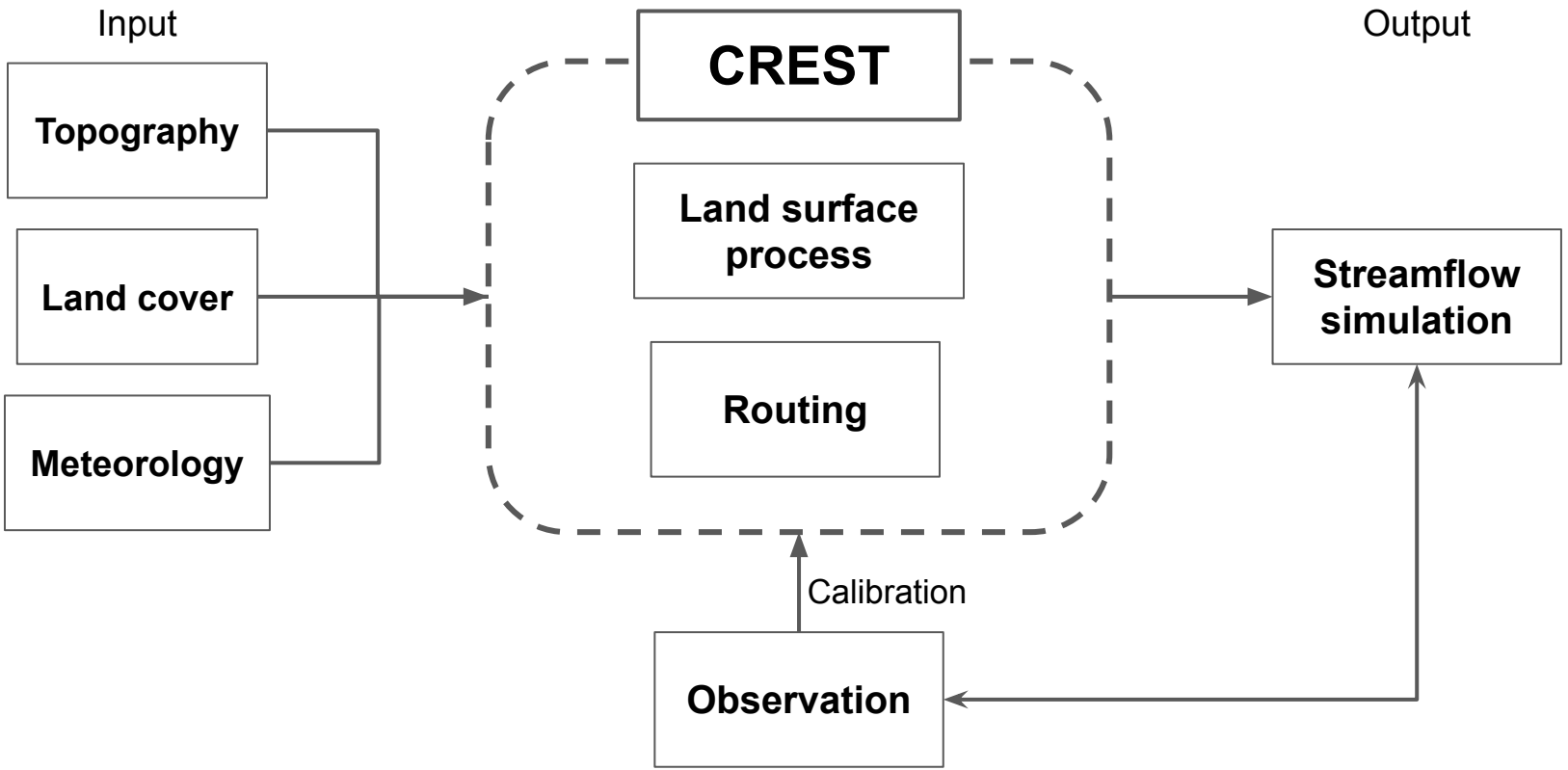
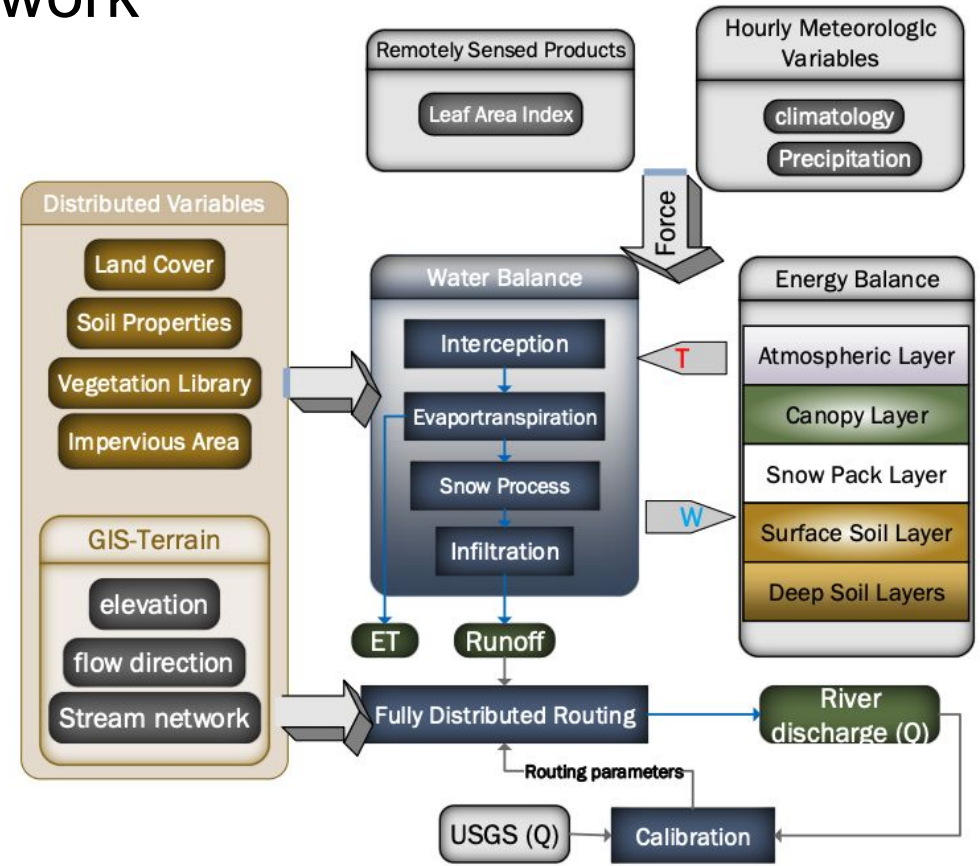
CREST
Coupled Routing and Excess STorage

Overall framework

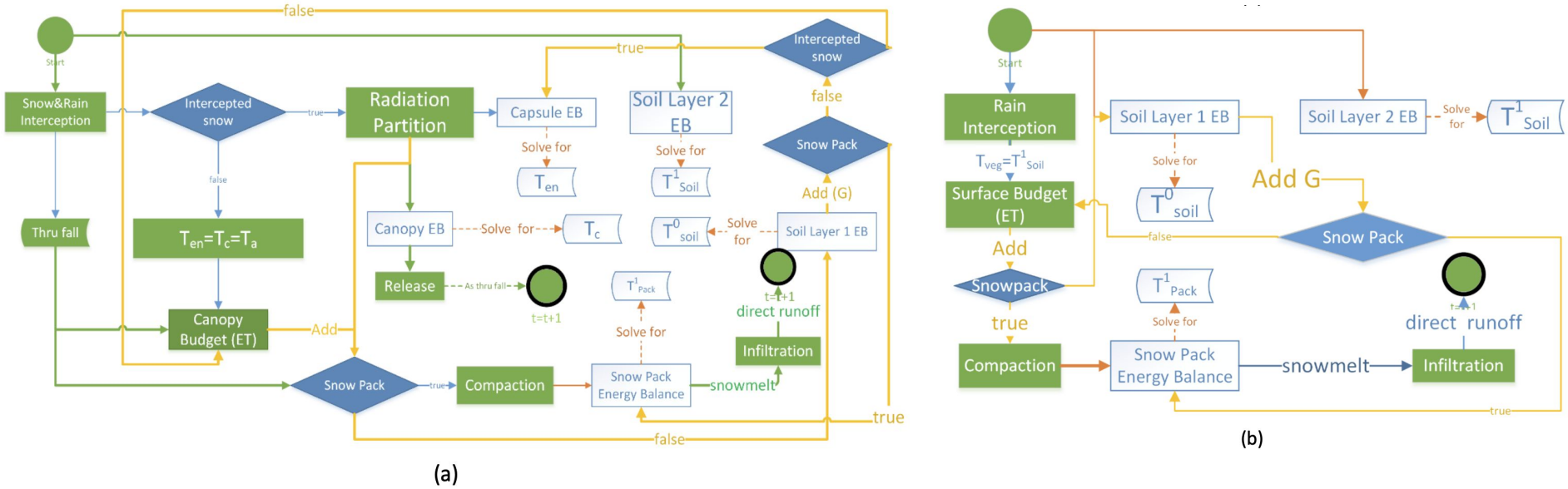


Detailed framework



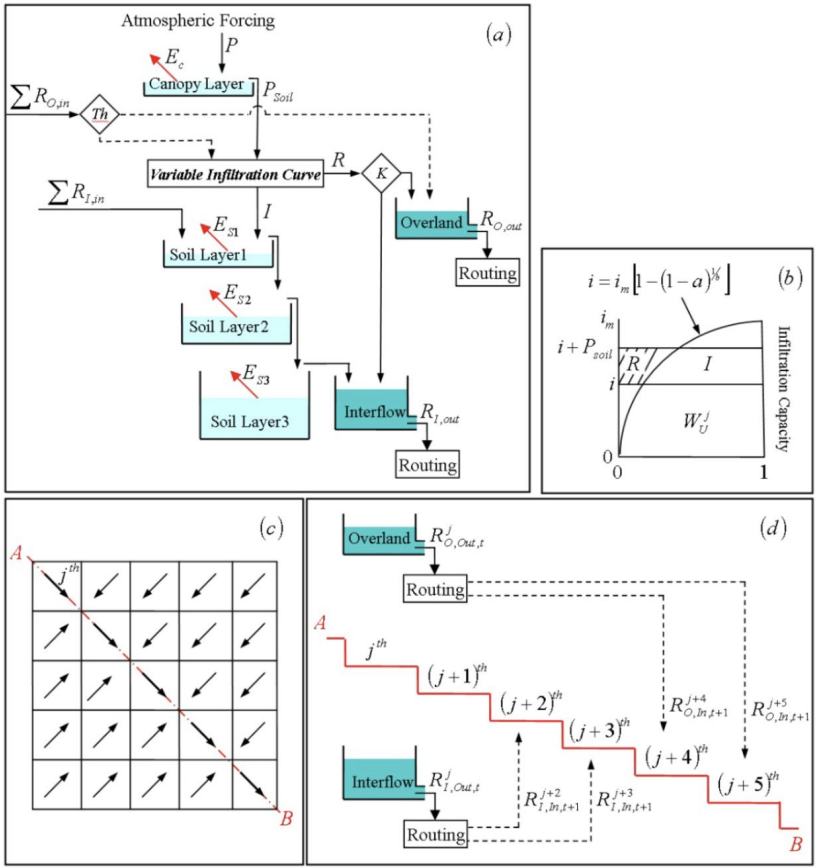
Interface and structure of the model consisting of a runoff-generation and routing component

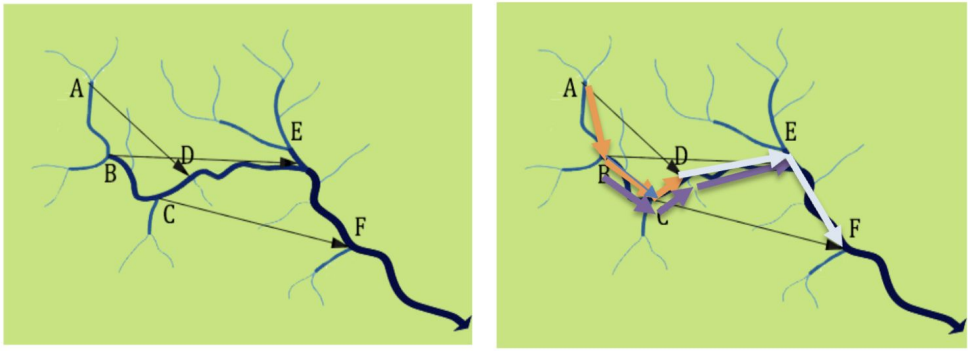
Land surface procedure



Coupled Energy Water redistribution module integrated with a snow accumulation and ablation process in condition of (a) the land cover has a canopy layer and (b) the land cover is a short vegetation.

Runoff and routing procedure

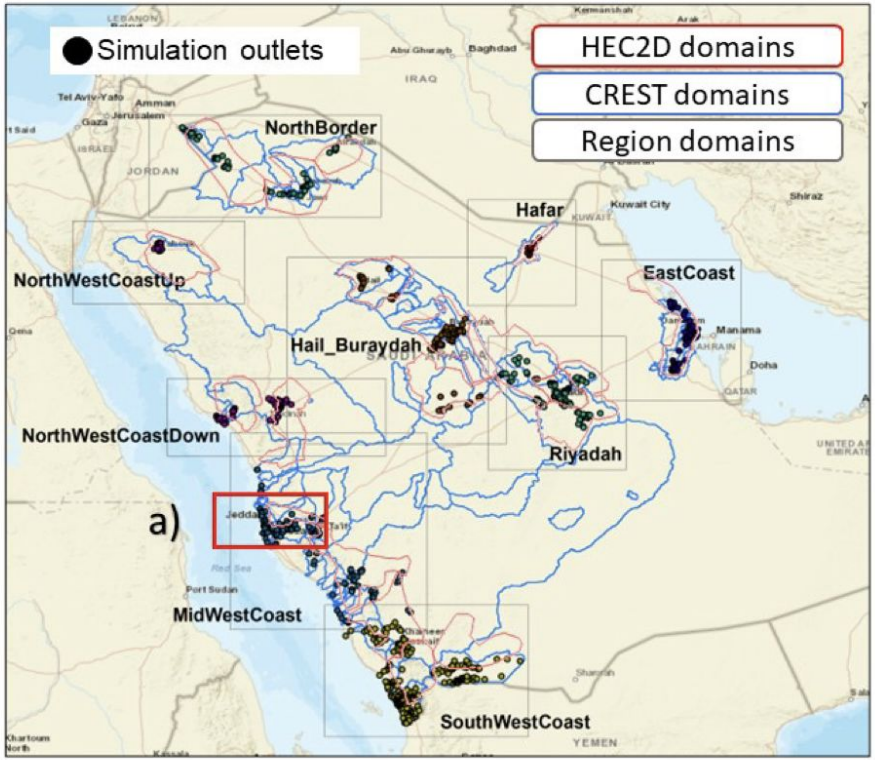




(a) (b)

Routing conception of CREST v2.0 and v2.1. (a) Linear reservoir routing (LRR) method used in V2.0 and (b) Fully distributed linear reservoir (DLRR) used in v2.1.

Core components of the CREST model (a) Vertical profile of a cell including rainfall-runoff generation, evapotranspiration, sub-grid cell routing and feedbacks from routing; (b) variable infiltration curve of a cell; (c) plane view of cells and flow directions; and (d) vertical profile along several cells including sub-grid cell routing, downstream routing, and subsurface runoff redistribution from a cell to its downstream cells.



The NCM flash-flood forecasting system

KEY FEATURES

- Hydrologic simulations for >100 watersheds
  - Hourly discharge
- 2d hydraulic simulations for over 700.000 km^2
  - Flood depth at 30m resolution
  - 2.5m resolution over critical areas
- 4 times a day
- 120 hours forecast