

APPENDIX III

<u>III.1</u>	<u>Precipitation Daily Totals Preceding Precipitation Events</u>	-----	III-2	
	<u>Figure III.1.1</u>	<u>Precipitation daily totals preceding the a) calibration and b) and c) validation events</u>	-----	III-2
<u>III.2</u>	<u>Calibration Event Input Files</u>	-----	III-3	
<u>III.2.1</u>	<u>Project file: run4.prj</u>	-----	III-3	
<u>III.2.2</u>	<u>Control file: run4.dat</u>	-----	III-4	
<u>III.2.3</u>	<u>Channel file: chann0.045.dat</u>	-----	III-5	
<u>III.3</u>	<u>Calibration Event Output Files</u>	-----	III-6	
<u>III.3.1</u>	<u>Summary file: run4.sum</u>	-----	III-6	
<u>III.3.2</u>	<u>Discharge file: run4.q</u>	-----	III-10	
<u>III.3.3</u>	<u>Sediment discharge file: run4.q</u>	-----	III-10	
<u>III.4</u>	<u>Event 2 Hydrographs and Sediment Graphs</u>	-----	III-11	
	<u>Figure III.4.1</u>	<u>Observed and simulated hydrographs for validation event 2</u>	-----	III-11
	<u>Figure III.4.2</u>	<u>Observed and simulated sediment graphs for validation event 2</u>	-----	III-12
<u>III.5</u>	<u>Event 3 Hydrographs and Sediment Graphs</u>	-----	III-13	
	<u>Figure III.5.1</u>	<u>Observed and simulated hydrographs for validation event 3</u>	-----	III-13
	<u>Figure III.5.2</u>	<u>Observed and simulated sediment graphs for validation event 3</u>	-----	III-14

III.1 PRECIPITATION DAILY TOTALS PRECEDING PRECIPITATION EVENTS

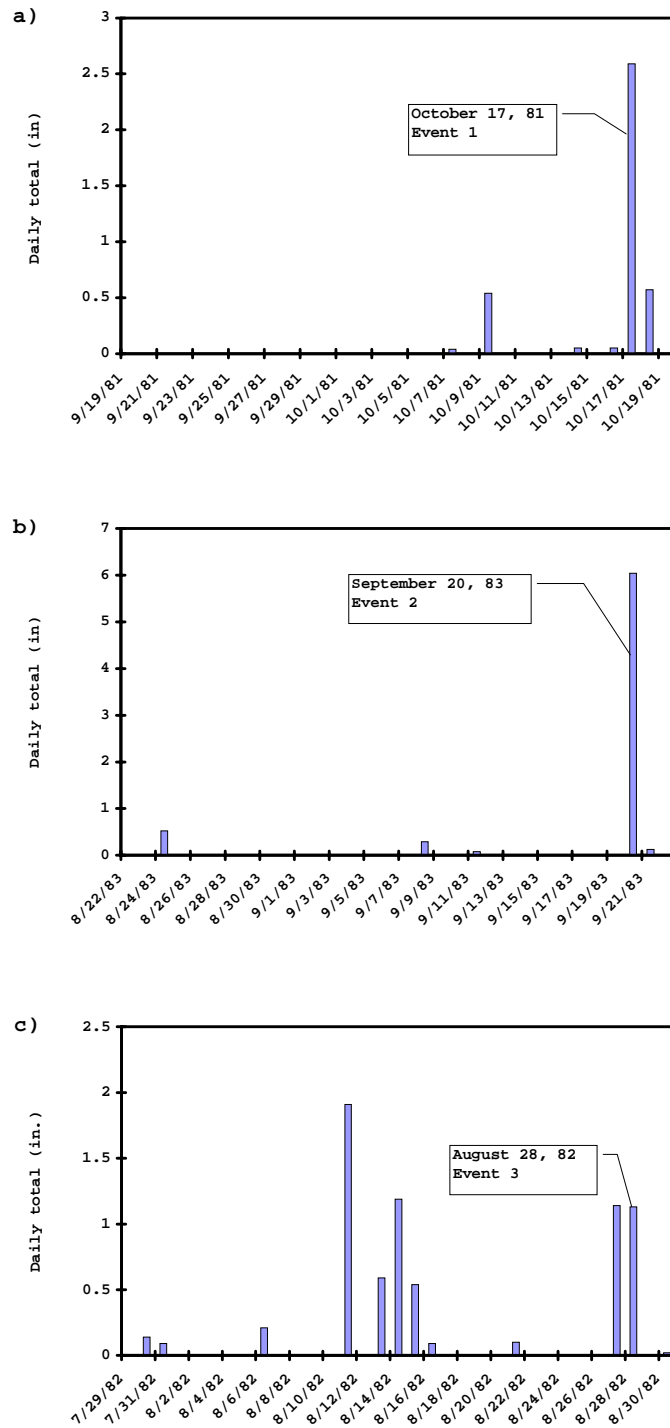


Figure III.1.1 Precipitation daily totals preceding the a) calibration and b) and c) validation events

III.2 CALIBRATION EVENT INPUT FILES

III.2.1 Project file: run4.pri

```
##### INPUT DATA FILES #####
CONTROL                Input/run4.dat
PRECIP                 Input/17oct81.pre
CHANNEL                input/chann0.045.dat

##### INPUT DATA GRIDS #####
ELEVATION              Input/DEM90.asc
SOIL                   Input/soils90.asc
LANDUSE                Input/luse90.asc
MASK                   Input/mask90.asc
LINK                   Input/links90.asc
NODE                   Input/nodes90.asc

##### OUTPUT FILES #####
SUMMARY                Output/run4.sum
DISCHARGE_OUT          Output/run4.q
SEDIMENT_OUT           Output/run4.qs

##### OUTPUT TIME SERIES GRID NAMES #####
RAINFALL               outmaps/rain
INF_DEPTH              outmaps/infvol
WATER_DEPTH            outmaps/depth
SED_CONC               outmaps/conc
EROS_DEP               OutMaps/netvol
SAND_MFAC_OUT          outmaps/mfacSAND
SILT_MFAC_OUT          outmaps/mfacSILT
CLAY_MFAC_OUT          outmaps/mafacCLAY
TOTAL_MFAC_OUT         outmaps/mfactOT
```

III.2.2 Control file: run4.dat

```
2 42000 9000 30 150
57 1 0.003539
1
1

1
16          900
231568.7117 3791553.7426
233072.7721 3793603.9817
236856.3335 3794839.5058
236459.33   3795732.9309
236662.9499 3793699.8824
238396.5605 3794734.2989
239756.4195 3795151.8743
234644.3966 3793655.021
237777.6768 3796476.9739
238787.2374 3796056.2956
233758.5726 3794401.0867
235620.4058 3795906.558
234840.6096 3792778.0814
233122.6924 3791785.0733
236523.6428 3792701.0902
238663.3566 3793326.2882

4 0
0.25        3          0.0036        1
0.01        0          0          1
0.15        1          0.18        1
0.2         1.5        0.072        1

1 1 7
0.336       22      0.29  0.25  0.55  0.2  0.4
0.3072      14      0.29  0.25  0.55  0.2  0.1
0.3552      17      0.29  0.3   0.6   0.1  0.2
0.3648      22      0.29  0.25  0.55  0.2  0.4
0.3456      18      0.29  0.3   0.6   0.1  0.2
0.432       22      0.29  0.3   0.6   0.1  0.1
0.384       15      0.29  0.25  0.55  0.2  0.1

1 6 3
57          1          2071.98
27          42          365.88
11          55          145.86
34          57          166.07
14          78          135.85
34          36          151.46

1 6 2
57          1          2071.98
27          42          365.88
11          55          145.86
34          57          166.07
14          78          135.85
34          36          151.46
```

III.2.3 Channel file: chann0.045.dat

1	12						
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2		20	3	0	0.045	1	
2	11						
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
2		22	3.5	0	0.045	1	
3	7						
2		27	4.3	0	0.045	1	
2		27	4.3	0	0.045	1	
2		27	4.3	0	0.045	1	
2		27	4.3	0	0.045	1	
2		27	4.3	0	0.045	1	
2		27	4.3	0	0.045	1	
4	9						

.....[NOTE: MIDDLE SECTION OF THE CHANNEL FILE HAS BEEN DELETED]

18	16						
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	
2		34	6.05	0	0.045	1	

III.3 CALIBRATION EVENT OUTPUT FILES

III.3.1 Summary file: run4.sum

CONTROL Input Data

=====

Control file : Input/run4.dat

DT = 2.00 sec NITER= 42000 NITRN = 9000 NPRN = 30 NPLT = 150

Overland outlet cell:

JOUT = 57 KOUT = 1 SOVOUT = 0.003539

CHANCHECK= 1

ELCONV = 1.00

Rainfall Data

=====

IRAIN = 1

Rainfall file: Input/17oct81.pre

NRG = 16 NREAD = 900

XRG[1] = 231568.718750	YRG[1] = 3791553.750000
XRG[2] = 233072.765625	YRG[2] = 3793604.000000
XRG[3] = 236856.328125	YRG[3] = 3794839.500000
XRG[4] = 236459.328125	YRG[4] = 3795733.000000
XRG[5] = 236662.953125	YRG[5] = 3793700.000000
XRG[6] = 238396.562500	YRG[6] = 3794734.250000
XRG[7] = 239756.421875	YRG[7] = 3795151.750000
XRG[8] = 234644.390625	YRG[8] = 3793655.000000
XRG[9] = 237777.671875	YRG[9] = 3796477.000000
XRG[10] = 238787.234375	YRG[10] = 3796056.250000
XRG[11] = 233758.578125	YRG[11] = 3794401.000000
XRG[12] = 235620.406250	YRG[12] = 3795906.500000
XRG[13] = 234840.609375	YRG[13] = 3792778.000000
XRG[14] = 233122.687500	YRG[14] = 3791785.000000
XRG[15] = 236523.640625	YRG[15] = 3792701.000000
XRG[16] = 238663.359375	YRG[16] = 3793326.250000

Land Use Parameters

=====

NMAN = 4 INDEXSDEP = 0

Index	Manning	Intercept.	Cusle	Pusle
-----	-- n --	-- [mm] --	-----	-----
1	0.250	3.000	0.004	1.000
2	0.010	0.000	0.000	1.000
3	0.150	1.000	0.180	1.000
4	0.200	1.500	0.072	1.000

Soil type Parameters

=====

INDEXINF= 1 INDEXEROS= 1 NSOIL= 7

Index	Ks	G	Md	%Sand	%Silt	%Clay	Kusle
----	[cm/h]	[cm]	-----	-----	-----	-----	-----
1	0.336	22.000	0.290	0.250	0.550	0.200	0.400
2	0.307	14.000	0.290	0.250	0.550	0.200	0.100
3	0.355	17.000	0.290	0.300	0.600	0.100	0.200
4	0.365	22.000	0.290	0.250	0.550	0.200	0.400
5	0.346	18.000	0.290	0.300	0.600	0.100	0.200
6	0.432	22.000	0.290	0.300	0.600	0.100	0.100
7	0.384	15.000	0.290	0.250	0.550	0.200	0.100

Internal Gages Data

INDEXDIS = 1 NDIS = 6 Q_units = 3

Gage	Row	Column	Area
----	---	-----	[has]
1	57	1	2071.980
2	27	42	365.880
3	11	55	145.860
4	34	57	166.070
5	14	78	135.850
6	34	36	151.460

Internal Sediment Gages Data

INDEXSED = 1 NSED = 6 Qs_Units = 2

Gage	Row	Column	Area
----	---	-----	[has]
1	57	1	2071.980
2	27	42	365.880
3	11	55	145.860
4	34	57	166.070
5	14	78	135.850
6	34	36	151.460

ASCII grid files header

ncols 95
 nrows 58
 xllcorner 231584.00
 yllcorner 3791449.00
 cellsize 90.00
 NODATA_value -9999

The following Grids have been read:

Elevation Grid: Input/DEM90mod_c.asc
 Shape Grid: Input/mask.asc
 Soils Grid: Input/soils90.asc
 Landuse Grid: Input/luse90.asc
 Node Grid: Input/nodes.asc
 Link Grid: Input/links.asc

Number of cells in basin: 2558
Basin area: 2071.980 [ha]

Channel Linkage Information

Maximum Number of Links = 18
Maximum Number of Nodes = 24

.....[NOTE: CHANNEL LINKAGE INPUT DATA HAS BEEN DELETED HERE]

SUMMARY OF FLOW OUTPUT

=====

Peak Discharge (m3/s).....=	40.37
Time to Peak (min).....=	277.07
Initial Surface Volume (m3).....=	0.00
Volume of Rainfall - retention (m3).....=	1497104.00
Volume leaving the Watershed (m3).....=	465479.41
Percentage of Vout to Vin.....=	31.09
Final Surface Volume (m3).....=	10984.83
Volume Infiltrated (m3).....=	1020636.44
Percentage of Vinftot to Vin.....=	68.17
Percent Mass Balance.....=	0.00

HYDROLOGICAL VARIABLES MINIMUM AND MAXIMUM VALUES

=====

Min. Rainfall Intensity (mm/hr).....=	0.00
Max. Rainfall Intensity (mm/hr).....=	51.60
Min. Infiltration Depth (mm).....=	0.00
Max. Infiltration Depth (mm).....=	84.94
Min. Overland Depth (m).....=	0.00
Max. Overland Depth (m).....=	0.23
Min. Channel Depth (m).....=	0.00
Max. Channel Depth (m).....=	1.47

SUMMARY OF SEDIMENT OUTPUT : Volume in Cubic Meters

(Percentages from the total eroded

=====

Total Volume of Sand Eroded.....=	462.34
Total Volume of Silt Eroded.....=	983.90
Total Volume of Clay Eroded.....=	292.30
Total Volume of Material Eroded.....=	1738.54

Volumes of Eroded Sediment Remaining on the Overland:

Total Volume of Suspended Sand.....=	0.00
Total Volume of Suspended Silt.....=	0.00
Total Volume of Suspended Clay.....=	0.12
Total Volume of Suspended Sediment.....=	0.12
Total Volume of Deposited Sand.....=	314.39

Total Volume of Deposited Silt.....=	535.89
Total Volume of Deposited Clay.....=	14.20
Total Volume of Deposited Sediment.....=	864.47
Total Volume of Sand Remaining on the Overland.....=	314.39
Total Volume of Silt Remaining on the Overland.....=	535.89
Total Volume of Clay Remaining on the Overland.....=	14.32
Total Volume of Eroded Material Remaining on the Overland..=	864.59

Volumes of Eroded Sediment Remaining in the Channels:

Total Volume of Suspended Sand.....=	0.00
Total Volume of Suspended Silt.....=	0.03
Total Volume of Suspended Clay.....=	3.67
Total Volume of Suspended Sediment.....=	3.71
Total Volume of Deposited Sand.....=	122.80
Total Volume of Deposited Silt.....=	128.84
Total Volume of Deposited Clay.....=	1.00
Total Volume of Deposited Sediment.....=	252.64
Total Volume of Sand Remaining in the Channels.....=	122.80
Total Volume of Silt Remaining in the Channels.....=	128.87
Total Volume of Clay Remaining in the Channels.....=	4.67
Total Volume of Eroded Material Remaining in the Channels..=	256.35

Volumes of Eroded Sediment Leaving the Watershed:

Total Volume of Eroded Sand Leaving the Watershed.....=	25.15
Total Volume of Eroded Silt Leaving the Watershed.....=	319.05
Total Volume of Eroded Clay Leaving the Watershed.....=	273.21
Total Volume of Eroded Material Leaving the Watershed.....=	617.41

Percent Mass Balance.....=	-0.01
----------------------------	-------

SEDIMENT VARIABLES MINIMUM AND MAXIMUM VALUES

=====

Max. Flux Conc. Overland (m3/s/m3/s).....=	0.0468933
Max. Flux Conc. Channels (m3/s/m3/s).....=	0.0138061
Max. Suspended Sediment in Overland (mm).....=	0.569869
Max. Suspended Sediment in Channels (mm).....=	1.28504
Max. Concentration on Overland (m3/m3).....=	0.00890181
Max. Concentration in Channels (m3/m3).....=	0.0091609
Total Net Volume (mm) at the End of the Simulation:	
Minimum Value	-11.055
Maximum Value	7.345
Mean	-0.030
Standard Deviation	0.531

Program stops at simulation minute: 1400.00

III.3.2 Discharge file: run4.q

Time Row57Col1 Row27Col42 Row11Col55 Row34Col57 Row14Col78 Row34Col36

1.00	0.000	0.000	0.000	0.000	0.000	0.000
2.00	0.000	0.000	0.000	0.000	0.000	0.000
3.00	0.000	0.000	0.000	0.000	0.000	0.000

.....[NOTE: THIS SECTION OF THE DISCHARGE FILE HAS BEEN DELETED]

294.00	6.718	3.537	3.396	3.001	3.840
295.00	6.686	3.483	3.337	2.957	3.780
296.00	6.654	3.430	3.279	2.913	3.721

.....[NOTE: THIS SECTION OF THE DISCHARGE FILE HAS BEEN DELETED]

1397.00	0.039	0.005	0.000	0.002	0.001
1398.00	0.039	0.005	0.000	0.002	0.001
1399.00	0.039	0.005	0.000	0.002	0.001
1400.00	0.039	0.005	0.000	0.002	0.001

III.3.3 Sediment discharge file: run4.q

Time Row57Col1 Row27Col42 Row11Col55 Row34Col57 Row14Col78 Row34Col36

1.00	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2.00	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3.00	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

.....[NOTE: THIS SECTION OF THE SEDIMENT DISCHARGE FILE HAS BEEN DELETED]

294.00	6.87274	3.62914	5.18821	2.15760	5.53370	8.28419
295.00	6.87603	3.56300	5.04122	2.13972	5.40966	8.11878
296.00	6.87683	3.49812	4.89810	2.12220	5.28760	7.95496
297.00	6.87516	3.43447	4.75876	2.10501	5.16751	7.79274

.....[NOTE: THIS SECTION OF THE SEDIMENT DISCHARGE FILE HAS BEEN DELETED]

1398.00	0.01110	0.00115	0.00003	0.00048	0.00003	0.00017
1399.00	0.01107	0.00115	0.00003	0.00048	0.00003	0.00016
1400.00	0.01104	0.00114	0.00003	0.00047	0.00003	0.00016

III.4 EVENT 2 HYDROGRAPHS AND SEDIMENT GRAPHS

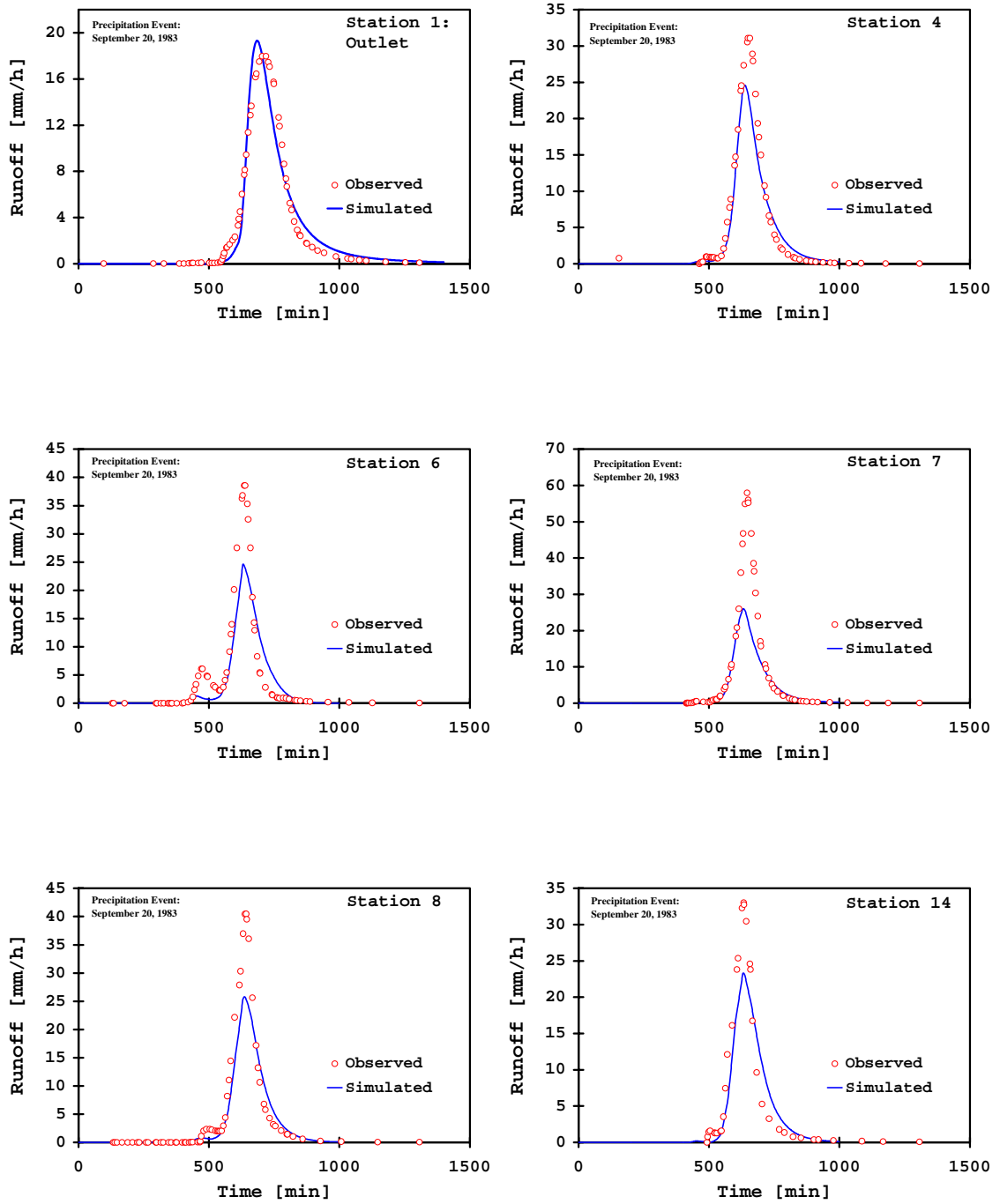


Figure III.4.1 Observed and simulated hydrographs for validation event 2

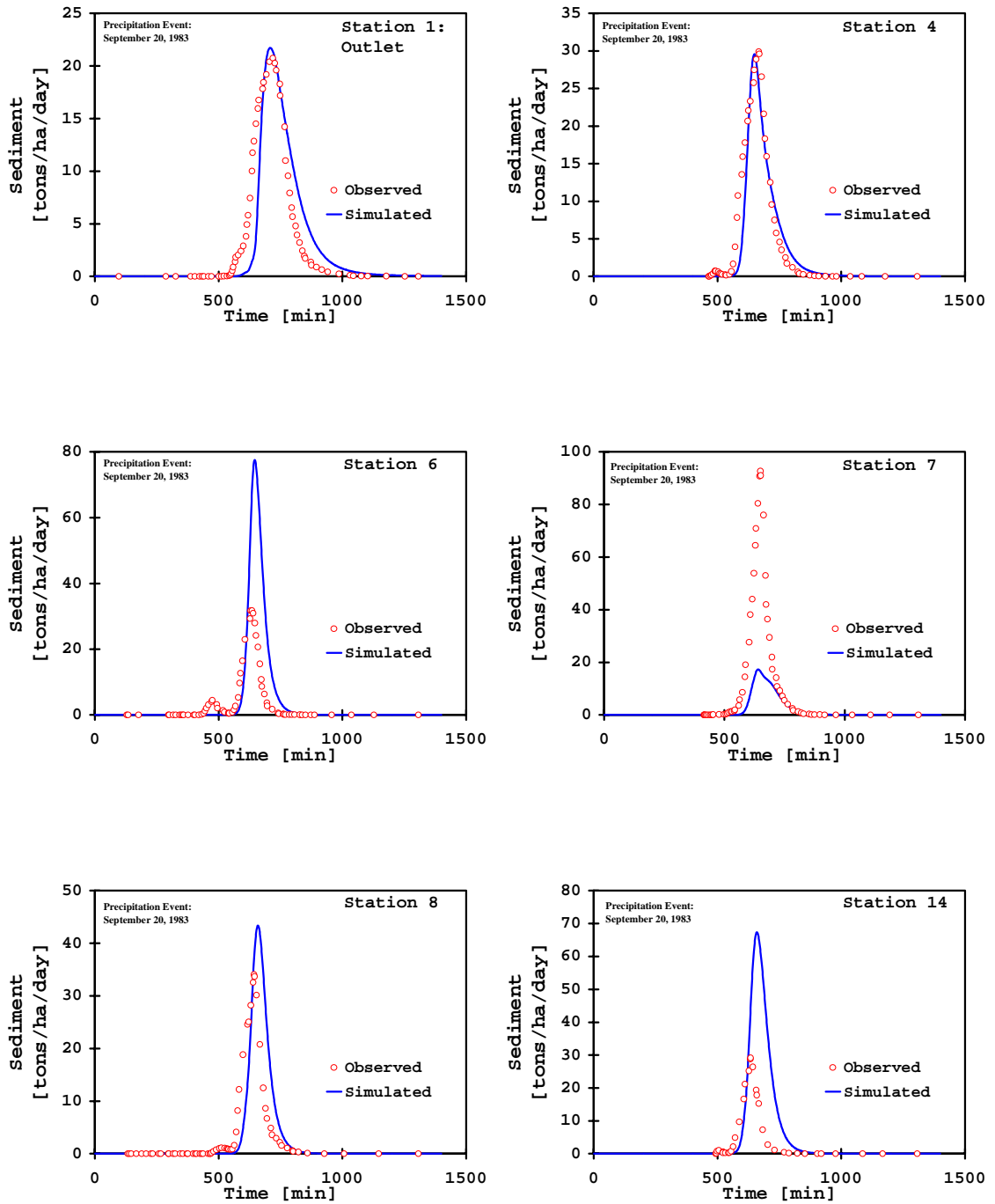


Figure III.4.2 Observed and simulated sediment graphs for validation event 2

III.5 EVENT 3 HYDROGRAPHS AND SEDIMENT GRAPHS

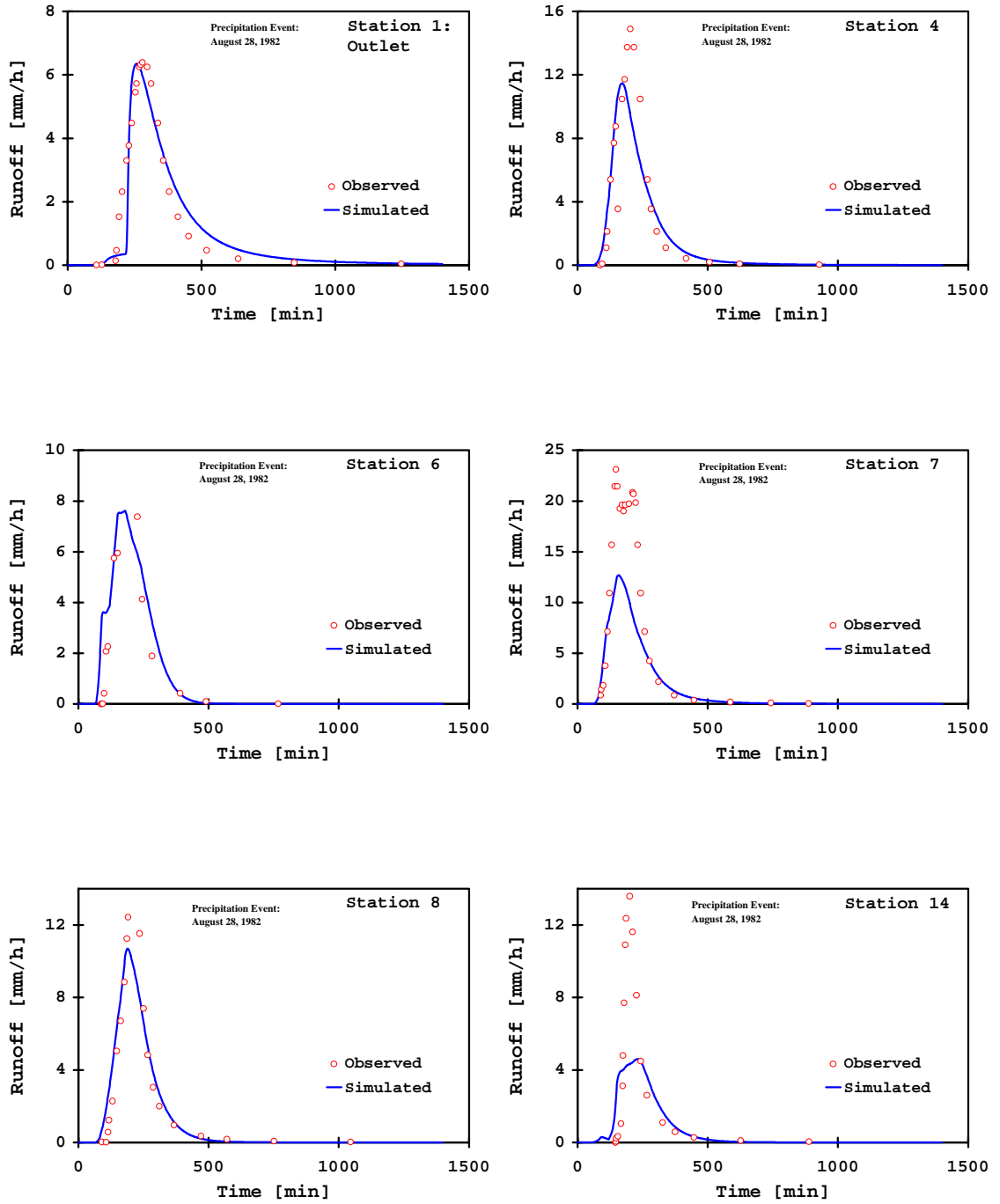


Figure III.5.1 Observed and simulated hydrographs for validation event 3

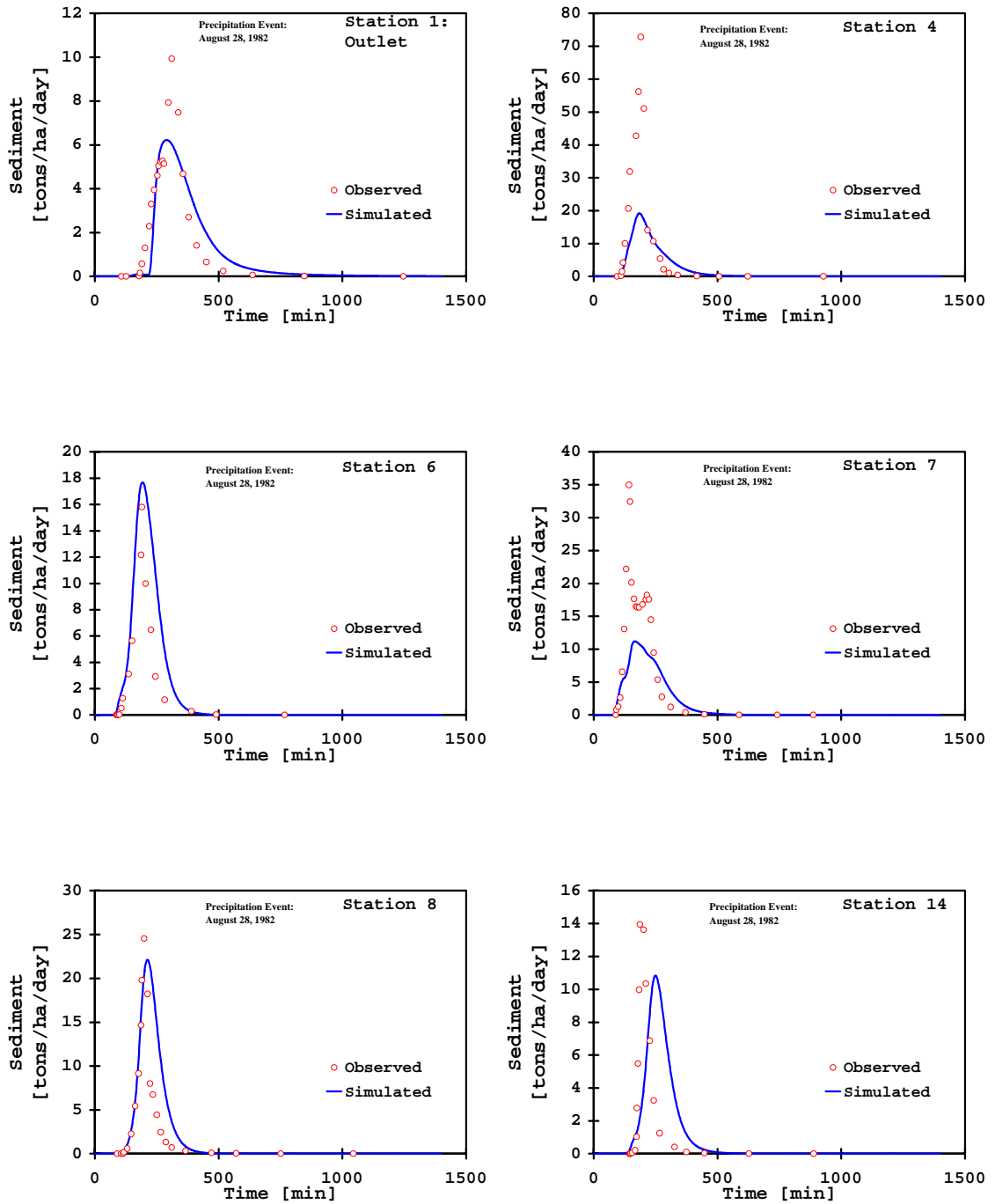


Figure III.5.2 Observed and simulated sediment graphs for validation event 3