

APPENDIX E. Model Results. Tables and Graphs

This section includes the complete set of results for the AGNPS and WATFLOOD modeling in the Duffins Creek watershed. The study period is for the warm weather months from April to November of 1995. Eight events were selected avoiding the “bright band” condition that can overestimate the precipitation values. The complete set of results from the AGNPS modeling and the runs of WATFLOOD are presented in the following pages.

April	- event 25-29 Apr/95
May	- event 16-20 May/95
June	- event 1-6 Jun/95
July	- event 13-18 Jul/95
August	- event 2-6 Aug/95
September	- event 2-10 Sep/95
October	- event 4-16 Oct/95
November	- event 8-12 Nov/95

Table E1. AGNPS Results for the 2x2 km Grid

Hyd-Sed-Nut:EVENT		25-29 Apr/95	16-20 May/95	1-6Jun/95	13-18 Jul/95
	AMC	III	III	III	II
AGNPS Results	Units	g2km	g2km	g2km	g2km
Watershed ID		Duffins (2x2km)	Duffins (2x2km)	Duffins (2x2km)	Duffins (2x2km)
Description		1992 Landuse	1992 Landuse	1992 Landuse	1992 Landuse
# Base Cells		57	57	57	57
# Total Cells		57	57	57	57
Area base cell	acre	1406	1406	1406	1406
Drainage area	acre	80142	80142	80142	80142
Precipitation	in	0.65	0.79	0.42	0.96
Energy intensity		2.13	3.5	0.79	6.33
Nitrogen in rain	ppm	1	1	1	1
Outlet Cell		57,000	57,000	57,000	57,000
Runoff Volume	in	0.05	0.09	0.01	0.03
Peak Rate	cfs	380.33	698.7	81.32	216.65
Sediment Yield	ton	137.93	230.98	37.88	130.19
Nitrogen-Sediment	lb/acre	0.02	0.04	0.01	0.02
Nitrogen-Runoff	lb/acre	0	0.01	0	0
Phosphorus-Sediment	lb/acre	0.01	0.02	0	0.01
Phosphorus-Runoff	lb/acre	0	0	0	0
COD-Runoff	lb/acre	0.05	0.07	0.01	0.04
Nitrogen Conc	ppm	0.34	0.29	0.46	0.29
Phosphorus Conc	ppm	0.04	0.04	0.03	0.02
COD Conc	ppm	4.24	3.59	6.45	6.52
Conversions					
Rainfall	mm	16.5	20.1	10.7	24.4
Duration	hrs	18	15	20	10
Peak Flow	m3/s	10.77	19.79	2.30	6.14
Sediment Yield	ton	137.93	230.98	37.88	130.19
Nitrogen load	kg	140.04	215.01	37.89	71.67
Phosphorus load	kg	16.48	29.66	2.47	4.94
Stouffville Outlet					
Cell		19000	19000	19000	19000
DrainArea	acre	11248	11248	11248	11248
OverlandRunoff	in	0.03	0.07	0	0
UpStrmRunoff	in	0.05	0.1	0.01	0.01
UpStrmPeakF	cfs	155.02	287.75	18.89	47.06
DownStrmRunoff	in	0.05	0.1	0.01	0.01
DownStrmPeakF	cfs	121.57	229.63	13.68	34.66
GenAbRunoff	%	91.6	90.6	98.1	97.8
Conversions					
Peak Flow	m3/s	3.44	6.50	0.39	0.98

Table E1. AGNPS Results for the 2x2 km Grid (Cont.)

Hyd-Sed-Nut:EVENT		2-6 Aug/95	2-10 Sep/95	4-16 Oct/95	8-12 Nov/95
	AMC	II	II	II	III
AGNPS Results	Units	g2km	g2km	g2km	g2km
Watershed ID		Duffins (2x2km)	Duffins (2x2km)	Duffins (2x2km)	Duffins (2x2km)
Description		1992 Landuse	1992 Landuse	1992 Landuse	1992 Landuse
# Base Cells		57	57	57	57
# Total Cells		57	57	57	57
Area base cell	acre	1406	1406	1406	1406
Drainage area	acre	80142	80142	80142	80142
Precipitation	in	0.72	0.56	1.06	1.17
Energy intensity		2.54	1.66	7.03	8.45
Nitrogen in rain	ppm	1	1	1	1
Outlet Cell		57,000	57,000	57,000	57,000
Runoff Volume	in	0.01	0.01	0.04	0.24
Peak Rate	cfs	83.8	37.42	305.29	1954.69
Sediment Yield	ton	37.13	20.58	186.91	549.23
Nitrogen-Sediment	lb/acre	0.01	0	0.03	0.07
Nitrogen-Runoff	lb/acre	0	0	0	0.01
Phosphorus-Sediment	lb/acre	0	0	0.02	0.04
Phosphorus-Runoff	lb/acre	0	0	0	0
COD-Runoff	lb/acre	0.02	0.01	0.05	0.16
Nitrogen Conc	ppm	0.34	0.38	0.27	0.21
Phosphorus Conc	ppm	0.02	0.01	0.02	0.03
COD Conc	ppm	7.52	7.67	5.98	2.83
Conversions					
Rainfall	mm	18.3	14.2	26.9	29.7
Duration	hrs	20	15	13	14
Peak Flow	m3/s	2.37	1.06	8.65	55.36
Sediment Yield	ton	37.13	20.58	186.91	549.23
Nitrogen load	kg	28.01	31.30	88.97	415.18
Phosphorus load	kg	1.65	0.82	6.59	59.31
Stouffville Outlet					
Cell		19000	19000	19000	19000
DrainArea	acre	11248	11248	11248	11248
OverlandRunoff	in	0	0	0.01	0.23
UpStrmRunoff	in	0	0	0.03	0.28
UpStrmPeakF	cfs	39.98	19.98	85.97	353.15
DownStrmRunoff	in	0	0	0.03	0.27
DownStrmPeakF	cfs	29.94	9.92	64.84	276.79
GenAbRunoff	%	100	0	95.5	89.4
Conversions					
Peak Flow	m3/s	0.85	0.28	1.84	7.84

Table E2. AGNPS Results for the 1x1 km Grid

Hyd-Sed only:EVENT		25-29 Apr/95	16-20 May/95	1-6Jun/95	13-18 Jul/95
	AMC	III	III	III	II
AGNPS Results	Units	g1km	g1km	g1km	g1km
Watershed ID		Duffins (1x1km)	Duffins (1x1km)	Duffins (1x1km)	Duffins (1x1km)
Description		1992 Landuse	1992 Landuse	1992 Landuse	1992 Landuse
# Base Cells		205	205	205	205
# Total Cells		205	205	205	205
Area base cell	acre	351	351	351	351
Drainage area	acre	71955	71955	71955	71955
Precipitation	in	0.65	0.79	0.42	0.96
Energy intensity		2.13	3.5	0.79	6.33
Nitrogen in rain	ppm	1	1	1	1
Outlet Cell		205,000	205,000	205,000	205,000
Runoff Volume	in	0.05	0.09	0.01	0.03
Peak Rate	cfs	361.37	646.63	84.59	218.91
Sediment Yield	ton	143.13	232.43	43.34	141.14
Nitrogen-Sediment	lb/acre	0.02	0.04	0.01	0.02
Nitrogen-Runoff	lb/acre	0	0.01	0	0
Phosphorus-Sediment	lb/acre	0.01	0.02	0	0.01
Phosphorus-Runoff	lb/acre	0	0	0	0
COD-Runoff	lb/acre	0.03	0.04	0.01	0.03
Nitrogen Conc	ppm	0.11	0.62	1.25	0.17
Phosphorus Conc	ppm	0	0.11	0.21	0.01
COD Conc	ppm	2.56	2.11	4.03	4.06
Conversions					
Rainfall	mm	16.5	20.1	10.7	24.4
Duration	hrs	18	15	20	10
Peak Flow	m3/s	10.24	18.32	2.40	6.20
Sediment Yield	ton	143.13	232.43	43.34	141.14
Stouffville Outlet					
Cell		83000	83000	83000	83000
DrainArea	acre	10179	10179	10179	10179
OverlandRunoff	in	0.01	0.04	0	0
UpStrmRunoff	in	0.06	0.11	0.01	0.03
UpStrmPeakF	cfs	200.8	347.56	39.98	98.65
DownStrmRunoff	in	0.06	0.11	0.01	0.03
DownStrmPeakF	cfs	132.77	234.52	24.79	62.6
GenAbRunoff	%	99.3	98.8	100	100
Conversions					
Peak Flow	m3/s	3.76	6.64	0.70	1.77

Table E2. AGNPS Results for the 1x1 km Grid (Cont.)

Hyd-Sed only:EVENT		2-6 Aug/95	2-10 Sep/95	4-16 Oct/95	8-12 Nov/95
	AMC	II	II	II	III
AGNPS Results	Units	g1km	g1km	g1km	g1km
Watershed ID		Duffins (1x1km)	Duffins (1x1km)	Duffins (1x1km)	Duffins (1x1km)
Description		1992 Landuse	1992 Landuse	1992 Landuse	1992 Landuse
# Base Cells		205	205	205	205
# Total Cells		205	205	205	205
Area base cell	acre	351	351	351	351
Drainage area	acre	71955	71955	71955	71955
Precipitation	in	0.72	0.56	1.06	1.17
Energy intensity		2.54	1.66	7.03	8.45
Nitrogen in rain	ppm	1	1	1	1
Outlet Cell		205,000	205,000	205,000	205,000
Runoff Volume	in	0.01	0.01	0.04	0.25
Peak Rate	cfs	85.39	37.33	303.81	1764.47
Sediment Yield	ton	44.28	22.99	193.52	536.07
Nitrogen-Sediment	lb/acre	0.01	0	0.03	0.07
Nitrogen-Runoff	lb/acre	0	0	0	0
Phosphorus-Sediment	lb/acre	0	0	0.02	0.04
Phosphorus-Runoff	lb/acre	0	0	0	0
COD-Runoff	lb/acre	0.01	0.01	0.03	0.09
Nitrogen Conc	ppm	0.24	0.32	0.15	0.05
Phosphorus Conc	ppm	0.01	0.01	0.01	0
COD Conc	ppm	4.96	5.31	3.69	1.56
Conversions					
Rainfall	mm	18.3	14.2	26.9	29.7
Duration	hrs	20	15	13	14
Peak Flow	m3/s	2.42	1.06	8.61	49.98
Sediment Yield	ton	44.28	22.99	193.52	536.07
Stouffville Outlet					
Cell		83000	83000	83000	83000
DrainArea	acre	10179	10179	10179	10179
OverlandRunoff	in	0	0	0	0.16
UpStrmRunoff	in	0.01	0	0.05	0.3
UpStrmPeakF	cfs	25.44	15.61	148.67	511.98
DownStrmRunoff	in	0.01	0	0.04	0.3
DownStrmPeakF	cfs	15.28	13.26	95.78	248.19
GenAbRunoff	%	100	100	100	98.1
Conversions					
Peak Flow	m3/s	0.43	0.38	2.71	7.03

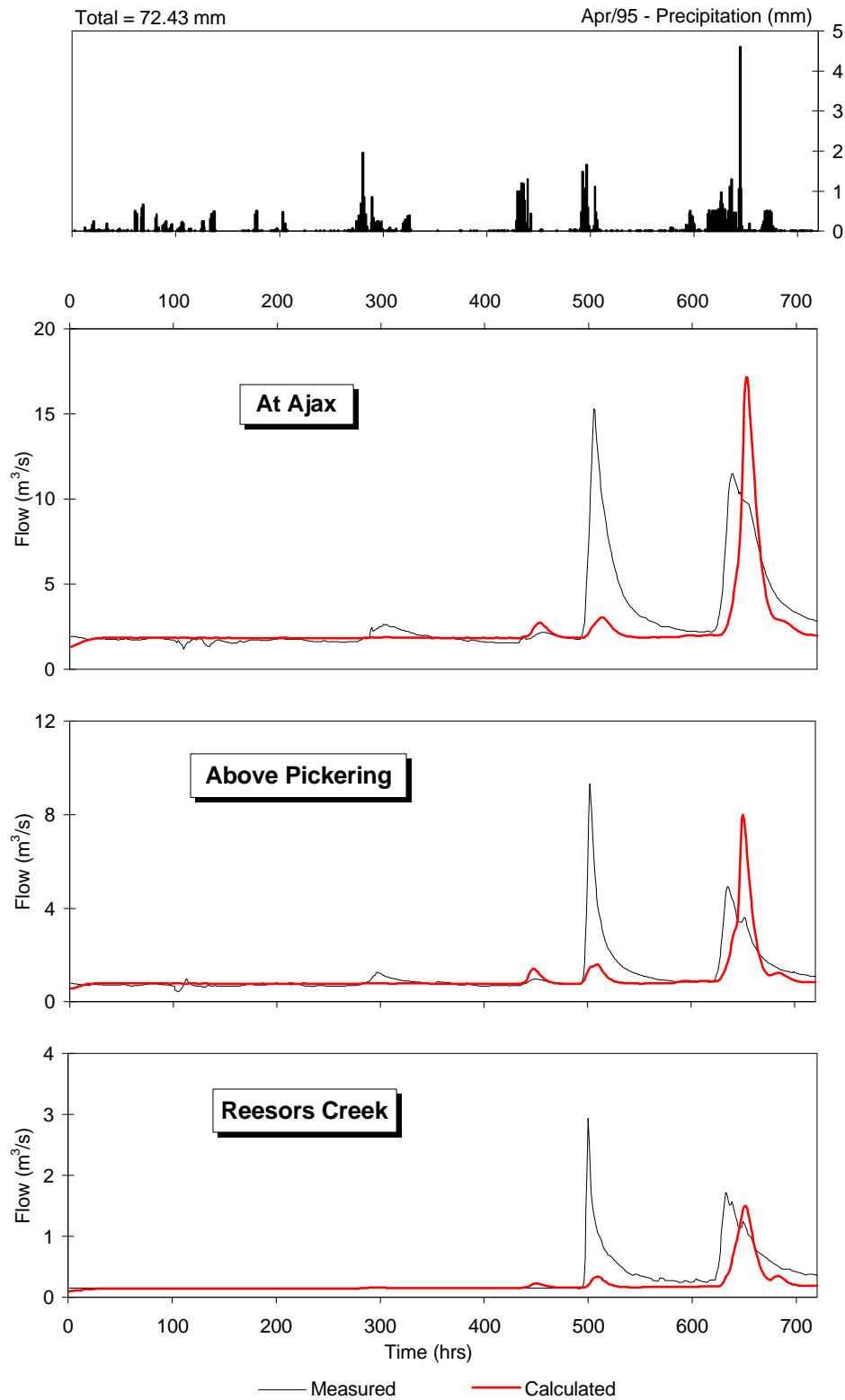


Figure E.1 WATFLOOD results for April, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

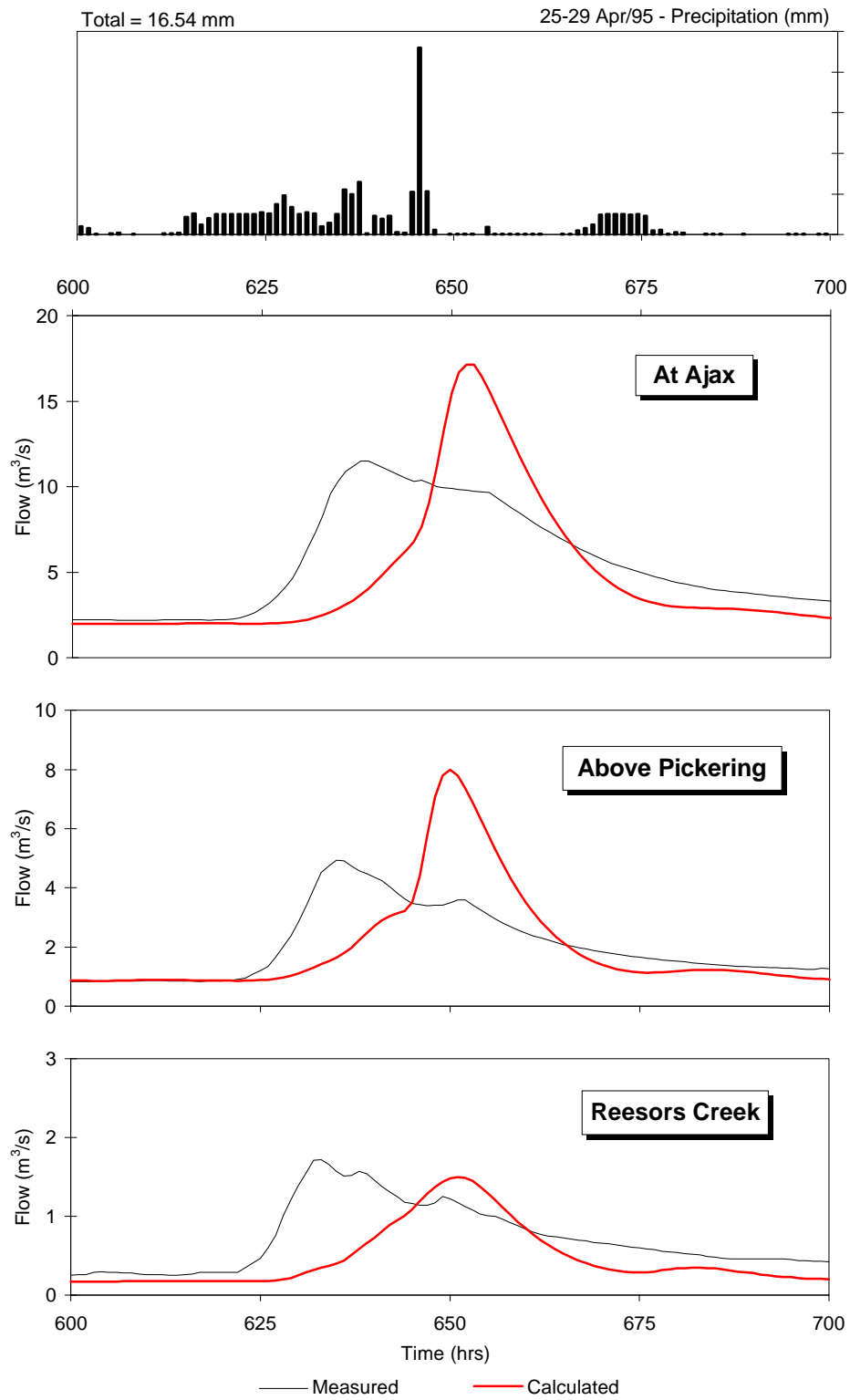


Figure E.2 WATFLOOD results for April 25-19, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

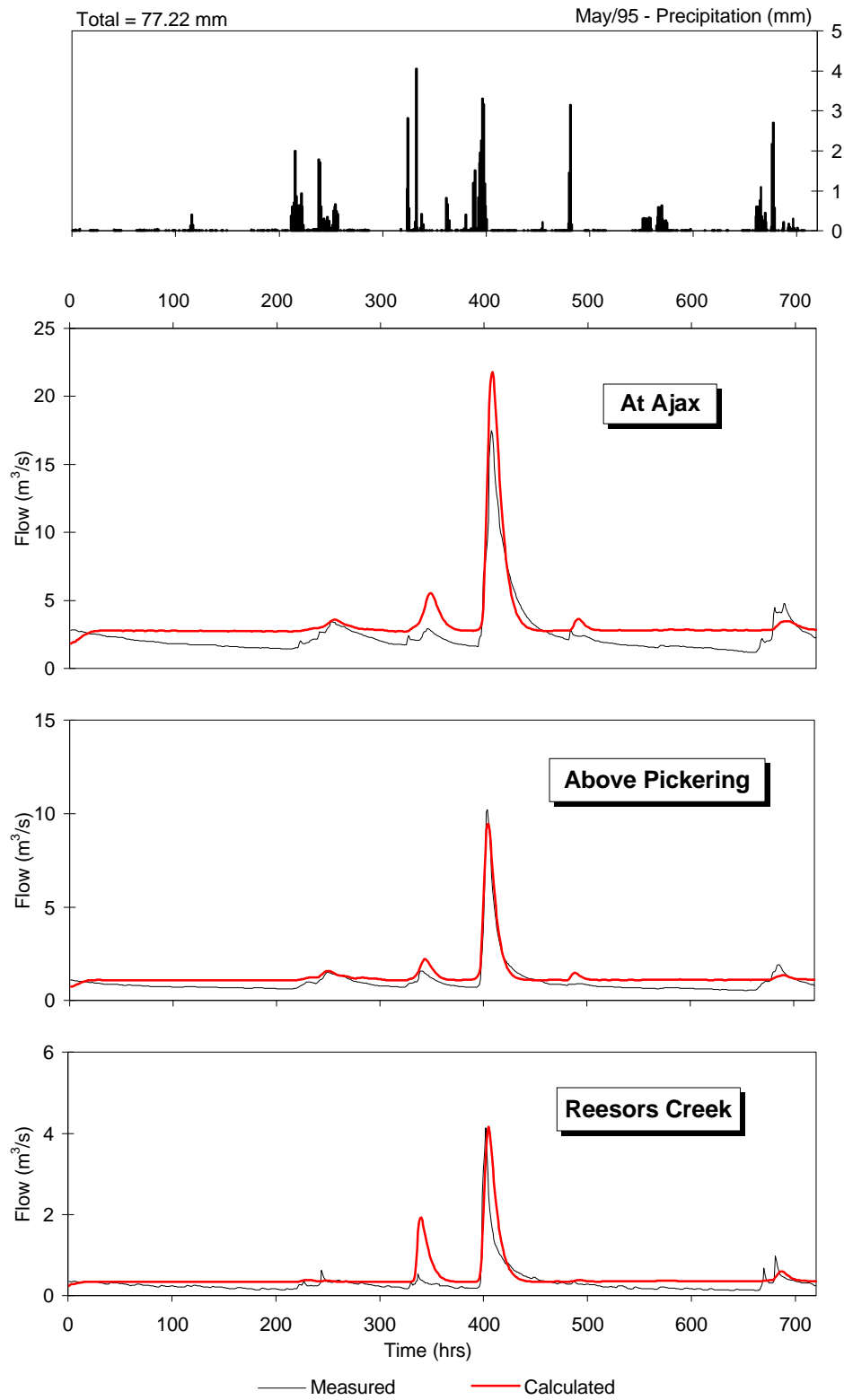


Figure E.3 WATFLOOD results for May, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.6)

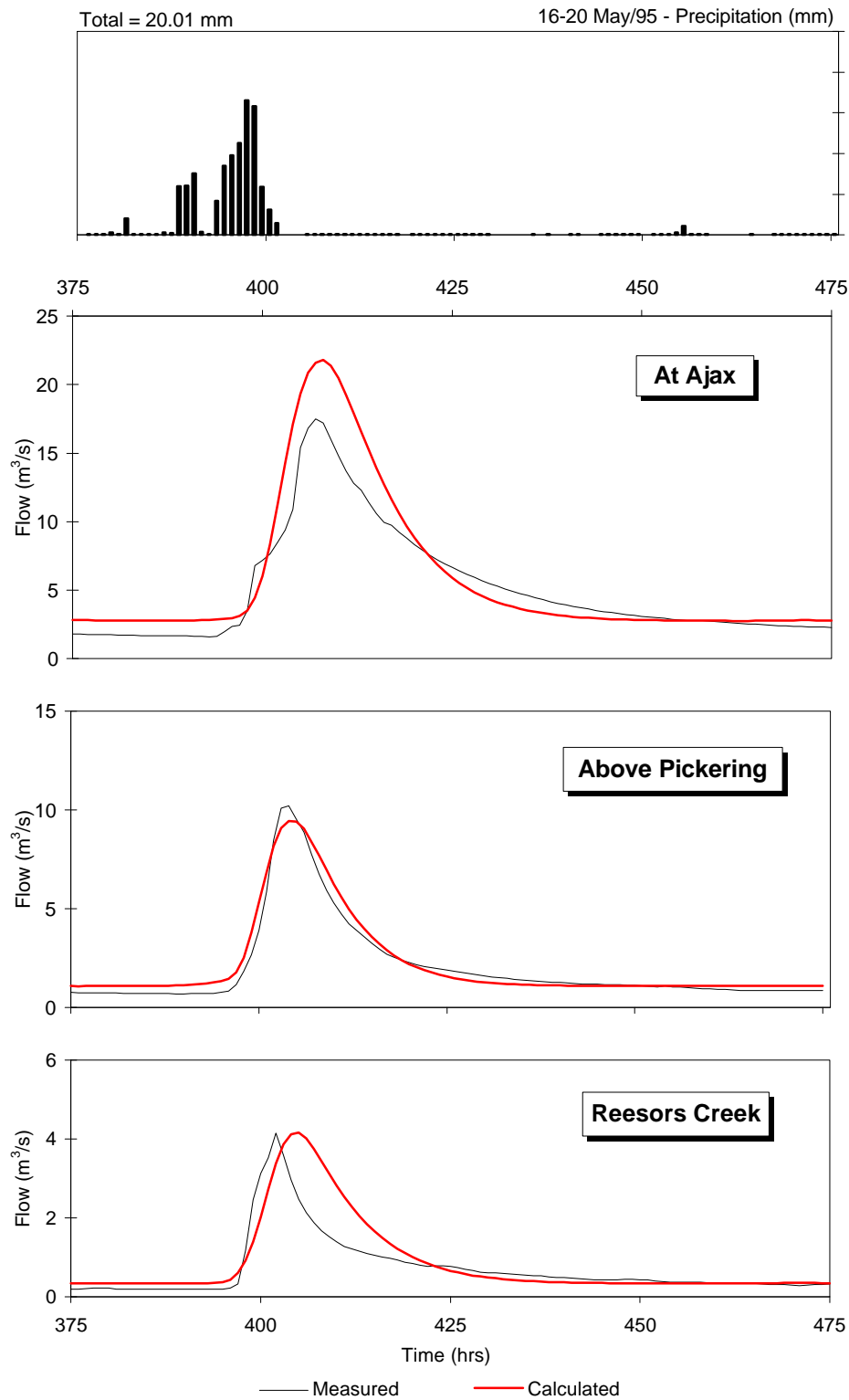


Figure E.4 WATFLOOD results for May 16-20, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.6)

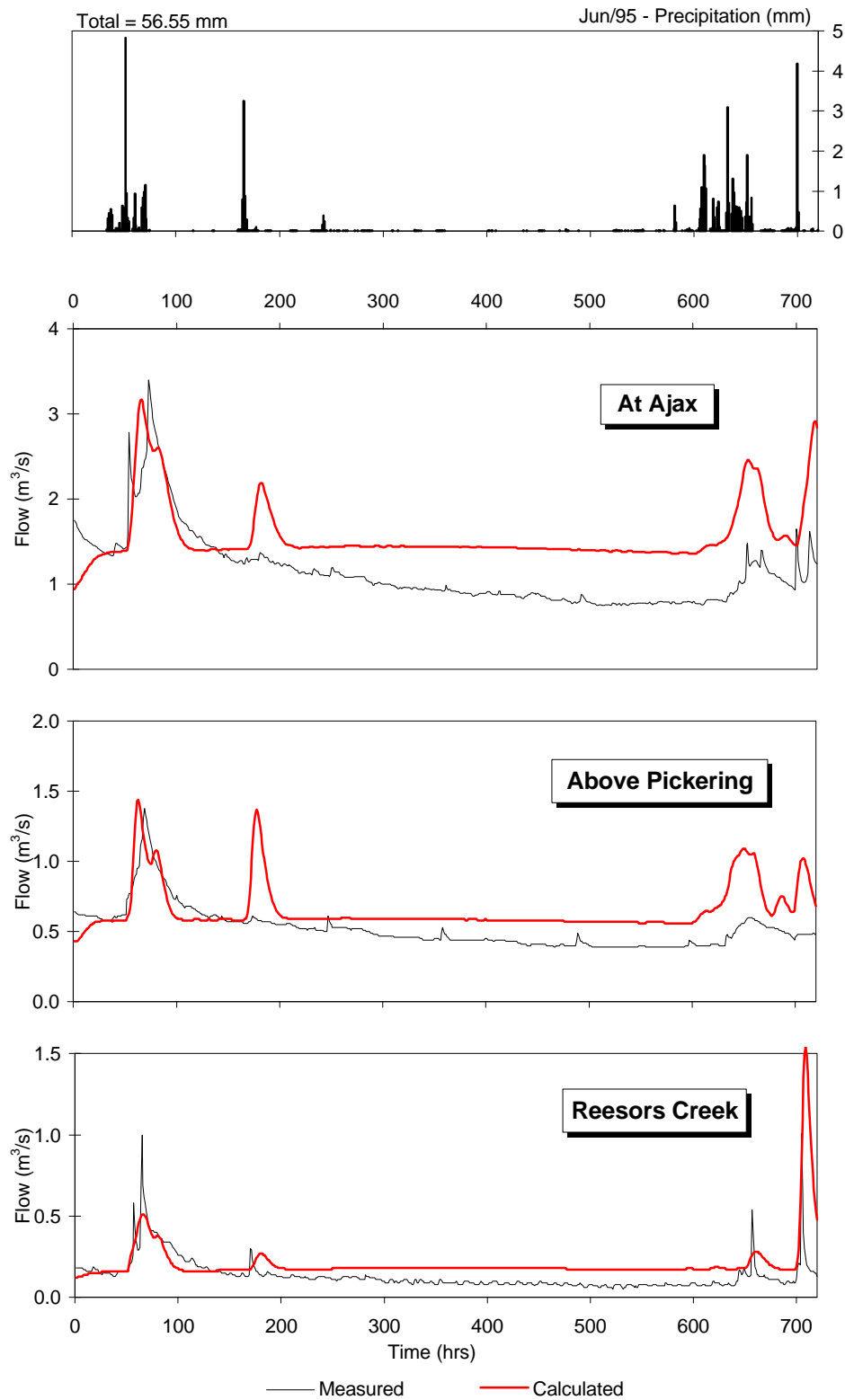


Figure E.5 WATFLOOD results for June, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.8)

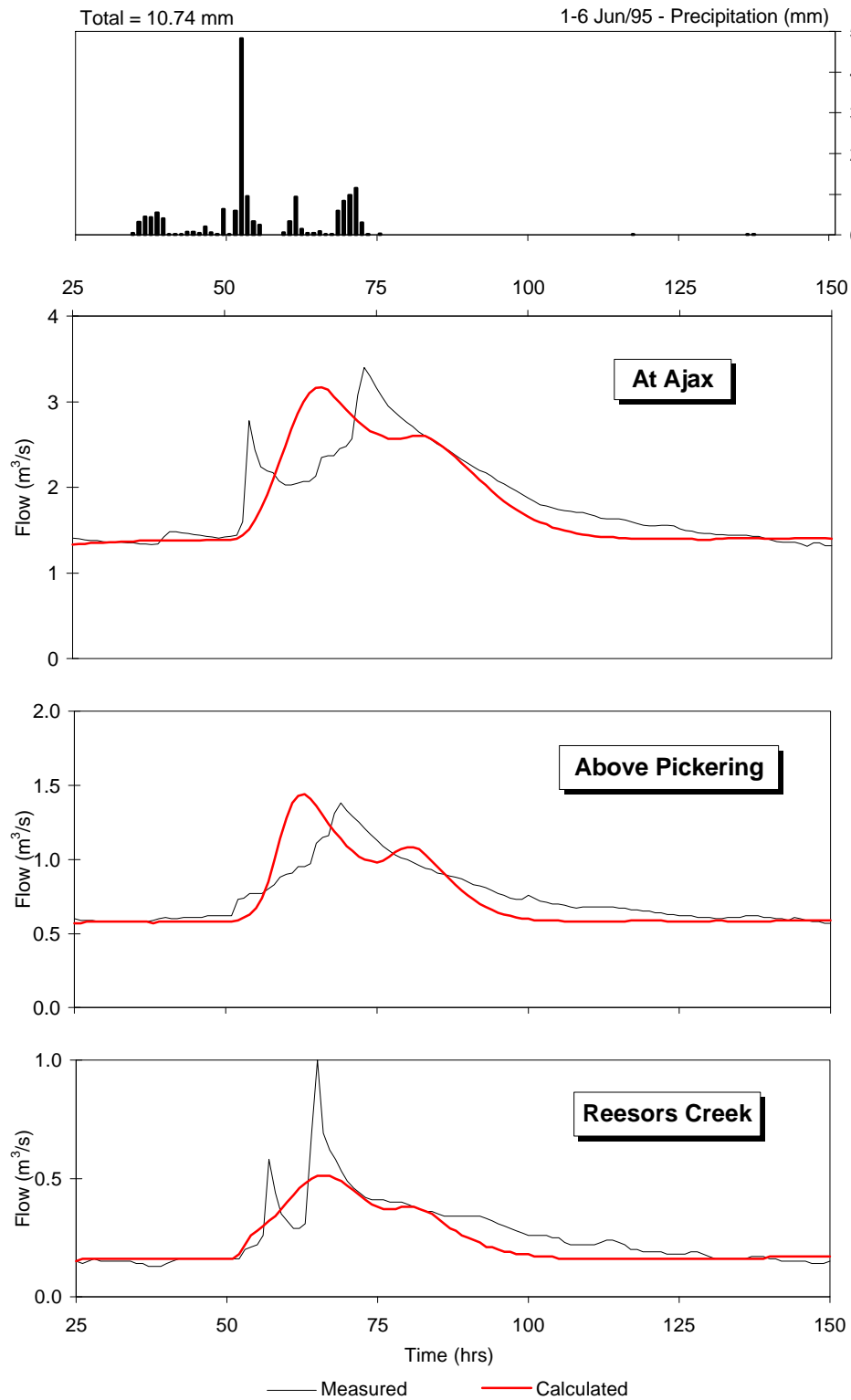


Figure E.6 WATFLOOD results for June 1-6, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.8)

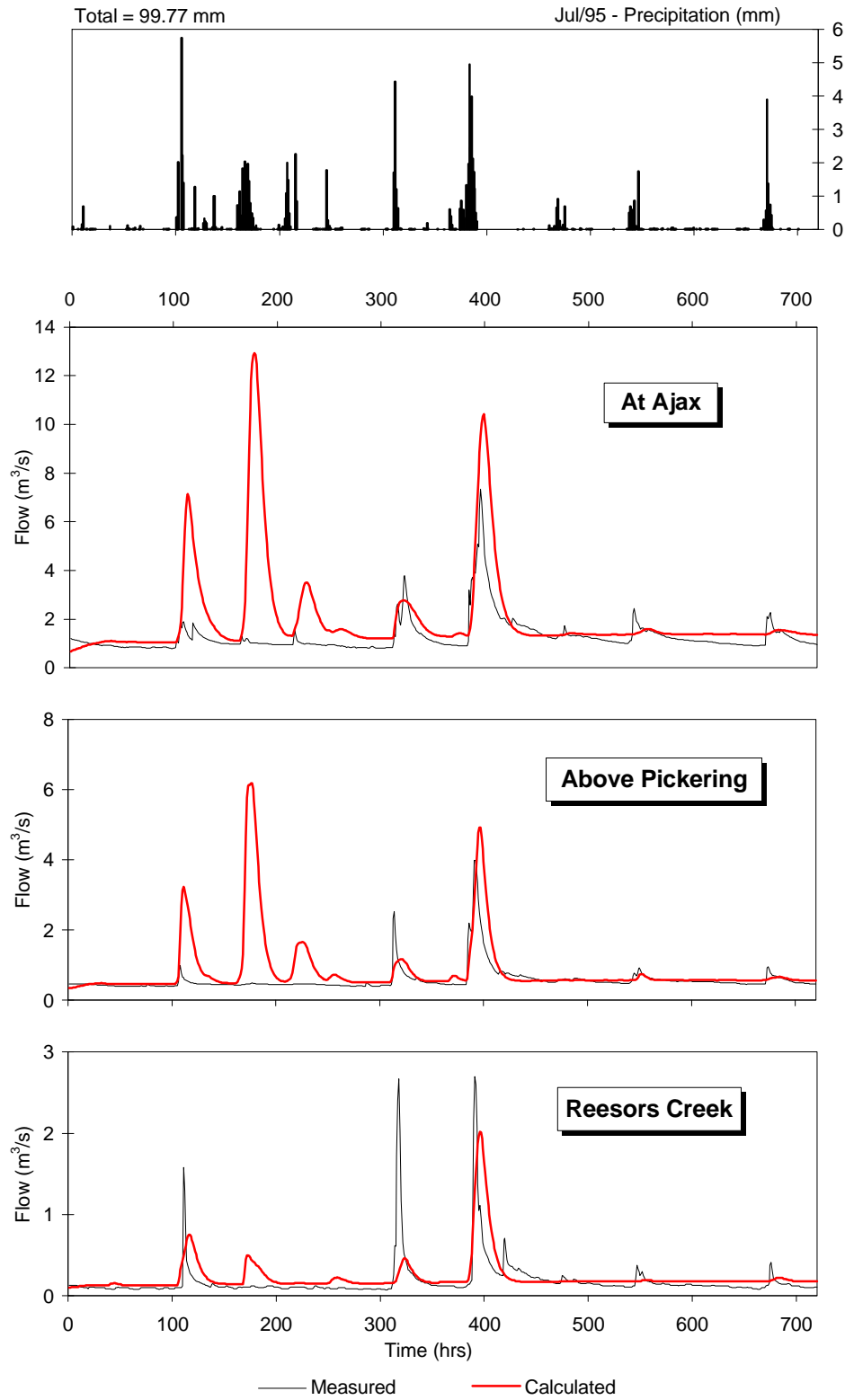


Figure E.7 WATFLOOD results for July, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

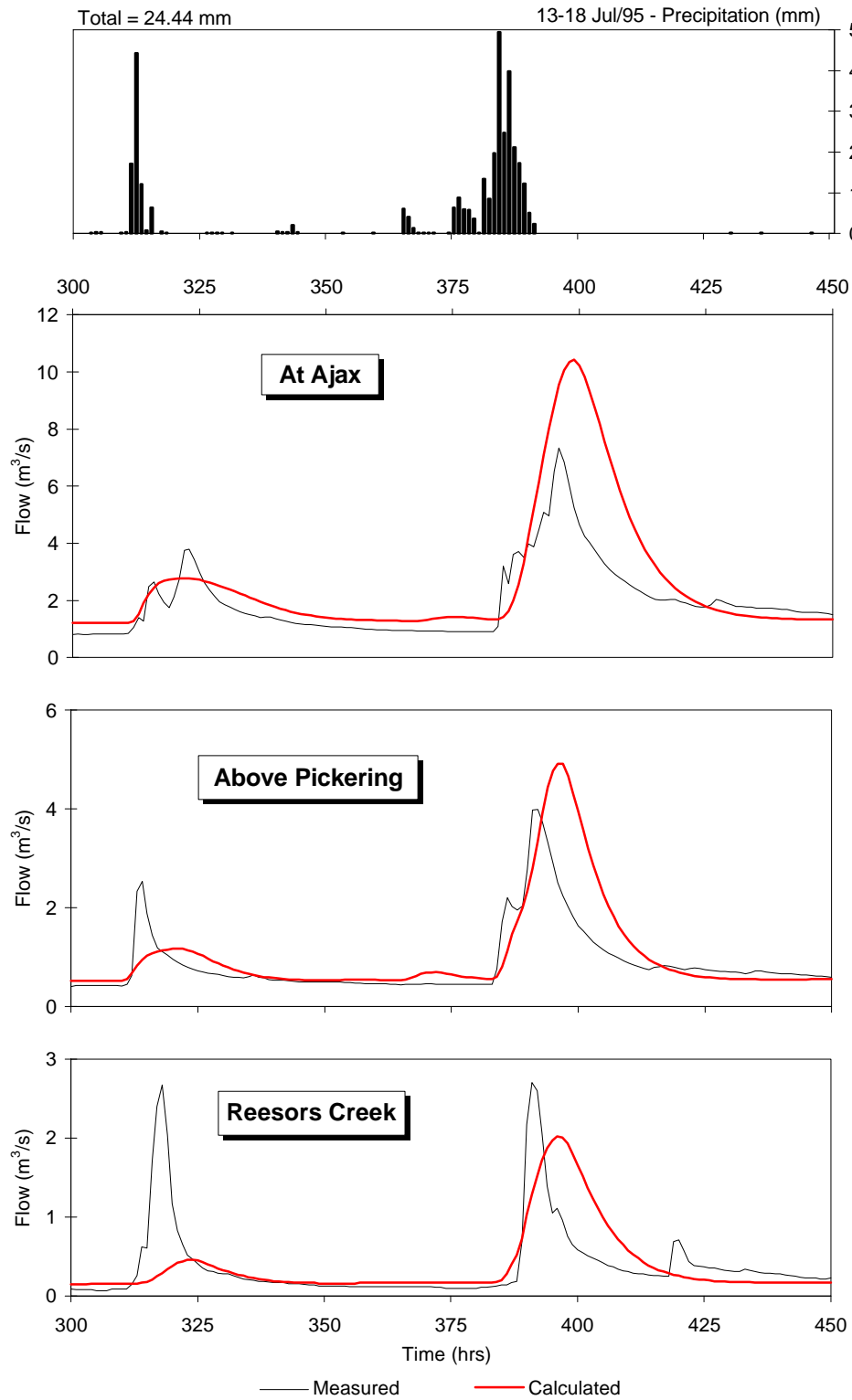


Figure E.8 WATFLOOD results for July 13-18, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

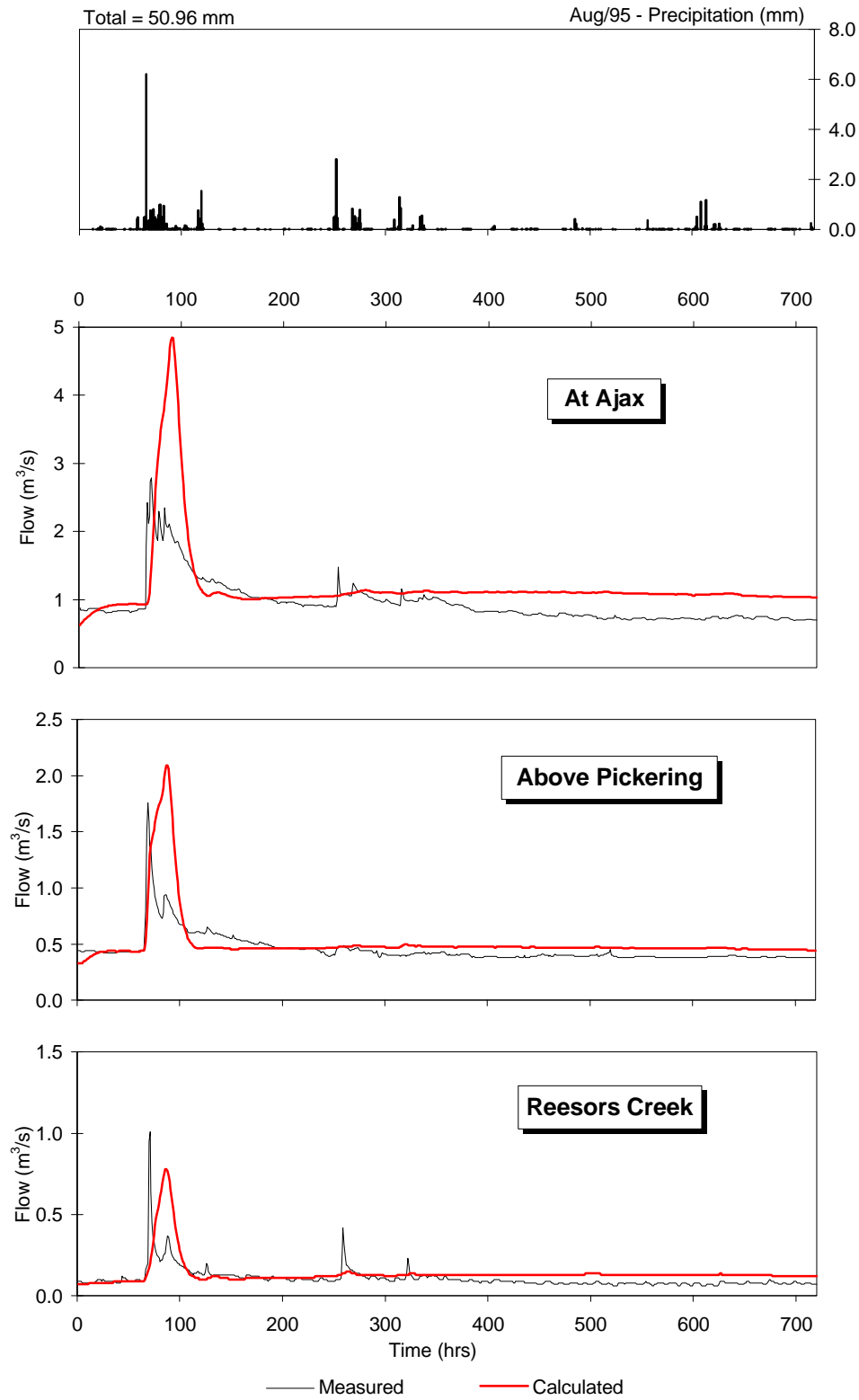


Figure E.9 WATFLOOD results for August, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

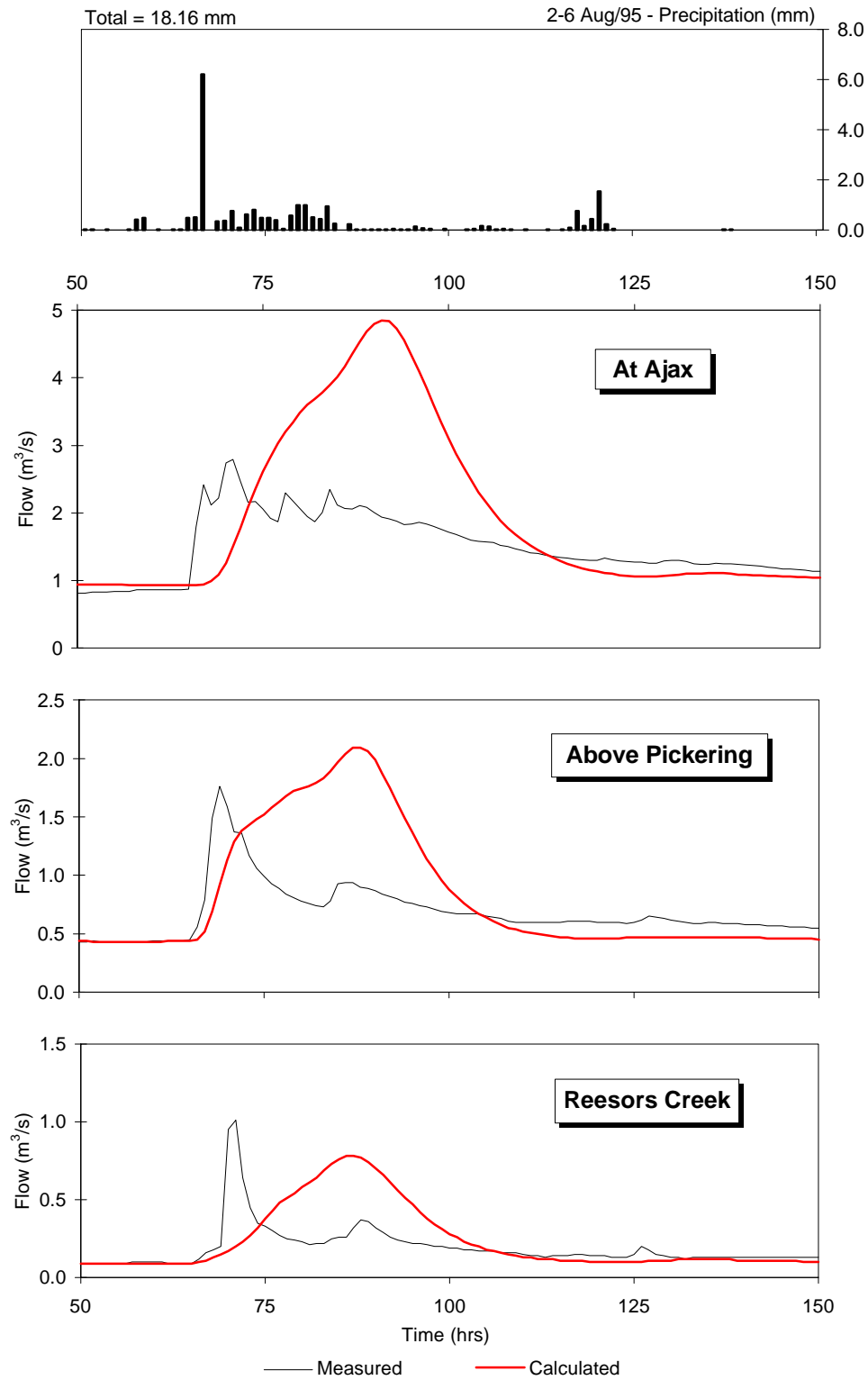


Figure E.10 WATFLOOD results for August 2-6, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

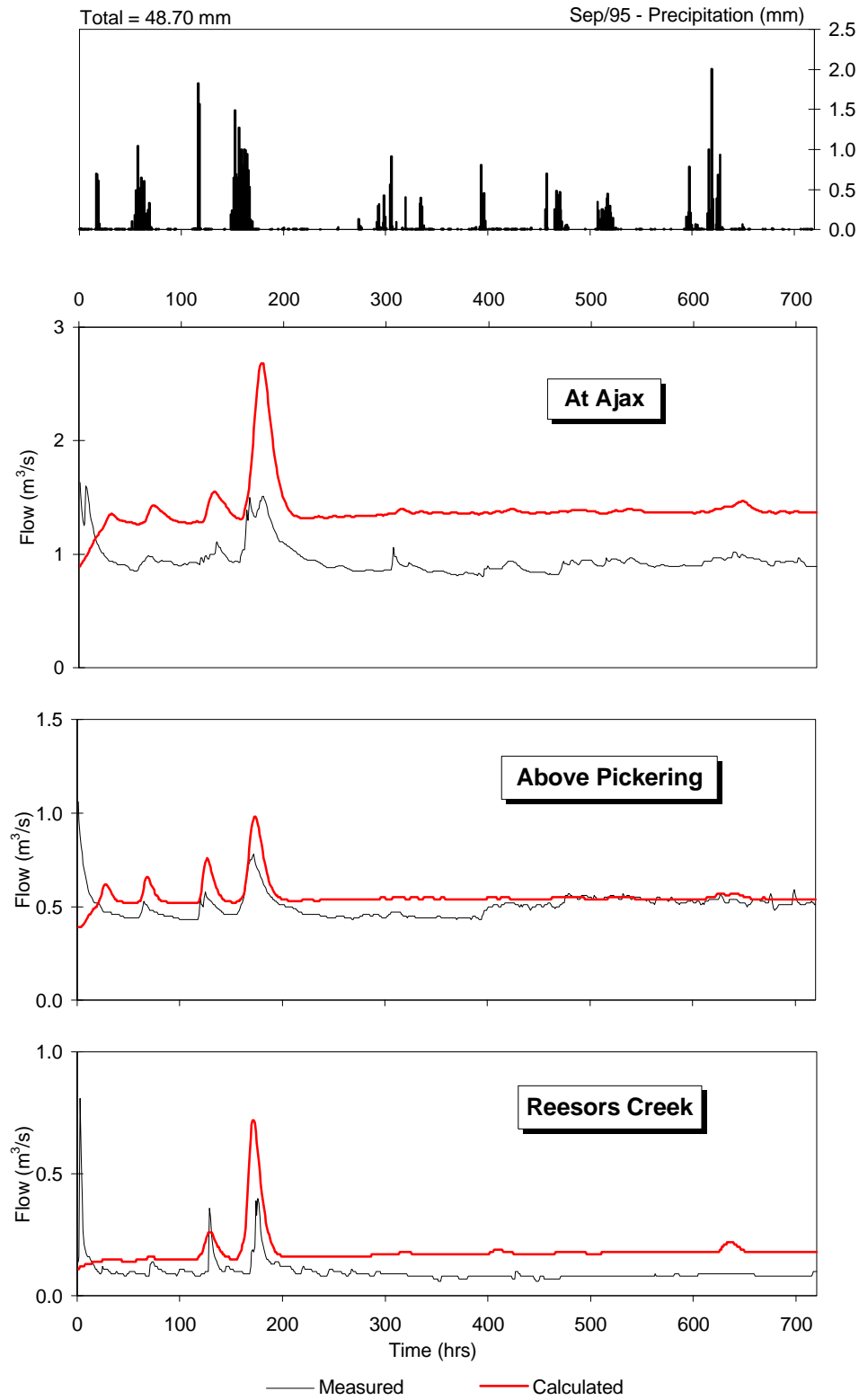


Figure E.11 WATFLOOD results for September, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

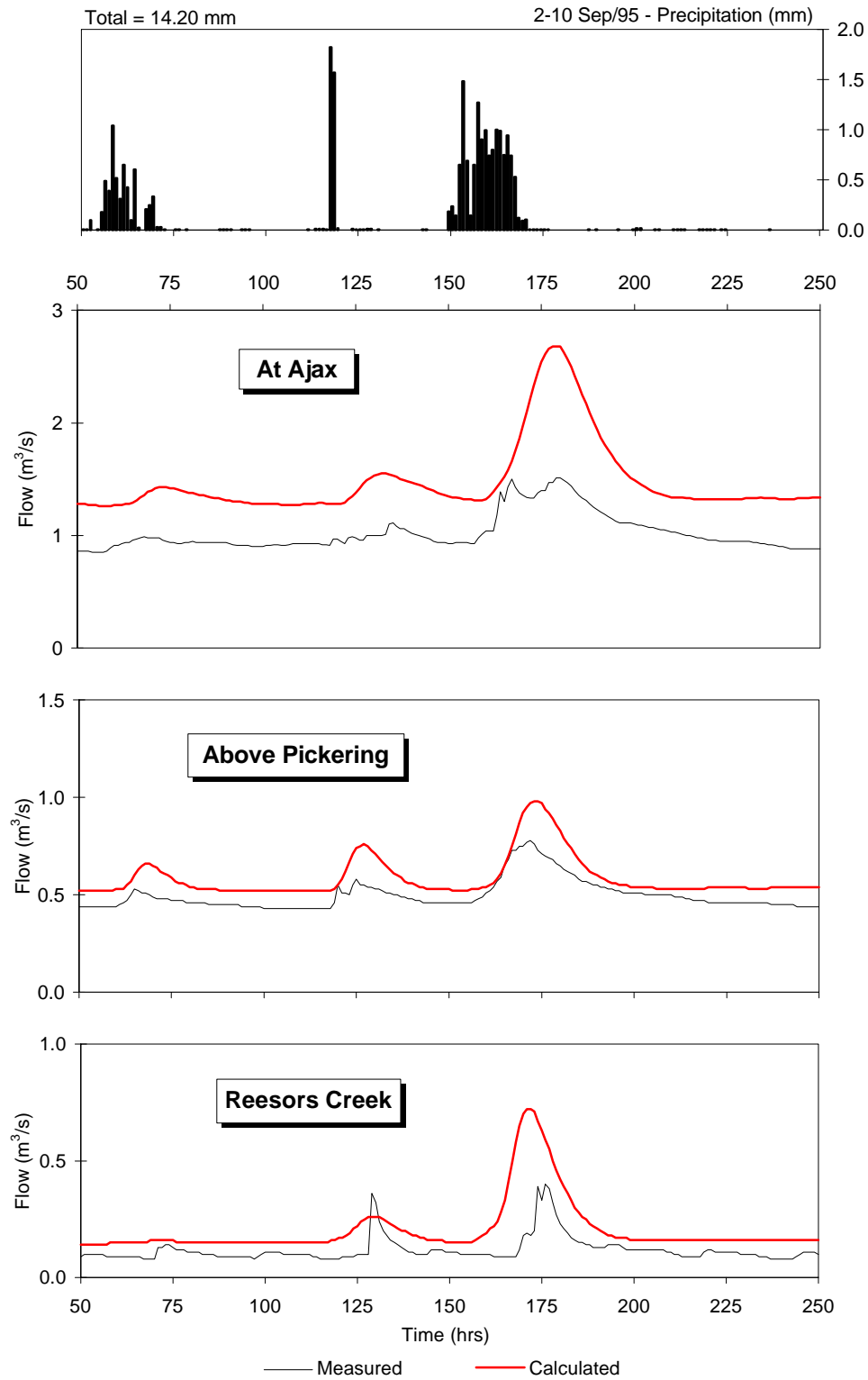


Figure E.12 WATFLOOD results for September 2-10, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.5)

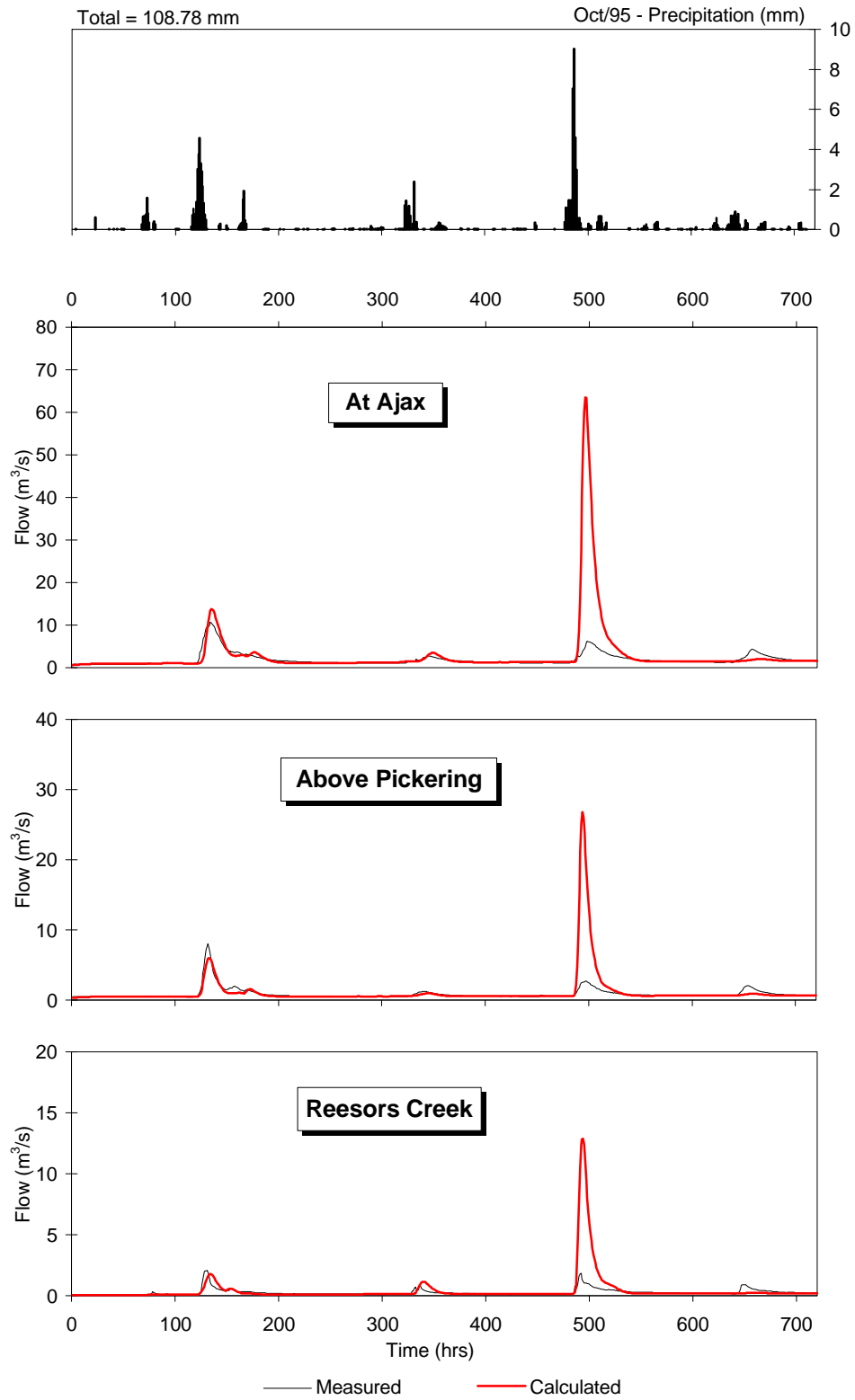


Figure E.13 WATFLOOD results for October, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.7)

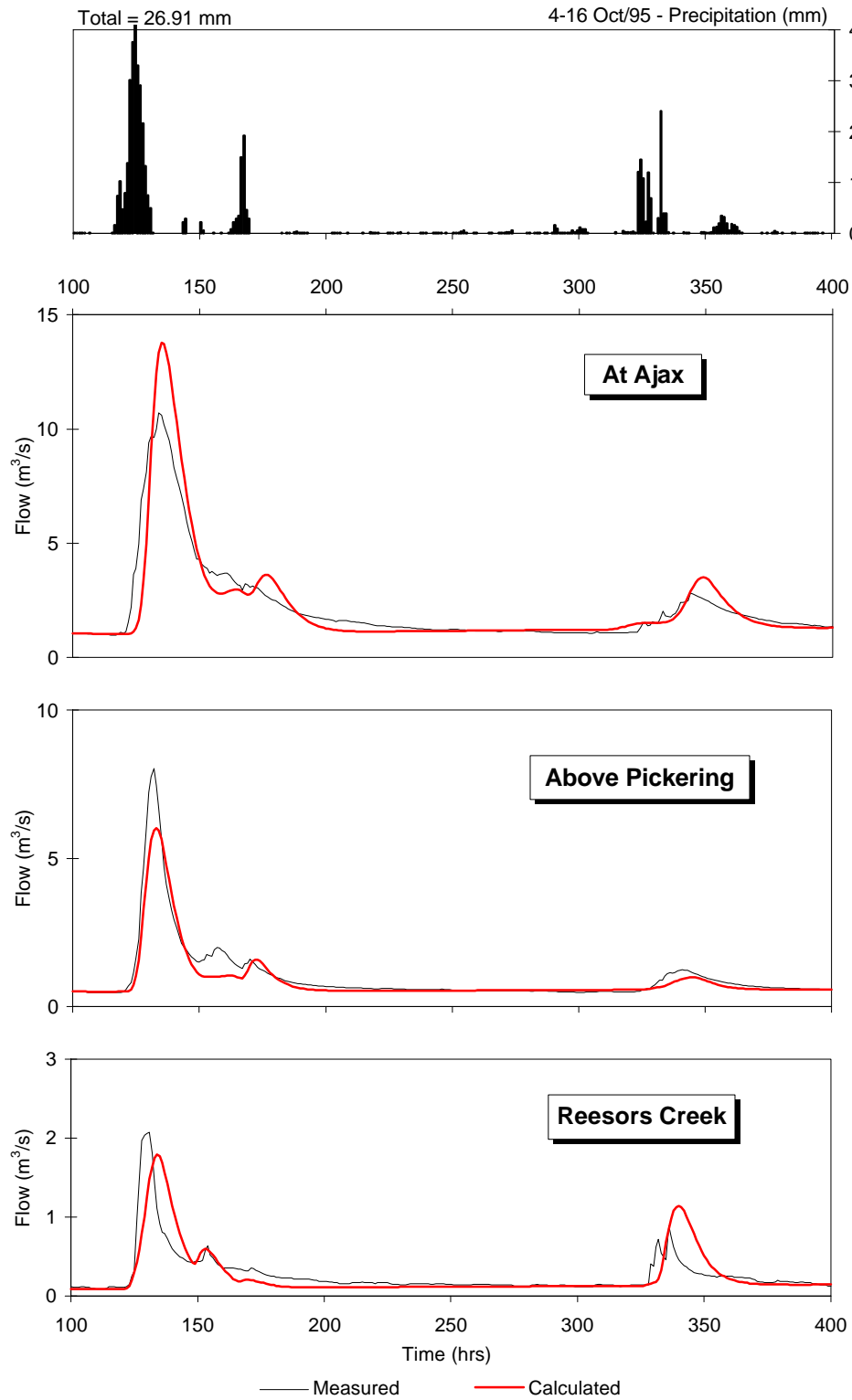


Figure E.14 WATFLOOD results for October 4-16, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 0.7)

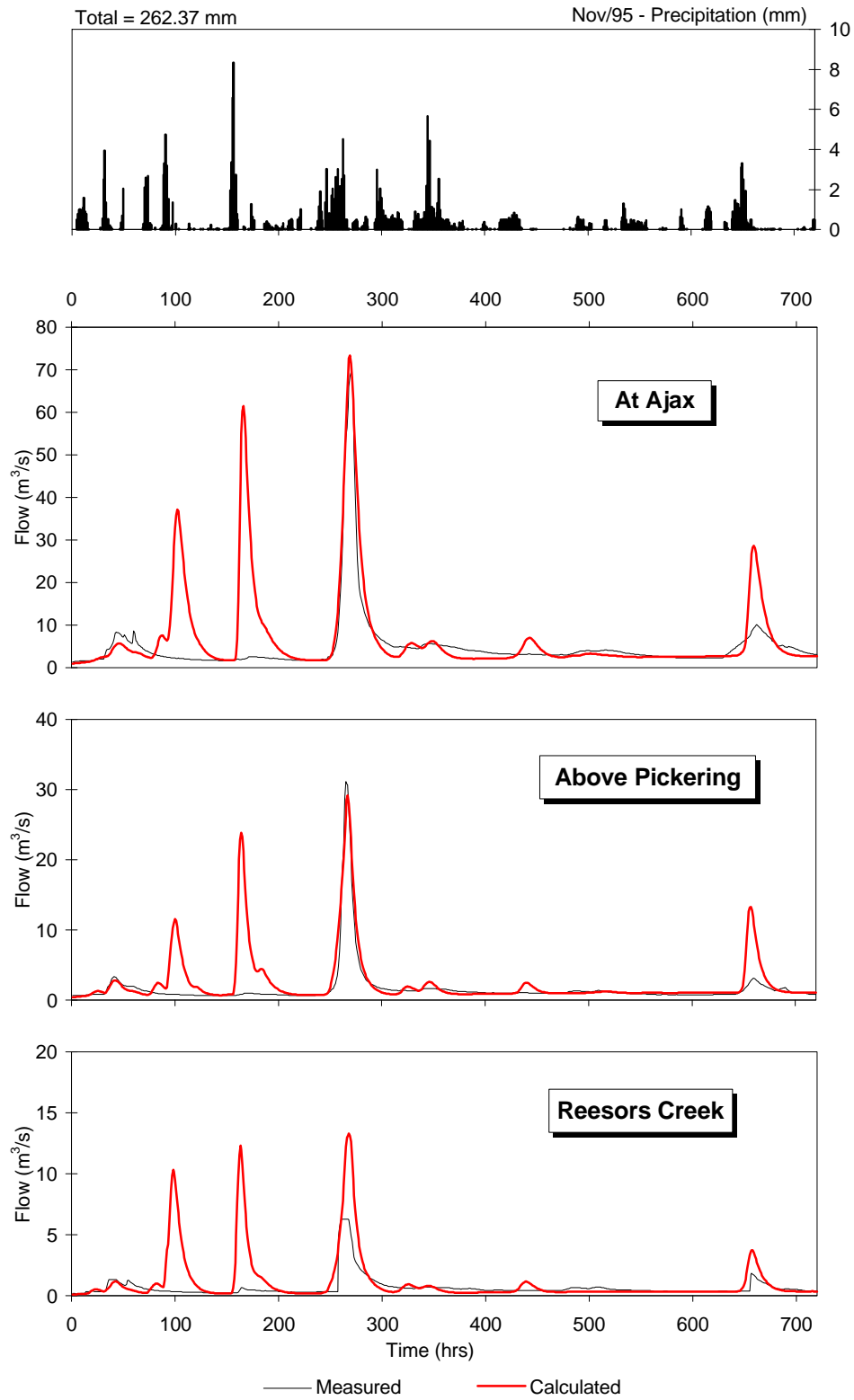


Figure E.15 WATFLOOD results for November, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 1.0)

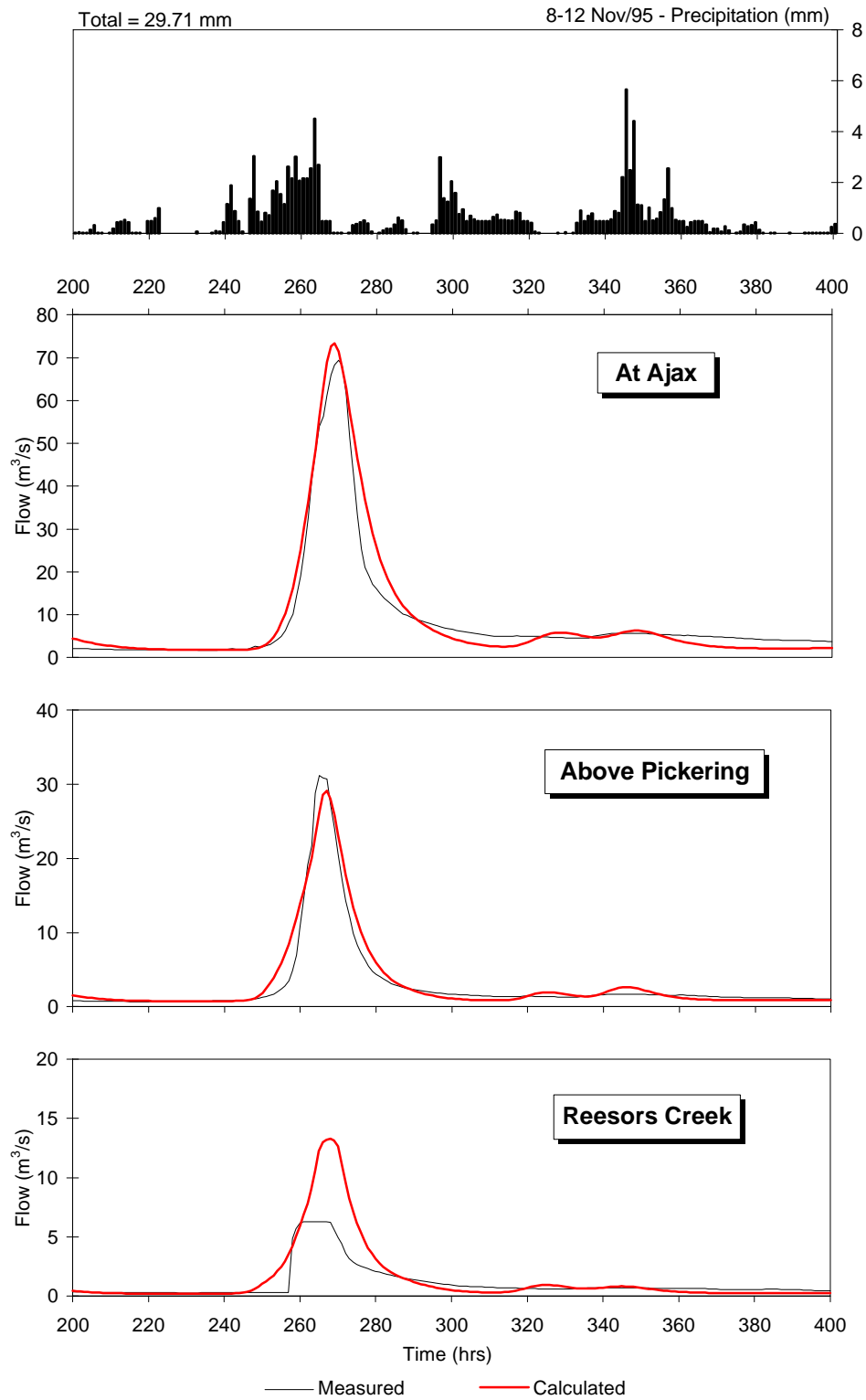


Figure E.16 WATFLOOD results for November 8-12, 1995
(2x2 Grid - Uncalibrated Radar Data - Radar Scale 1.0)

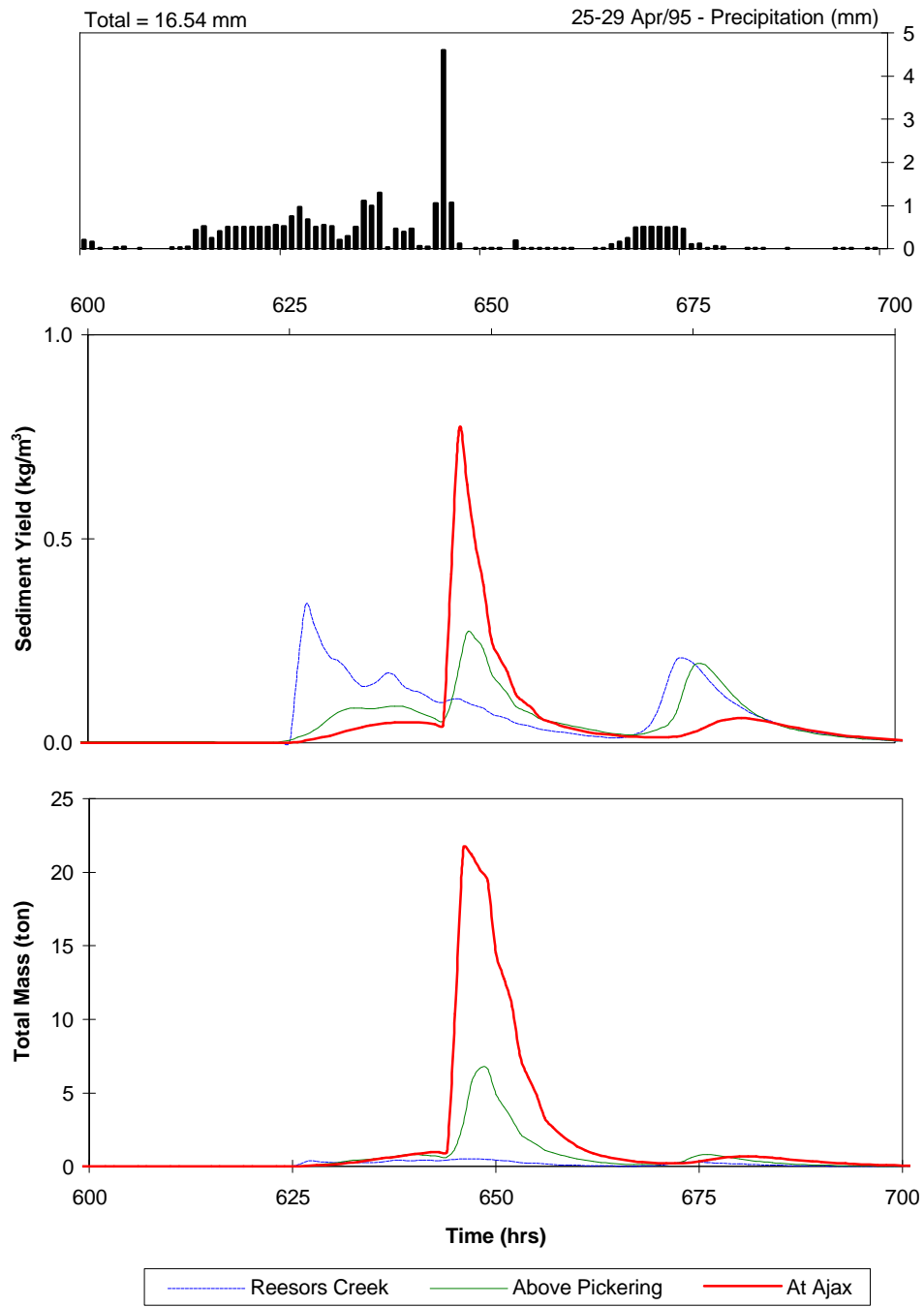


Figure E.17 WATFLOOD/Sediment results for April 25-29, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 15%)

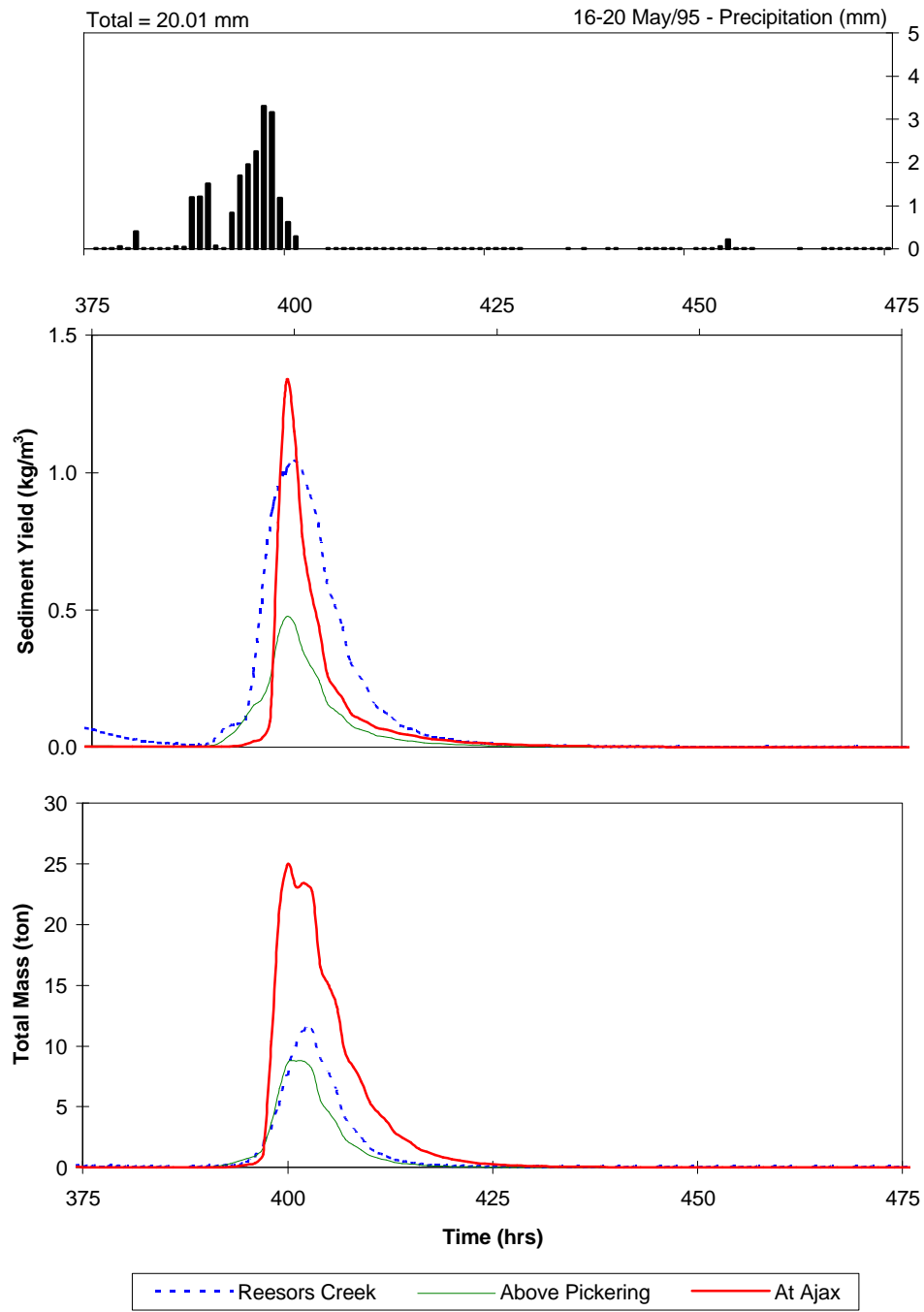


Figure E.18 WATFLOOD/Sediment results for May 16-20, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 15%)

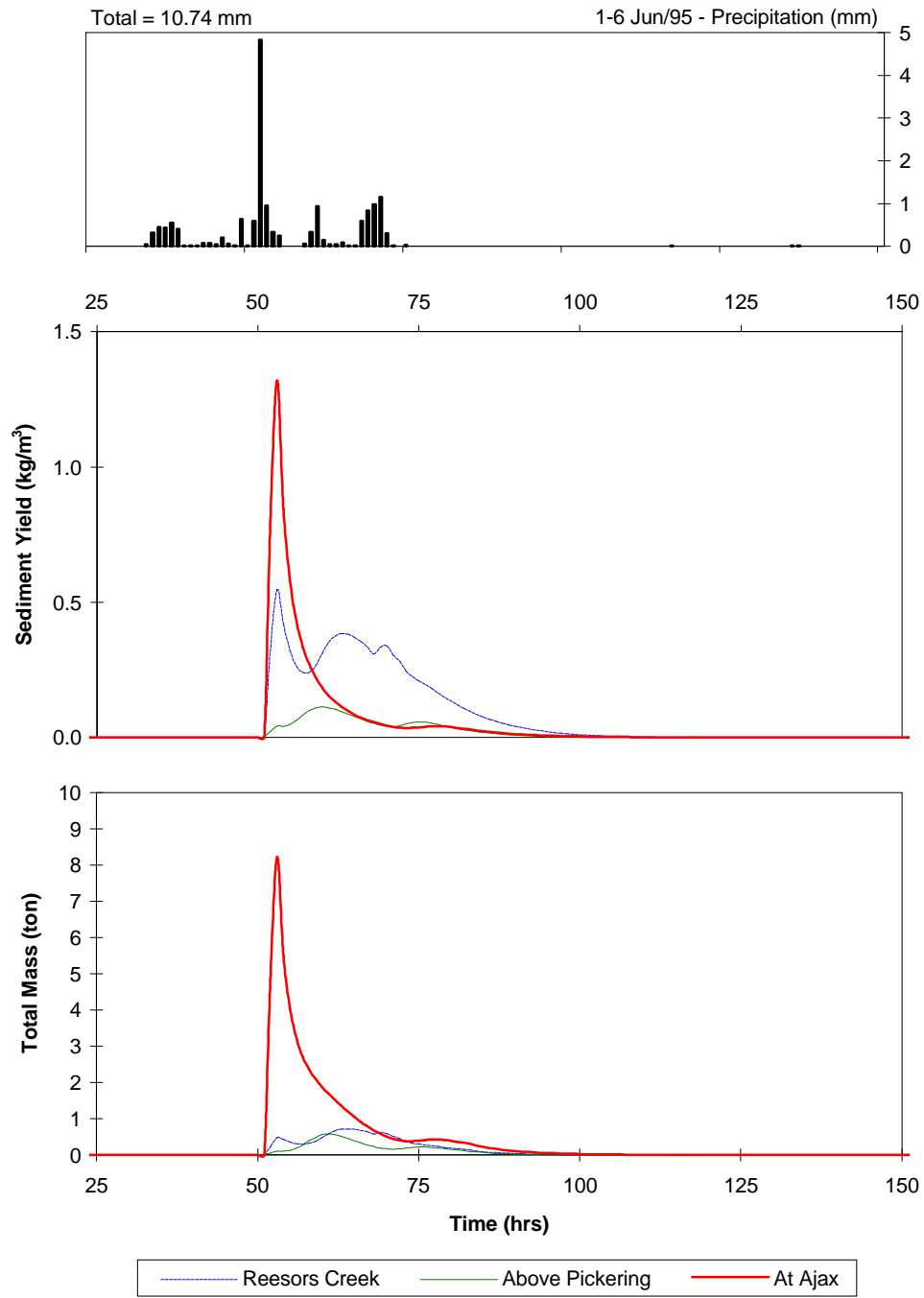


Figure E.19 WATFLOOD/Sediment results for June 1-6, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 15%)

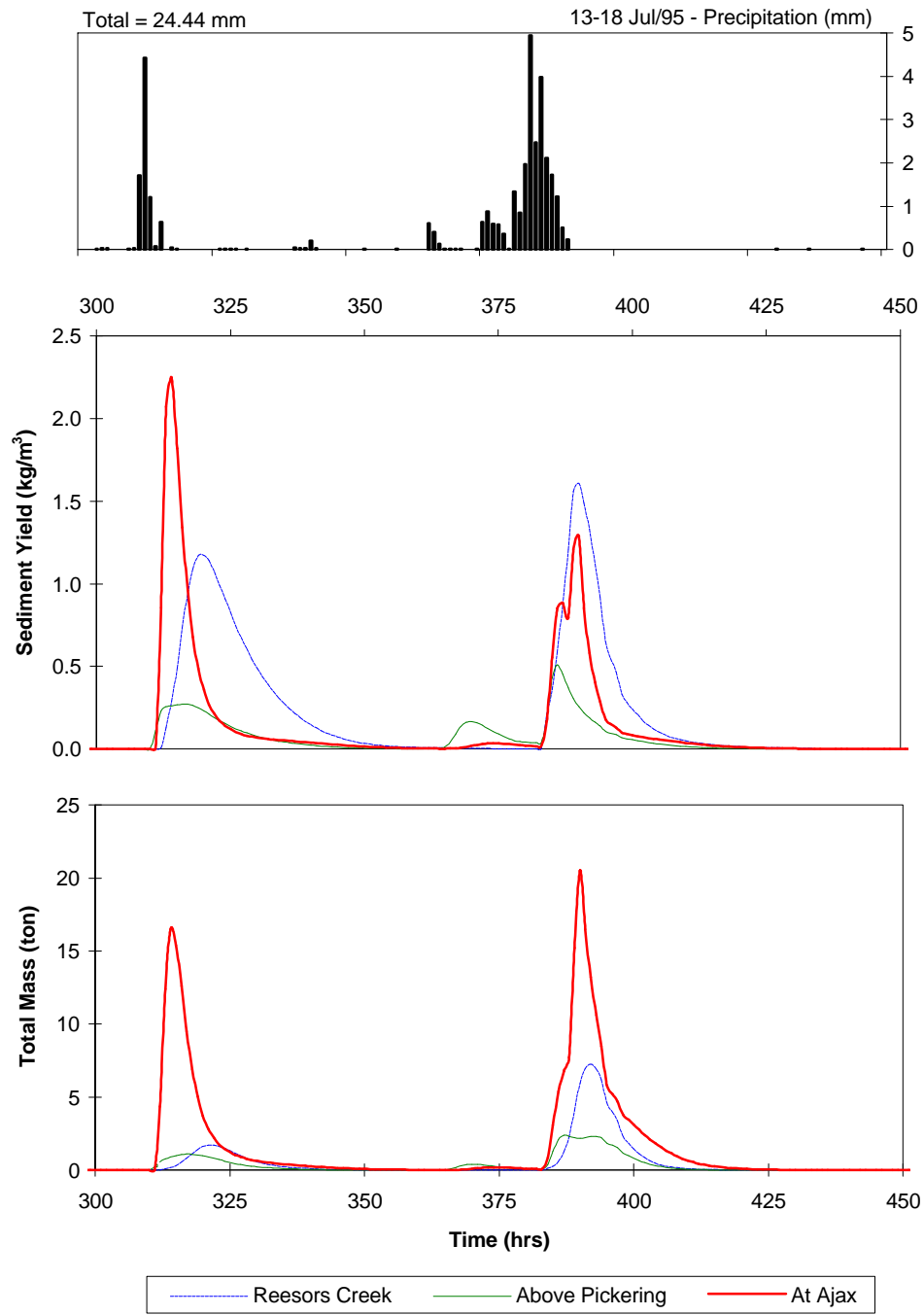


Figure E.20 WATFLOOD/Sediment results for July 13-18, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 20%)

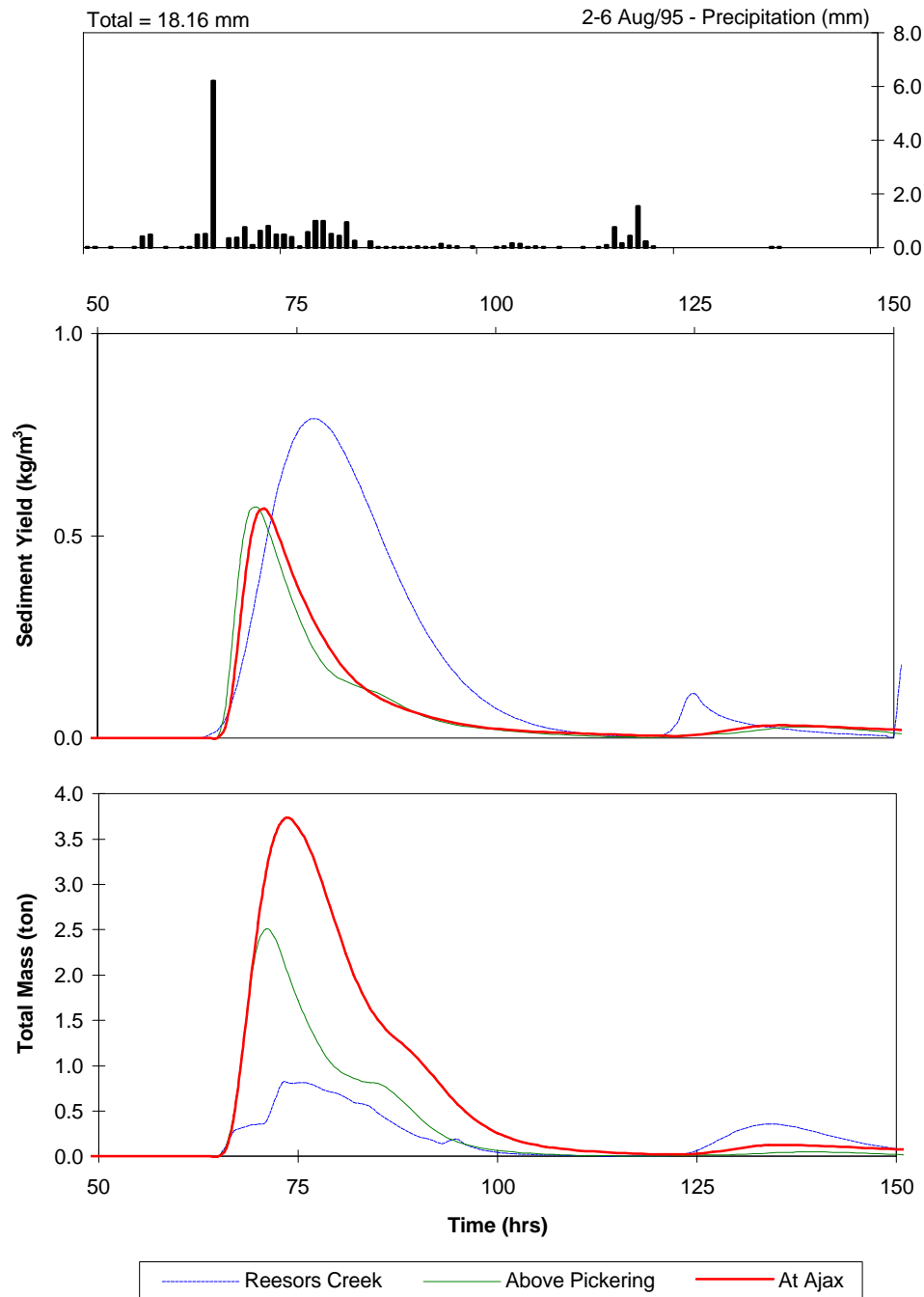


Figure E.21 WATFLOOD/Sediment results for August 2-6, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 15%)

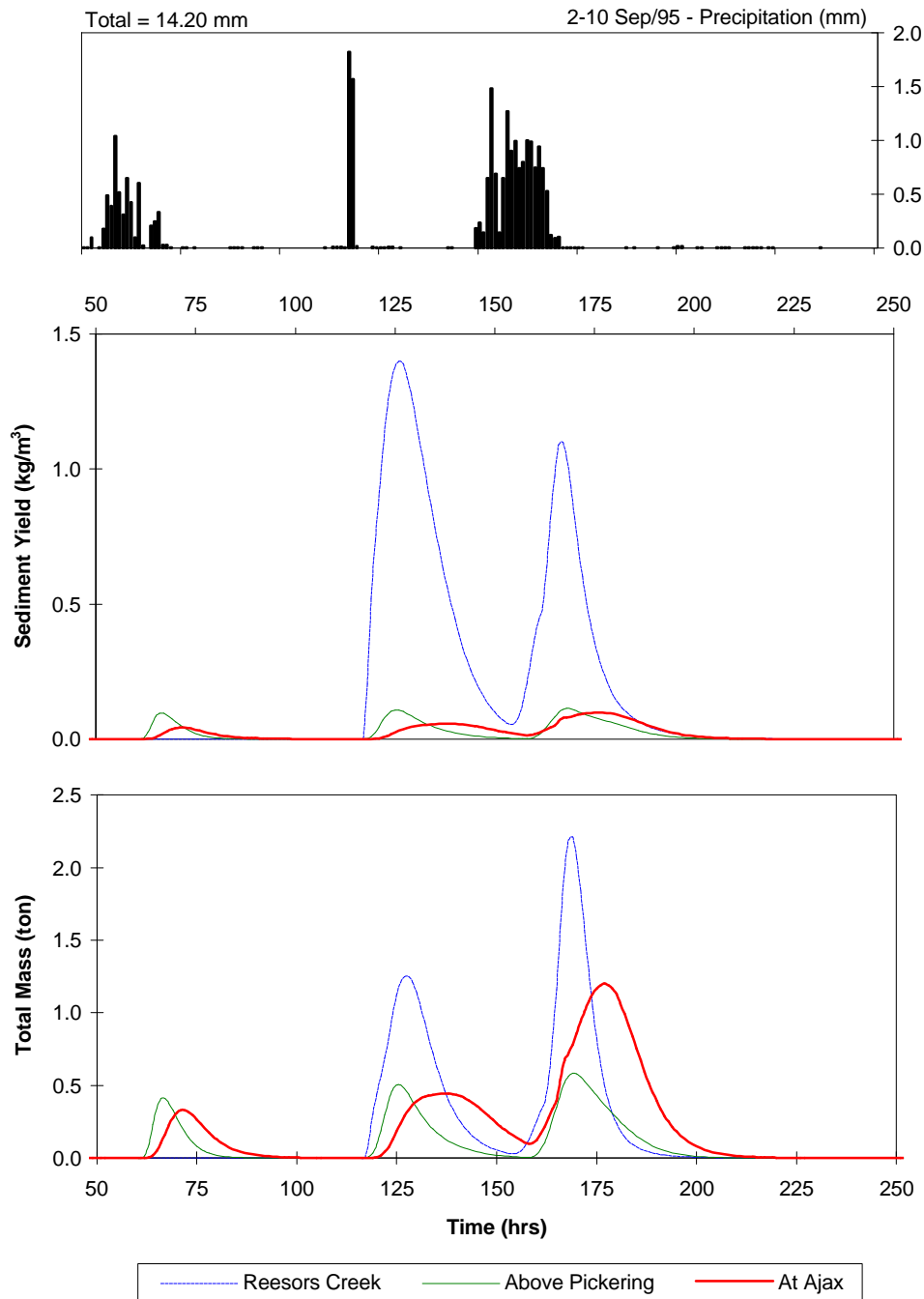


Figure E.22 WATFLOOD/Sediment results for September 2-10 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 15%)

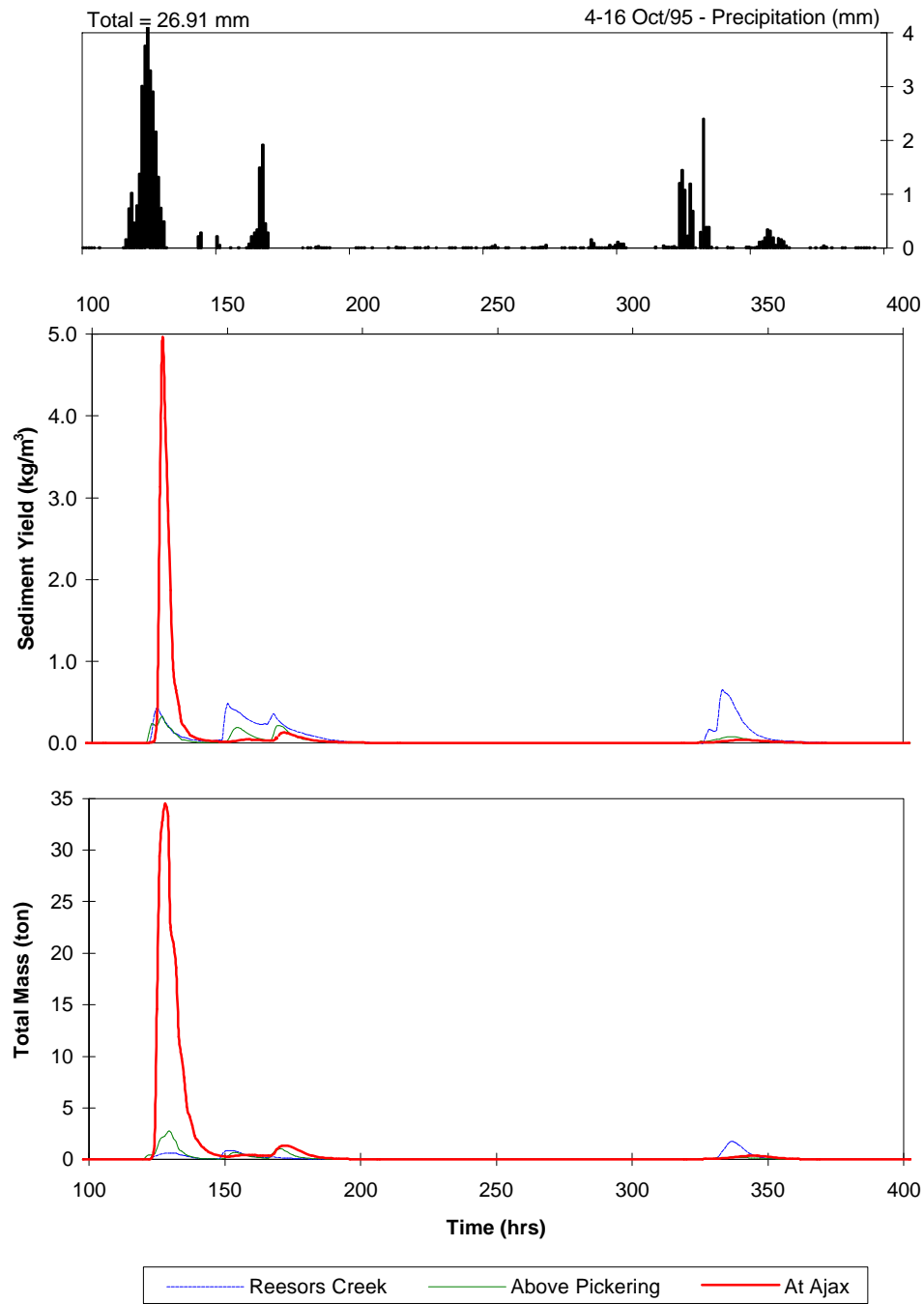


Figure E.23 WATFLOOD/Sediment results for October 4-16, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 20%)

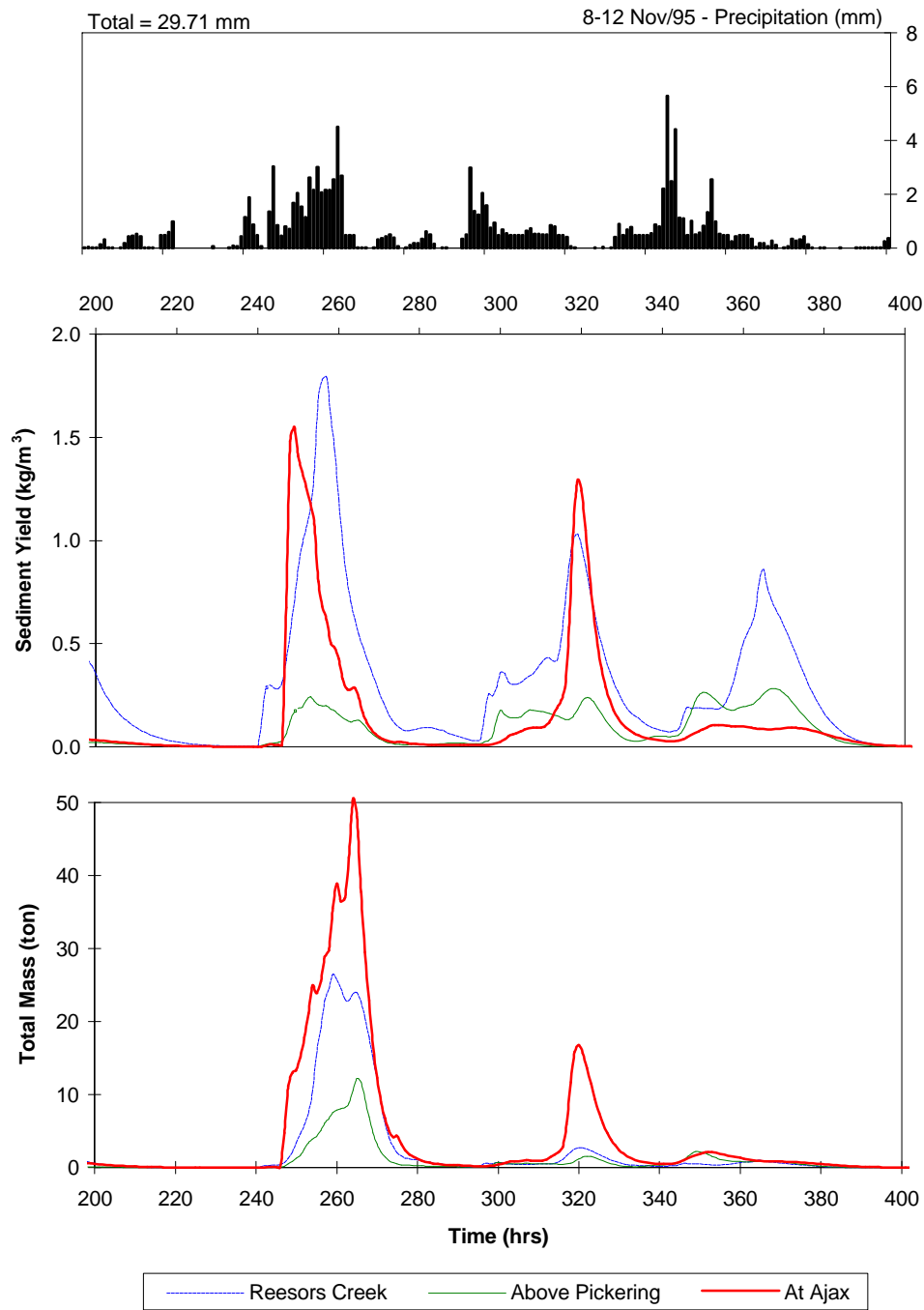


Figure E.24 WATFLOOD/Sediment results for November 8-12, 1995
(2x2 km Grid - Sediment Yield and Total Mass - Deposition Factor 20%)

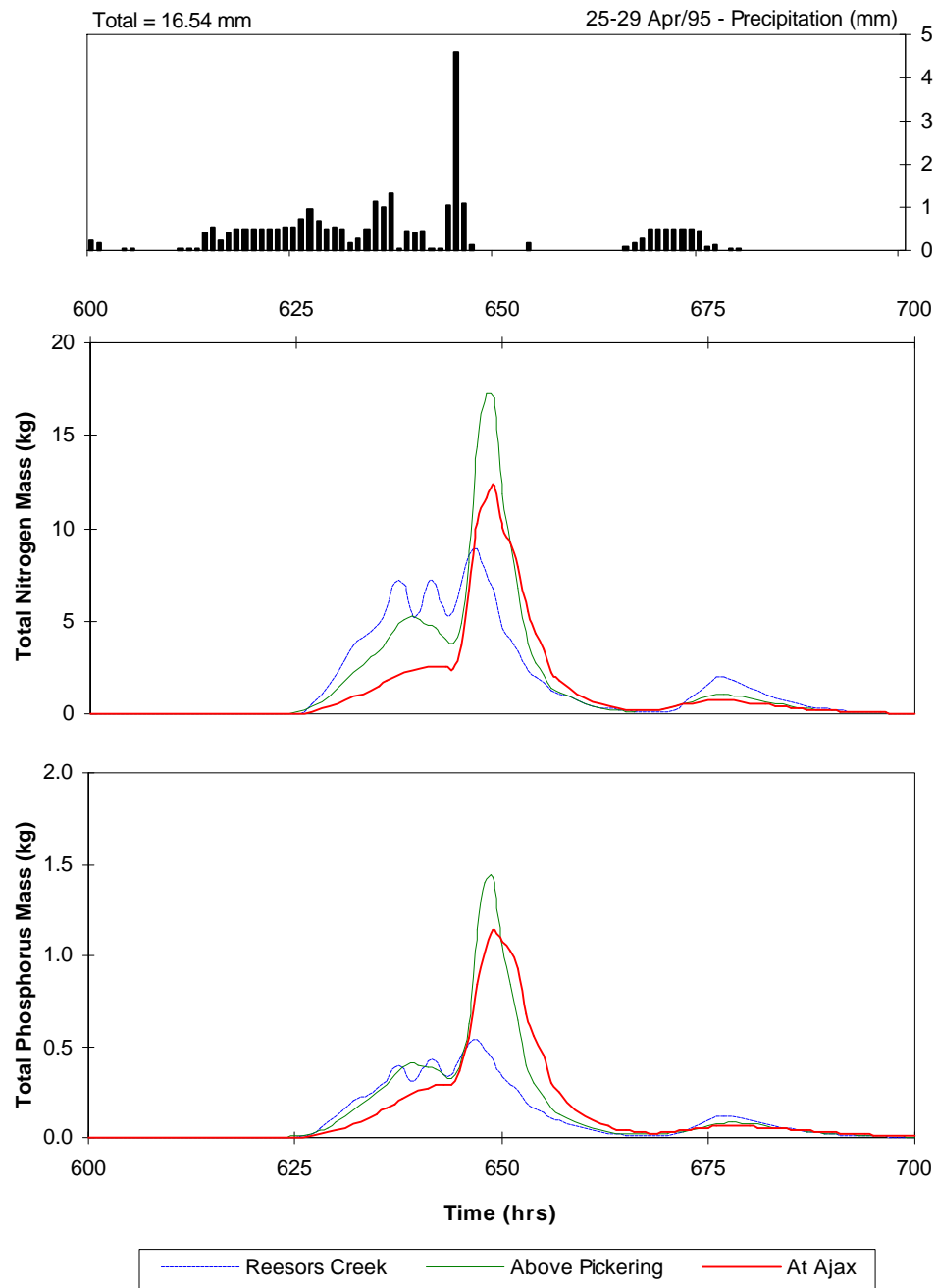


Figure E.25 WATFLOOD/Nutrients results for April 25-29, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 40-30%)

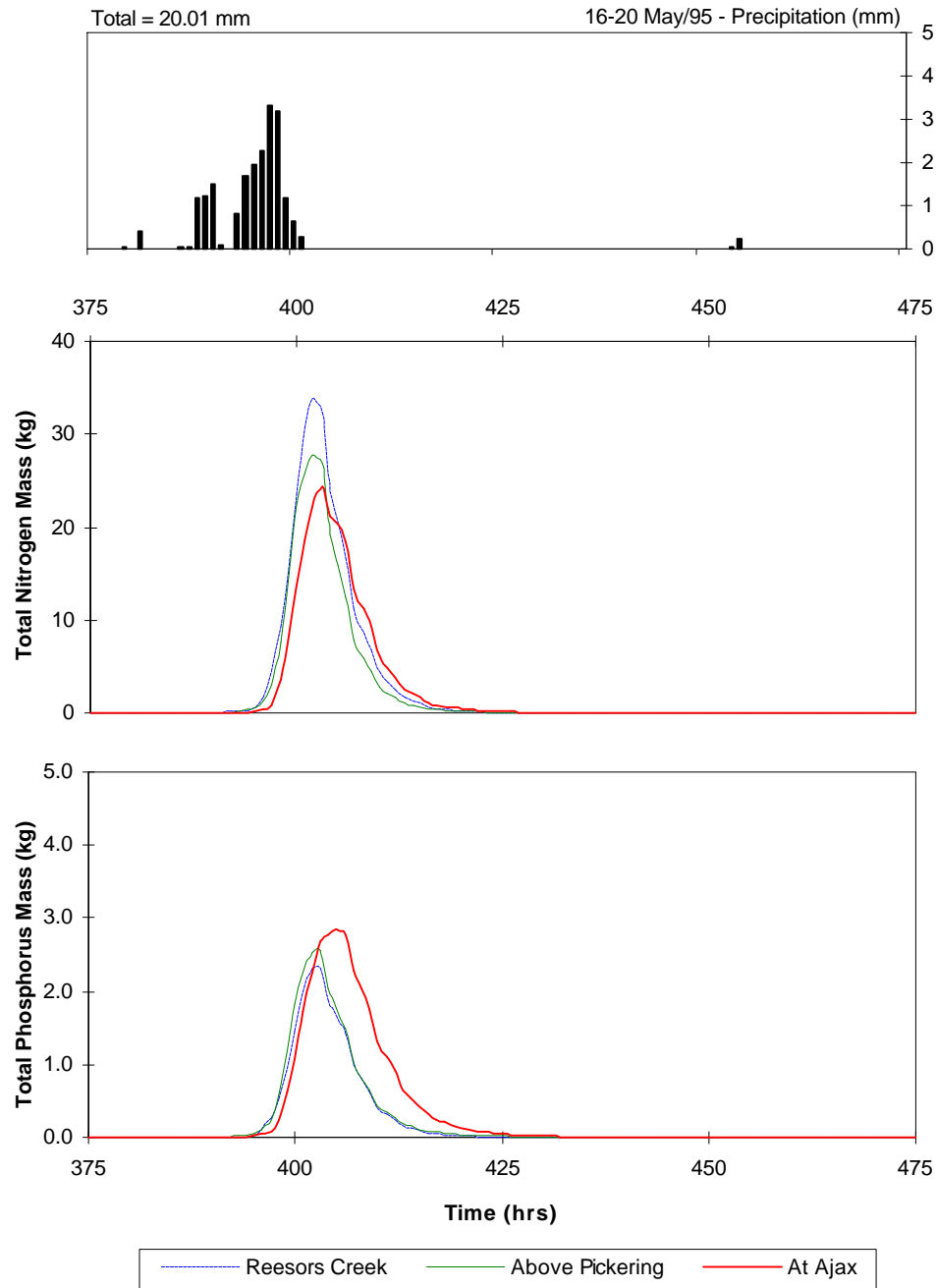


Figure E.26 WATFLOOD/Nutrients results for May 16-20, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 30-20%)

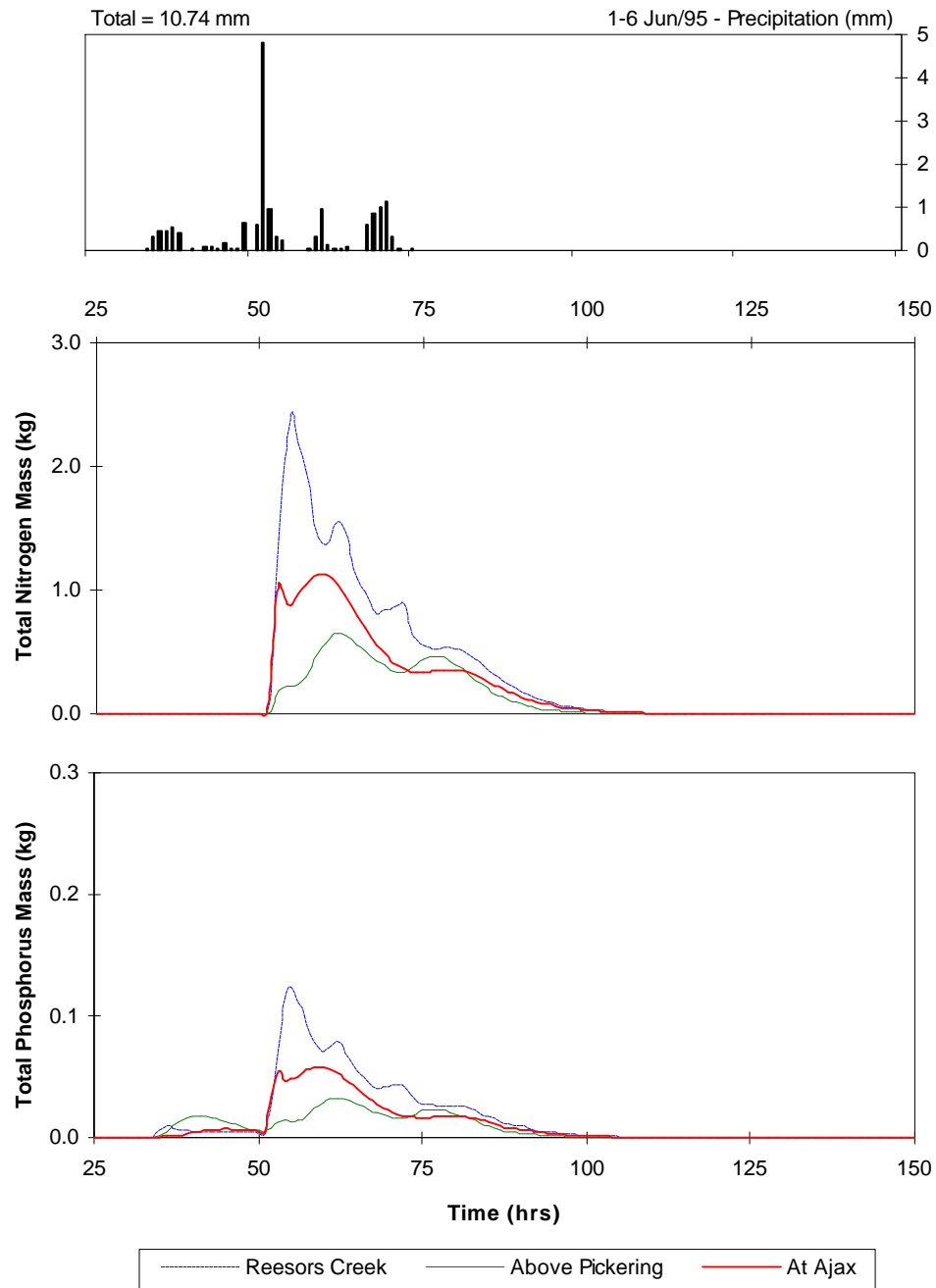


Figure E.27 WATFLOOD/Nutrients results for June 1-6, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 30-30%)

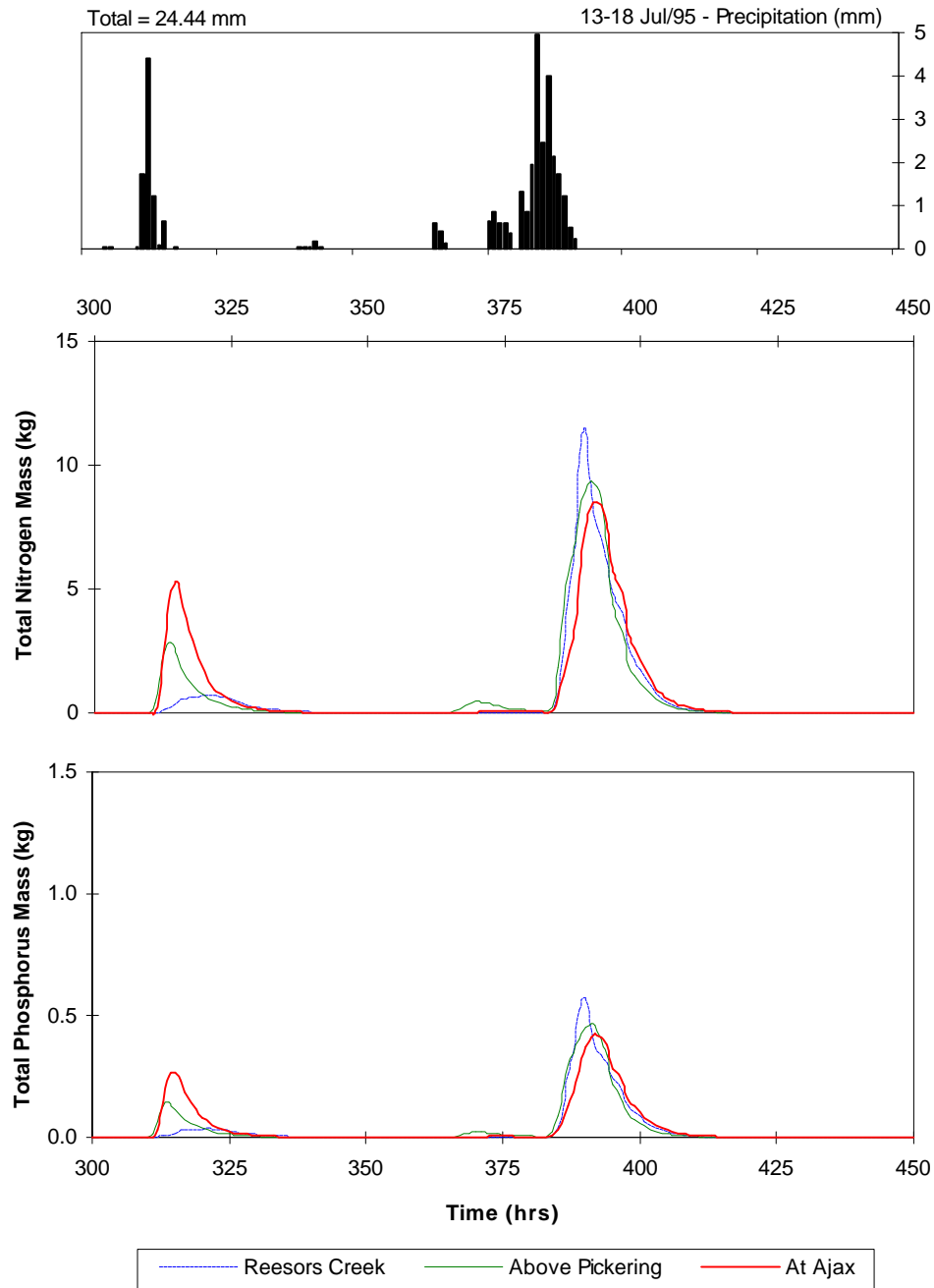


Figure E.28 WATFLOOD/Nutrients results for July 13-18, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 35-35%)

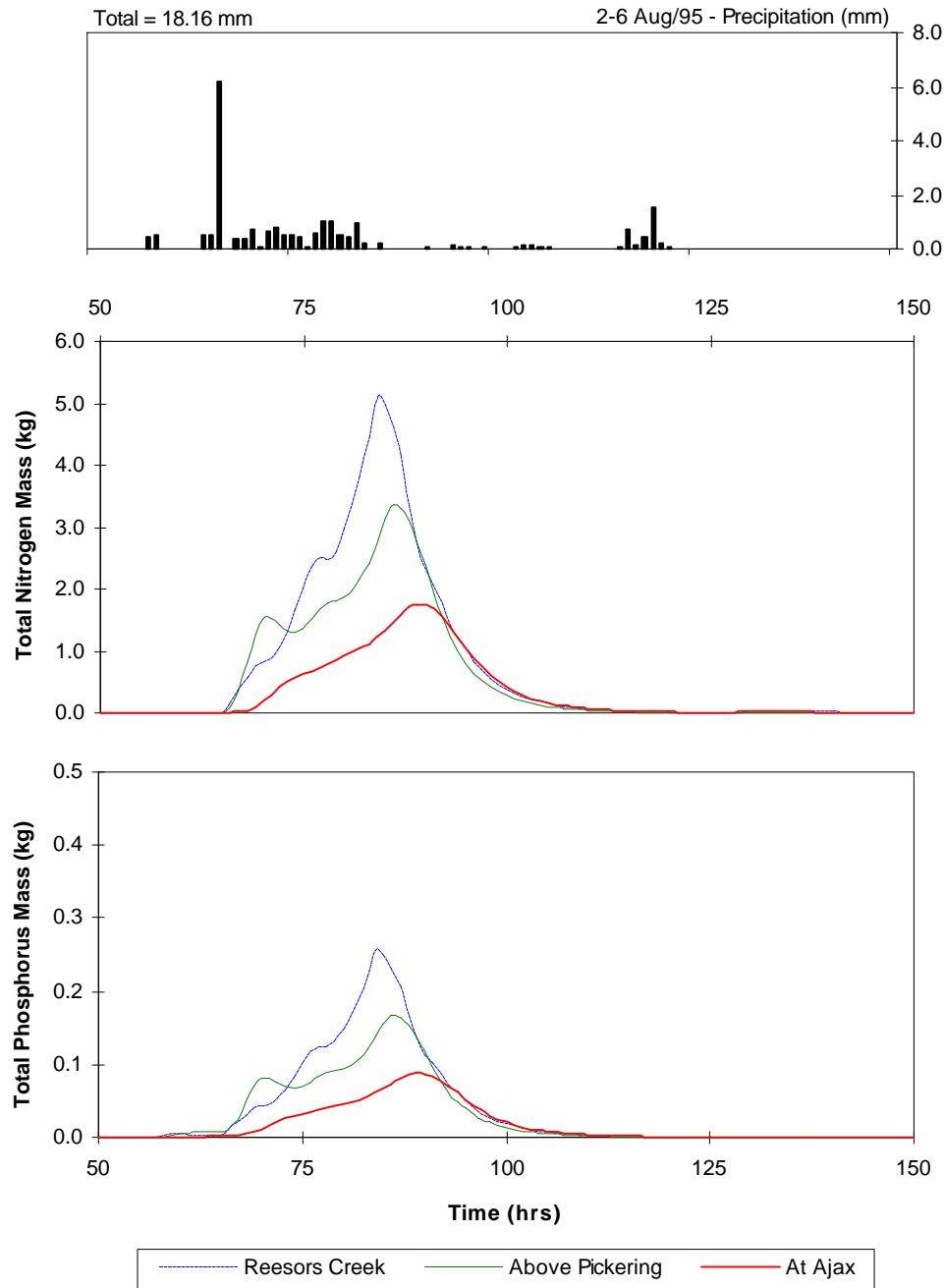


Figure E.29 WATFLOOD/Nutrients results for August 2-6, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 35-35%)

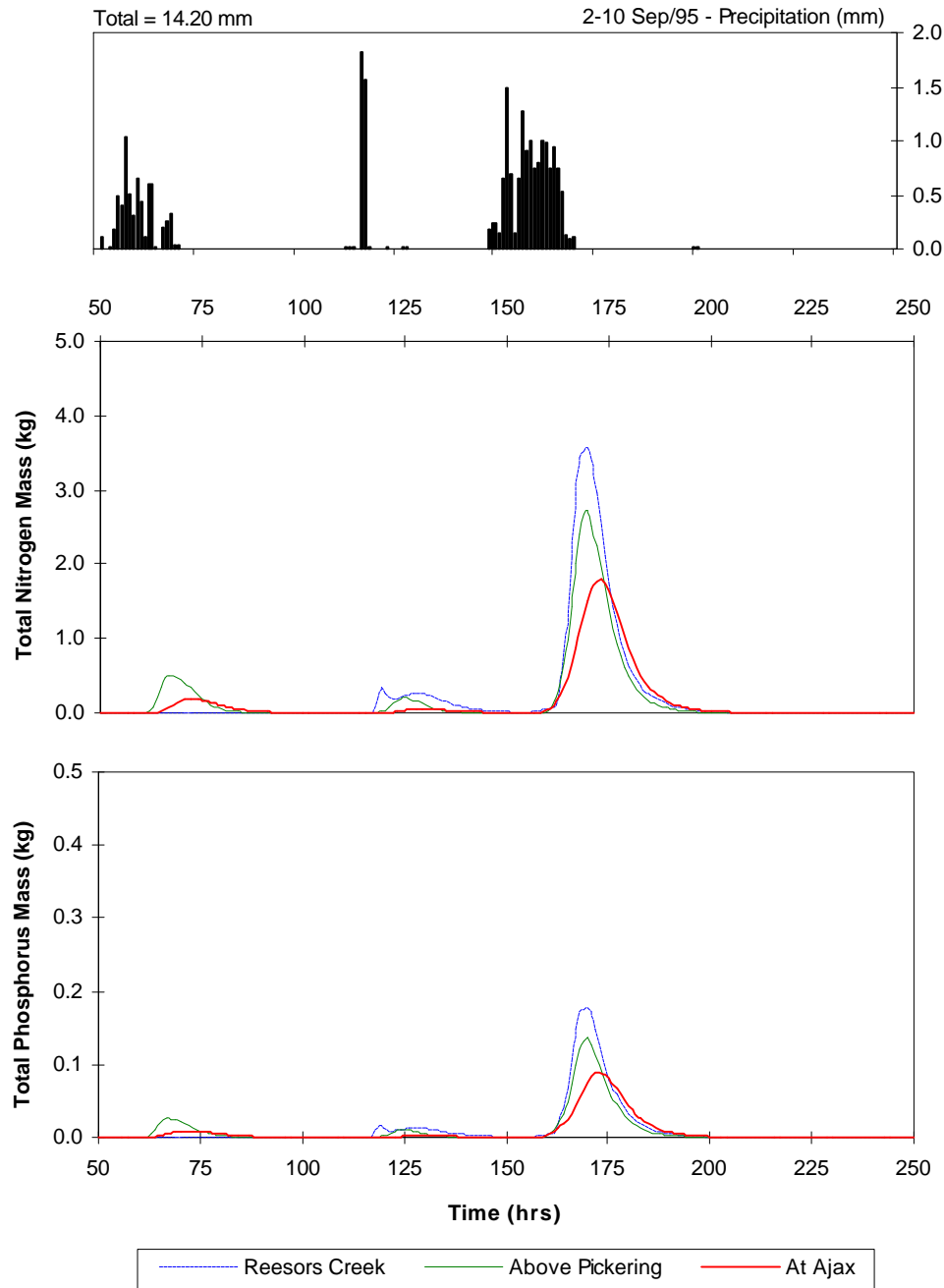


Figure E.30 WATFLOOD/Nutrients results for September 2-10, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 30-30%)

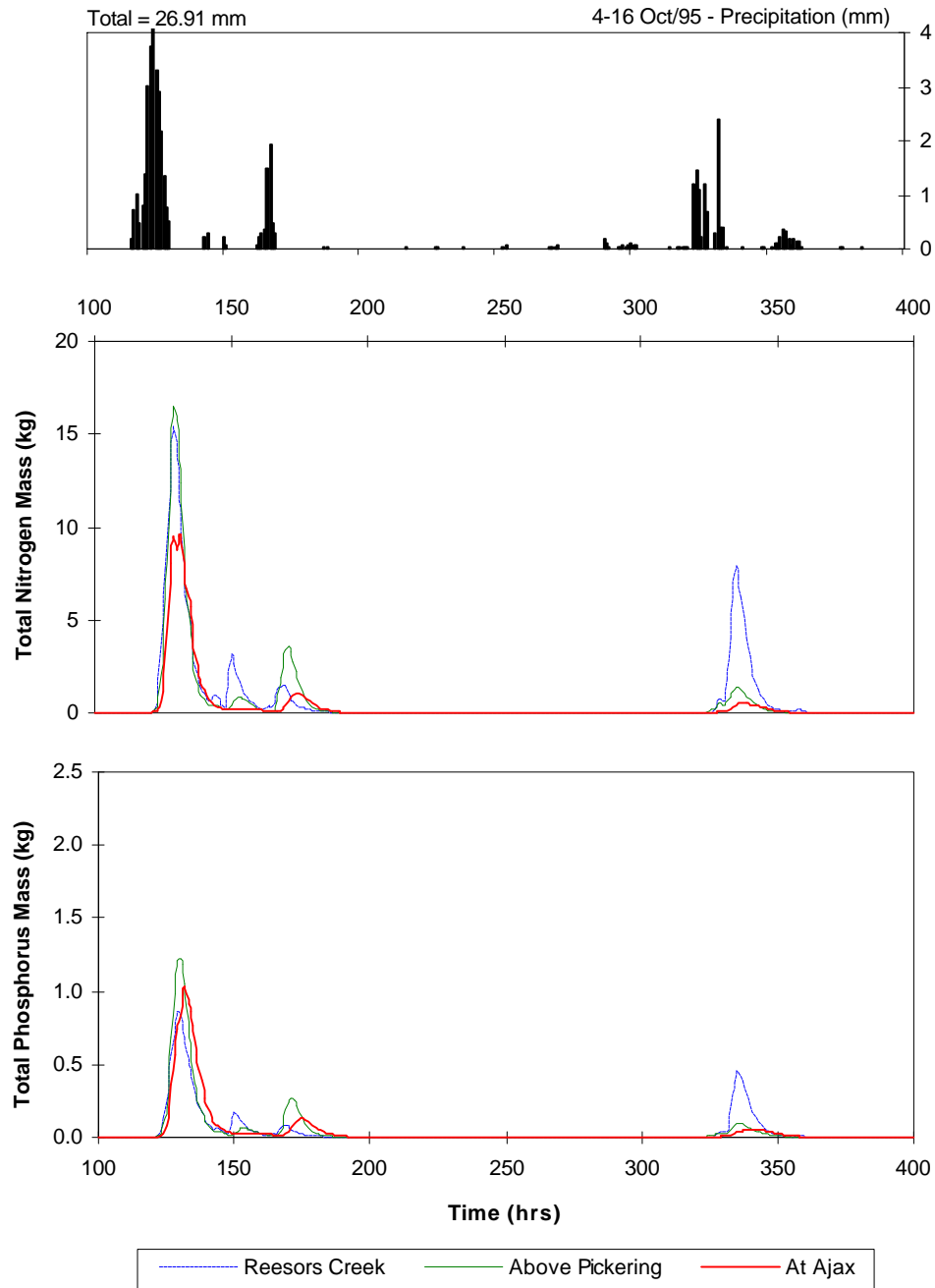


Figure E.31 WATFLOOD/Nutrients results for October 4-16, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 40-30%)

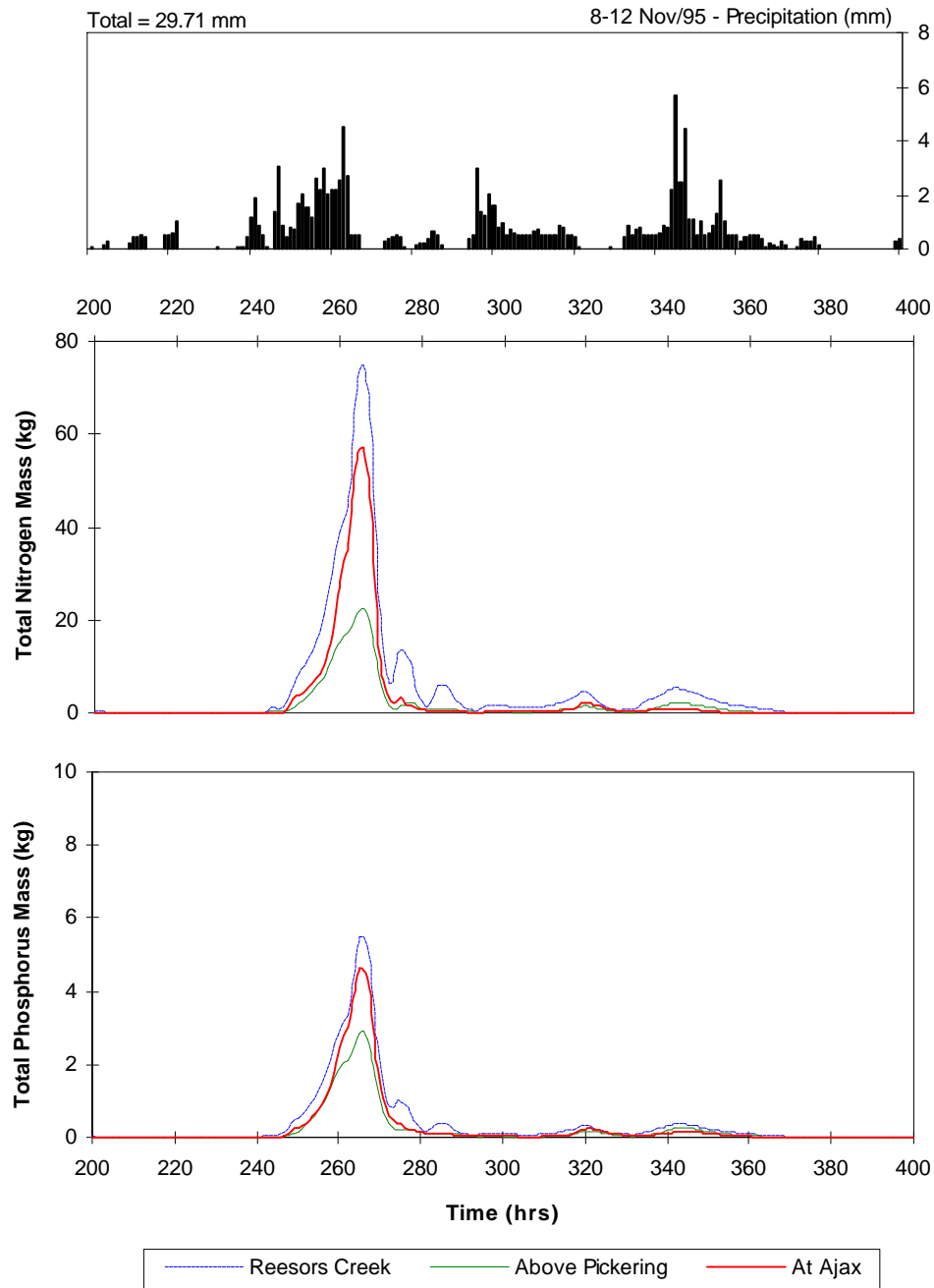


Figure E.32 WATFLOOD/Nutrients results for November 8-12, 1995
(2x2 km Grid - Nitrogen and Phosphorus Total Mass - Decay 60-40%)