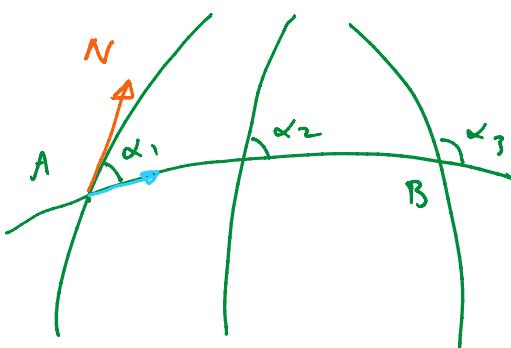
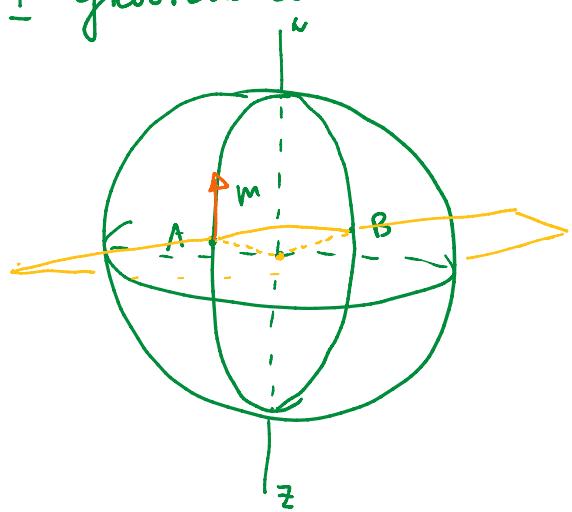


afstanden op Aarde:

1 grootcirkel



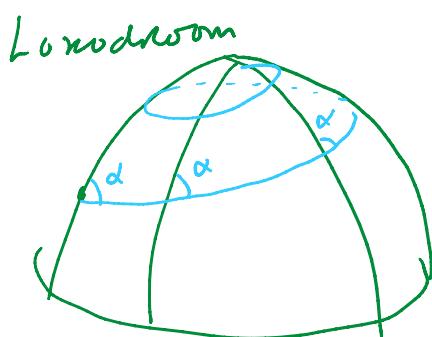
$\alpha_i$  verschillend.

vlak door A, B en m

grootcirkel is de staalgang van dat vlak met de Aarde

GRC  $\rightarrow$  hoogste afstand

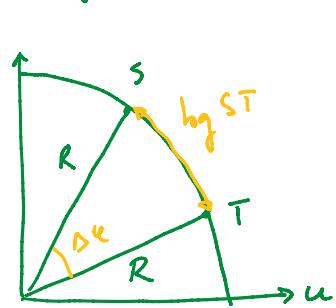
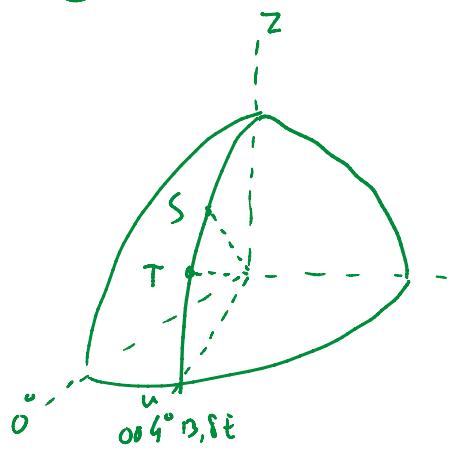
steeds andere hoog met de meridiaan



"Rhumb line"

niet de horizontale afstand  
wel derselfde hoeken.

① van Texel naar Stavanger (loxodroom).



boog = streef. hoog [rad]

hoog  $\leftrightarrow$  afstand

$$1^\circ = 60 \text{ nm}$$

$$\begin{aligned} S: & 58^\circ \quad 114,6 \quad N \\ T: & 52^\circ \quad 58,2 \quad N - \end{aligned}$$

| wat        | Gram |
|------------|------|
| $\Delta L$ | A    |
| $\Delta L$ | B    |
| $\ell_s$   | C    |

$$T: 52^{\circ} 58,2' N -$$

$$\Delta \varphi_{st} = 5^{\circ} 56,4' \rightarrow 5,94 [A]$$

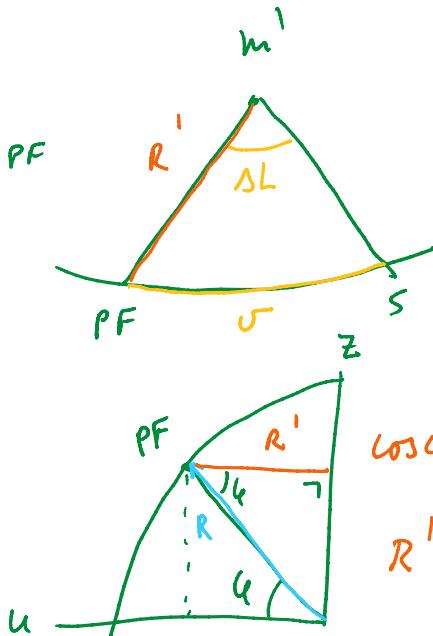
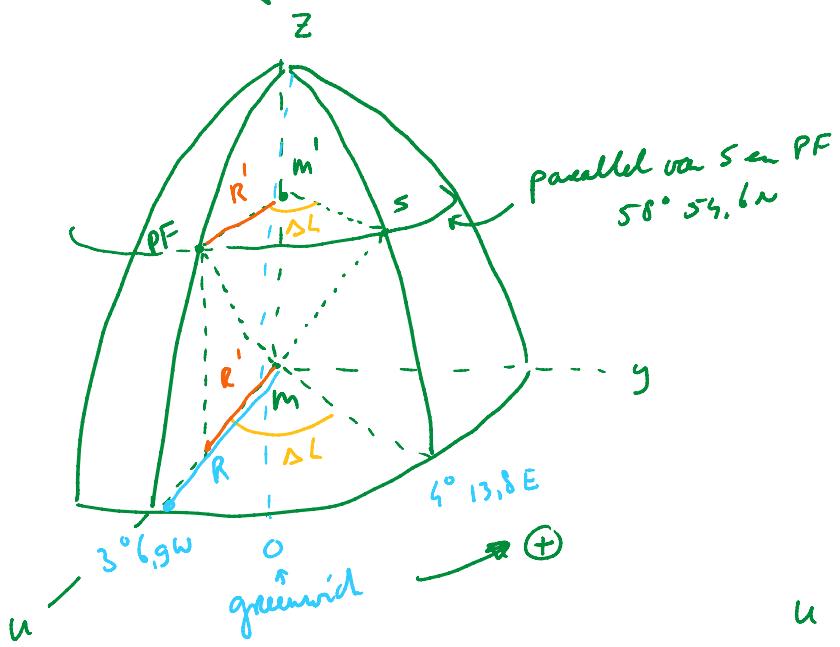
$4s$

C

$$\text{verheid} \rightarrow v_{lon} = 5,94 \times 60 = 356,4 \text{ nm}$$

356,4'

## ② Stavanger naast Pentland Firth



$$\Delta L: 004^{\circ} 13,8' E (+)$$

$$003^{\circ} 06,9' W (-) -$$

$$\Delta L = 7^{\circ} 20,7' \rightarrow 7,345^{\circ} [B]$$

$$v = 60 \cdot |\Delta L| \cdot \cos \varphi$$

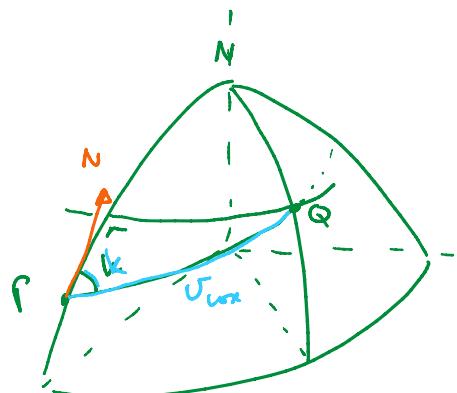
$$= 60 \cdot 7,345 \cdot \cos(58,76)$$

=

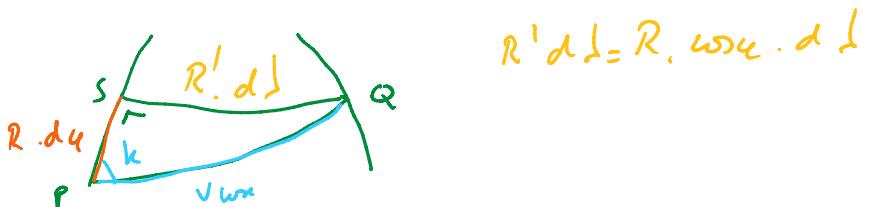
$$a = 58,76 [c]$$

## ③ Schijnrechte: Stavanger $\rightarrow$ Edinburgh.

P  $\rightarrow$  Q over de horizontaal.



wat is de richting?



$$R' d \perp = R \cdot \cos \varphi \cdot d \perp$$

heel klein driehoekje (zie §3.3)

$$\tan h = \frac{R' d \perp}{R d \varphi_{ua}} = \frac{x \cdot \cos \varphi \cdot d \perp}{R \cdot d \varphi} = \frac{\cos \varphi \cdot d \perp}{d \varphi}$$

$$\int_{\varphi_a}^{\varphi_b} \tan h \int_{d \varphi}^{d \varphi_b}$$

wat is de reductie?

(h)

$$\int_{l_p}^{\infty} d\lambda = \tanh \int_{l_p}^{\infty} \frac{1}{\cos u} du$$

$$\frac{180}{\pi} (l_{PQ} - l_p) = \tanh \cdot \frac{180}{\pi} \int_{l_p}^{\infty} \frac{1}{\cos u} du$$

$\Delta L_{PQ}$

VB vergrootde breedte

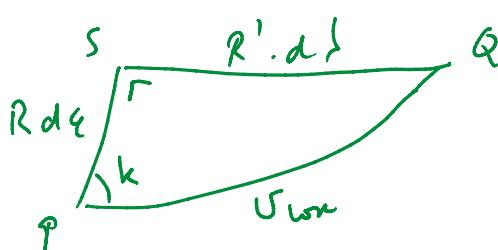
$$\Delta L_{PQ} = \tanh \cdot \frac{180}{\pi} \left( \ln \left( \frac{\tan(45^\circ + \frac{l_p}{2})}{\tan(45^\circ + \frac{l_{PQ}}{2})} \right) \right)$$

$$\tanh h = \frac{\Delta L_{PQ}}{\Delta VB}$$

$\Delta VB$

wat is de verhouding?

(v)



$$\cosh h = \frac{R.dq}{V_{lom}} \Rightarrow V_{lom} = \frac{R.dq}{\cosh h}$$

$$V_{lom} = \frac{60 \cdot \Delta u}{\cosh h}$$

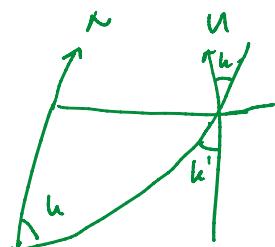
toepassen:

①  $h = ?$

$$\tanh h = \frac{\Delta L_{SE}}{\Delta VB_{SE}}$$

h rees invullen

①a)  $\Delta L_{SE}$



$$u' = 180 + 53\dots$$

$$\begin{array}{r} 004^\circ 13,8 E \\ 002^\circ 29,5 W (-) - \\ \hline \Delta L = 6^\circ 53,3 \rightarrow 6,898 \end{array}$$

$$\tanh h = -1,336 \rightarrow h = -53,18$$

$$h = 233^\circ$$

| wat        | GRM       |
|------------|-----------|
| $\Delta L$ | A         |
| $u_E$      | B         |
| $u_S$      | C         |
| $\Delta B$ | D         |
| $\Delta u$ | E = C - B |
| $h$        | $h$       |

①b)  $V_{lom} = \frac{\Delta u \cdot 60}{\cosh h} = 277 \text{ nm}$

①b)  $V_{long} = \frac{54.60}{w\lambda h} = 277 \text{ nm}$