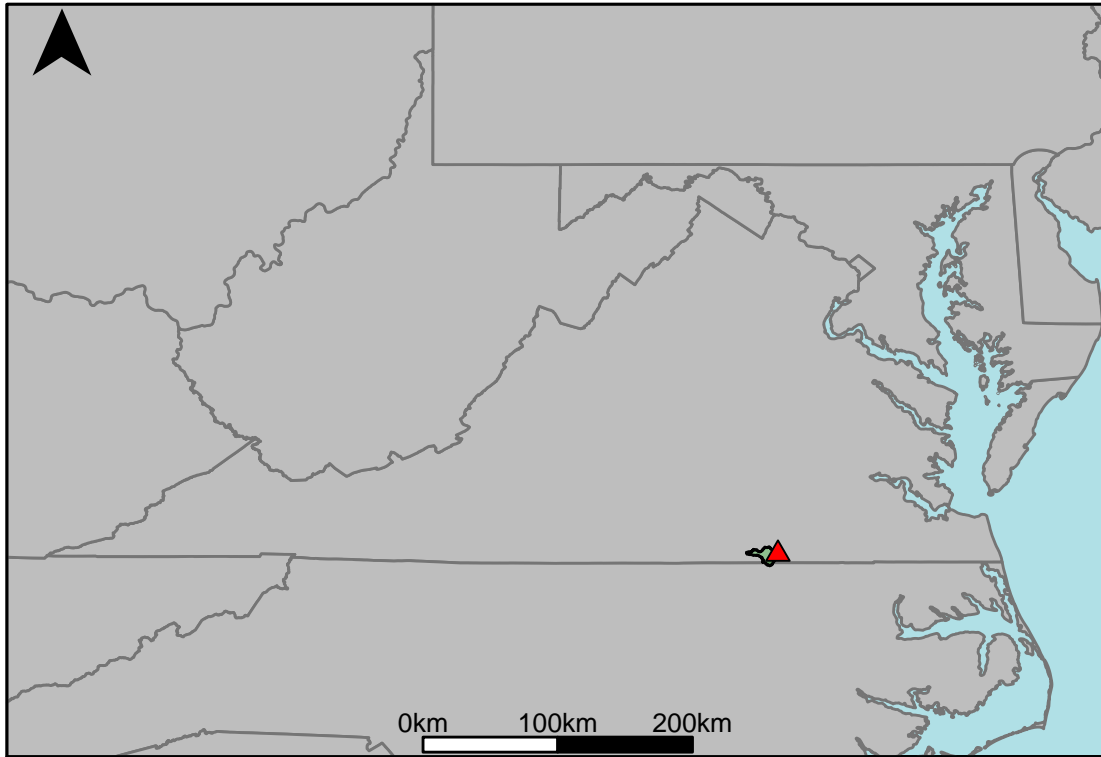# Appendix E.3: USGS Gage 02052500 vs. MN2_8530_8510

This river segment follows part of the flow of the Fountains Creek, a tributary of the Meherrin River. The gage is located in Greensville County, VA (Lat 3636'55", Long 7742'00") approximately 10 miles southeast of Emporia, VA. Drainage area is 68.7 sq. miles. This gage started taking data in 1953 and was decommissioned in 1997. For this reason the analysis was run from 1984-10-01 to 1996-09-30. There are no known anthropogenic alterations that would affect the flow of this area. The average daily discharge error between the model and gage data for the 20 year timespan was -0.17%, with 47.7% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	1.35	3.01	123
Feb. Low Flow	4.1	6.13	49.5
Mar. Low Flow	10.5	16	52.4
Apr. Low Flow	27.5	28.4	3.27
May Low Flow	42	48.8	16.2
Jun. Low Flow	36	32.8	-8.89
Jul. Low Flow	22.5	19.3	-14.2
Aug. Low Flow	11.5	12.1	5.22
Sep. Low Flow	3.3	6.44	95.2
Oct. Low Flow	1.07	3.75	250
Nov. Low Flow	1.55	2.99	92.9
Dec. Low Flow	1.6	2.8	75

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	59	59.1	0.17
Jan. Mean Flow	108	103	-4.63
Feb. Mean Flow	110	108	-1.82
Mar. Mean Flow	160	156	-2.5
Apr. Mean Flow	87.5	88.6	1.26
May Mean Flow	45.6	45.3	-0.66
Jun. Mean Flow	22.6	21	-7.08
Jul. Mean Flow	16.8	15.9	-5.36
Aug. Mean Flow	32.7	38.8	18.7
Sep. Mean Flow	21.4	23.5	9.81
Oct. Mean Flow	9.77	17.1	75
Nov. Mean Flow	55.2	50.6	-8.33
Dec. Mean Flow	41.6	43.1	3.61

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	48	33.1	-31
Feb. High Flow	96	84.2	-12.3
Mar. High Flow	123	99.8	-18.9
Apr. High Flow	441	481	9.07
May High Flow	336	406	20.8
Jun. High Flow	994	798	-19.7
Jul. High Flow	174	161	-7.47
Aug. High Flow	112	126	12.5
Sep. High Flow	71	44	-38
Oct. High Flow	77	24.6	-68.1
Nov. High Flow	78	155	98.7
Dec. High Flow	30.5	37.4	22.6

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.00	1.20e-01	Inf
Med. 1 Day Min	1.30e-01	1.79	1.28e+03
Min. 3 Day Min	0.00	1.40e-01	-3.91e+15
Med. 3 Day Min	1.60e-01	1.95	1.14e+03
Min. 7 Day Min	0.00	1.90e-01	Inf
Med. 7 Day Min	2.80e-01	2.16	6.83e+02
Min. 30 Day Min	1.00e-02	1.02	1.60e+04
Med. 30 Day Min	1.50	3.93	1.62e+02
Min. 90 Day Min	1.70	3.81	1.24e+02
Med. 90 Day Min	9.36	1.06e+01	1.32e+01
7Q10	0.00	3.50e-01	2.38e+05
Year of 90-Day Min. Flow	1.99e+03	1.99e+03	0.00
Drought Year Mean	9.72e+01	8.89e+01	-8.54
Mean Baseflow	1.85e+01	2.24e+01	2.11e+01

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	3010	3380	12.3
Med. 1 Day Max	1550	1510	-2.58
Max. 3 Day Max	1820	1880	3.3
Med. 3 Day Max	847	777	-8.26
Max. 7 Day Max	948	898	-5.27
Med. 7 Day Max	434	433	-0.23
Max. 30 Day Max	452	351	-22.3
Med. 30 Day Max	182	208	14.3
Max. 90 Day Max	270	257	-4.81
Med. 90 Day Max	133	134	0.75

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0	1.16	Inf
5% Non-Exceedance	0.53	2.74	416
50% Non-Exceedance	20	23.8	19
95% Non-Exceedance	202	206	1.98
99% Non-Exceedance	761	600	-21.2
Sept. 10% Non-Exceedance	2.6	0.01	-99.6

Fig. 1: Hydrograph

Fig. 2: Zoomed Hydrograph

Legend: ■ Gage 02052500   ■ Model: River Seg. MN2_8530_8510
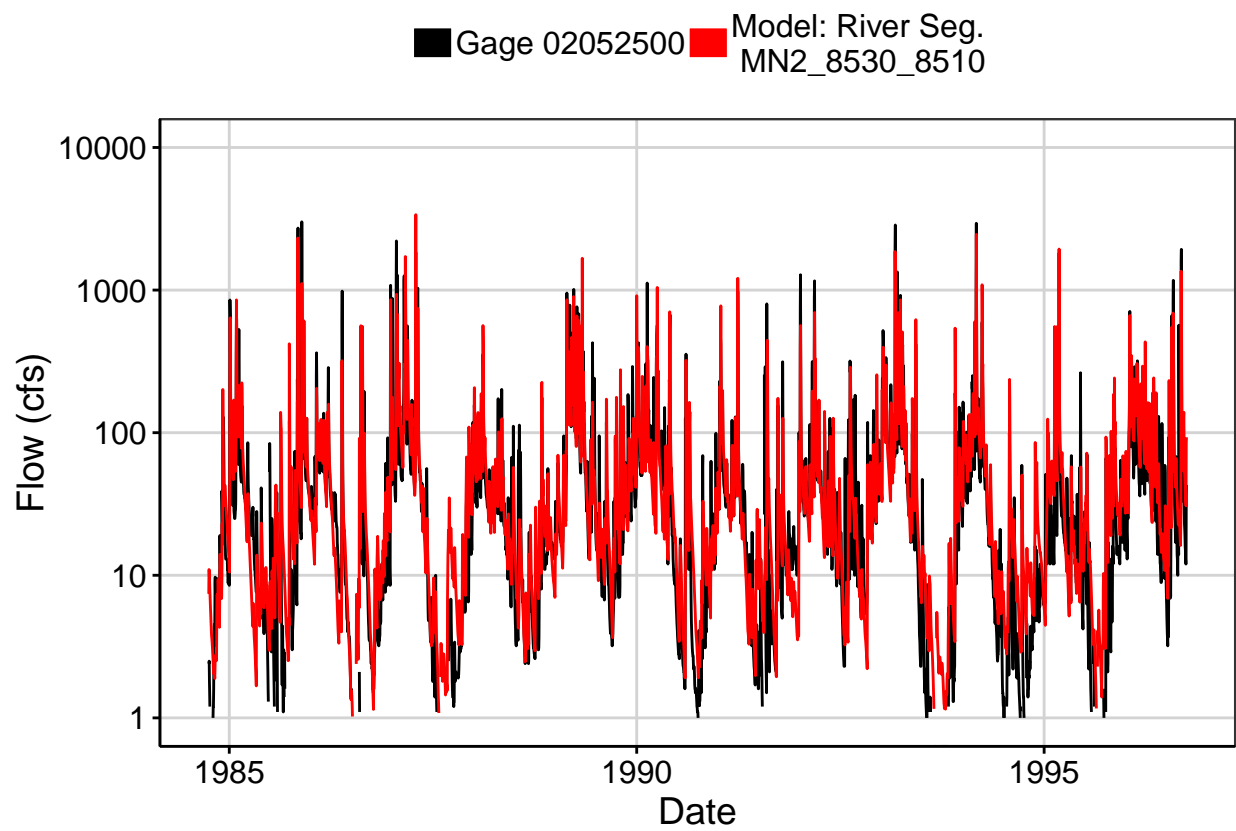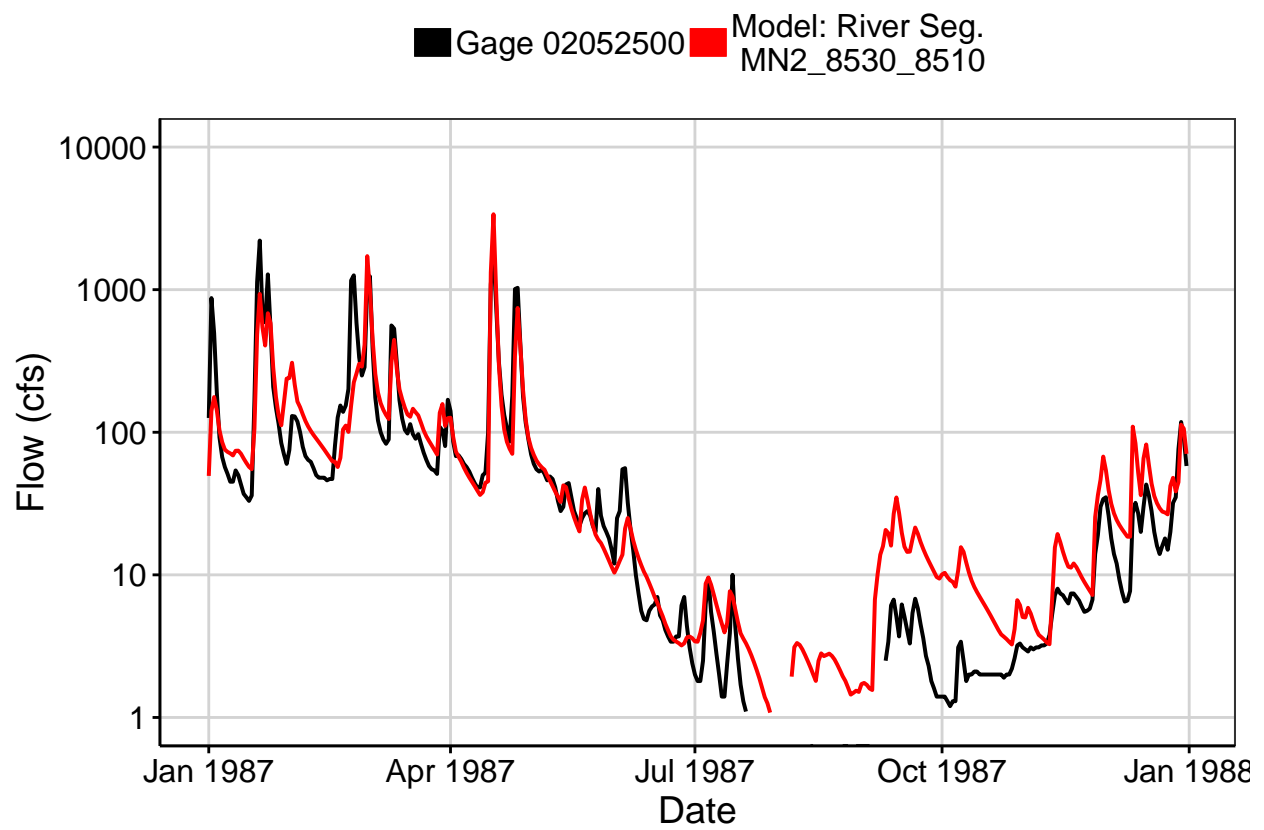
Fig. 3: Flow Exceedance
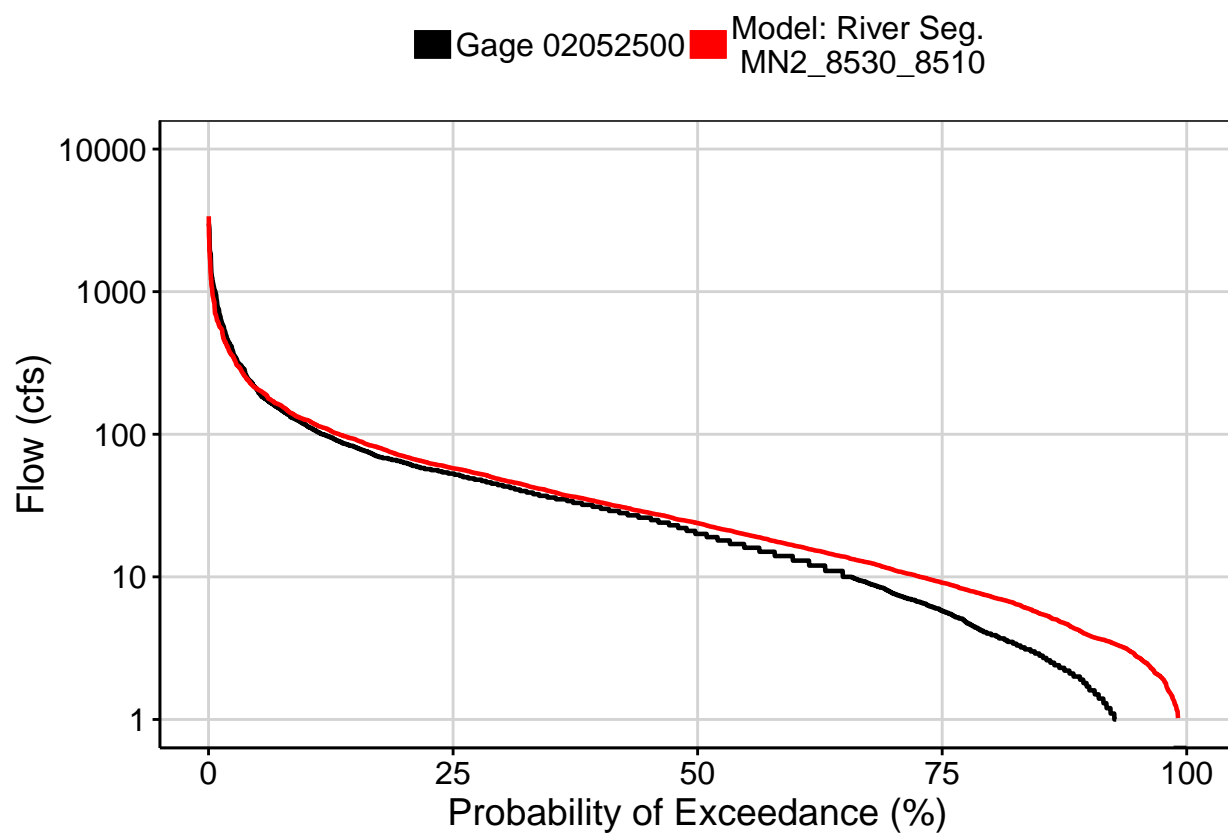
Fig. 4: Baseflow
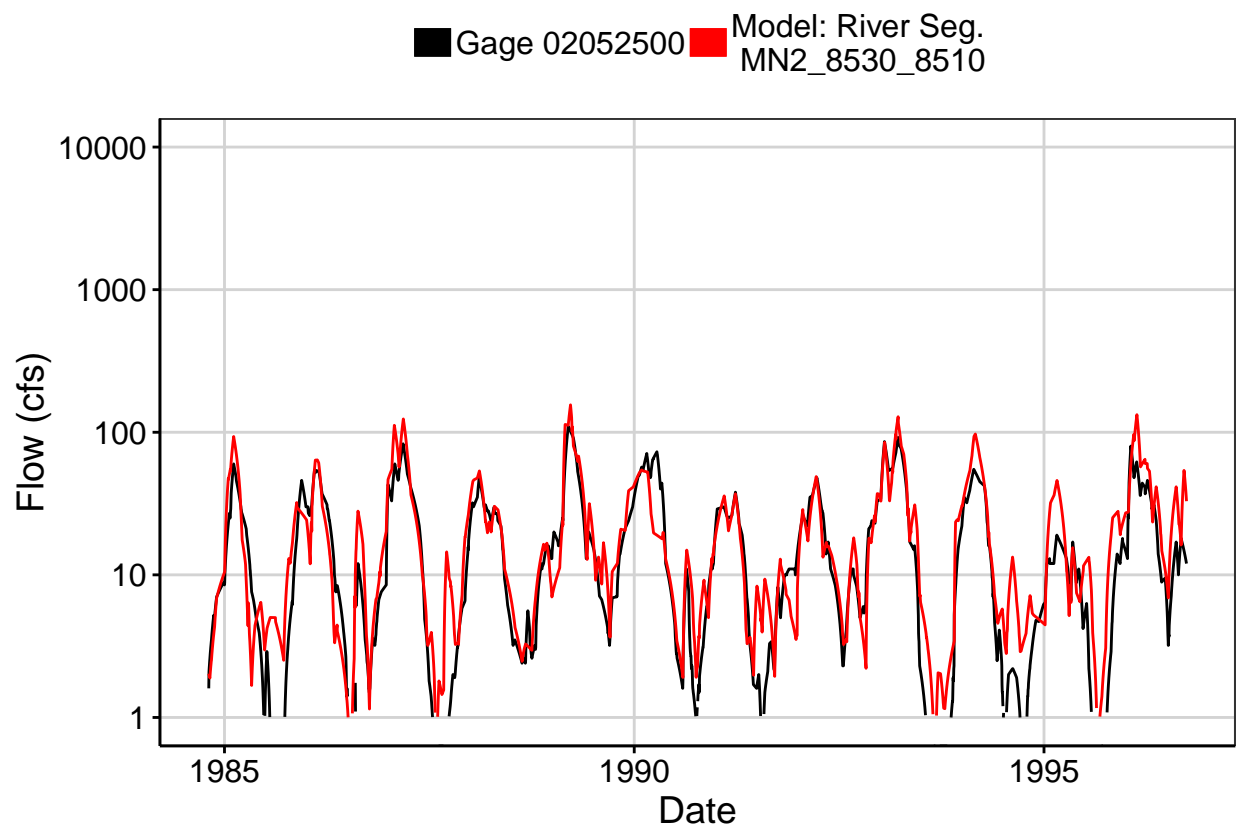
Fig. 5: Combined Baseflow
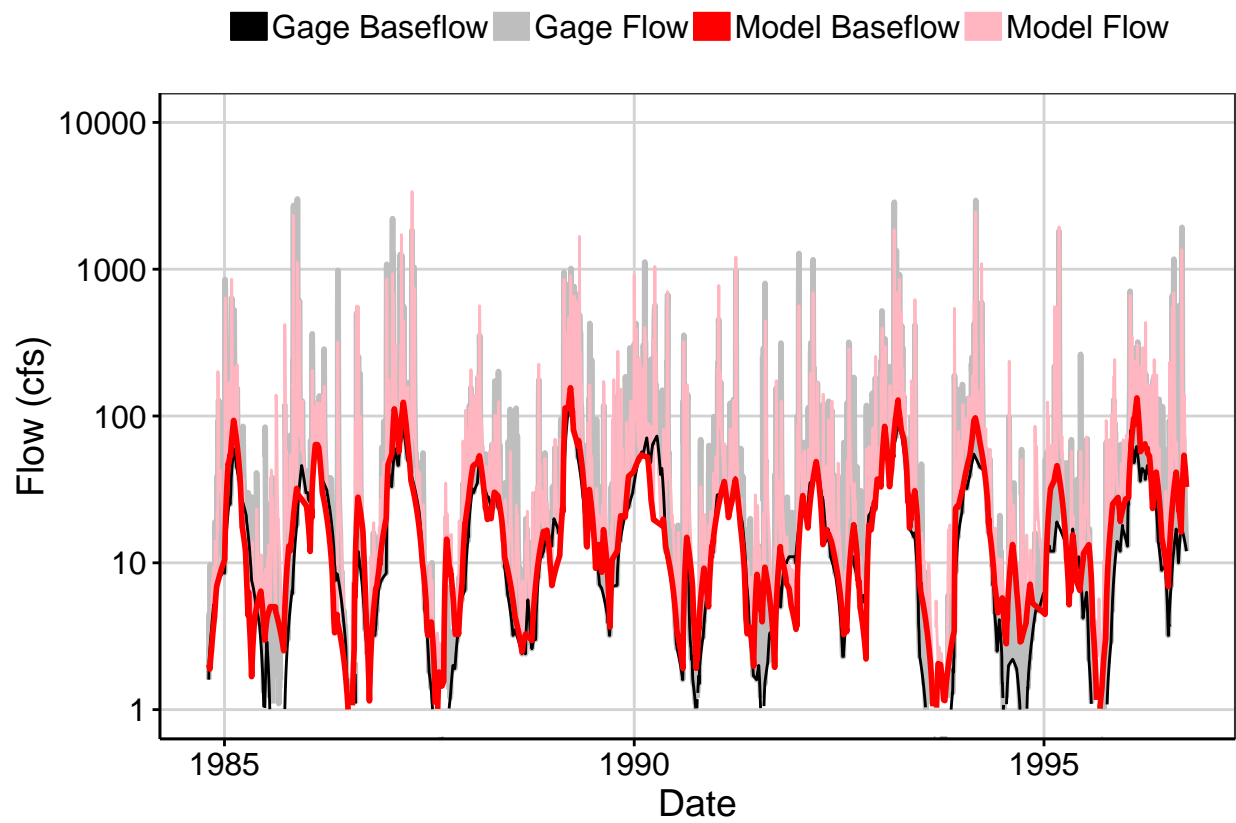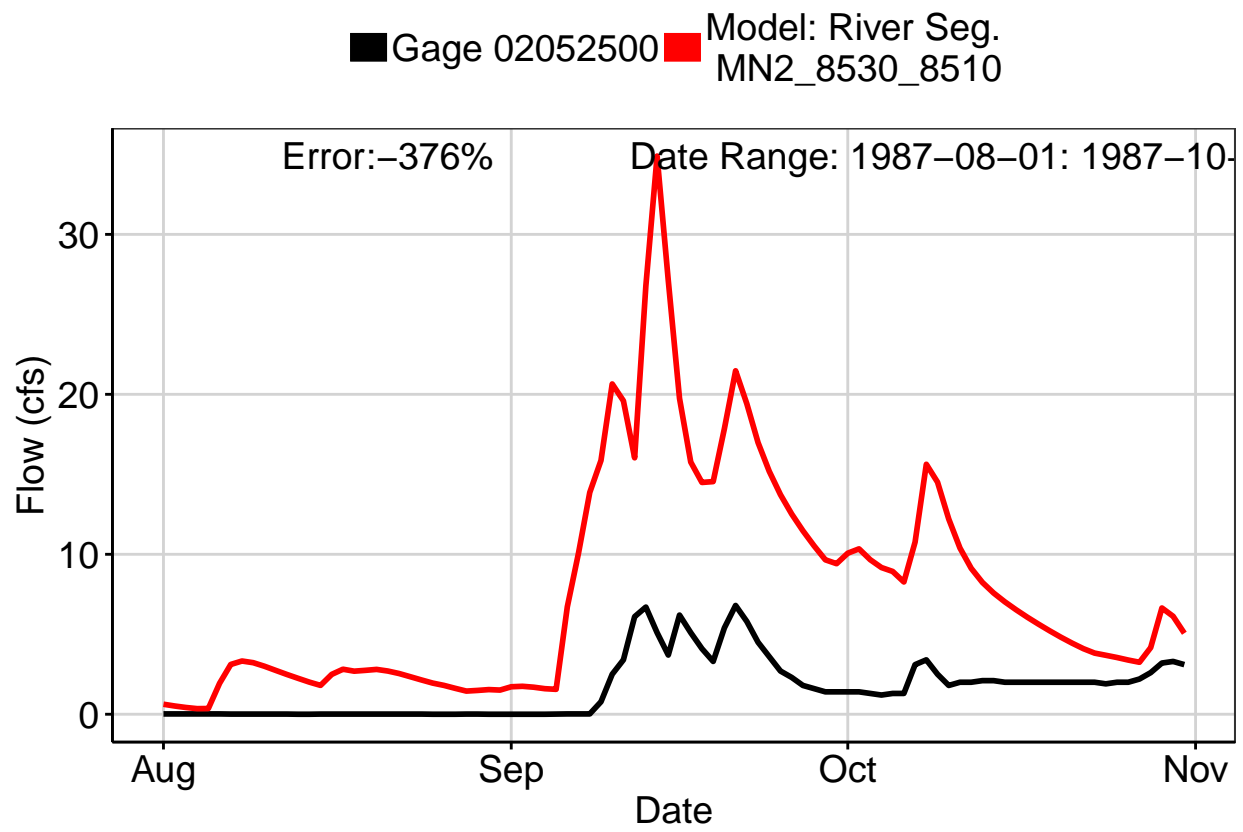
Fig. 6: Largest Error Segment
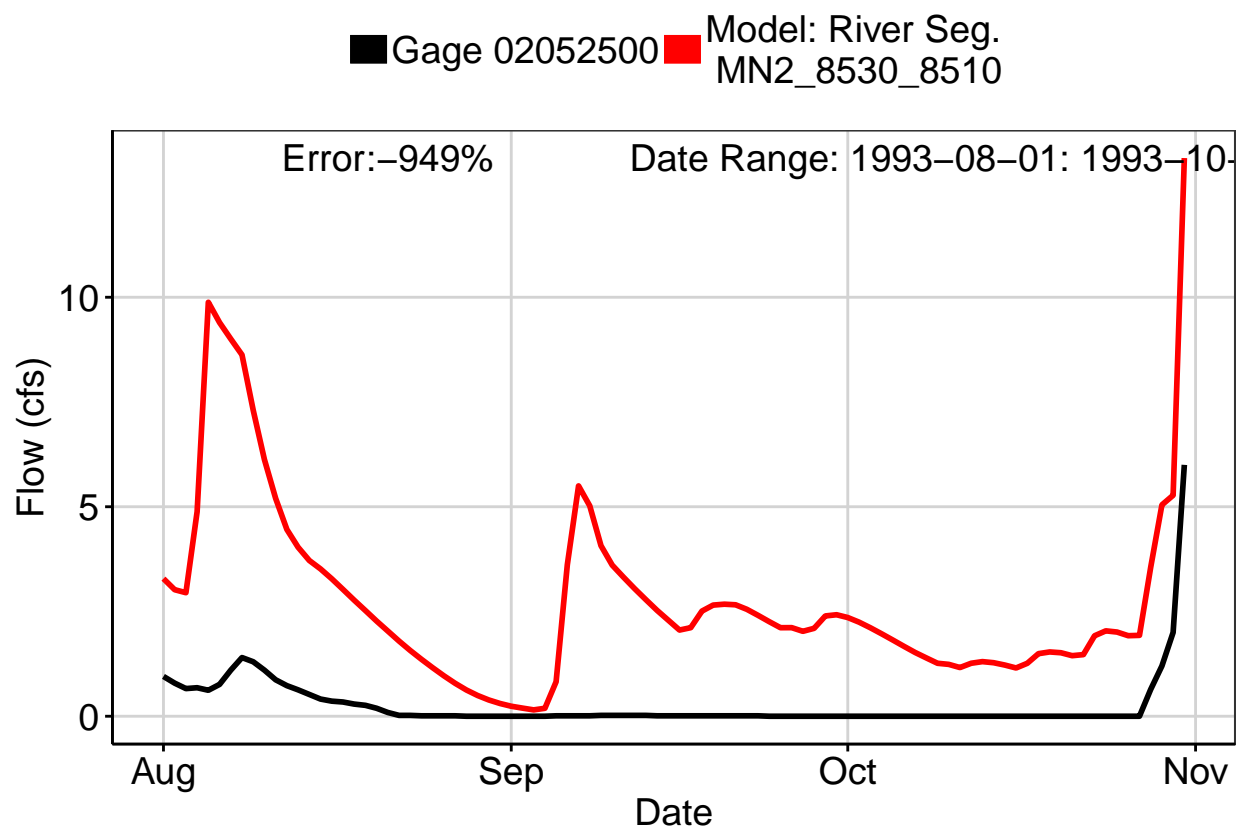
Fig. 7: Second Largest Error Segment

Fig. 8: Third Largest Error Segment

Fig. 9: Residuals Plot