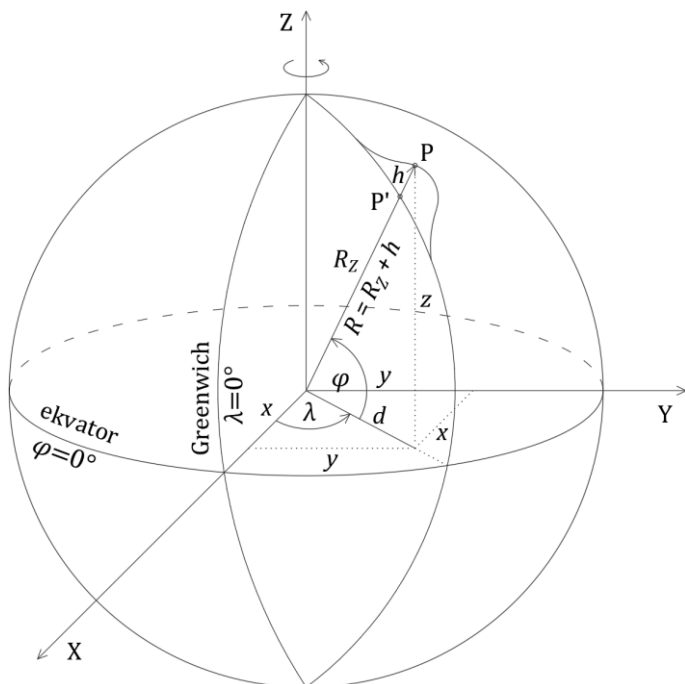


VAJA 10 – PROSTORSKI KOORDINATNI SISTEMI

- 1  $(\varphi, \lambda, R) \rightarrow (X, Y, Z)$ : PRETVORBA IZ KROGELNIH (GEOGRAFSKIH) KOORDINAT V KARTEZIČNE KOORDINATE



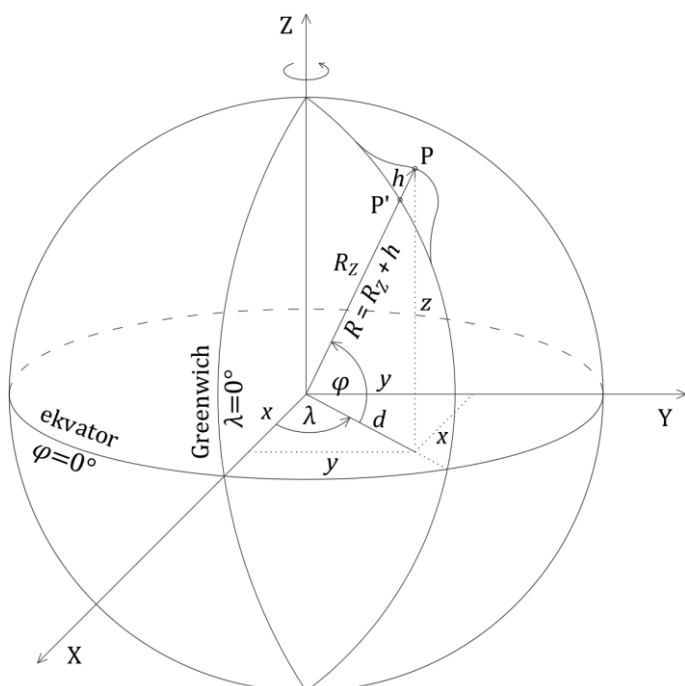
$$X = R \cos \varphi \cos \lambda$$

$$Y = R \cos \varphi \sin \lambda$$

$$Z = R \sin \varphi$$

$$R = R_z + h$$

- 2  $(X, Y, Z) \rightarrow (\varphi, \lambda, R)$ : PRETVORBA IZ KARTEZIČNIH KOORDINAT V KROGELNE (GEOGRAFSKE) KOORDINATE



$$R = \sqrt{X^2 + Y^2 + Z^2}$$

$$\varphi = \arcsin \frac{Z}{R} \in [-90^\circ, 90^\circ]$$

$$\lambda = \arctan \frac{Y}{X} \in (-180^\circ, 180^\circ]$$

Če  $X < 0$ :

- če  $Y \geq 0$ :  $\lambda = \lambda + 180^\circ$ ,
- če  $Y < 0$ :  $\lambda = \lambda - 180^\circ$ .

$$h = R - R_z$$