

$$\begin{aligned}
 \dot{\mathbf{R}}_{WB} &= \mathbf{R}_{WB} \, {}_B\boldsymbol{\omega}_{WB}^\wedge \\
 {}_W\dot{\mathbf{v}} &= {}_W\mathbf{a} \\
 {}_W\dot{\mathbf{p}} &= {}_W\mathbf{v}
 \end{aligned}
 \tag{1}$$