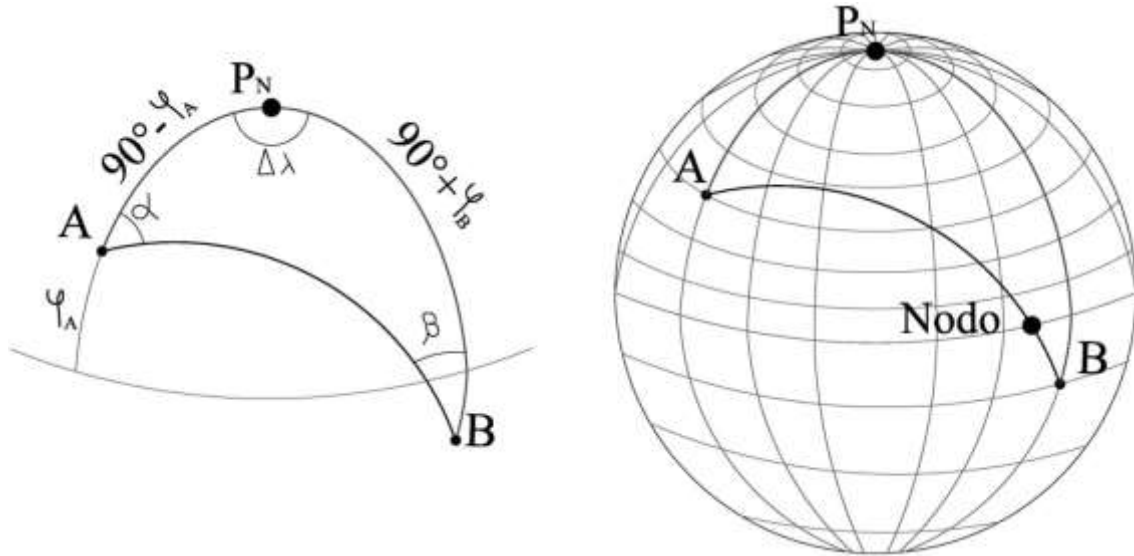


Problema 3: Un aeromobile parte dalla base A ($\varphi = 25^\circ 34' \text{ N}$; $\lambda = 132^\circ 27' \text{ W}$) e si dirige per ortodromia verso l'aeroporto B ($\varphi = 64^\circ 19' \text{ S}$; $\lambda = 16^\circ 54' \text{ E}$). Il candidato calcoli la distanza totale percorsa.

[$m_{AB} = 8189,5 \text{ NM}$]

Svolgimento



$$\Delta\lambda_{AB} = \lambda_B - \lambda_A = 16^\circ 54' - (-132^\circ 27') = 149^\circ 21' \text{ E}$$

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

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

$$\begin{aligned} m_{AB} &= \arccos\left(\sin(\varphi_A) \cdot [-\sin(\varphi_B)] + \cos(\varphi_A) \cdot \cos(\varphi_B) \cdot \cos(\Delta\lambda_{AB})\right) = \\ &= \arccos\left(-\sin(25^\circ 34') \cdot \sin(64^\circ 19') + \cos(25^\circ 34') \cdot \cos(64^\circ 19') \cdot \cos(149^\circ 21')\right) = 136^\circ,49 \end{aligned}$$

$$m_{AB} = 136^\circ,49 \cdot 60 = 8189,5' \equiv 8189,5 \text{ NM}$$