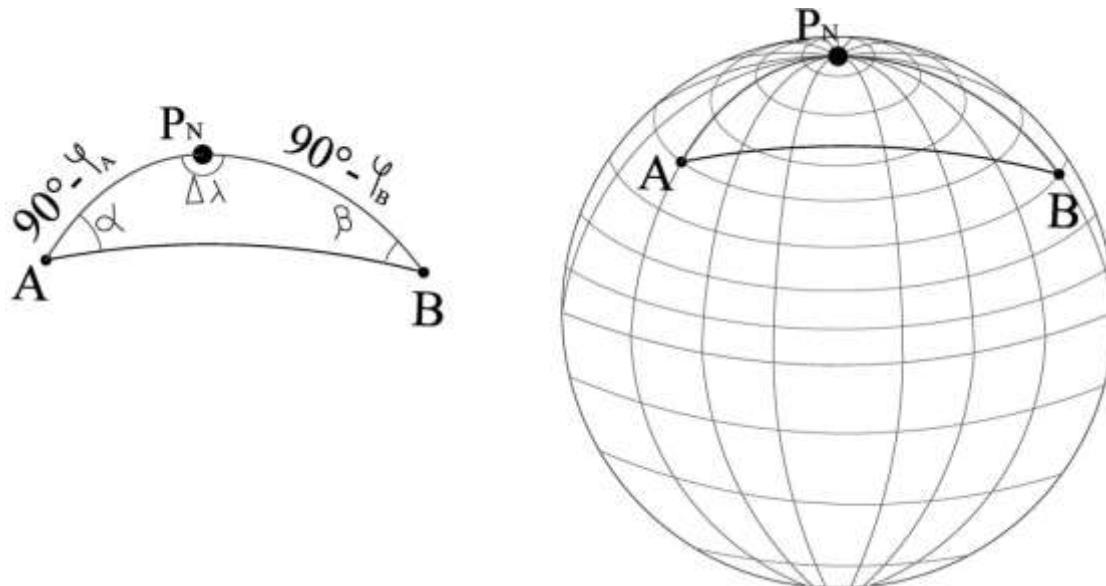


**Problema 2:** Un aeromobile parte dalla base A ( $\varphi = 65^\circ 44' \text{ N}$ ;  $\lambda = 42^\circ 17' \text{ W}$ ) e si dirige per ortodromia verso l'aeroporto B ( $\varphi = 54^\circ 19' \text{ N}$ ;  $\lambda = 106^\circ 54' \text{ E}$ ). Il candidato calcoli la distanza totale percorsa.

[ $m_{AB} = 3461 \text{ NM}$ ]

Svolgimento



$$\Delta\lambda_{AB} = \lambda_B - \lambda_A = 106^\circ 54' - (-42^\circ 17') = 149^\circ 11' \text{ E}$$

$$\cos(m_{AB}) = \cos(C\varphi_A) \cdot \cos(C\varphi_B) + \sin(C\varphi_A) \cdot \sin(C\varphi_B) \cdot \cos(\Delta\lambda)$$

$$\cos(m_{AB}) = \cos(90^\circ - \varphi_A) \cdot \cos(90^\circ - \varphi_B) + \sin(90^\circ - \varphi_A) \cdot \sin(90^\circ - \varphi_B) \cdot \cos(\Delta\lambda)$$

$$\begin{aligned} m_{AB} &= \arccos(\sin(\varphi_A) \cdot \sin(\varphi_B) + \cos(\varphi_A) \cdot \cos(\varphi_B) \cdot \cos(\Delta\lambda_{AB})) = \\ &= \arccos(\sin(65^\circ 44') \cdot \sin(54^\circ 19') + \cos(65^\circ 44') \cdot \cos(54^\circ 19') \cdot \cos(149^\circ 11')) = 57^\circ, 68 \end{aligned}$$

$$m_{AB} = 57^\circ, 68 \cdot 60 = 3461' \equiv 3461 \text{ NM}$$