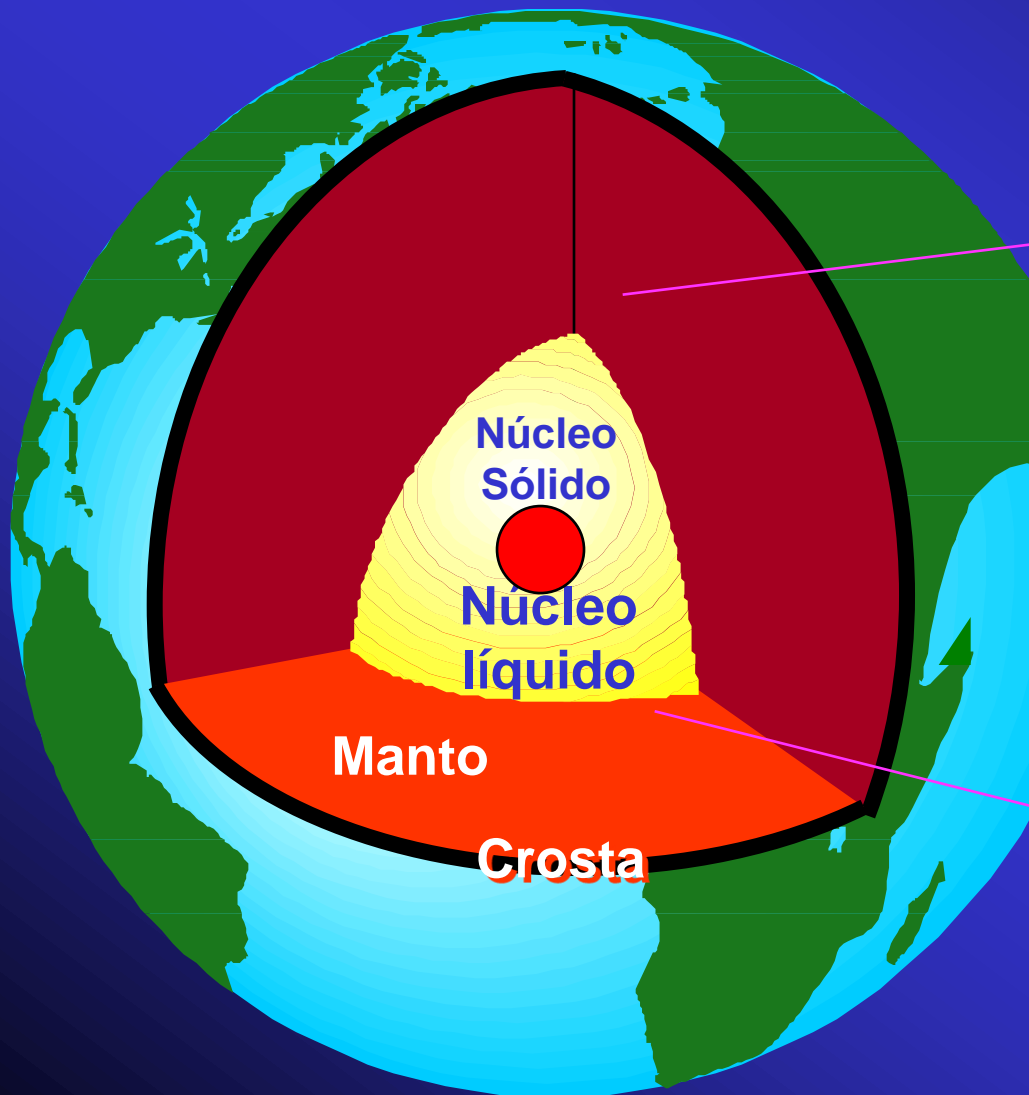
Campo magnético no interior e Linhas de campo num ímã



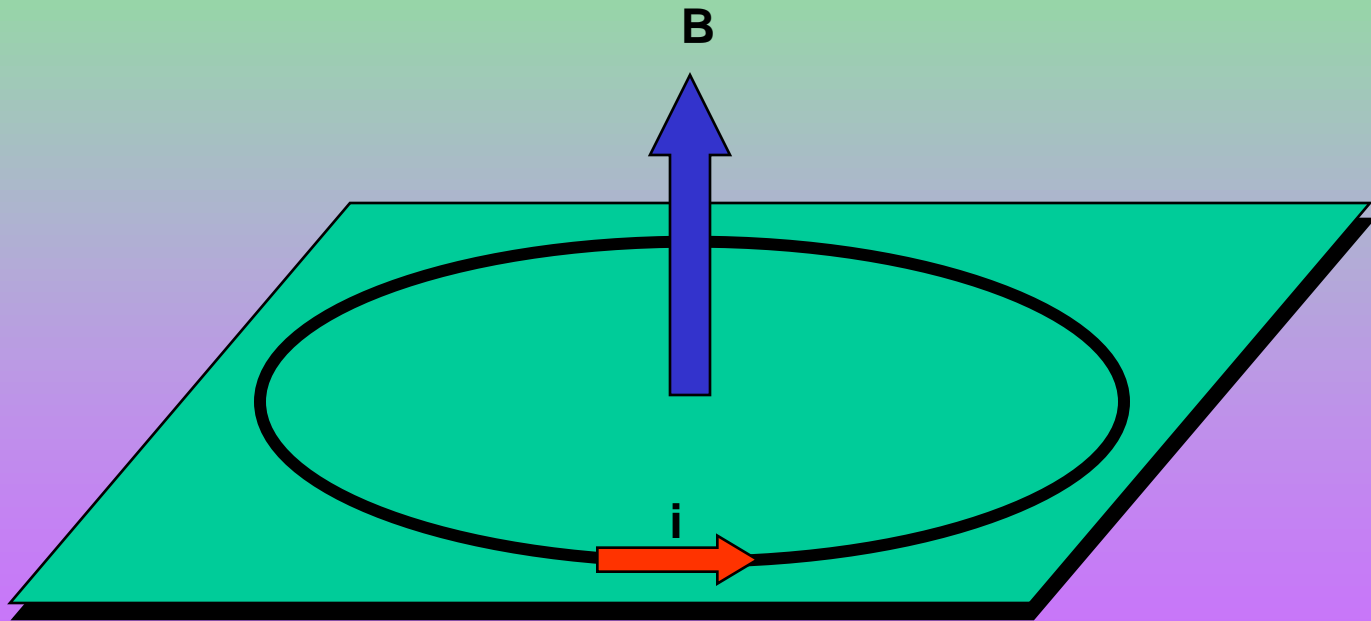
For a bar magnet, the direction of the *magnetic moment* points from the magnet's **south pole** to its **north pole**

Ímã Terra

Estrutura da Terra e formação do campo magnético

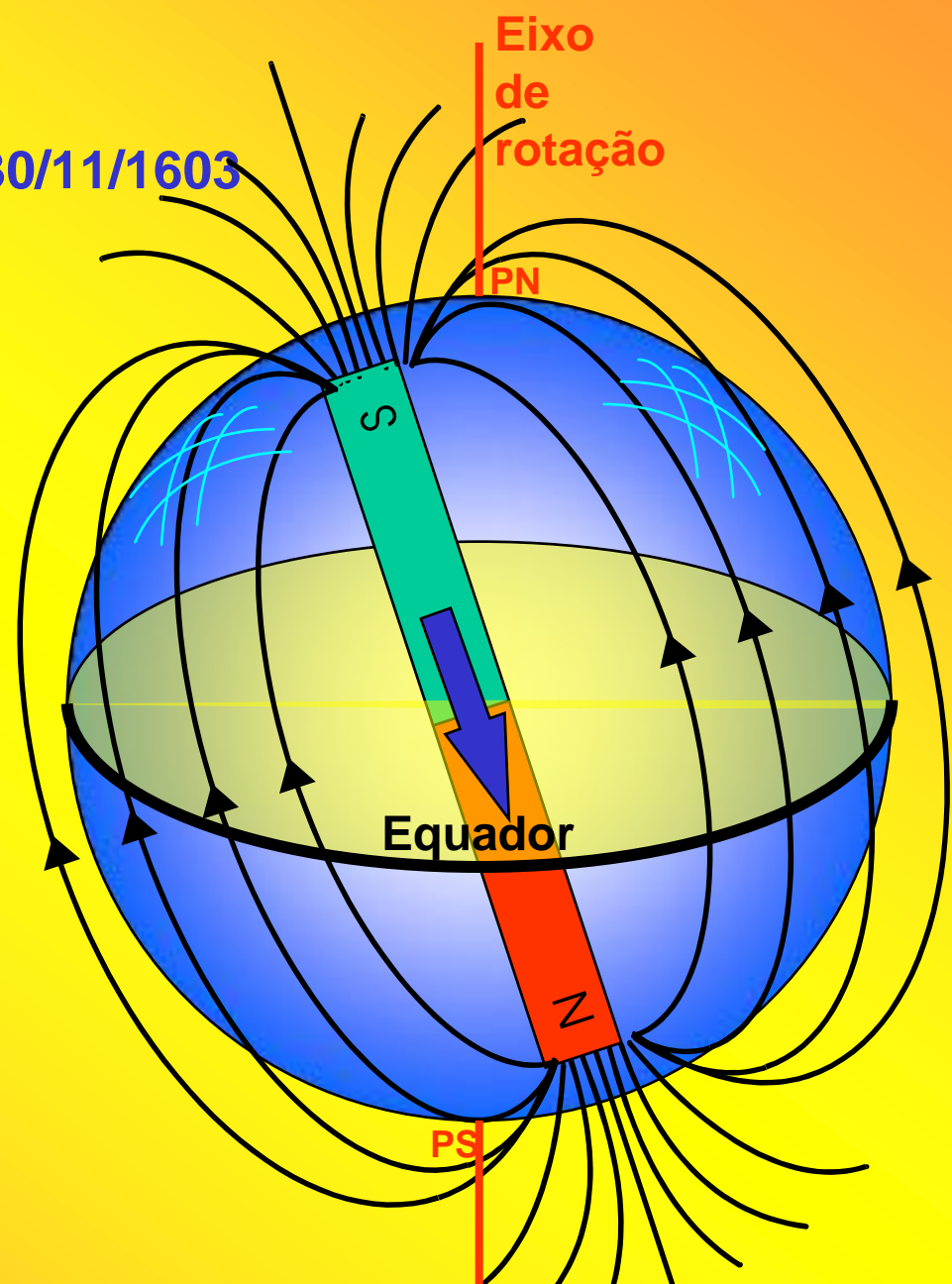
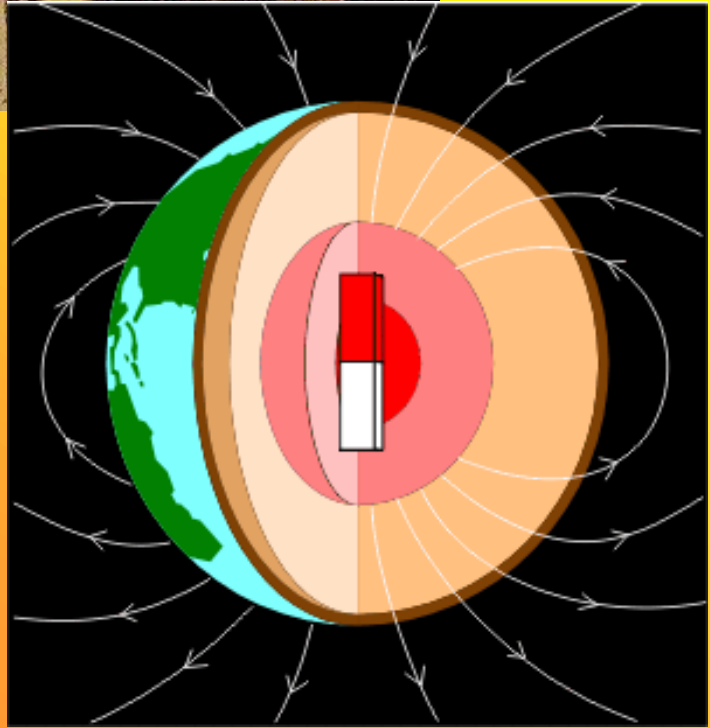


Campo magnético numa espira circular



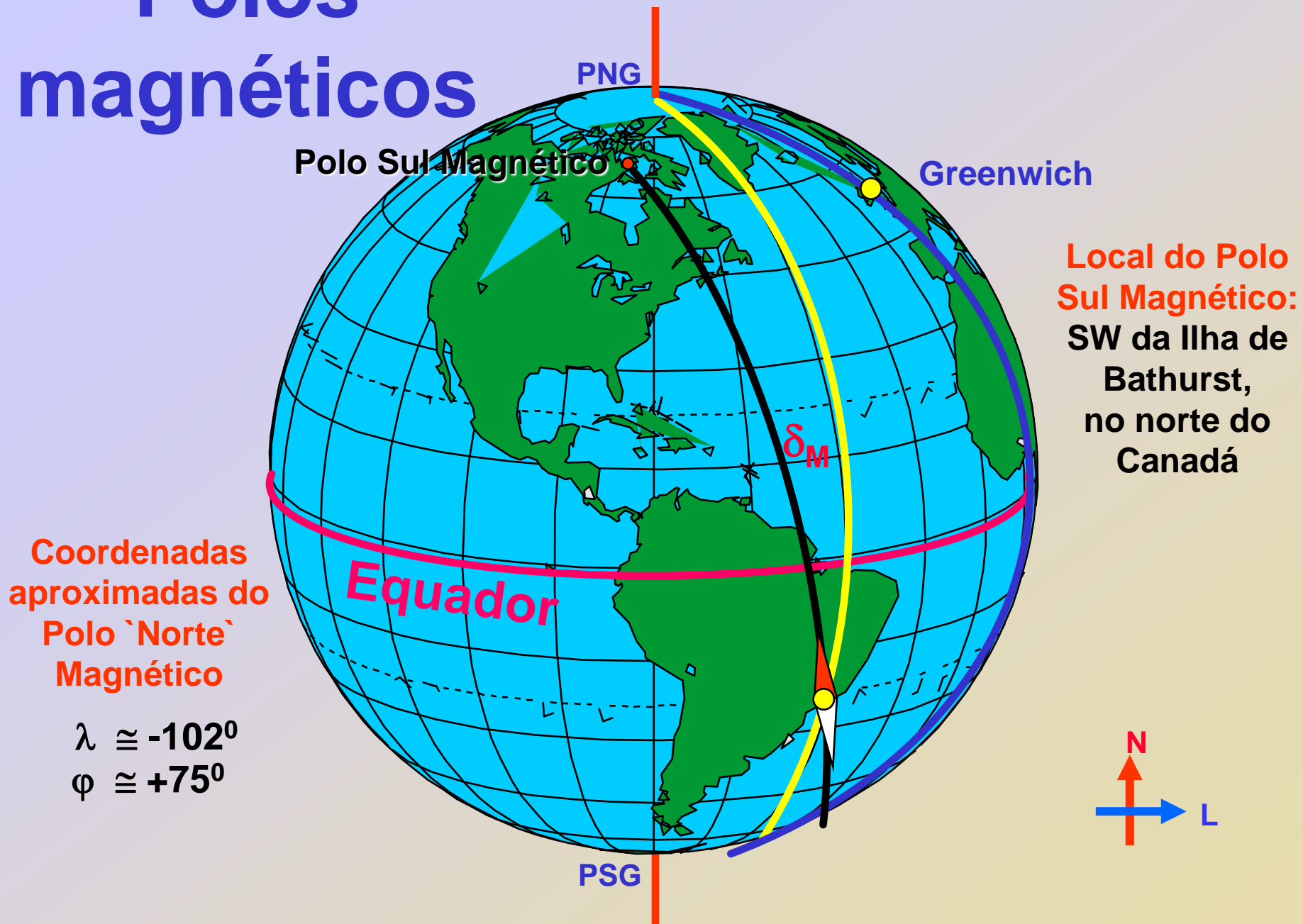
Ímã Terra

William Gilbert, 24/05/1544 – 30/11/1603

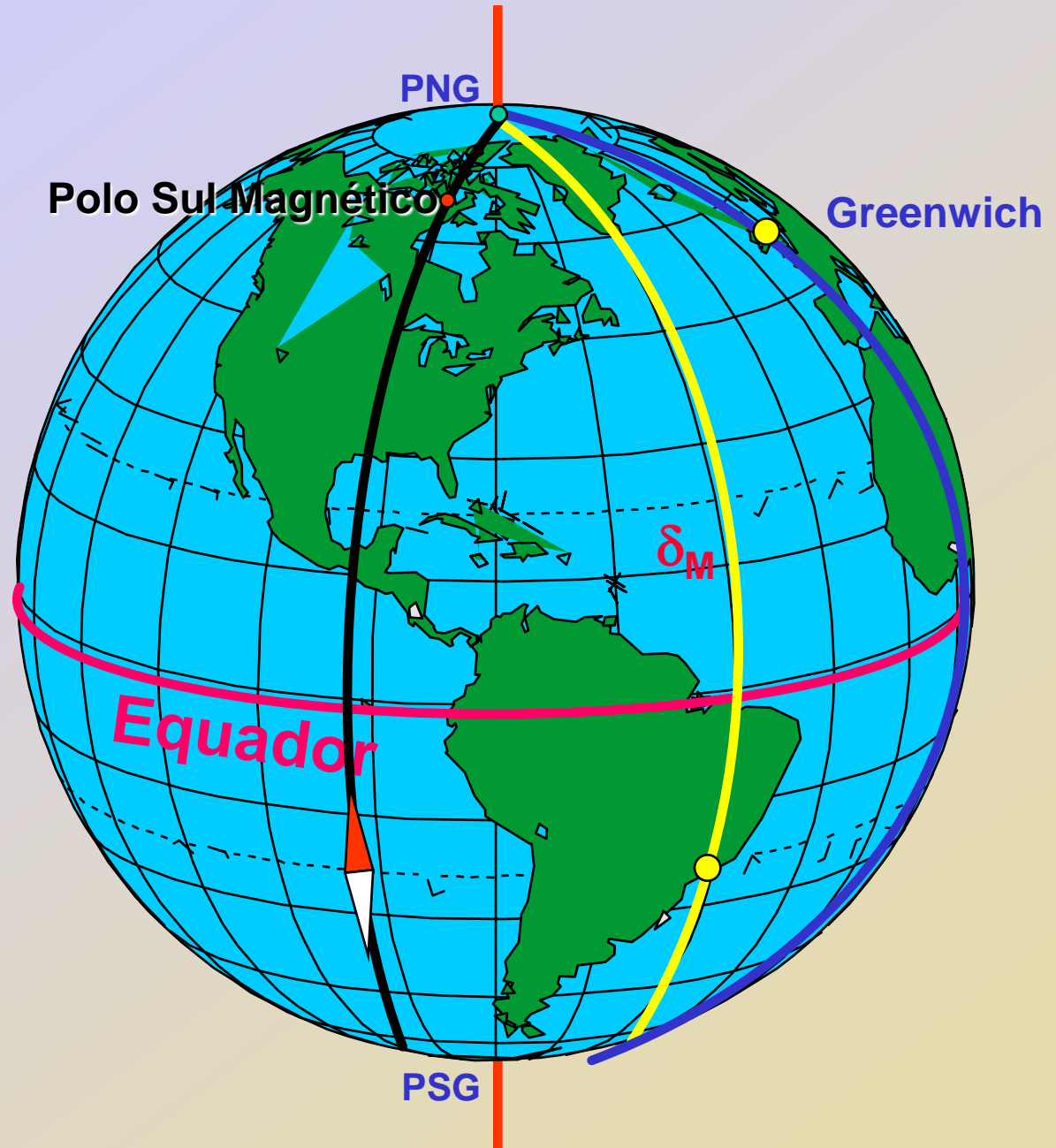


For a bar magnet, the *magnetic moment* points from the magnet's S pole to its N pole

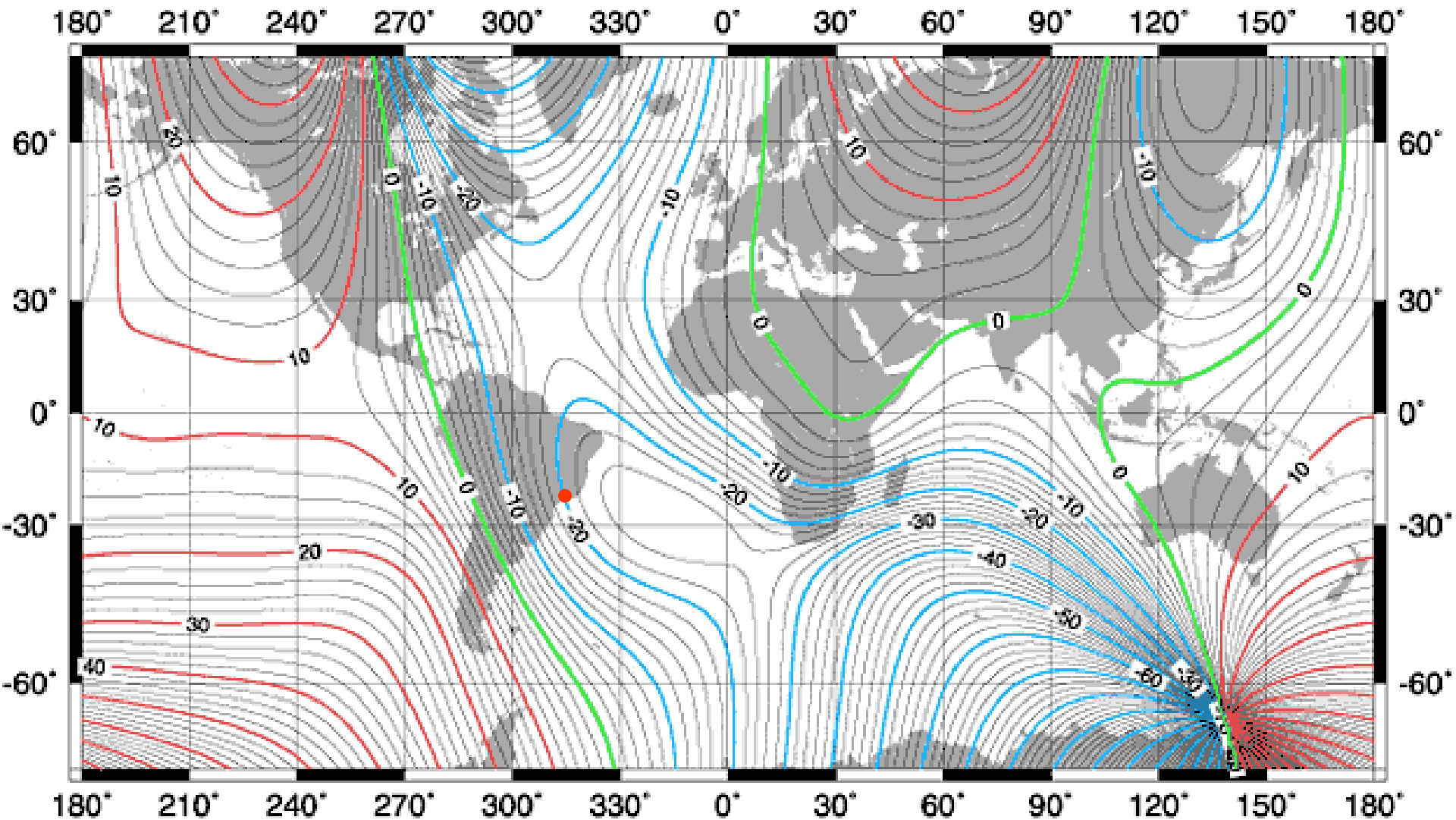
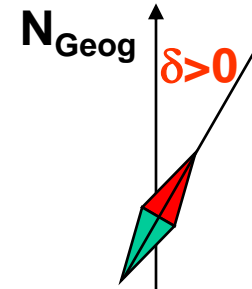
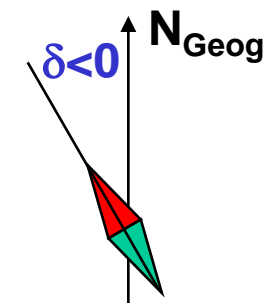
Pólos magnéticos



Declinação magnética nula

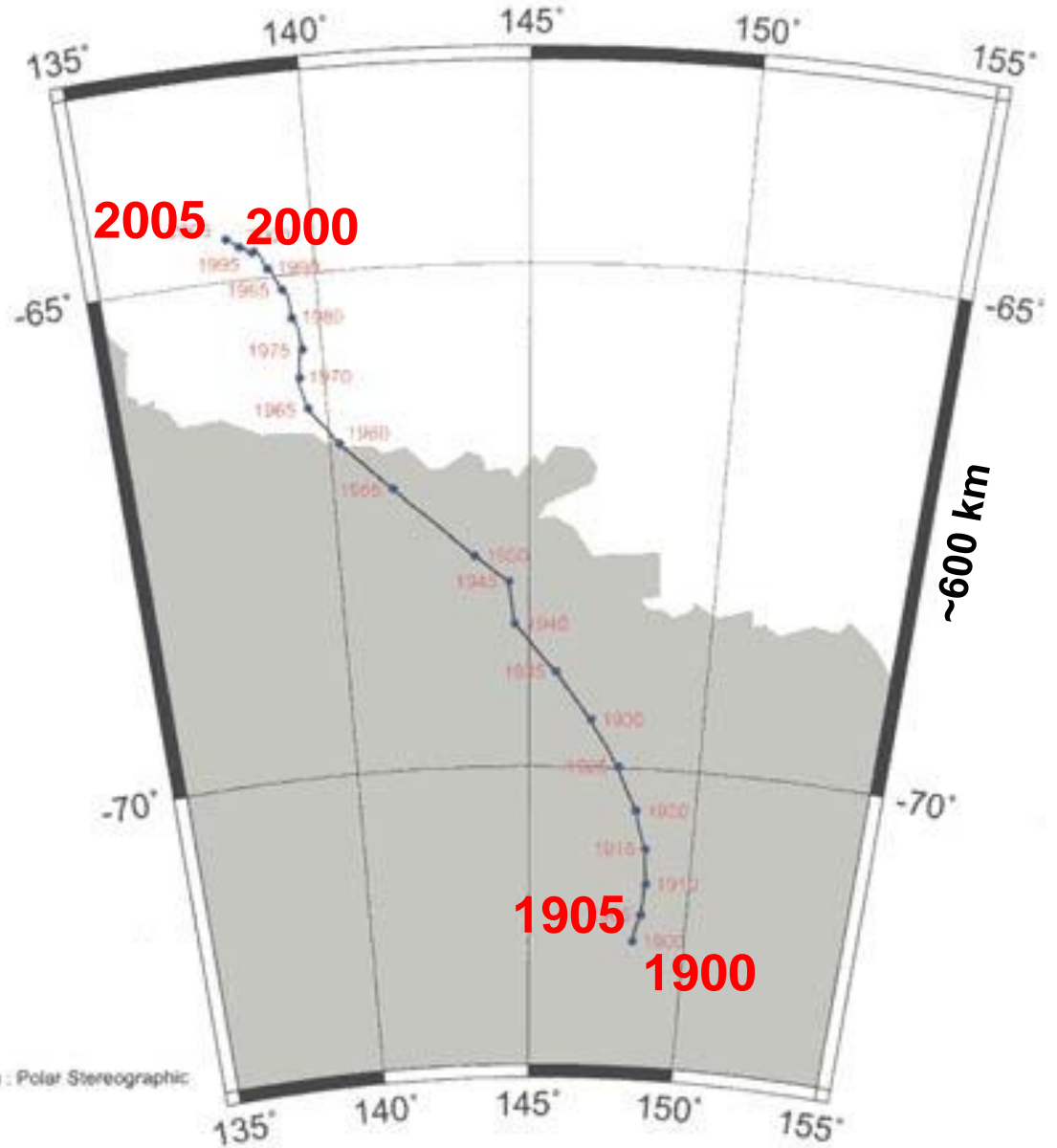


Declinação magnética em 2000



O Polo Magnético e suas variações temporais

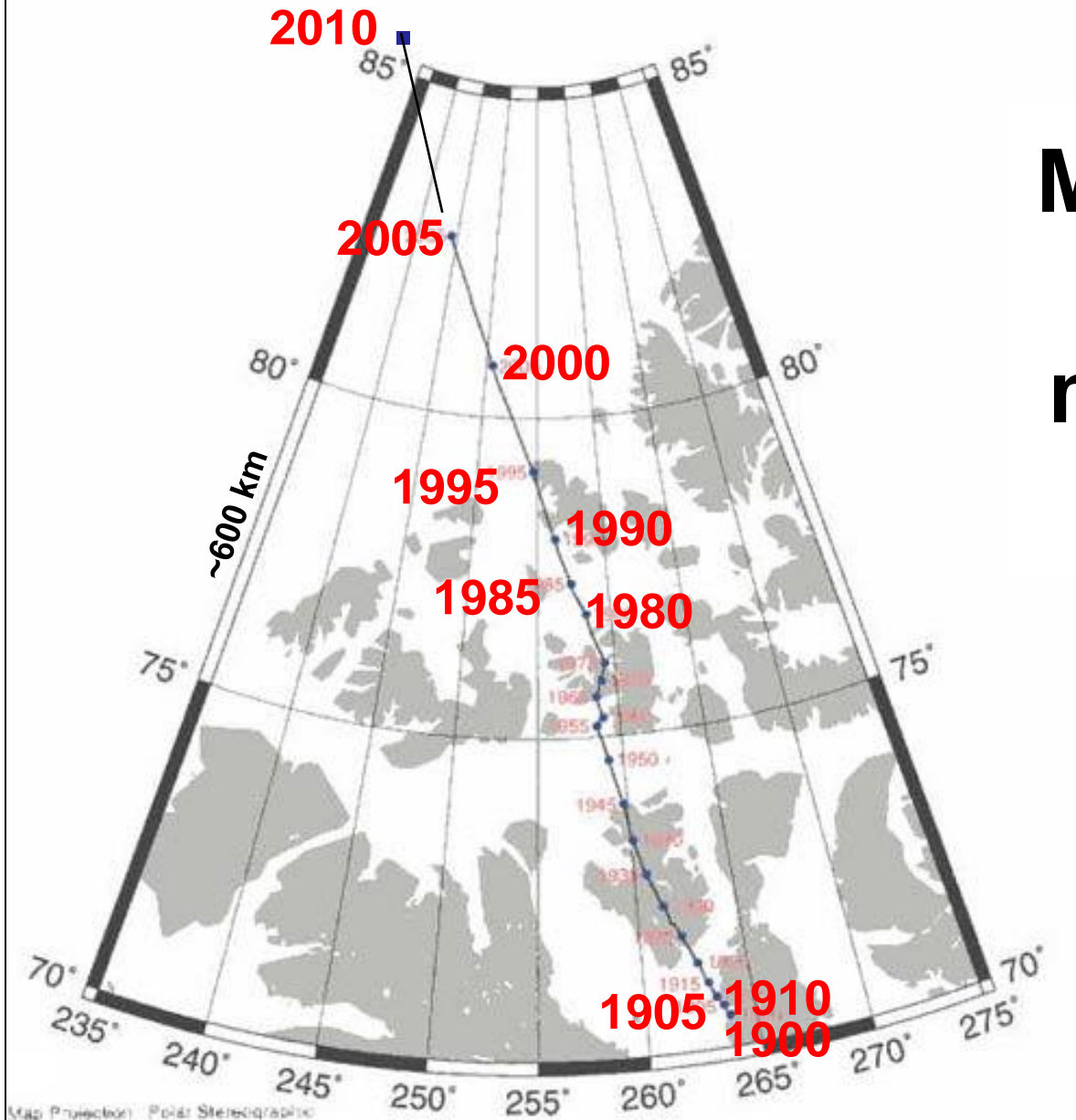
SOUTH MAGNETIC POLE MOVEMENT



**Movimento
do polo
magnético
do sul**

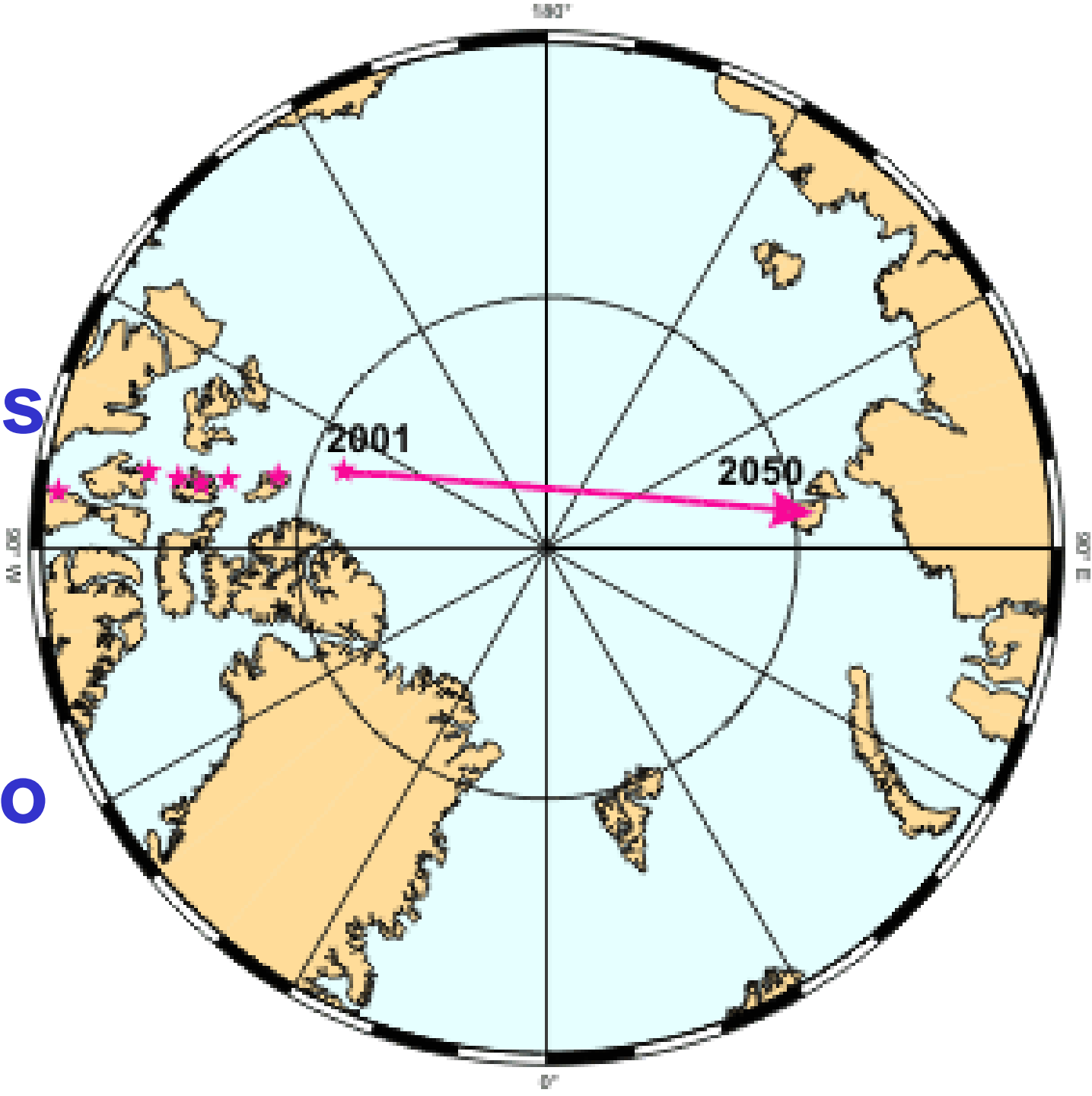
Map Projection : Polar Stereographic.

NORTH MAGNETIC POLE MOVEMENT

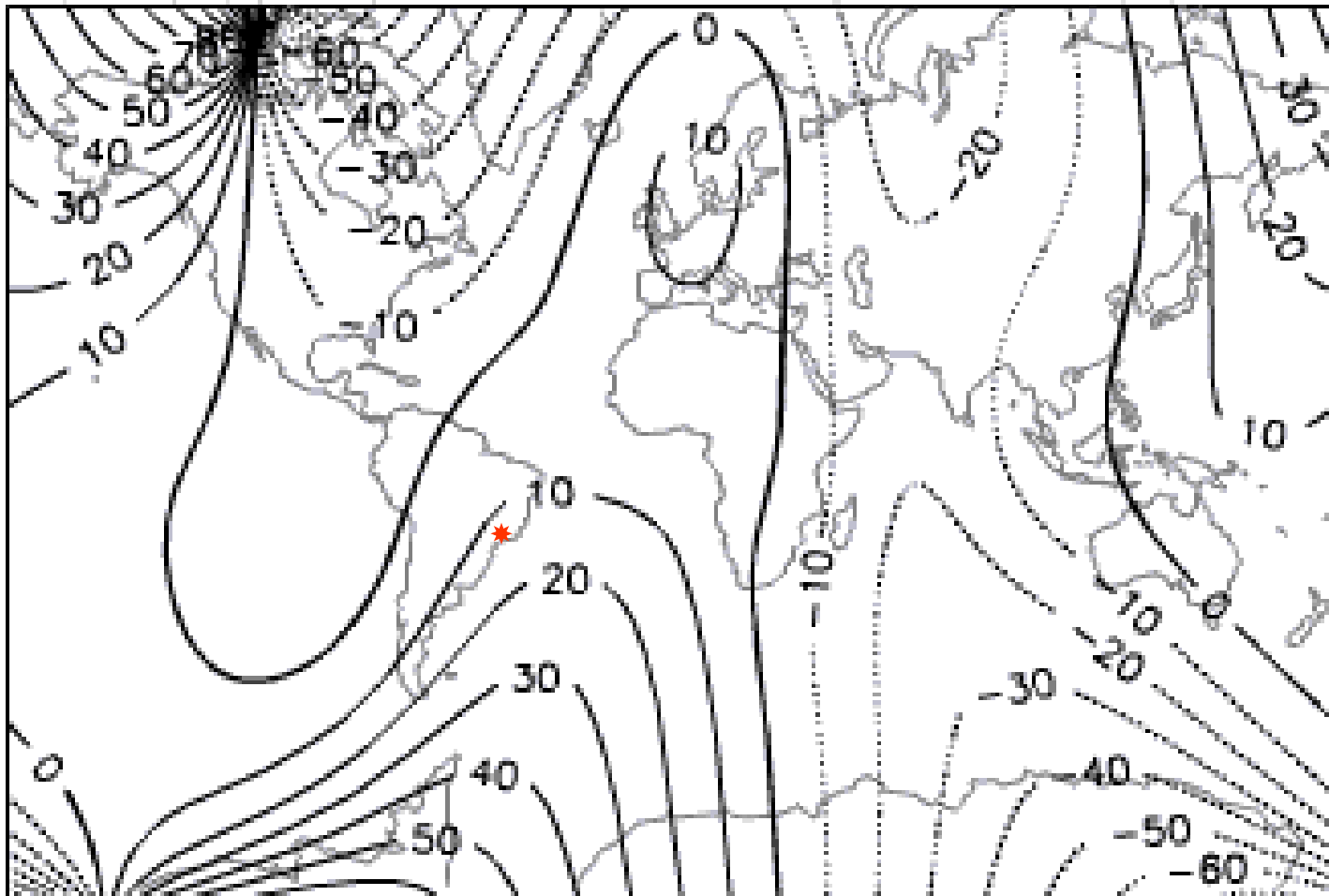


**Movimento do
polo
magnético do
norte**

**Mudanças
na
posição
do Polo
Magnético
no HN**



1590
Declination (degrees east)



<http://geomag.usgs.gov>

Model by A. Jackson, A. R. T. Jonkers, M. R. Walker,
Phil. Trans. R. Soc. London A (2000), 358, 957–990.

Variação da declinação entre 1590 e 2000

Declinação on-line

NOAA's Geophysical Data Center - Geomagnetic Data - Mozilla Firefox

File Edit View History Bookmarks Tools Help

<http://www.ngdc.noaa.gov/geomagmodels/Declination.jsp>

NOAA's Geophysical Data

NOAA NATIONAL GEOPHYSICAL DATA CENTER
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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Estimated Value of Magnetic Declination

To compute the magnetic declination, you must enter the location and date of interest.

If you are unsure about your city's latitude and longitude, look it up online! In the USA try entering your zip code in the box below or visit the [U.S. Gazetteer](#). Outside the USA try the [Getty Thesaurus](#).

Search for a place in the USA by Zip Code:

Enter Location: (latitude 90S to 90N, longitude 180W to 180E). See [Instructions](#) for details.

Latitude: N S Longitude: E W

Enter Date (1900-2015): Year: Month (1-12): Day (1-31):

Declinations calculated with [International Geomagnetic Reference Field \(IGRF\)](#) Model.

Declination = 0° 58' W changing by 0° 9' W/year

Lima, Lat 12 00 00, Long 76 38 00
Dec = 0° 58' W



Fim