BEACH Formalisms

Methodology

Hydrological Framework

To determine the change in soil moisture content ($\frac{d\theta_i}{dt}$) in the unsaturated zone at each cell i, the following hydrological processes are included:

$$D\frac{d\theta_i}{dt} = P_i + R_i + \Delta LF_i - Ea_i - Ta_i - DP_i \tag{1}$$

where D is depth of soil moisture simulation (mm), θ is soil moisture content (m^3 m^{-3}), dt is model time step (day), P is precipitation (mm), R is runoff (mm), ΔLF is the difference between lateral inflow and outflow from a given cell (mm), Ea is the actual evaporation (mm), Ta actual transpiration (mm) and DP is the deep percolation (mm).