ภาคผนวก ข

การเปลี่ยนหน่วยใน Storage Routing Model

$$q_h = \frac{3.6}{A}Q \qquad\qquad q_d = \frac{86.4}{A}Q$$

q_h : runoff depth (mm/hr) $\qquad\quad$ q_d : runoff depth (mm/day)

A : drainage area (km^2) $\qquad\qquad$ A : drainage area (km^2)

Q : discharge (m^3/s) $\qquad\qquad\quad$ Q : discharge (m^3/s)

$$\begin{cases} ds_h/dt_h = r_h - q_h - b_h \\ s_h = k_{h1}q_h^{p_1} + k_{h2}\dfrac{d}{dt_h}(q_h^{p_2}) \\ b_h = k_{h3}q_h \end{cases} \qquad \begin{cases} ds_d/dt_d = r_d - q_d - b_d \\ s_d = k_{d1}q_d^{p_1} + k_{d2}\dfrac{d}{dt_d}(q_d^{p_2}) \\ b_d = k_{d3}q_d \end{cases}$$

s_h : storage [mm] $\qquad\qquad\qquad$ s_d : storage [mm]

t_h : time [hr] $\qquad\qquad\qquad\qquad$ t_d : time [day]

b_h : loss depth [mm/hr] $\qquad\qquad$ b_d : loss depth [mm/day]

$p_1 = 0.6, \quad p_2 = 0.4648$ $\qquad\qquad$ $p_1 = 0.6, \quad p_2 = 0.4648$

k_{h1}, k_{h2}, k_{h3} : storage coefficients using units $\quad$ k_{d1}, k_{d2}, k_{d3} : storage coefficients using units
$\qquad\qquad$ of [mm] and [hr] $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ of [mm] and [day]

$$\begin{cases} k_{h1} = C_{h1}A^{0.24} \\ k_{h2} = C_{h2}k_{h1}^2(\overline{r_h})^{-0.2648} \\ C_{h3} = k_{h3} + 1 \end{cases} \qquad \begin{cases} k_{d1} = C_{d1}A^{0.24} \\ k_{d2} = C_{d2}k_{d1}^2(\overline{r_d})^{-0.2648} \\ C_{d3} = k_{d3} + 1 \end{cases}$$

$\overline{r_h}$: average ranfall intensity [mm/hr] $\quad$ $\overline{r_d}$: average ranfall intensity [mm/day]

C_{h1}, C_{h2}, C_{h3} : unknown coefficients $\qquad$ C_{d1}, C_{d2}, C_{d3} : unknown coefficients

$$C_{d1} = \frac{C_{h1}}{(24)^{p_1}} = \frac{C_{h1}}{(24)^{0.6}} = 0.1486C_{h1} \qquad\qquad C_{d2} = C_{h2} \qquad C_{d3} = C_{h3}$$