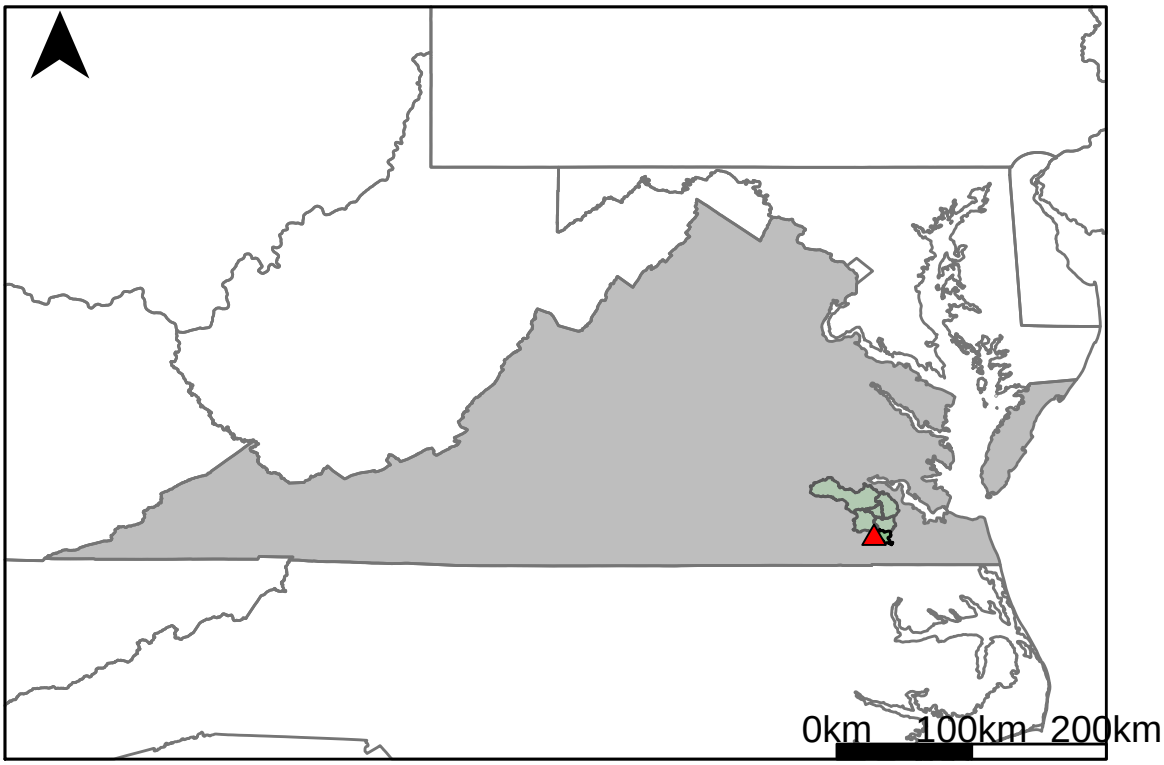
02049500 vs. MN4_8080_8110



This river segment follows part of the flow of the Blackwater River, a tributary of the Meherrin River. The gage is located in Southampton County, VA (Lat 3645'45", Long 7653'55") approximately 17 miles west of Suffolk, VA. Drainage area is 613 sq. miles. This gage started taking data in 1944 and is still taking data. Water is diverted from this area to the City of Norfolk by a pumping station upstream of the gage. It is also believed that in extreme low flow conditions, water can be lost to storage, especially between Zuni and Franklin. The average daily discharge error between the model and gage data for the 20 year timespan was -0.31%, with 51.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	4.92	22.4	-355
Feb. Low Flow	19	159	-737
Mar. Low Flow	118	155	-31.4
Apr. Low Flow	346	340	1.73
May Low Flow	519	513	1.16
Jun. Low Flow	534	451	15.5
Jul. Low Flow	369	241	34.7
Aug. Low Flow	62.5	175	-180
Sep. Low Flow	11	53.3	-385
Oct. Low Flow	2.8	23.3	-732
Nov. Low Flow	5.3	37.8	-613
Dec. Low Flow	3.34	23.9	-616

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	648	650	-0.31
Jan. Mean Flow	882	895	-1.47
Feb. Mean Flow	1140	1100	3.51
Mar. Mean Flow	1210	1180	2.48
Apr. Mean Flow	1030	887	13.9
May Mean Flow	485	519	-7.01
Jun. Mean Flow	330	328	0.61
Jul. Mean Flow	207	245	-18.4
Aug. Mean Flow	476	464	2.52
Sep. Mean Flow	750	796	-6.13
Oct. Mean Flow	330	400	-21.2
Nov. Mean Flow	368	413	-12.2
Dec. Mean Flow	615	611	0.65

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	114	307	-169
Feb. High Flow	481	813	-69
Mar. High Flow	813	932	-14.6
Apr. High Flow	1300	1460	-12.3
May High Flow	1600	1900	-18.8
Jun. High Flow	1600	1630	-1.88
Jul. High Flow	1760	1900	-7.95
Aug. High Flow	855	939	-9.82
Sep. High Flow	745	619	16.9
Oct. High Flow	431	318	26.2
Nov. High Flow	812	589	27.5
Dec. High Flow	371	446	-20.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0	0	NaN
Med. 1 Day Min	0.77	5.17	-571
Min. 3 Day Min	0.17	0	100
Med. 3 Day Min	1.11	7.37	-564
Min. 7 Day Min	0.26	0.05	80.9
Med. 7 Day Min	1.59	12.4	-680
Min. 30 Day Min	0.88	3.91	-343
Med. 30 Day Min	3.51	34.6	-886
Min. 90 Day Min	5.85	30.3	-418
Med. 90 Day Min	65.6	131	-99.7
7Q10	0.44	0.41	6.64
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	174	650	-274
Mean Baseflow	323	318	1.55

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	22000	26200	-19.1
Med. 1 Day Max	4320	5300	-22.7
Max. 3 Day Max	20800	25000	-20.2
Med. 3 Day Max	4150	4650	-12
Max. 7 Day Max	17500	20300	-16
Med. 7 Day Max	3140	3280	-4.46
Max. 30 Day Max	5920	6650	-12.3
Med. 30 Day Max	1730	1770	-2.31
Max. 90 Day Max	2560	2530	1.17
Med. 90 Day Max	1330	1220	8.27

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.62	4.22	-581
5% Non-Exceedance	2	15	-650
50% Non-Exceedance	369	384	-4.07
95% Non-Exceedance	2320	2090	9.91
99% Non-Exceedance	4160	4240	-1.92
Sept. 10% Non-Exceedance	16.6	16.7	-0.6

Fig. 1: Hydrograph

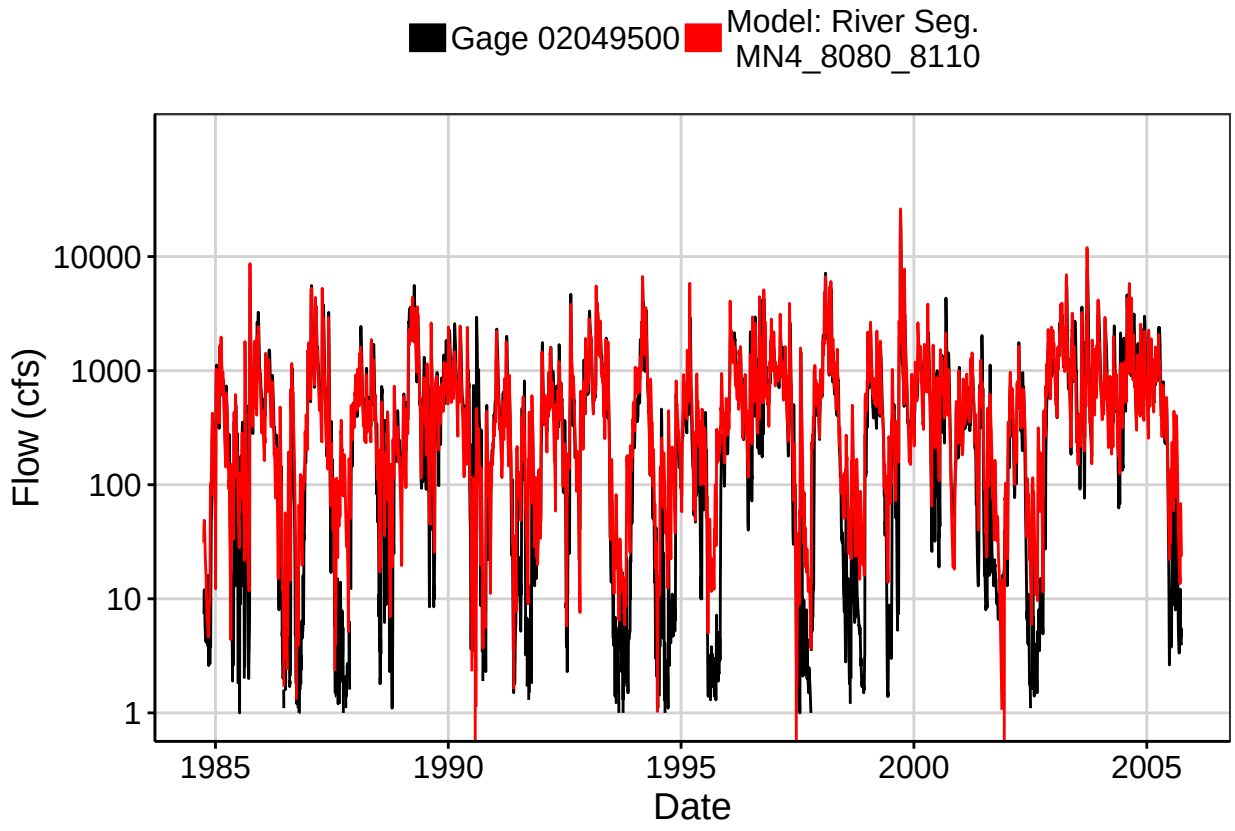


Fig. 2: Zoomed Hydrograph

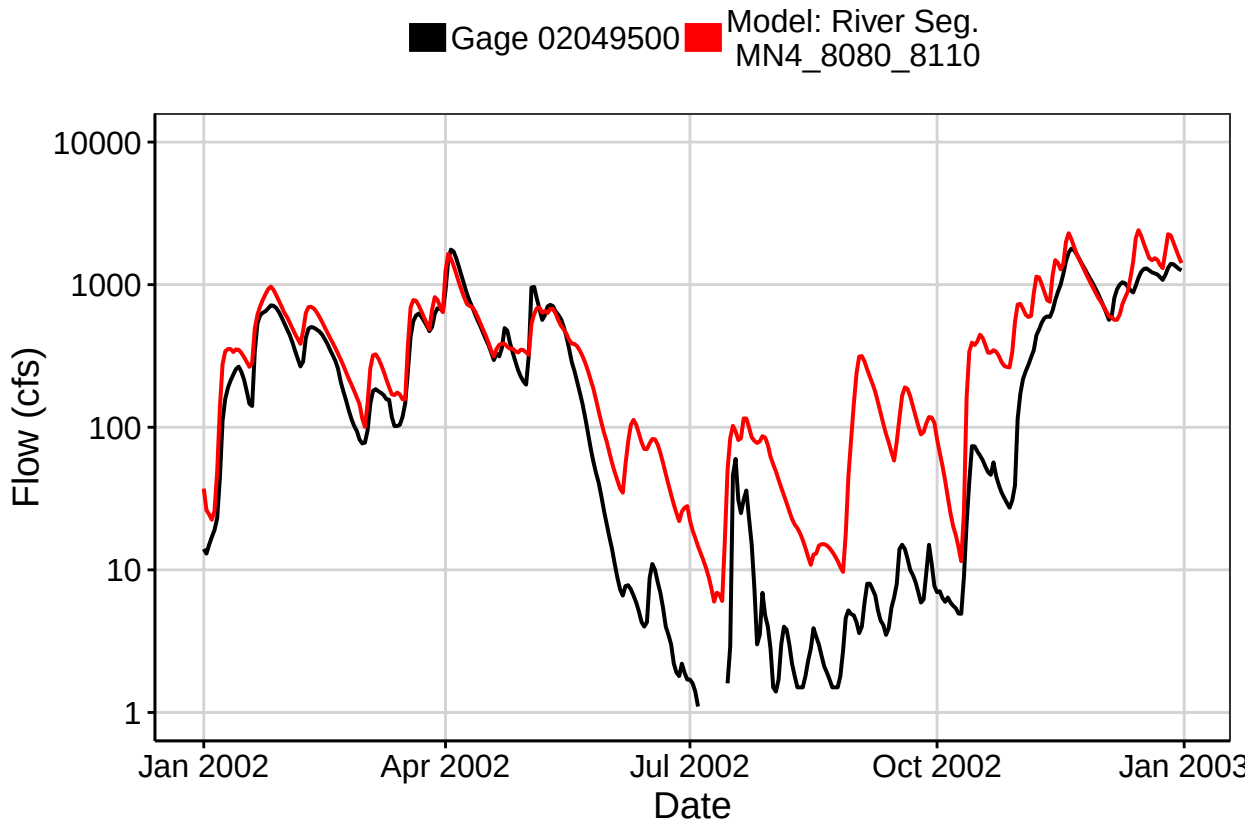


Fig. 3: Flow Exceedance

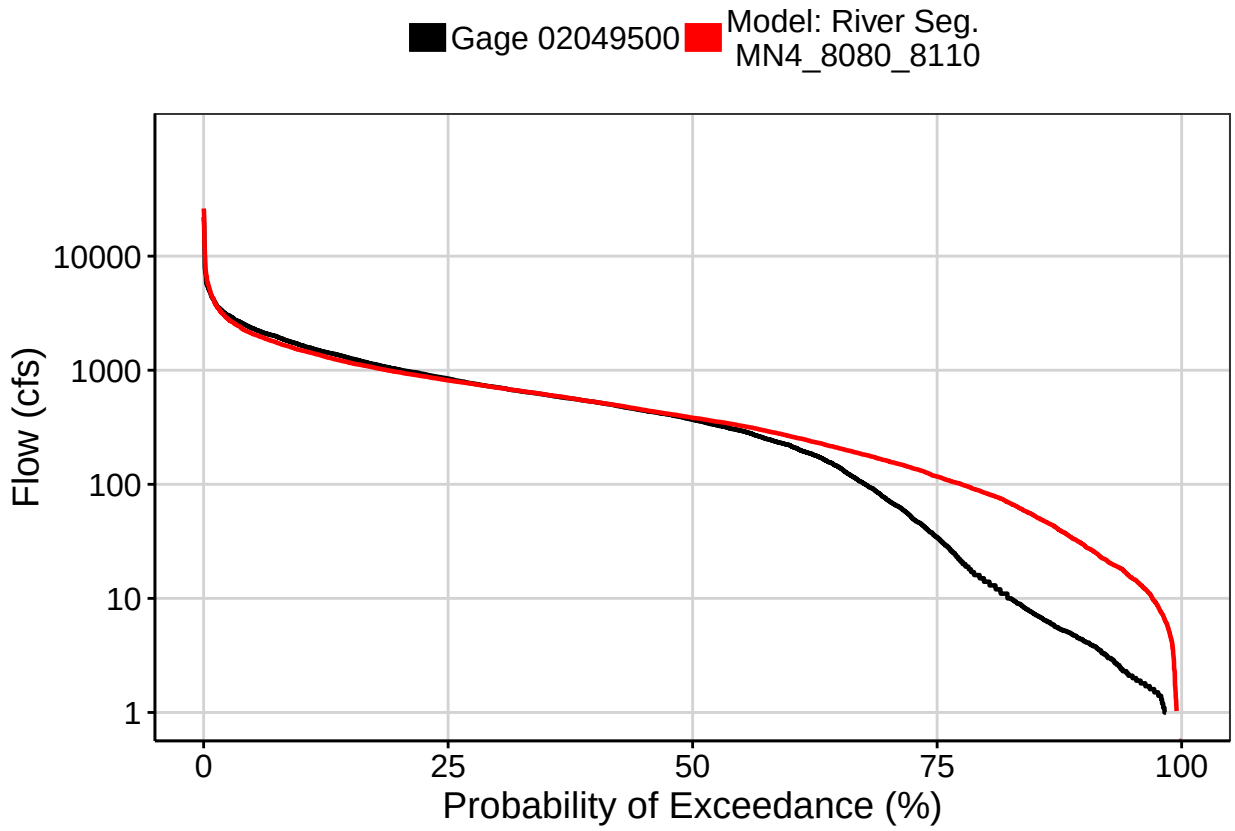


Fig. 4: Baseflow

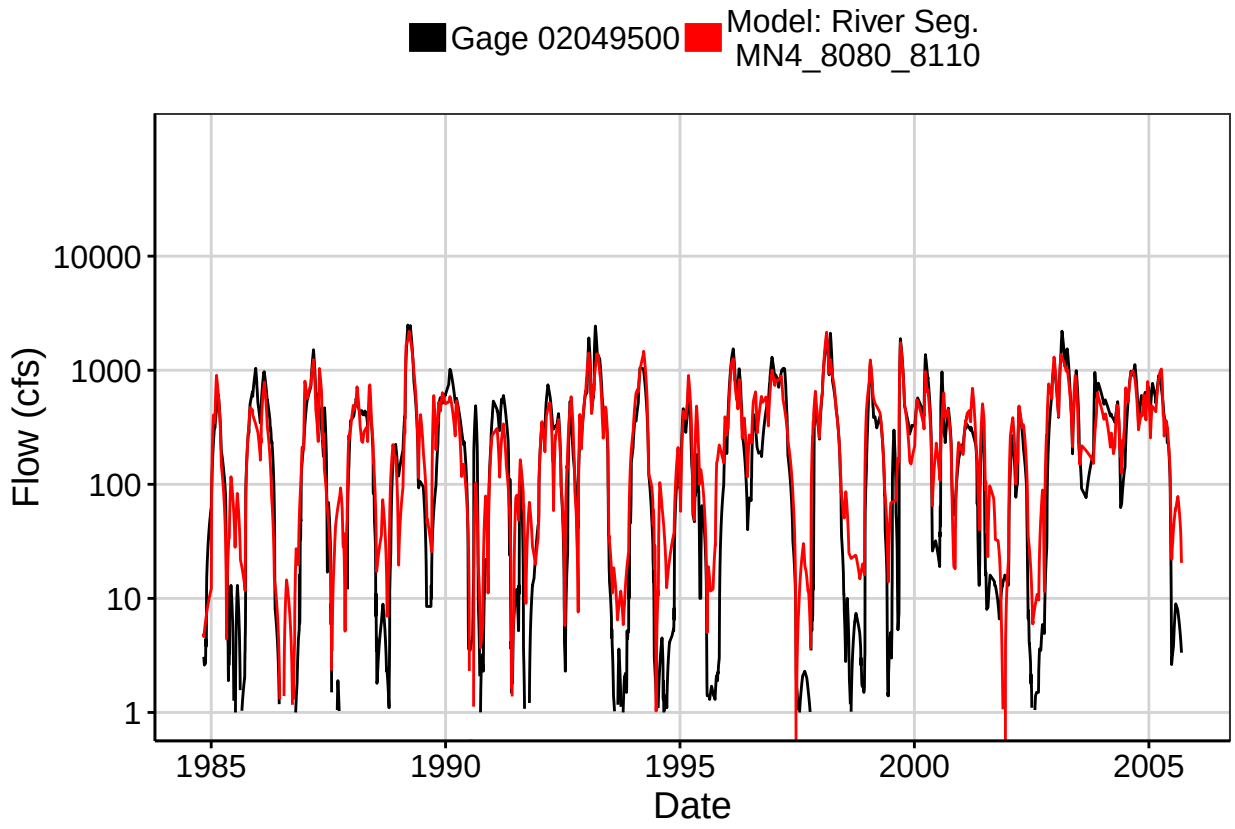


Fig. 5: Combined Baseflow

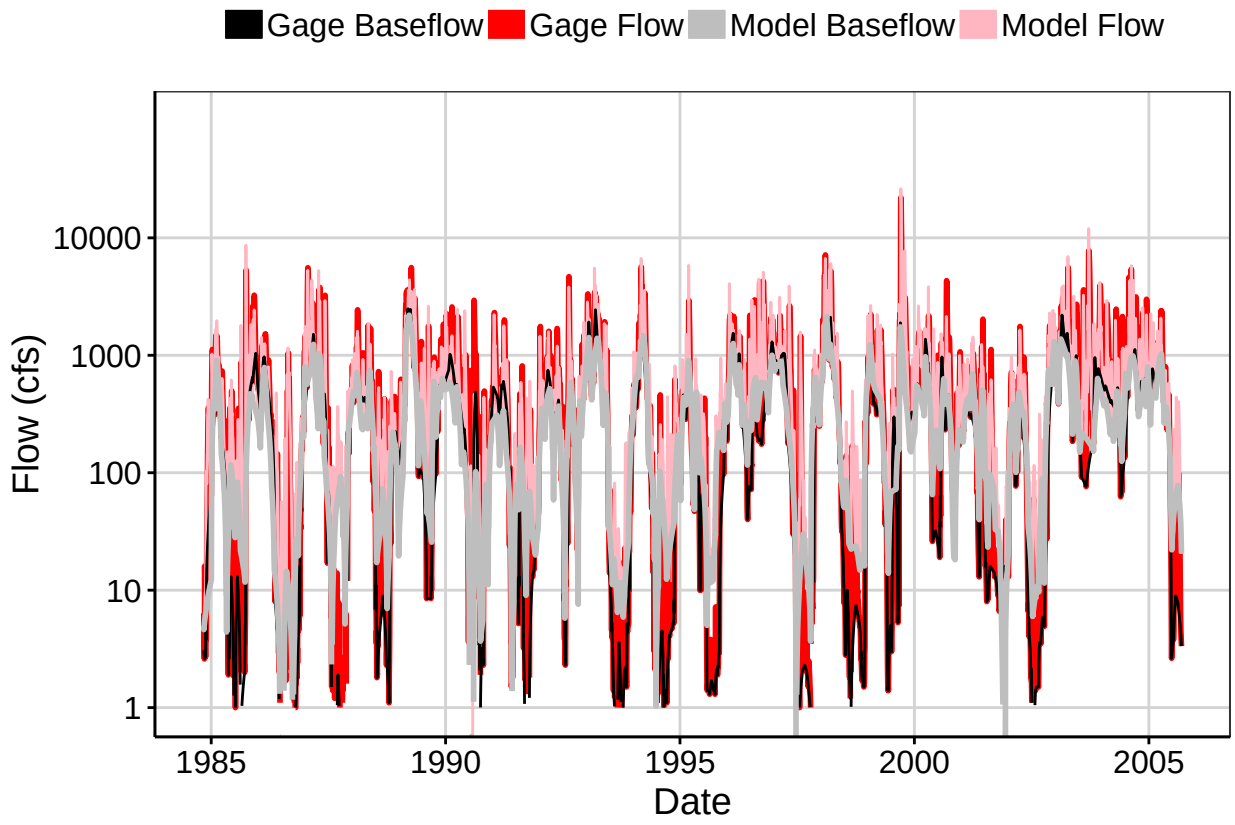


Fig. 6: Largest Error Segment

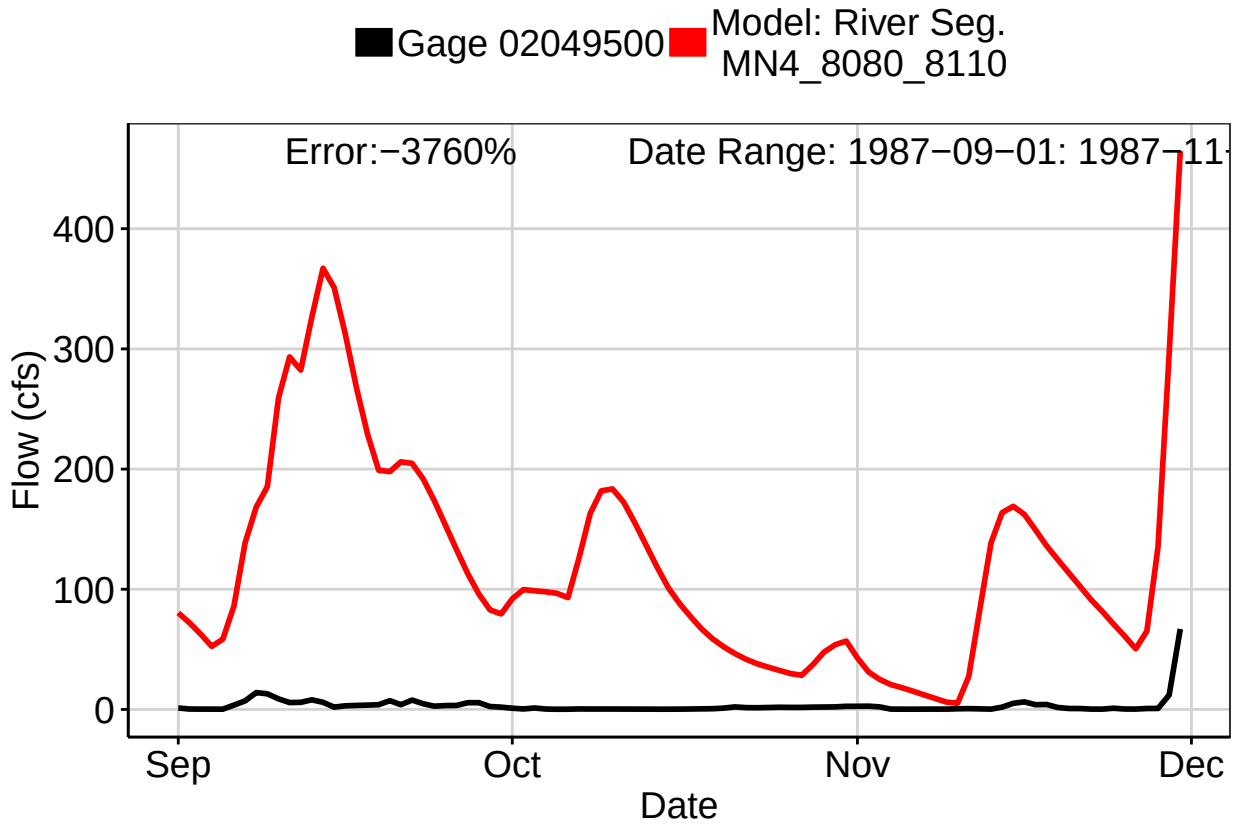


Fig. 7: Second Largest Error Segment

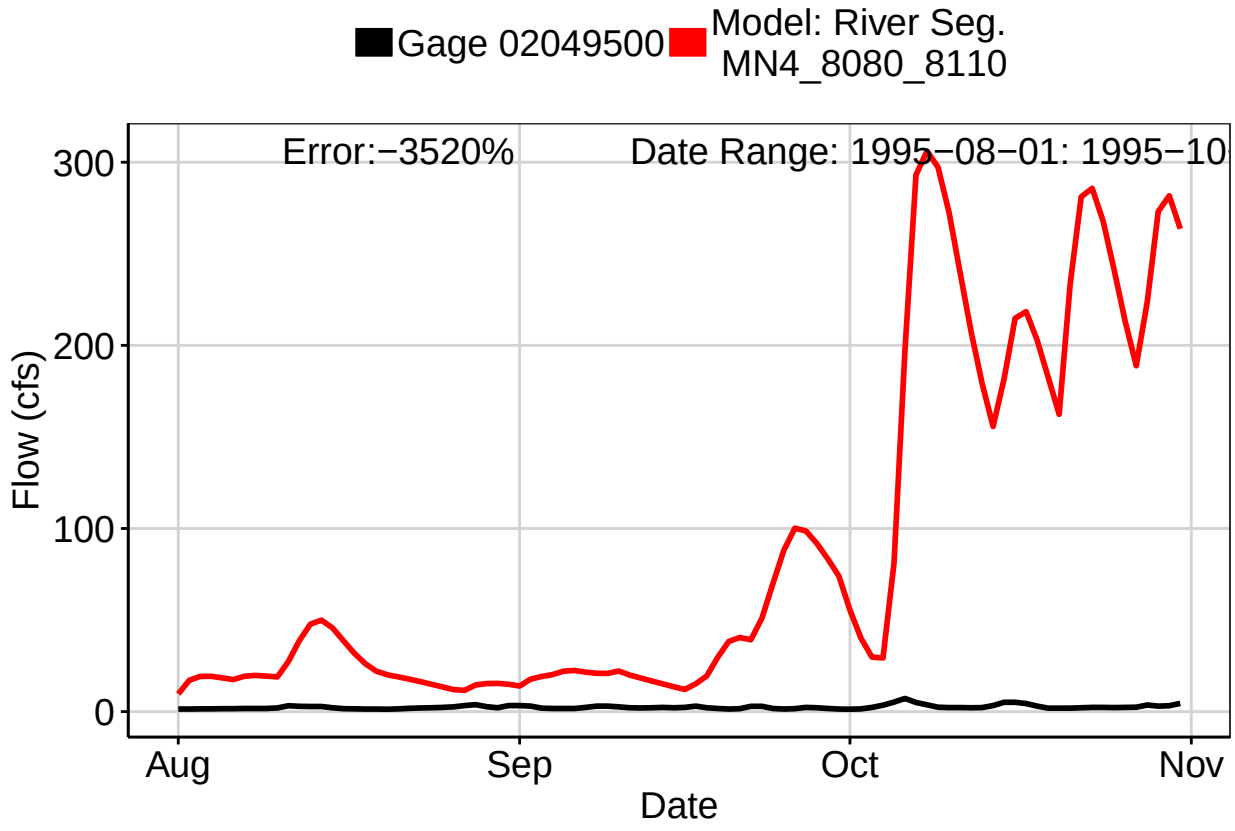


Fig. 8: Third Largest Error Segment

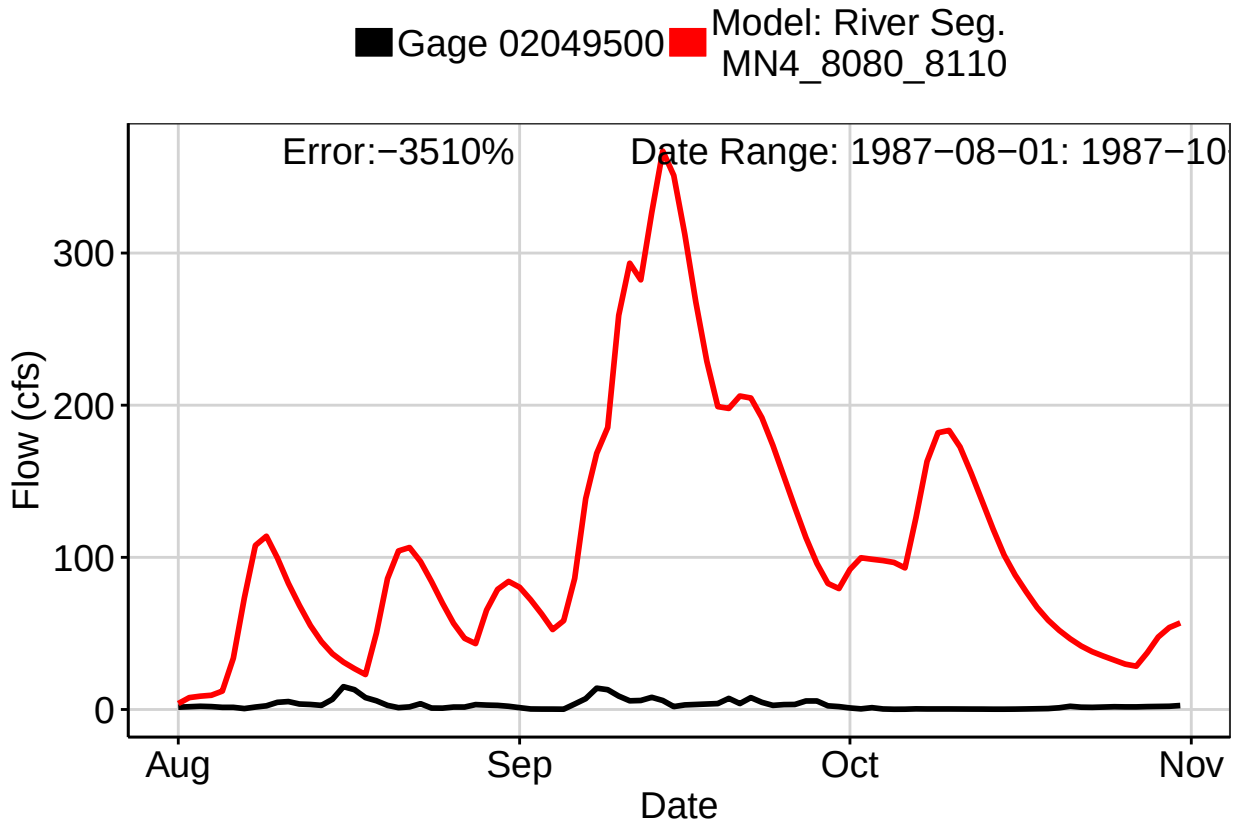


Fig. 9: Residuals Plot