02049500 vs. MN4_8080_8110

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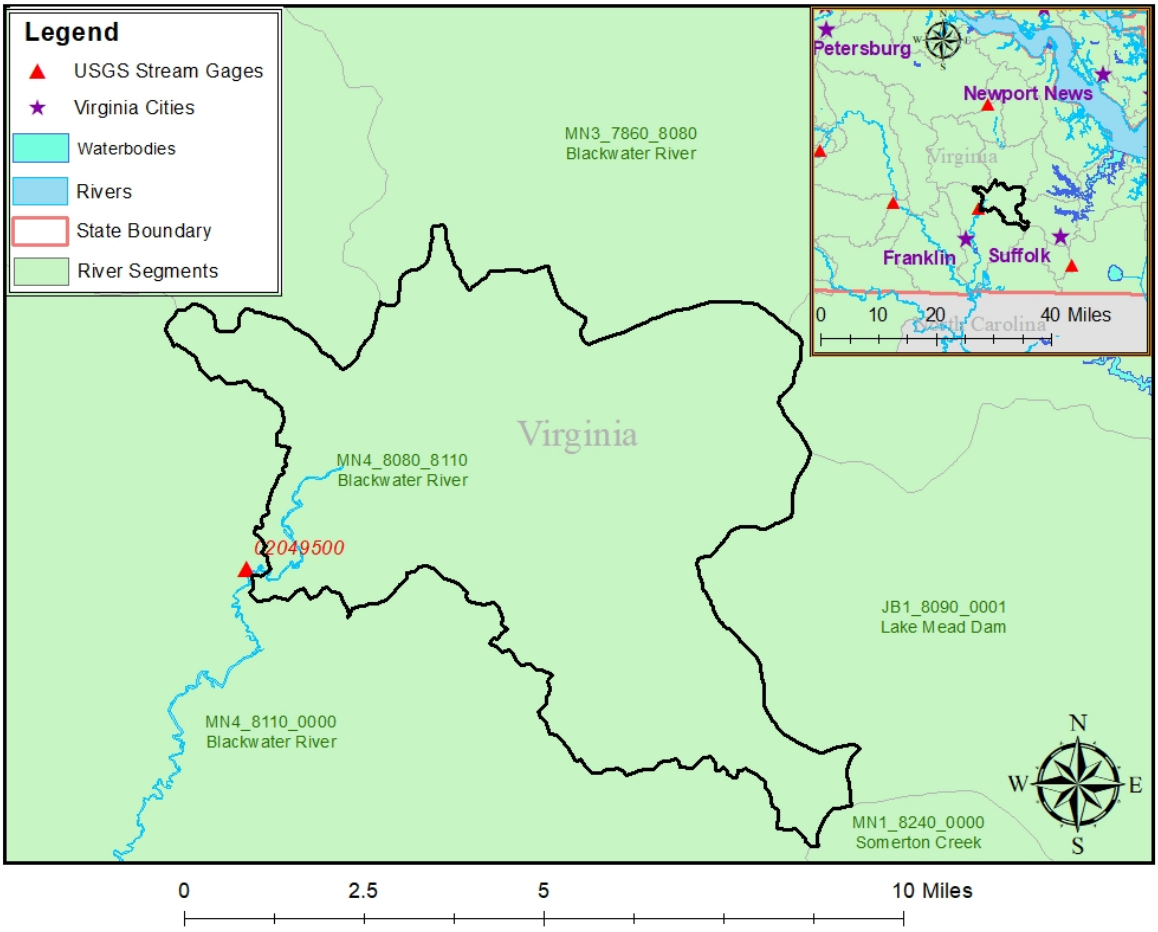

This river segment follows part of the flow of the Blackwater River, a tributary of the Meherrin River. The gage is located in Southampton County, VA (Lat 3645'45", Long 7653'55") approximately 17 miles west of Suffolk, VA. Drainage area is 613 sq. miles. This gage started taking data in 1944 and is 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 -0.15%, 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	339	2.02
May Low Flow	519	512	1.35
Jun. Low Flow	534	450	15.7
Jul. Low Flow	369	240	35
Aug. Low Flow	62.5	174	-178
Sep. Low Flow	11	53.2	-384
Oct. Low Flow	2.8	23.3	-732
Nov. Low Flow	5.3	37.7	-611
Dec. Low Flow	3.34	23.9	-616

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	648	649	-0.15
Jan. Mean Flow	882	894	-1.36
Feb. Mean Flow	1140	1090	4.39
Mar. Mean Flow	1210	1180	2.48
Apr. Mean Flow	1030	885	14.1
May Mean Flow	485	518	-6.8
Jun. Mean Flow	330	327	0.91
Jul. Mean Flow	207	244	-17.9
Aug. Mean Flow	476	463	2.73
Sep. Mean Flow	750	795	-6
Oct. Mean Flow	330	399	-20.9
Nov. Mean Flow	368	412	-12
Dec. Mean Flow	615	610	0.81

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	114	306	-168
Feb. High Flow	481	812	-68.8
Mar. High Flow	813	930	-14.4
Apr. High Flow	1300	1460	-12.3
May High Flow	1600	1900	-18.8
Jun. High Flow	1600	1620	-1.25
Jul. High Flow	1760	1890	-7.39
Aug. High Flow	855	937	-9.59
Sep. High Flow	745	618	17
Oct. High Flow	431	318	26.2
Nov. High Flow	812	589	27.5
Dec. High Flow	371	445	-19.9

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0	0	NaN
Med. 1 Day Min	0.77	5.16	-570
Min. 3 Day Min	0.17	0	100
Med. 3 Day Min	1.11	7.36	-563
Min. 7 Day Min	0.26	0.05	80.9
Med. 7 Day Min	1.59	12.3	-674
Min. 30 Day Min	0.88	3.91	-343
Med. 30 Day Min	3.51	34.5	-883
Min. 90 Day Min	5.85	30.3	-418
Med. 90 Day Min	65.6	131	-99.7
7Q10	0.44	0.41	6.86
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	174	226	-29.9
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	5290	-22.5
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	3270	-4.14
Max. 30 Day Max	5920	6640	-12.2
Med. 30 Day Max	1730	1770	-2.31
Max. 90 Day Max	2560	2520	1.56
Med. 90 Day Max	1330	1220	8.27

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.62	4.21	-579
5% Non-Exceedance	2	14.9	-645
50% Non-Exceedance	369	383	-3.79
95% Non-Exceedance	2320	2080	10.3
99% Non-Exceedance	4160	4230	-1.68
Sept. 10% Non-Exceedance	16.6	1.99	88

Fig. 1: Hydrograph

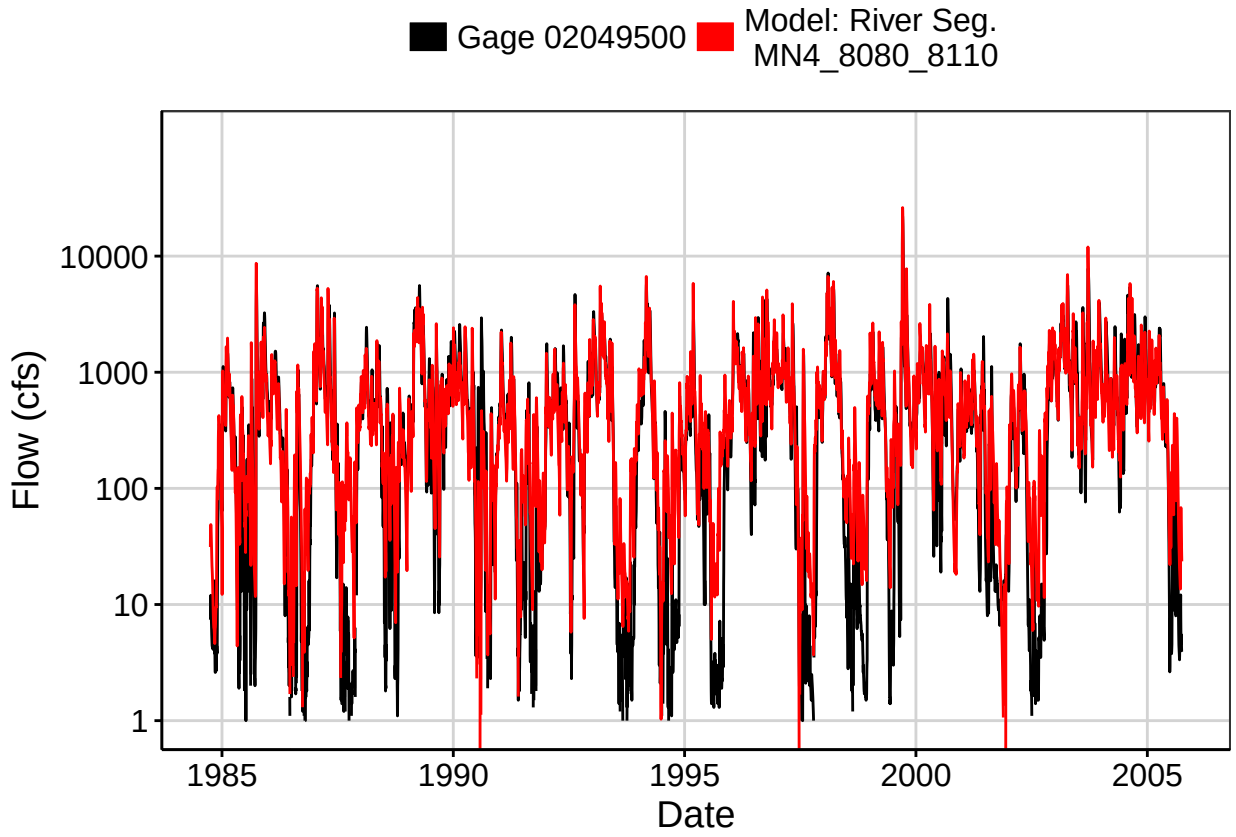

Fig. 2: Zoomed Hydrograph

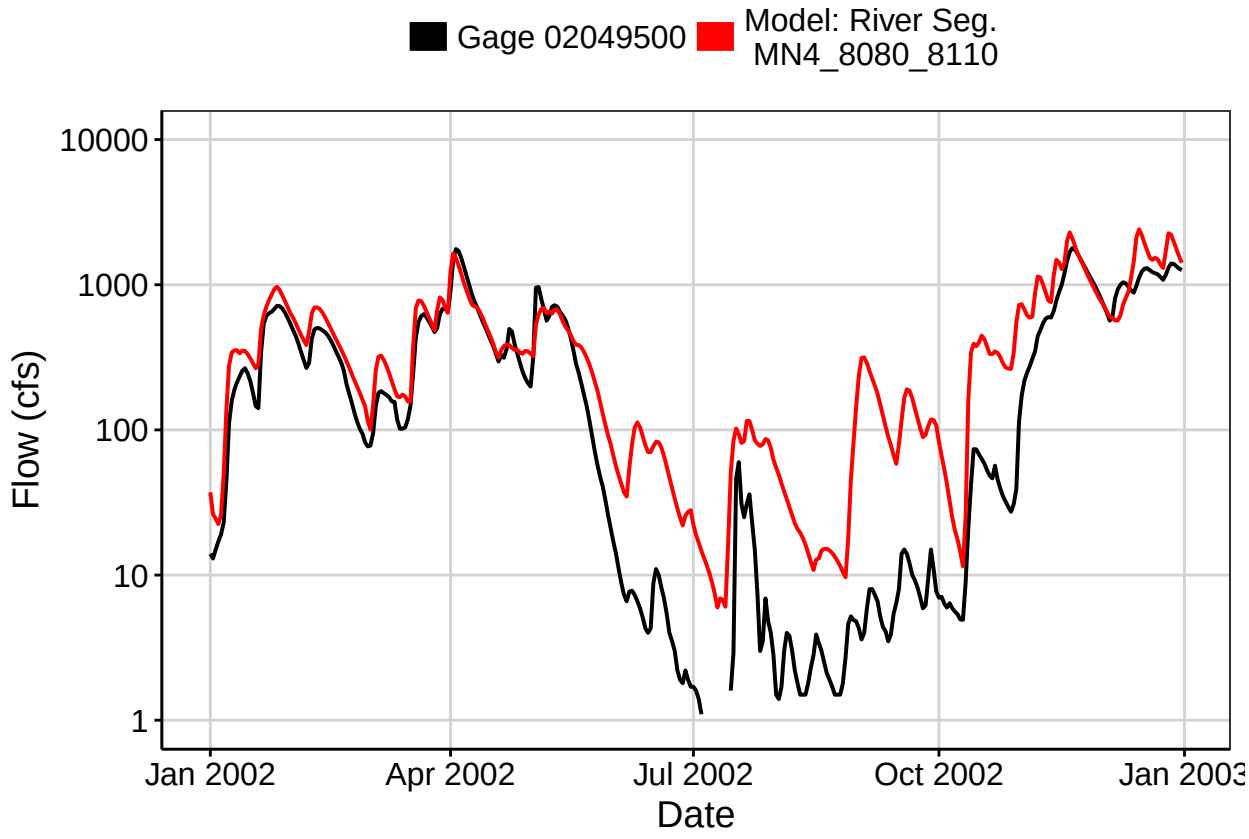

Fig. 3: Flow Exceedance

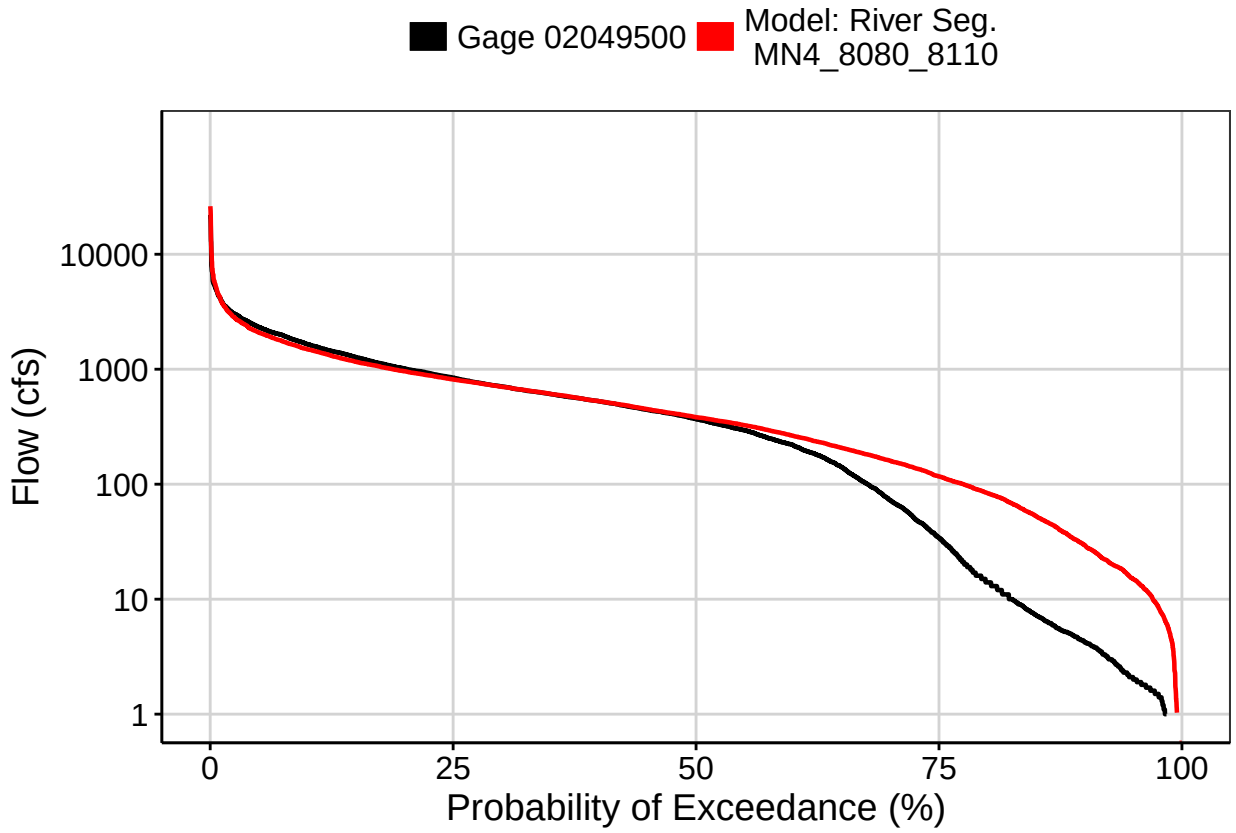

Fig. 4: Baseflow

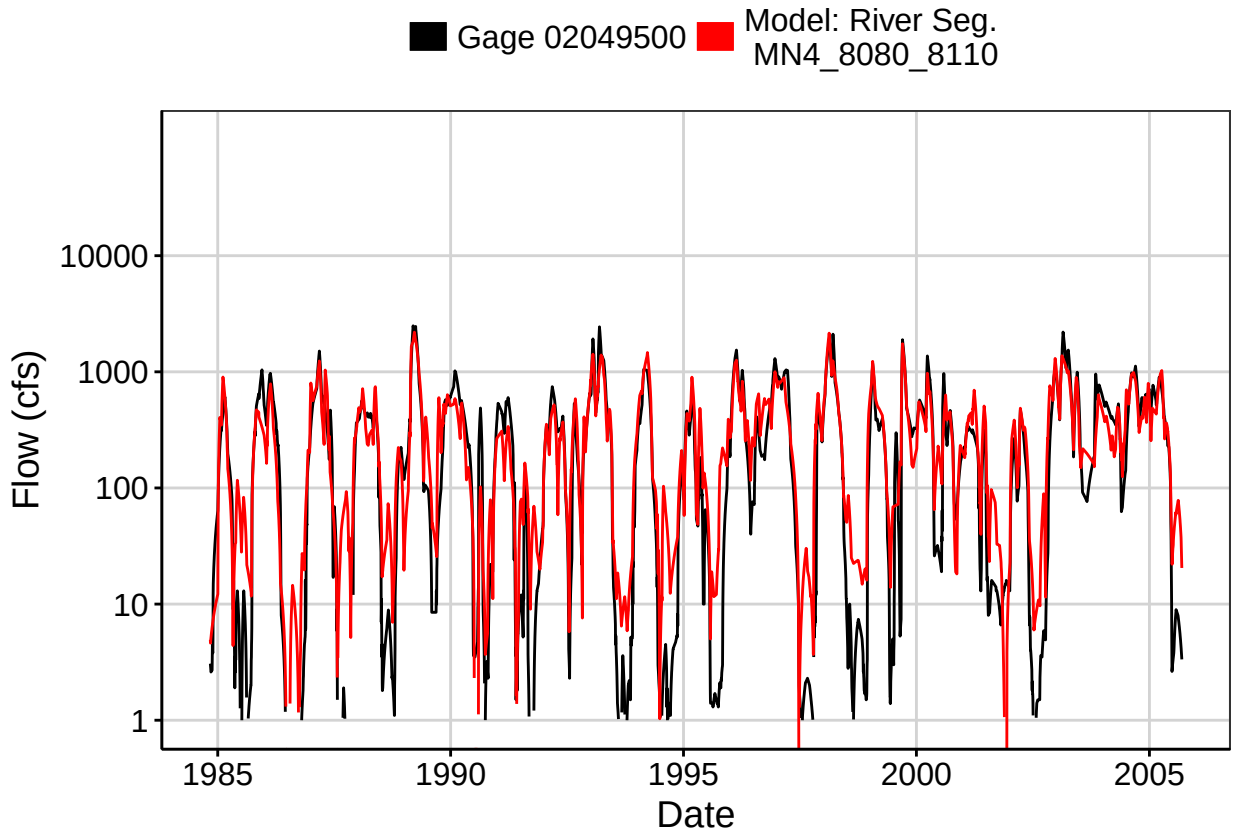

Fig. 5: Combined Baseflow

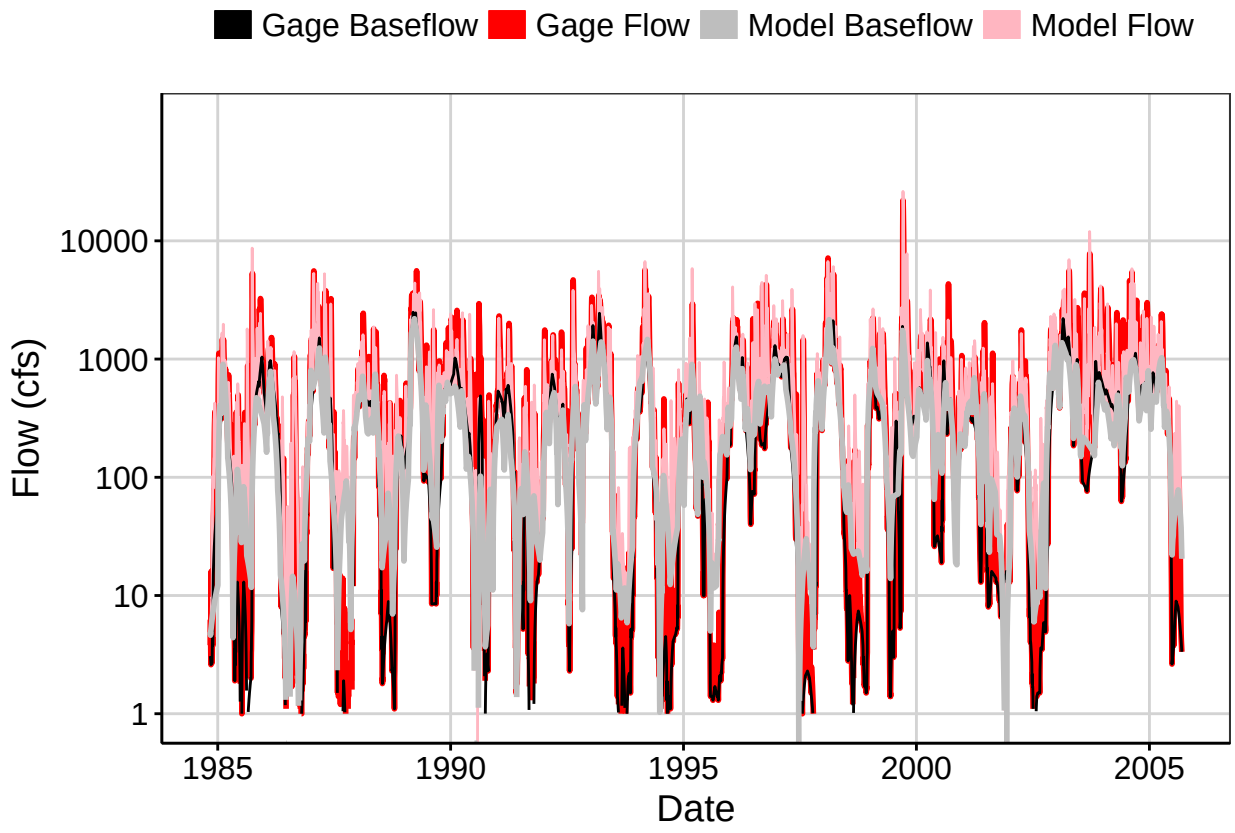

Fig. 6: Largest Error Segment

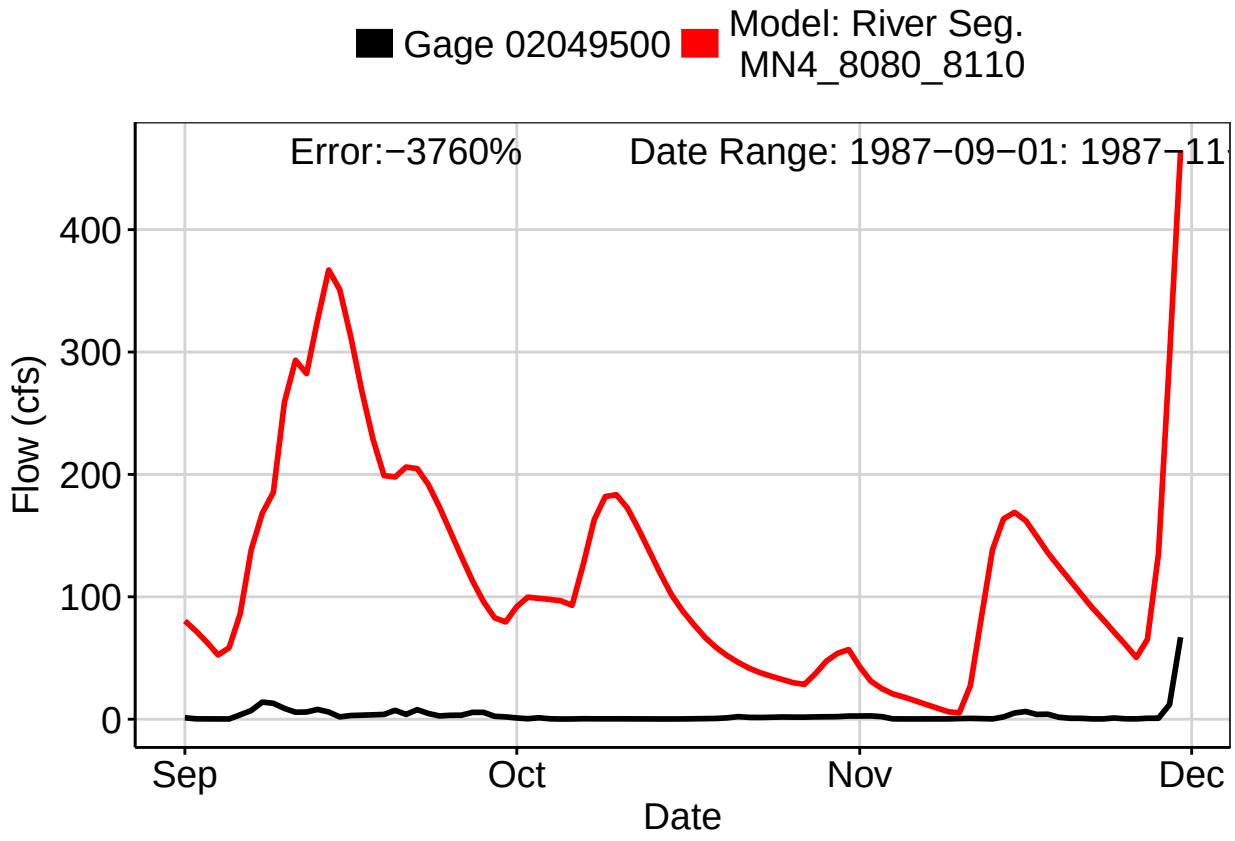

Fig. 7: Second Largest Error Segment

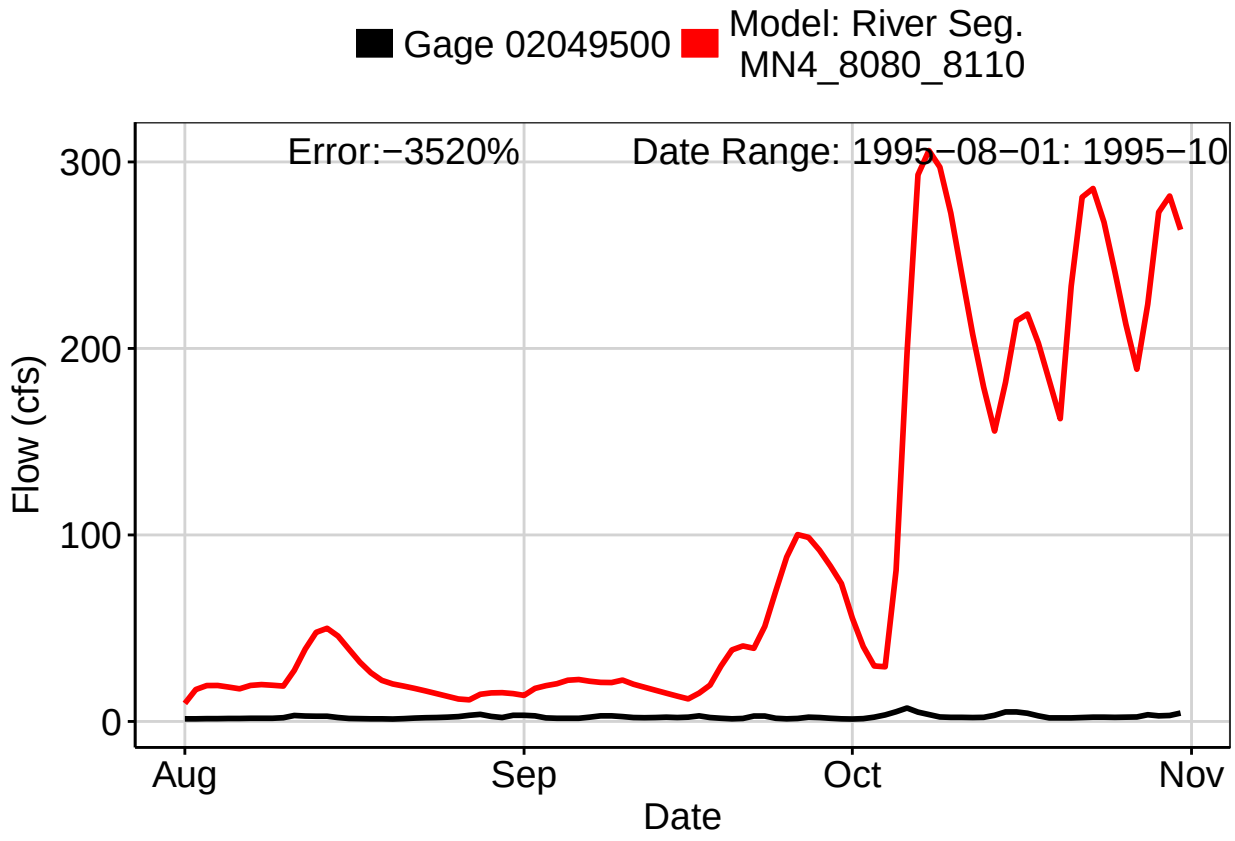

Fig. 8: Third Largest Error Segment

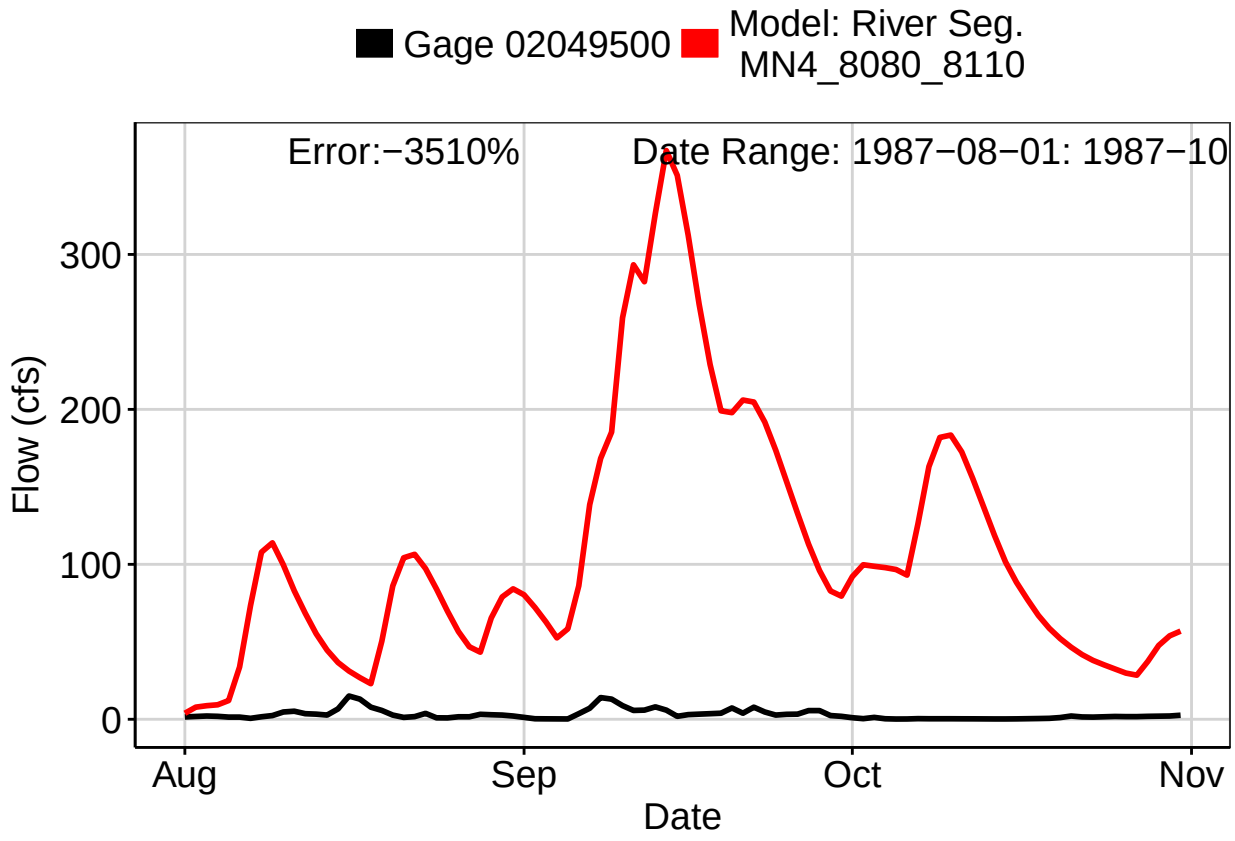

Fig. 9: Residuals Plot