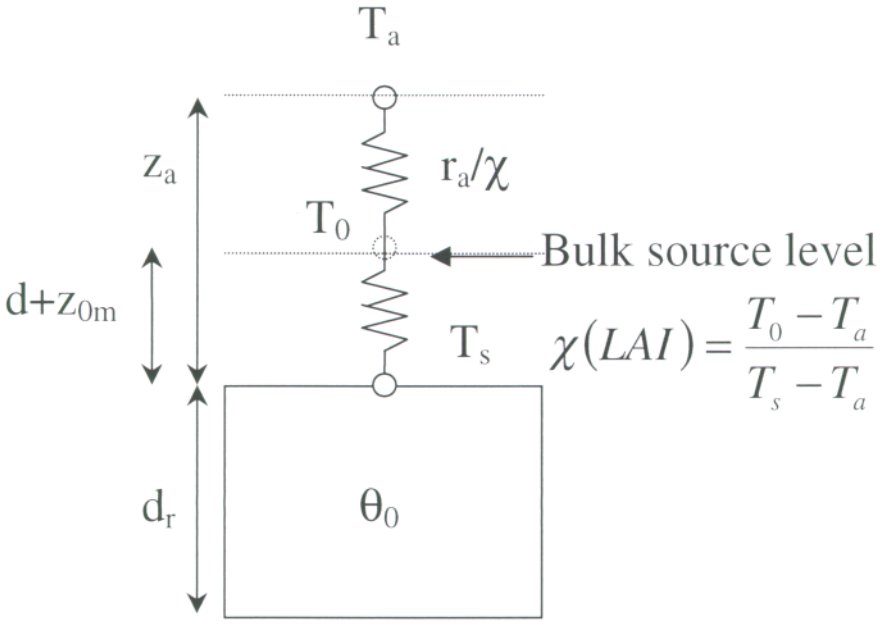

T_a
z_a
r_a/χ
T_0
Bulk source level
$d+z_{0m}$
T_s
$\chi(LAI) = \frac{T_0 - T_a}{T_s - T_a}$
d_r
θ_0

Figure 1

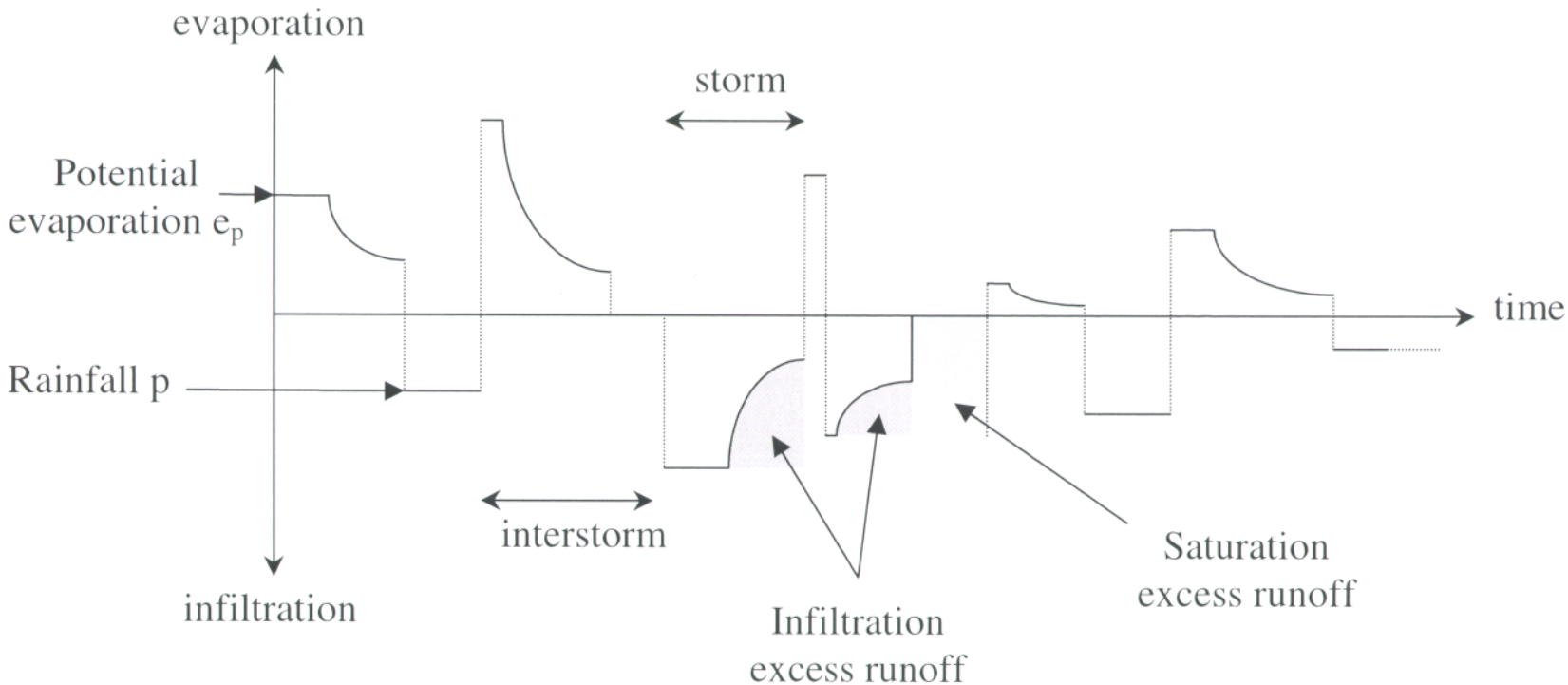

evaporation
storm
Potential
evaporation e_p
time
Rainfall p
interstorm
infiltration
Infiltration
excess runoff
Saturation
excess runoff

Figure 2

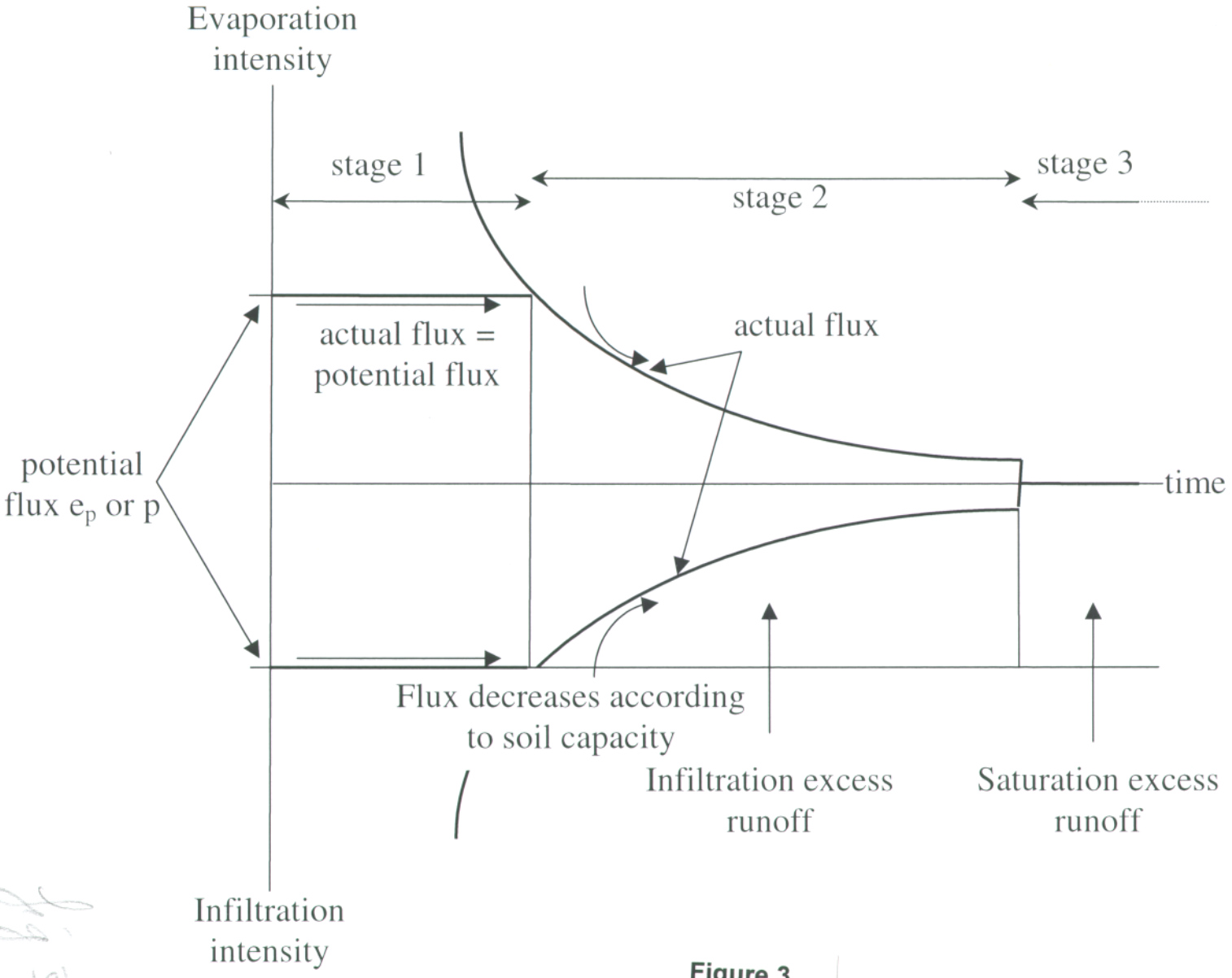

Evaporation intensity
stage 1
stage 2
stage 3
actual flux = potential flux
actual flux
potential flux e_p or p
time
Flux decreases according to soil capacity
Infiltration excess runoff
Saturation excess runoff
Infiltration intensity

Figure 3

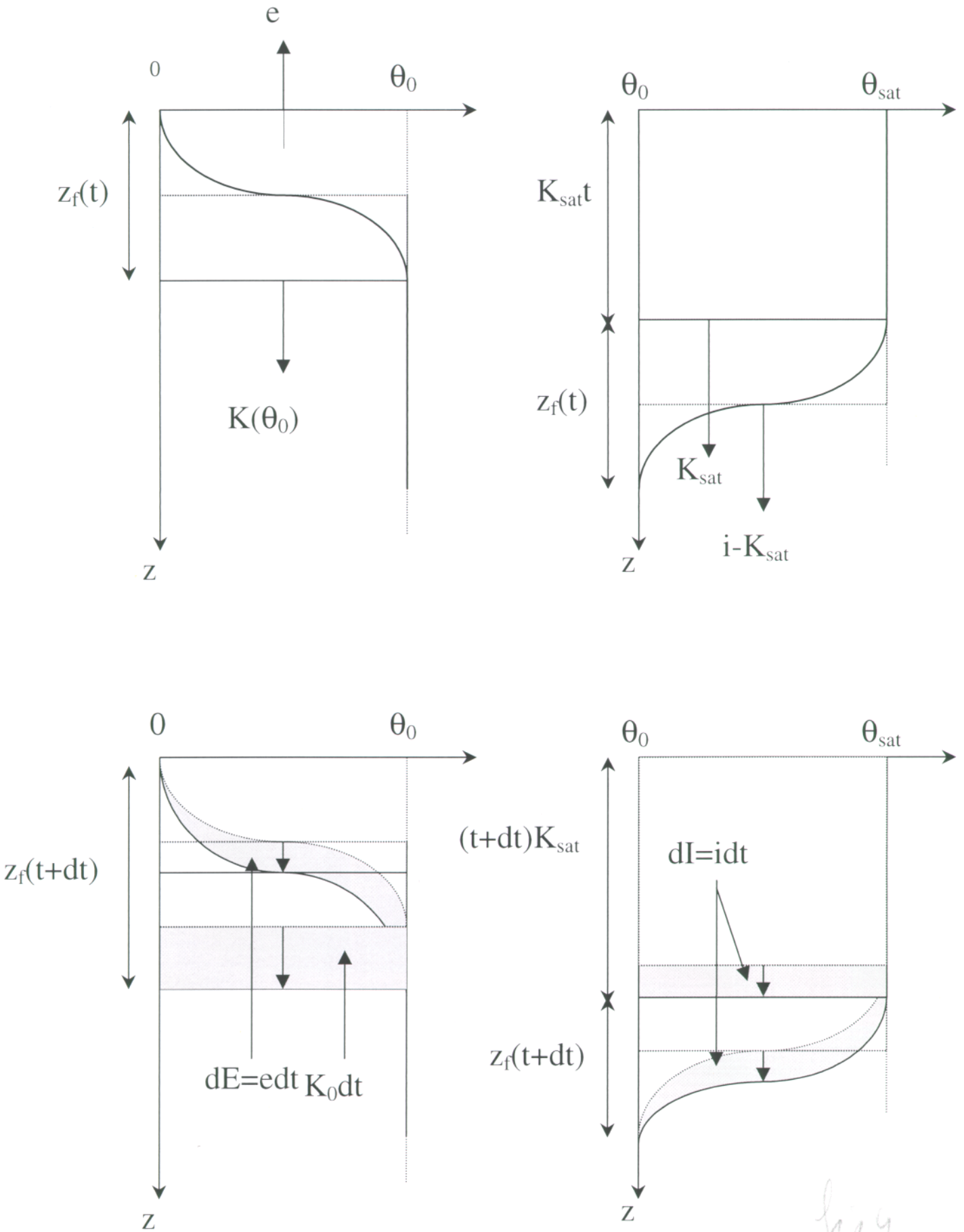

e
0
θ0
zf(t)
K(θ0)
z
θ0
θsat
Ksat t
zf(t)
Ksat
i-Ksat
z
0
θ0
zf(t+dt)
dE=edt
K0dt
z
θ0
θsat
(t+dt)Ksat
dI=idt
zf(t+dt)
z

Figure 4

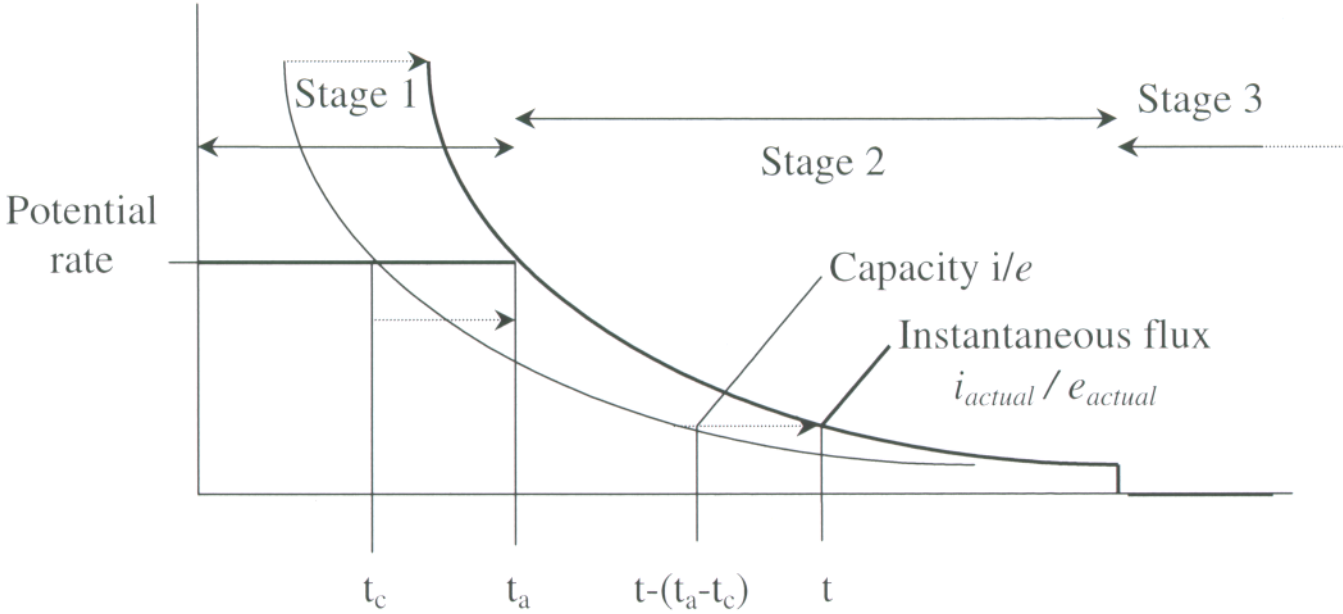

Stage 1
Stage 2
Stage 3
Potential rate
Capacity i/e
Instantaneous flux
i_{actual} / e_{actual}
t_c
t_a
$t-(t_a-t_c)$
t

Figure 5

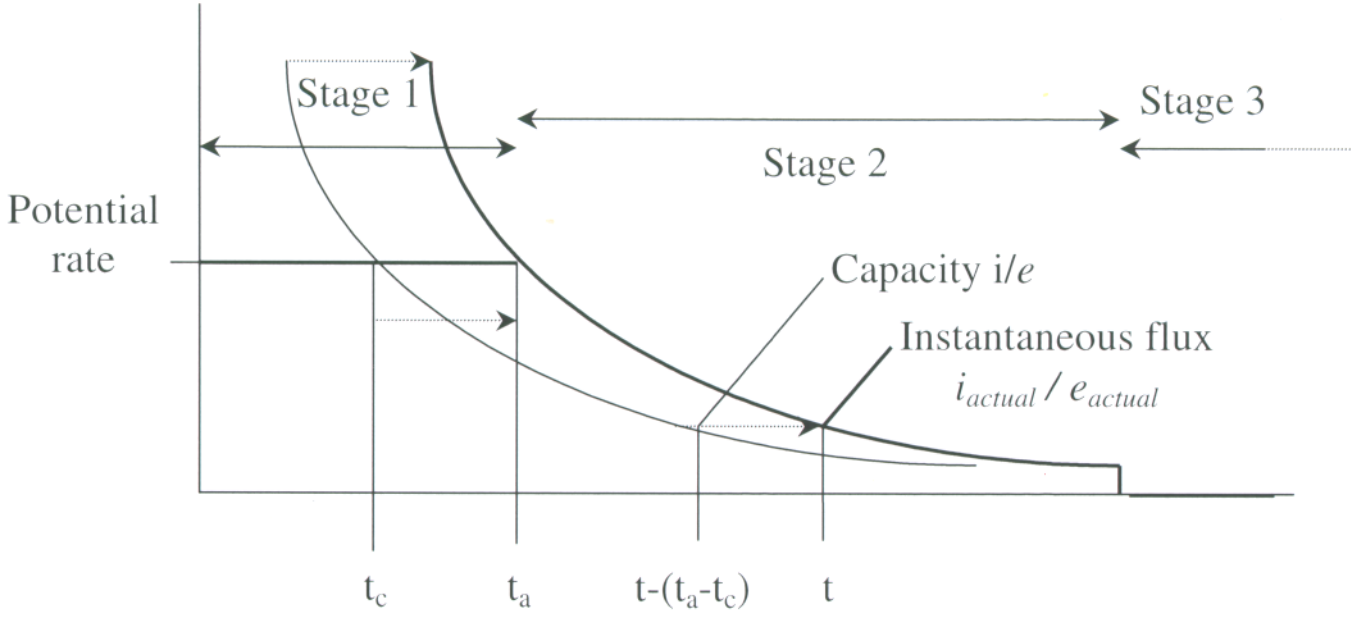

Stage 1
Stage 2
Stage 3
Potential rate
Capacity i/e
Instantaneous flux
i_{actual} / e_{actual}
t_c
t_a
$t-(t_a-t_c)$
t

Figure 6

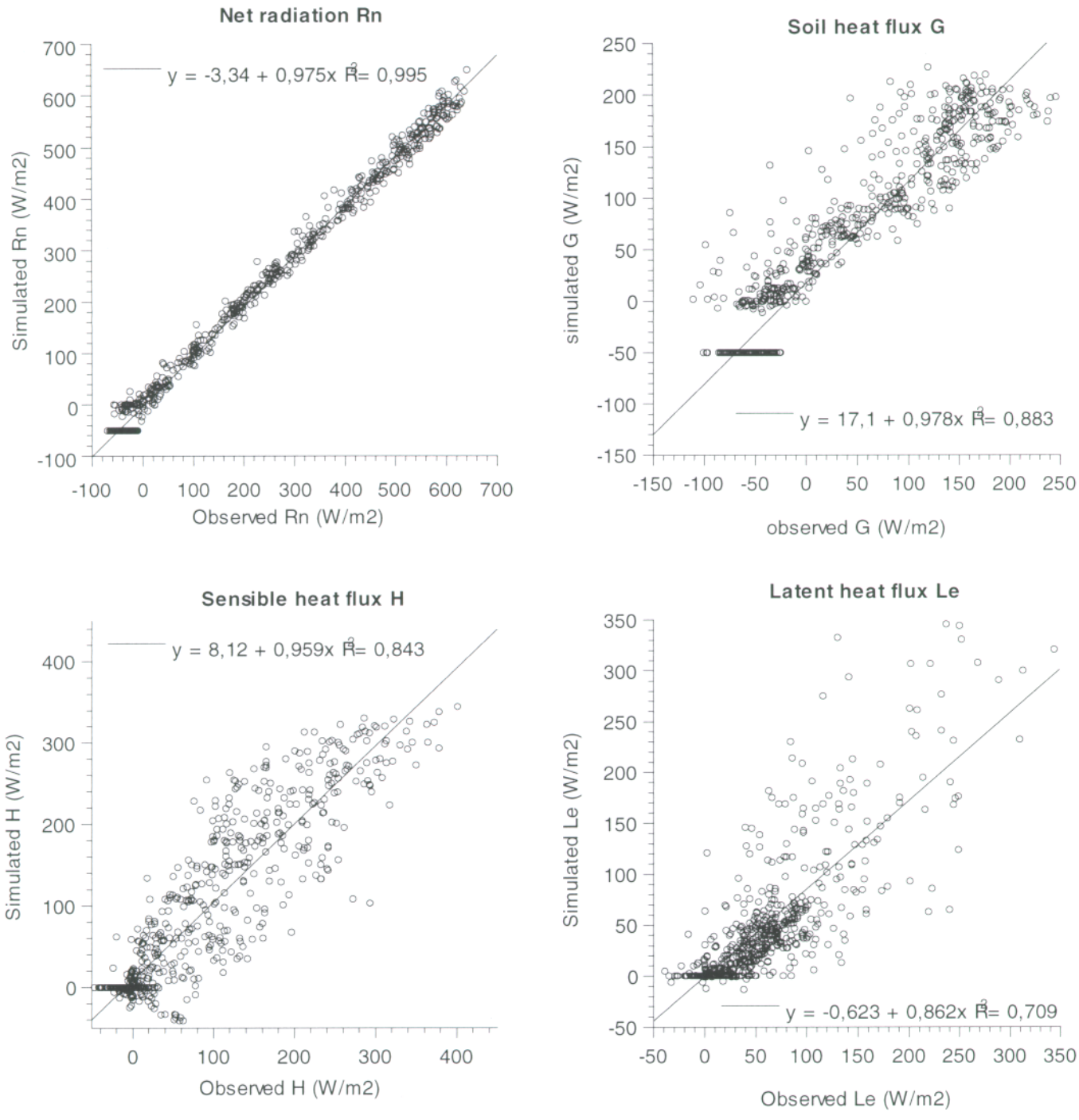
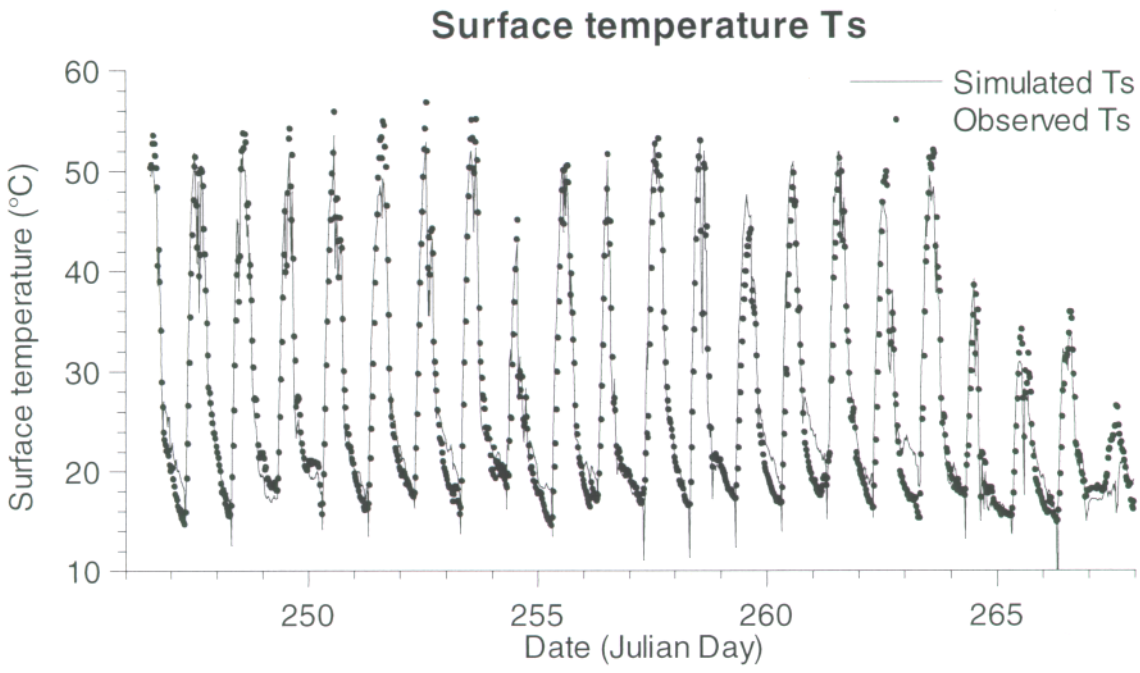

Net radiation Rn
y = -3,34 + 0,975x R2= 0,995
Simulated Rn (W/m2)
Observed Rn (W/m2)
Soil heat flux G
y = 17,1 + 0,978x R2= 0,883
simulated G (W/m2)
observed G (W/m2)
Sensible heat flux H
y = 8,12 + 0,959x R2= 0,843
Simulated H (W/m2)
Observed H (W/m2)
Latent heat flux Le
y = -0,623 + 0,862x R2= 0,709
Simulated Le (W/m2)
Observed Le (W/m2)

Figure 7


Surface temperature Ts
Simulated Ts
Observed Ts
Surface temperature (°C)
60
50
40
30
20
10
250
255
260
265
Date (Julian Day)

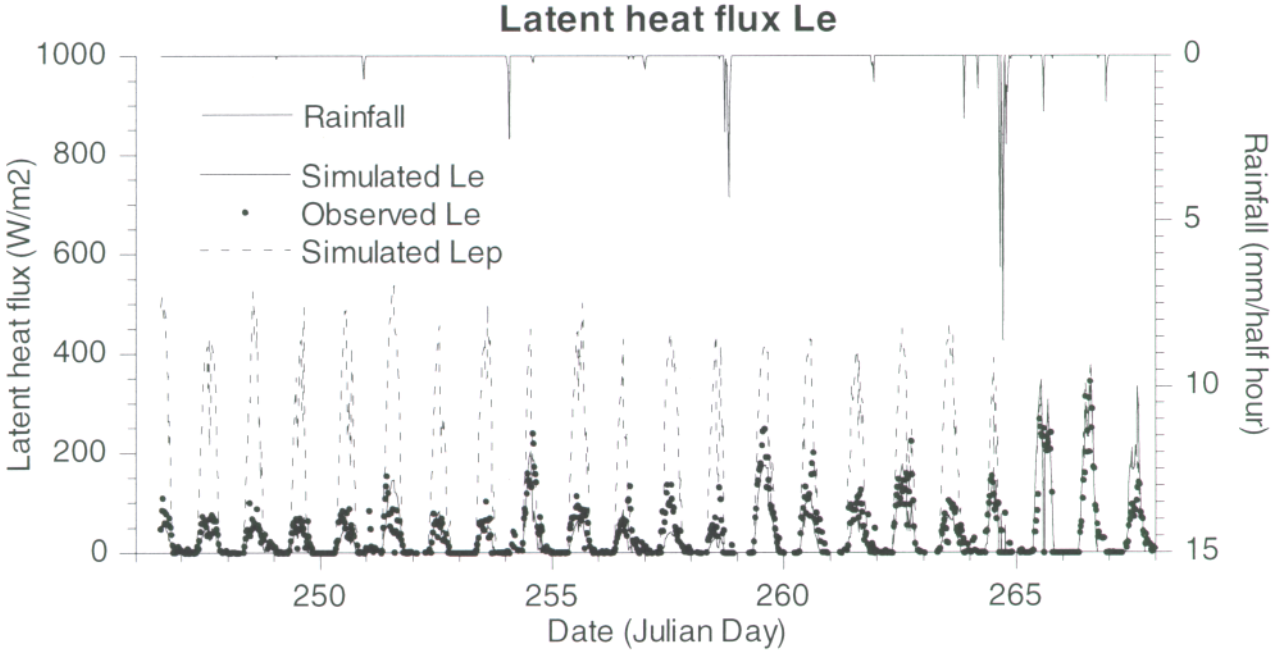

Latent heat flux Le
Rainfall
Simulated Le
Observed Le
Simulated Lep
Latent heat flux (W/m2)
1000
800
600
400
200
0
Rainfall (mm/half hour)
0
5
10
15
250
255
260
265
Date (Julian Day)

Figure 8

Symbol	$\theta_{0,0}$*	K_{sat}	m_{BC}	θ_{sat}	ψ_{BC}	ξ	ν	d_r
Initial	0.15	$4*10^{-6}$ m/s	1.3	0.35	-0.5 m	0.35	1.5	25 cm
Calibrated	0.12	$4*10^{-7}$ m/s	0.5	0.35	-0.9 m	0.39	2.5	40 cm

*$\theta_{0,0}$ is the initial water content for the whole time series.

Table 1

E RMSE B	Simple SVAT	SiSPAT
T_s (°C)	0.92 3.01 0.69	0.76 2.24 4.35
Rn (Wm^{-2})	0.99 15.9 -6.35	0.99 12.0 -10.4
G (Wm^{-2})	0.82 30.0 16.9	0.82 34.1 -6.5
H (Wm^{-2})	0.82 37.9 5.9	0.89 31.7 0.9
Le (Wm^{-2})	0.62 30.3 -5.5	0.47 42.6 20.8

Table 2