



$$\omega_x = -\dot{\phi} \sin \theta \sin \psi - \dot{\theta} \cos \psi$$

$$\omega_y = -\dot{\phi} \sin \theta \cos \psi + \dot{\theta} \sin \psi$$

$$\omega_z = \dot{\phi} \cos \theta + \dot{\psi}$$

$$\mathbf{v}_{\text{cm}} + \vec{\omega} \times \mathbf{r} = 0$$