

Appendix C:
Hydrology Calibration and Validation Results

Figure C-1. Daily calibration plots for USGS 03075500 (Subwatersheds 89/109)..... 2
Figure C-2. Daily calibration plots for USGS 03075500 (Subwatersheds 89/109)..... 3
Table C-1. Calibration summary for USGS 03075500 (Subwatersheds 89/109) 4
Figure C-3. Daily calibration plots for USGS 03076600 (Subwatershed 16)..... 5
Figure C-4. Monthly calibration plots for USGS 03076600 (Subwatershed 16)..... 6
Table C-2. Calibration summary for USGS 03076600 (Subwatershed 16) 7
Figure C-5. Daily validation plots for USGS 03076500 (Subwatershed 40)..... 8
Figure C-6. Monthly validation plots for USGS 03076500 (Subwatershed 40)..... 9
Table C-3. Validation summary for USGS 03076500 (Subwatershed 40)..... 10

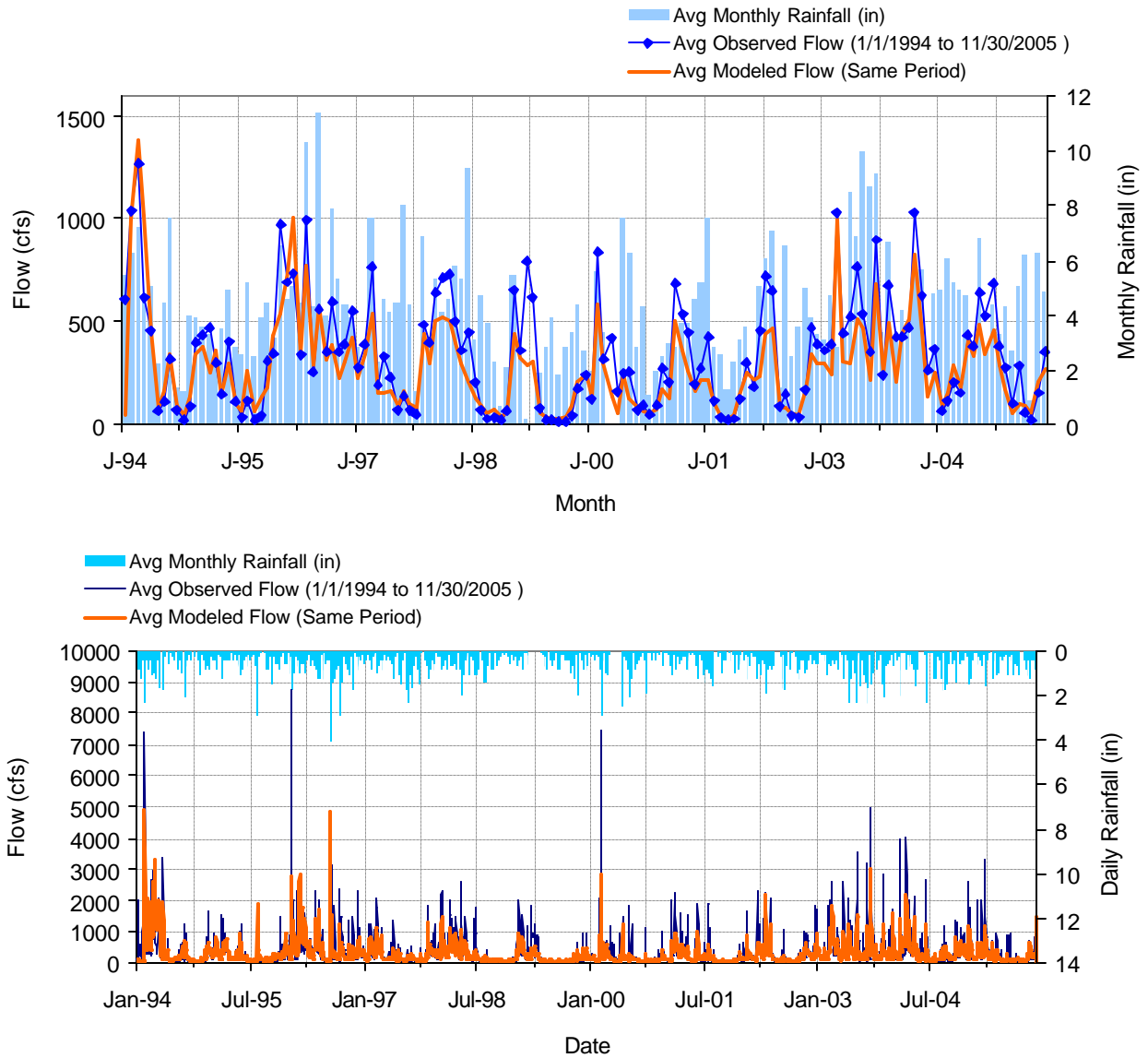


Figure C-1. Daily calibration plots for USGS 03075500 (Subwatersheds 89/109)

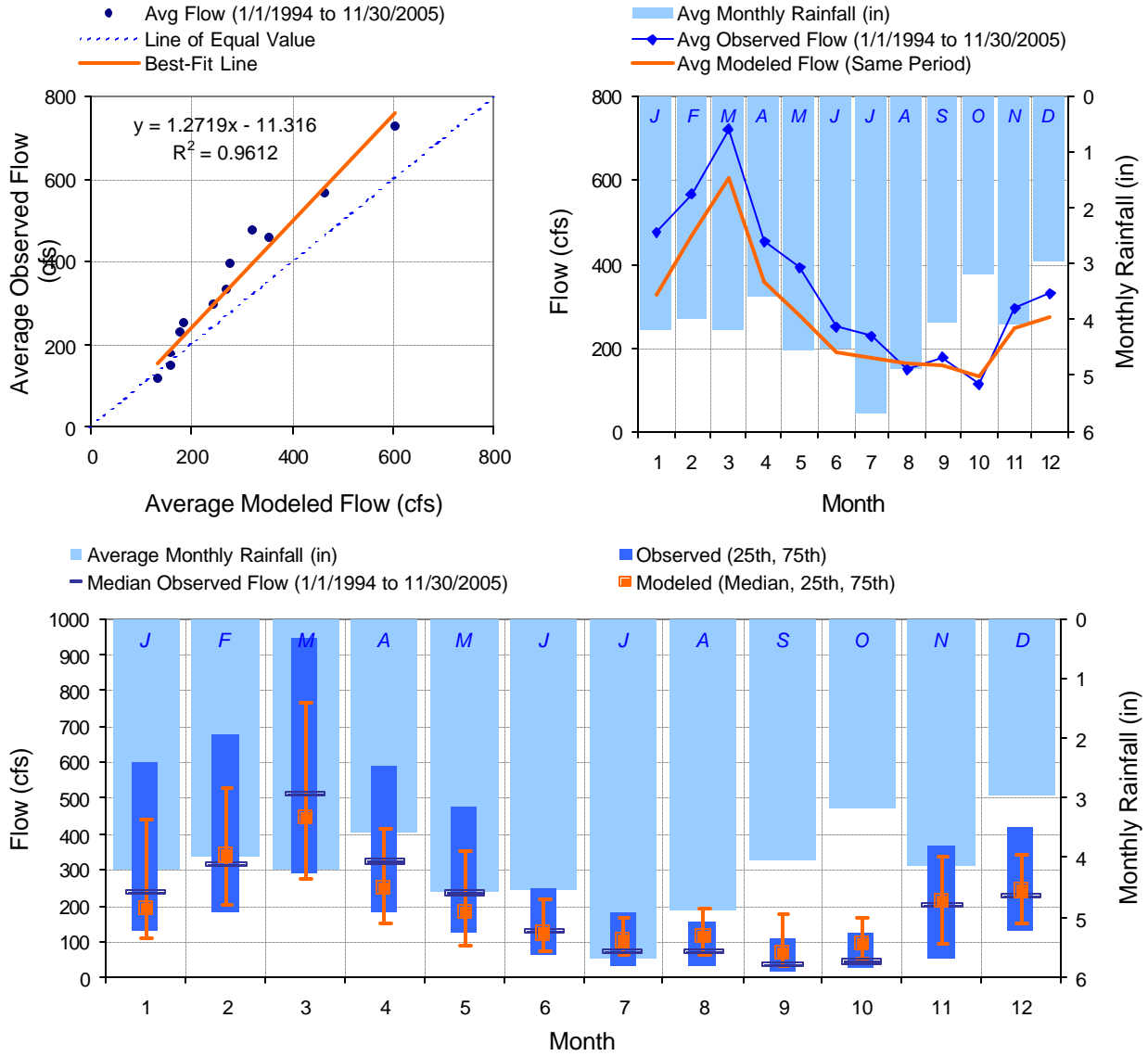


Figure C-2. Daily calibration plots for USGS 03075500 (Subwatersheds 89/109)

Table C-1. Calibration summary for USGS 03075500 (Subwatersheds 89/109)

MDAS Simulated Flow		Observed Flow Gage	
REACH OUTFLOW FROM SUBBASIN 109		USGS 03075500 YOUGHIOGHENY RIVER NEAR OAKLAND, MD	
11.92-Year Analysis Period: 1/1/1994 - 11/30/2005 Flow volumes are normalized, with total observed as 100		Garrett County, Maryland Hydrologic Unit Code 05020006 Latitude 39°25'17.68", Longitude 79°25'25.07" NAD83 Drainage area 134.00 square miles	
Total Simulated In-stream Flow:	81.18	Total Observed In-stream Flow:	100.00
Total of simulated highest 10% flows:	30.47	Total of Observed highest 10% flows:	43.09
Total of Simulated lowest 50% flows:	12.86	Total of Observed Lowest 50% flows:	10.89
Simulated Summer Flow Volume (months 7-9):	12.30	Observed Summer Flow Volume (7-9):	13.58
Simulated Fall Flow Volume (months 10-12):	15.31	Observed Fall Flow Volume (10-12):	17.36
Simulated Winter Flow Volume (months 1-3):	33.62	Observed Winter Flow Volume (1-3):	42.44
Simulated Spring Flow Volume (months 4-6):	19.95	Observed Spring Flow Volume (4-6):	26.63
Total Simulated Storm Volume:	9.34	Total Observed Storm Volume:	19.98
Simulated Summer Storm Volume (7-9):	1.81	Observed Summer Storm Volume (7-9):	3.74
<i>Errors (Simulated-Observed)</i>	<i>Error Statistics</i>	<i>Recommended Criteria</i>	
Error in total volume:	-23.18	10	
Error in 50% lowest flows:	15.37	10	
Error in 10% highest flows:	-41.41	15	
Seasonal volume error - Summer:	-10.41	30	
Seasonal volume error - Fall:	-13.33	30	
Seasonal volume error - Winter:	-26.21	30	
Seasonal volume error - Spring:	-33.51	30	
Error in storm volumes:	-114.00	20	
Error in summer storm volumes:	-106.15	50	

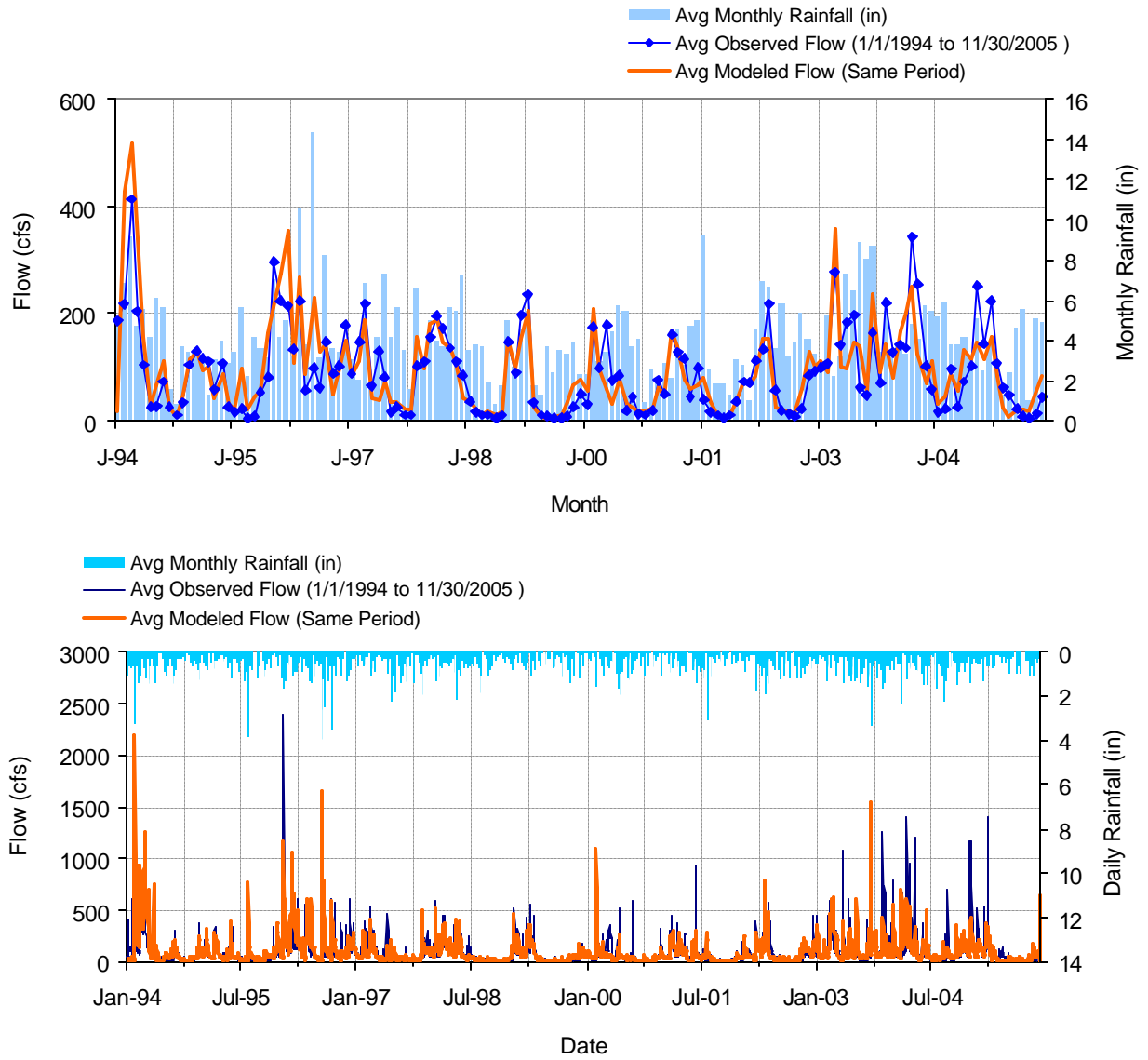


Figure C-3. Daily calibration plots for USGS 03076600 (Subwatershed 16)

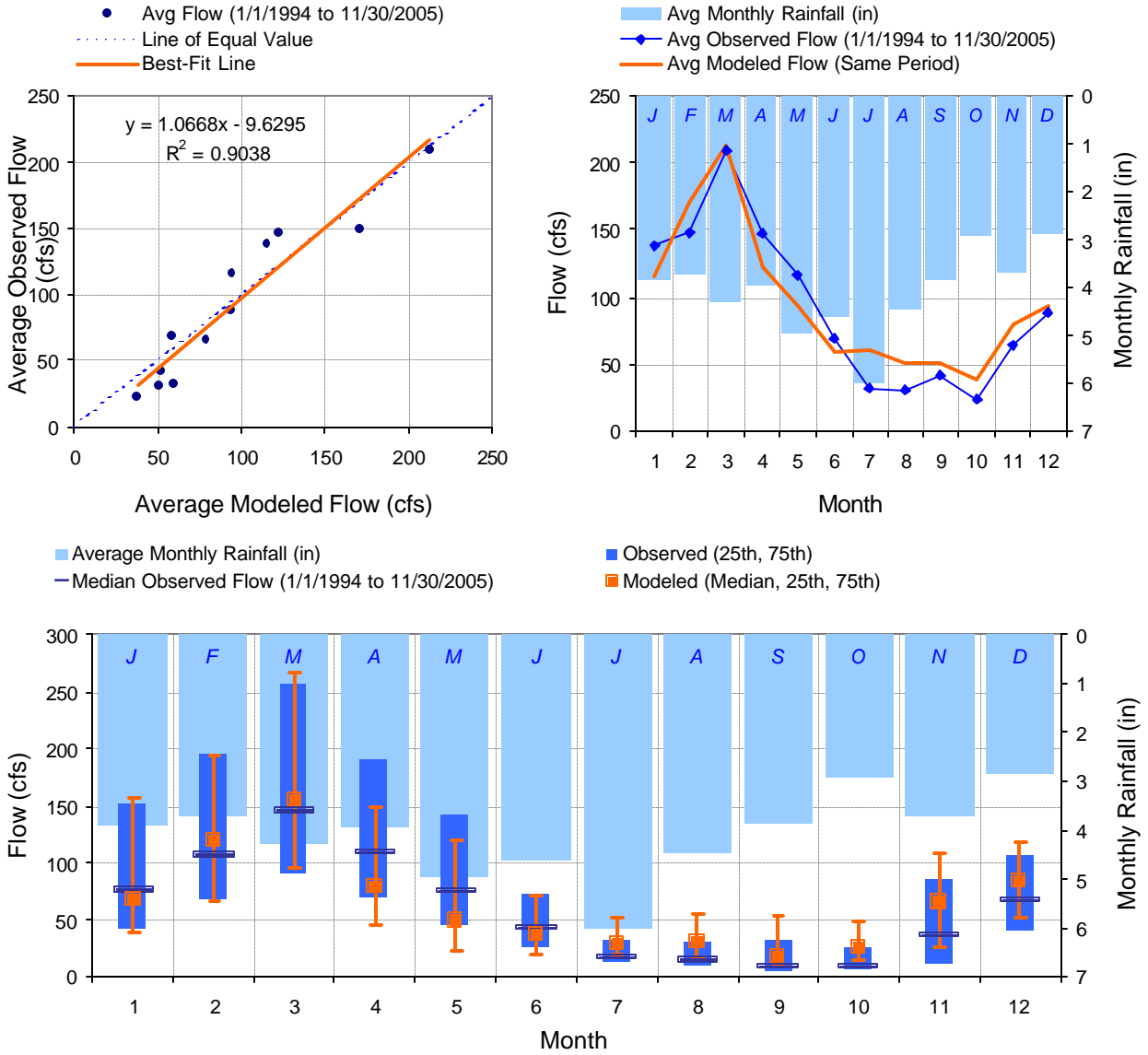


Figure C-4. Monthly calibration plots for USGS 03076600 (Subwatershed 16)

Table C-2. Calibration summary for USGS 03076600 (Subwatershed 16)

MDAS Simulated Flow		Observed Flow Gage	
REACH OUTFLOW FROM SUBBASIN 16		USGS 03076600 BEAR CREEK AT FRIENDSVILLE, MD	
11.92-Year Analysis Period: 1/1/1994 - 11/30/2005 Flow volumes are normalized, with total observed as 100		Garrett County, Maryland Hydrologic Unit Code 05020006 Latitude 39°39'22.1", Longitude 79°23'38.8" NAD83 Drainage area 48.90 square miles	
Total Simulated In-stream Flow:	103.42	Total Observed In-stream Flow:	100.00
Total of simulated highest 10% flows:	41.57	Total of Observed highest 10% flows:	42.28
Total of Simulated lowest 50% flows:	14.02	Total of Observed Lowest 50% flows:	11.58
Simulated Summer Flow Volume (months 7-9):	14.94	Observed Summer Flow Volume (7-9):	9.57
Simulated Fall Flow Volume (months 10-12):	18.61	Observed Fall Flow Volume (10-12):	15.53
Simulated Winter Flow Volume (months 1-3):	44.88	Observed Winter Flow Volume (1-3):	44.73
Simulated Spring Flow Volume (months 4-6):	24.99	Observed Spring Flow Volume (4-6):	30.17
Total Simulated Storm Volume:	12.64	Total Observed Storm Volume:	15.74
Simulated Summer Storm Volume (7-9):	2.39	Observed Summer Storm Volume (7-9):	2.18
<i>Errors (Simulated-Observed)</i>	<i>Error Statistics</i>	<i>Recommended Criteria</i>	
Error in total volume:	3.31	10	
Error in 50% lowest flows:	17.41	10	
Error in 10% highest flows:	-1.71	15	
Seasonal volume error - Summer:	35.95	30	
Seasonal volume error - Fall:	16.58	30	
Seasonal volume error - Winter:	0.32	30	
Seasonal volume error - Spring:	-20.73	30	
Error in storm volumes:	-24.52	20	
Error in summer storm volumes:	8.80	50	

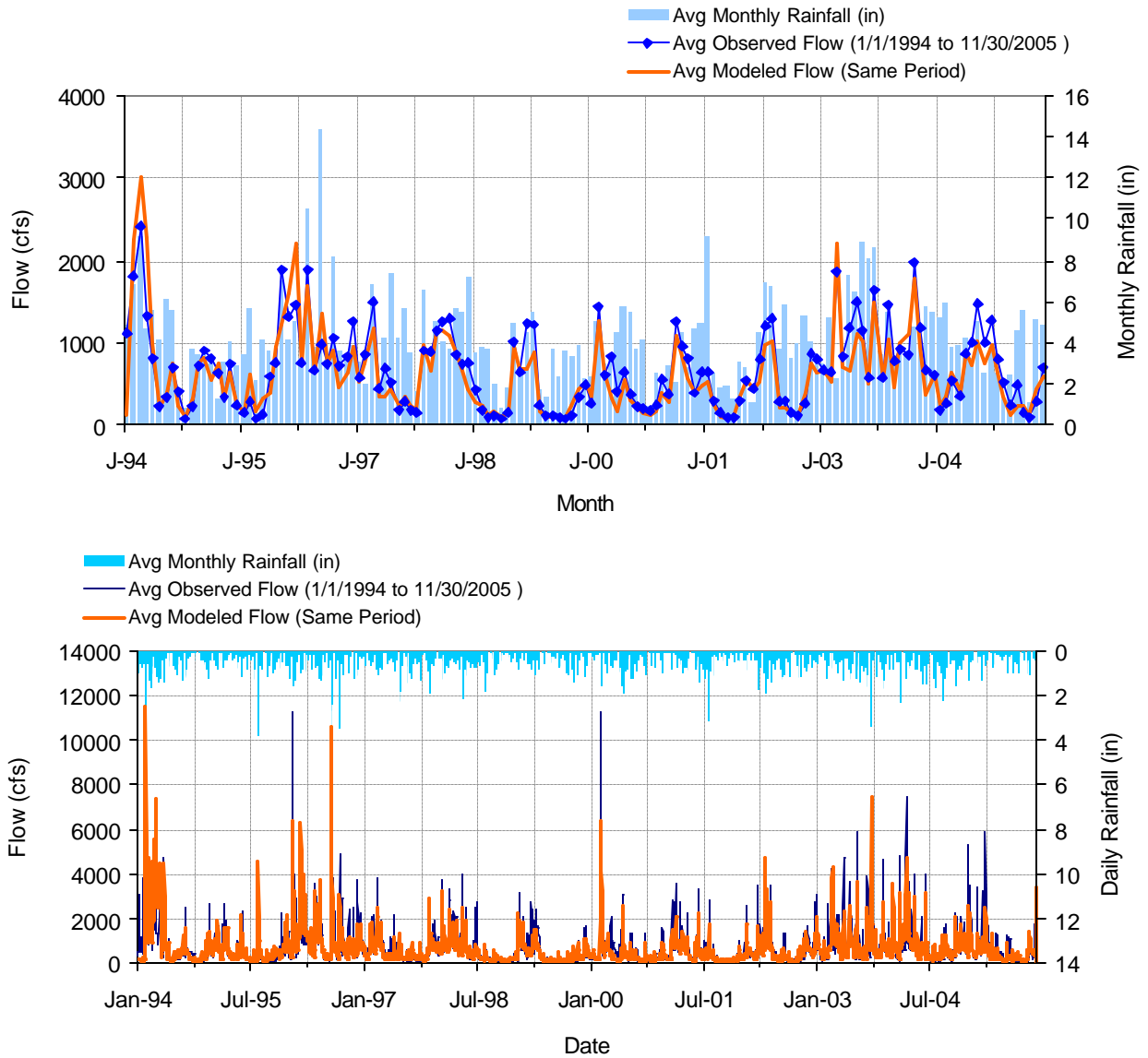


Figure C-5. Daily validation plots for USGS 03076500 (Subwatershed 40)

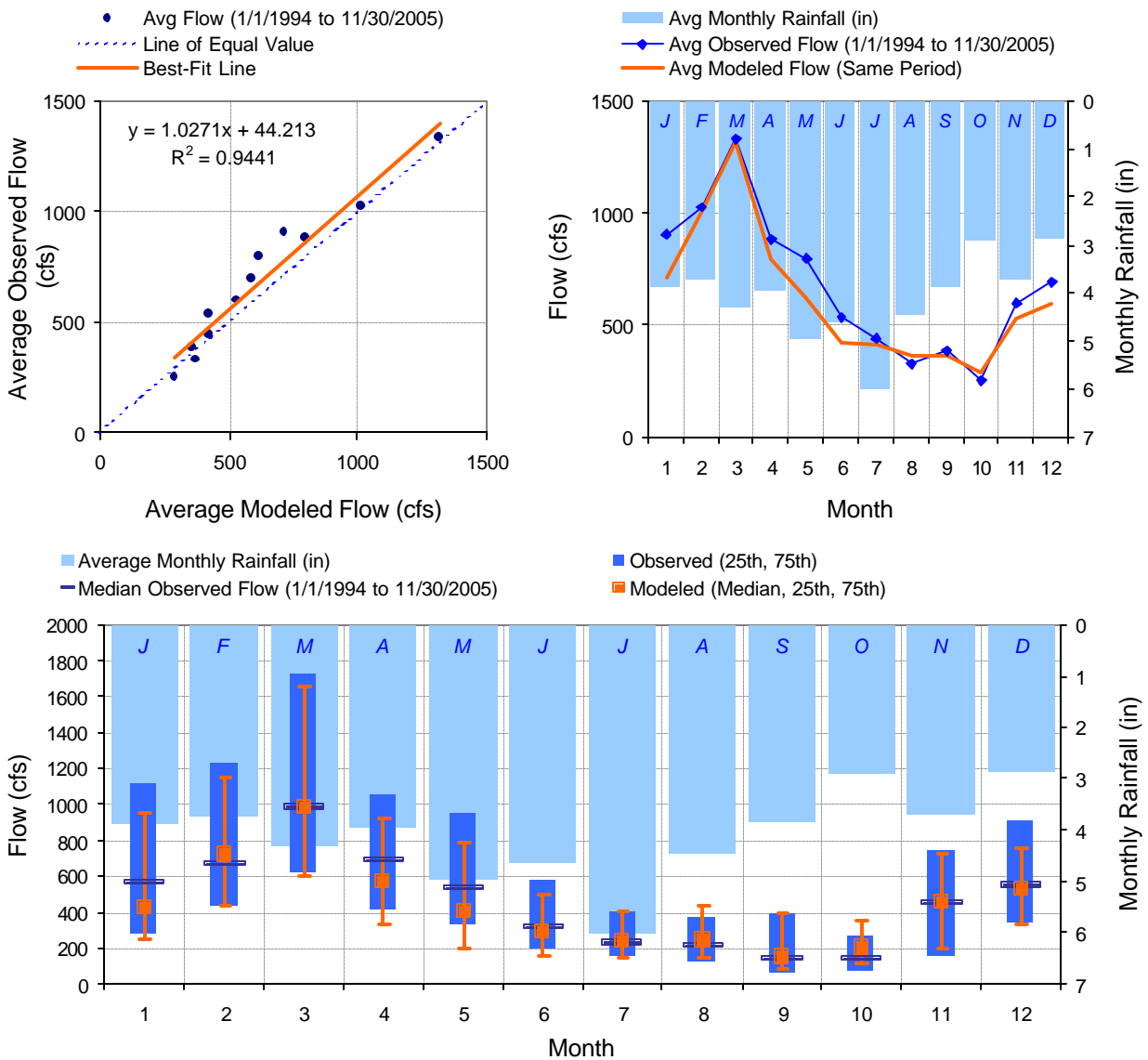


Figure C-6. Monthly validation plots for USGS 03076500 (Subwatershed 40)

Table C-3. Validation summary for USGS 03076500 (Subwatershed 40)

MDAS Simulated Flow		Observed Flow Gage	
<p style="color: #FF8C00; margin: 0;">REACH OUTFLOW FROM SUBBASIN 145</p> <p>11.92-Year Analysis Period: 1/1/1994 - 11/30/2005 Flow volumes are normalized, with total observed as 100</p>		<p style="color: #0000FF; margin: 0;">USGS 03076500 YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD</p> <p>Garrett County, Maryland Hydrologic Unit Code 05020006 Latitude 39°39'13.0", Longitude 79°24'29.9" NAD83 Drainage area 295.00 square miles</p>	
Total Simulated In-stream Flow:	91.03	Total Observed In-stream Flow:	100.00
Total of simulated highest 10% flows:	33.94	Total of Observed highest 10% flows:	38.00
Total of Simulated lowest 50% flows:	14.71	Total of Observed Lowest 50% flows:	15.01
Simulated Summer Flow Volume (months 7-9):	14.30	Observed Summer Flow Volume (7-9):	14.36
Simulated Fall Flow Volume (months 10-12):	16.88	Observed Fall Flow Volume (10-12):	18.43
Simulated Winter Flow Volume (months 1-3):	37.20	Observed Winter Flow Volume (1-3):	39.91
Simulated Spring Flow Volume (months 4-6):	22.65	Observed Spring Flow Volume (4-6):	27.29
Total Simulated Storm Volume:	11.29	Total Observed Storm Volume:	16.28
Simulated Summer Storm Volume (7-9):	2.46	Observed Summer Storm Volume (7-9):	3.03
<i>Errors (Simulated-Observed)</i>	<i>Error Statistics</i>	<i>Recommended Criteria</i>	
Error in total volume:	-9.86	10	
Error in 50% lowest flows:	-2.02	10	
Error in 10% highest flows:	-11.96	15	
Seasonal volume error - Summer:	-0.43	30	
Seasonal volume error - Fall:	-9.19	30	
Seasonal volume error - Winter:	-7.29	30	
Seasonal volume error - Spring:	-20.52	30	
Error in storm volumes:	-44.20	20	
Error in summer storm volumes:	-23.00	50	