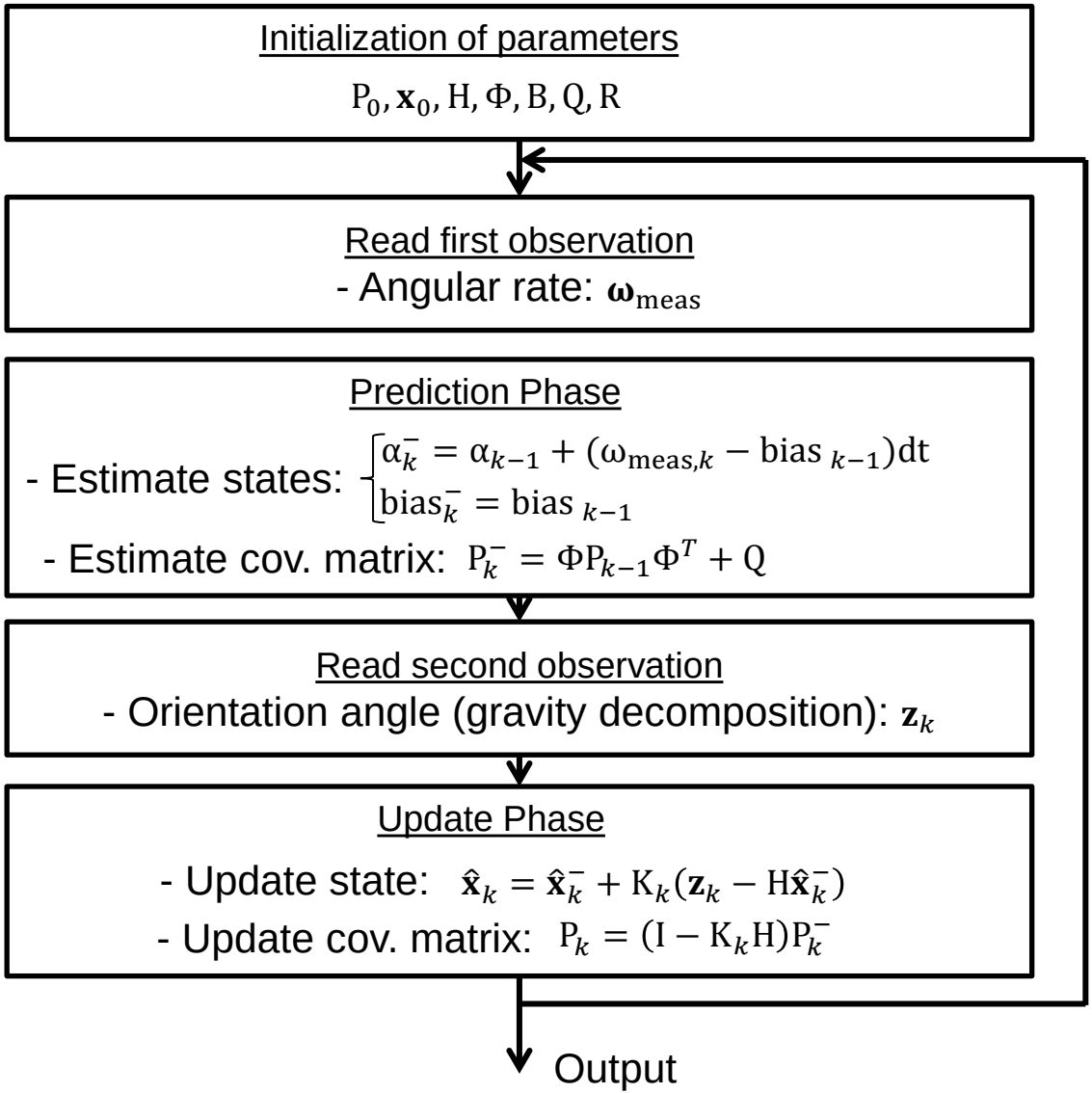
Initialization of parameters
$P_0, \mathbf{x}_0, H, \Phi, B, Q, R$
Read first observation
- Angular rate: $\boldsymbol{\omega}_{\text{meas}}$
Prediction Phase
- Estimate states: $\begin{cases} \alpha_k^- = \alpha_{k-1} + (\omega_{\text{meas},k} - \text{bias}_{k-1})dt \\ \text{bias}_k^- = \text{bias}_{k-1} \end{cases}$
- Estimate cov. matrix: $P_k^- = \Phi P_{k-1} \Phi^T + Q$
Read second observation
- Orientation angle (gravity decomposition): $\mathbf{z}_k$
Update Phase
- Update state: $\hat{\mathbf{x}}_k = \hat{\mathbf{x}}_k^- + K_k(\mathbf{z}_k - H\hat{\mathbf{x}}_k^-)$
- Update cov. matrix: $P_k = (I - K_k H)P_k^-$
Output