Stage 1
Multi-source data were systematically collected and integrated to establish a comprehensive dataset

Multi-source data → Data collection, Data cleaning, Data scaling, Data classification → A comprehensive dataset
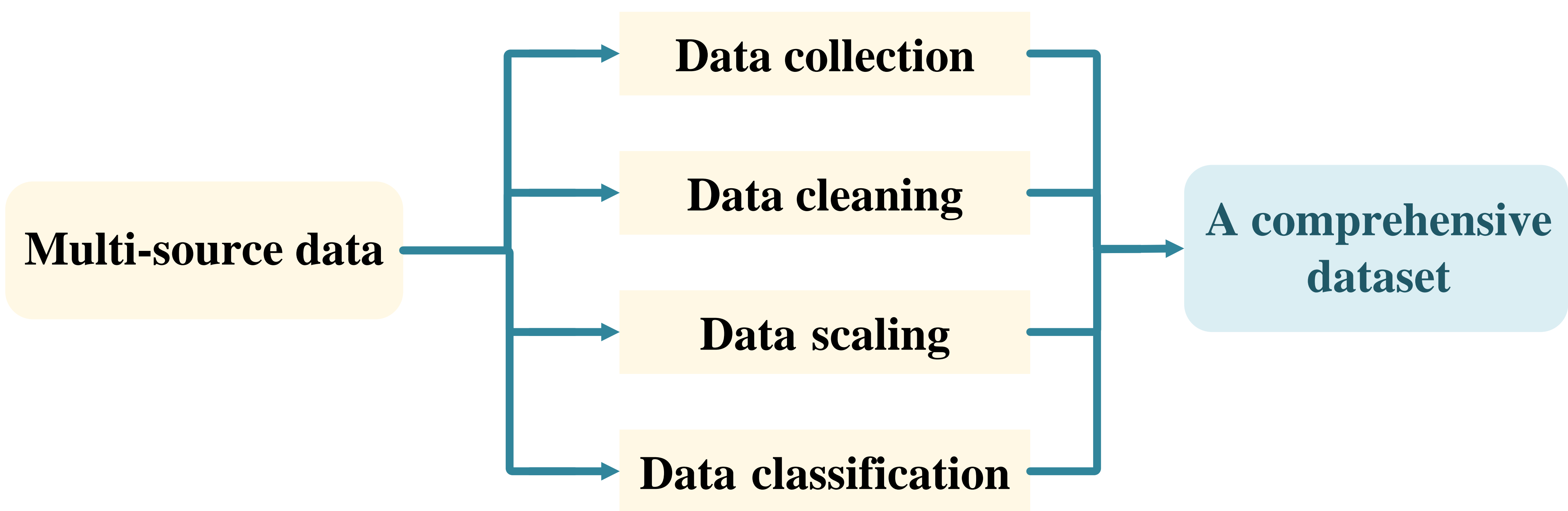
Stage 2
Mechanistic constraints were embedded into the data-driven models to achieve knowledge-data dually driven models

Prior knowledge, Mechanistic model parameters →

Physical equations

Data-driven models

→ Knowledge-data dually driven models
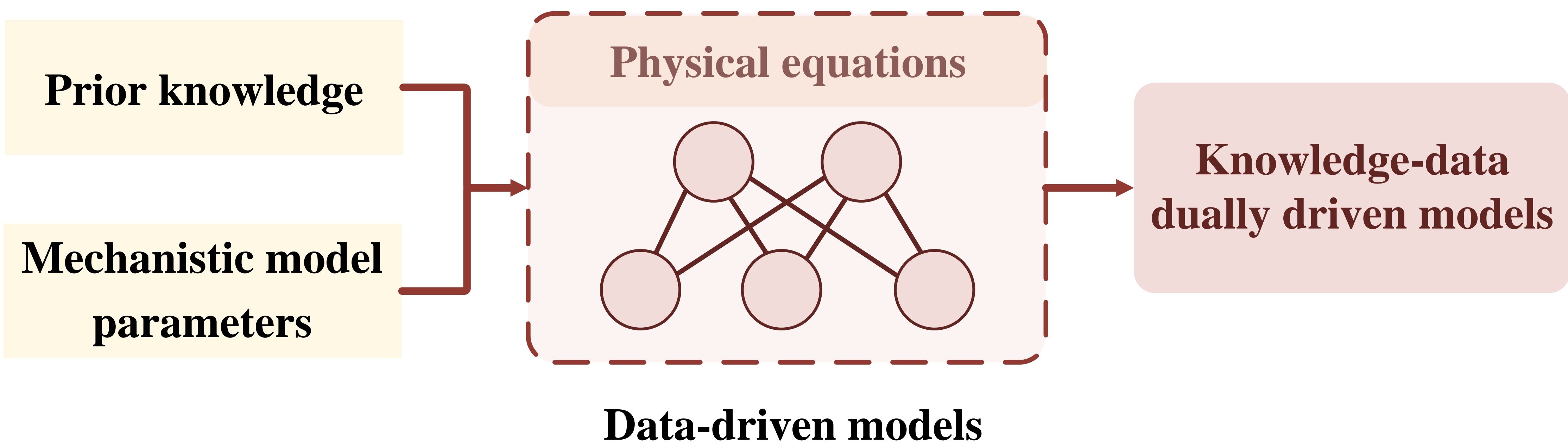
Stage 3
A bidirectional mapping framework was developed to dynamically adjust the model fusion weights

Knowledge ⇄ Feedback ⇄ Data
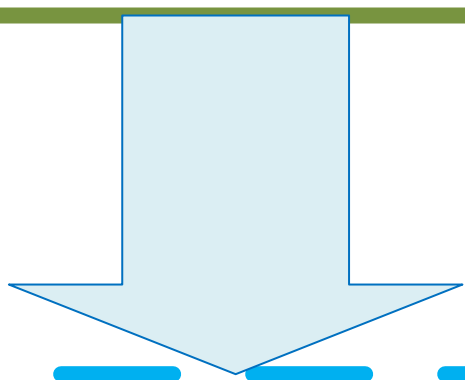
A knowledge-data dually driven paradigm for potential landslide identification