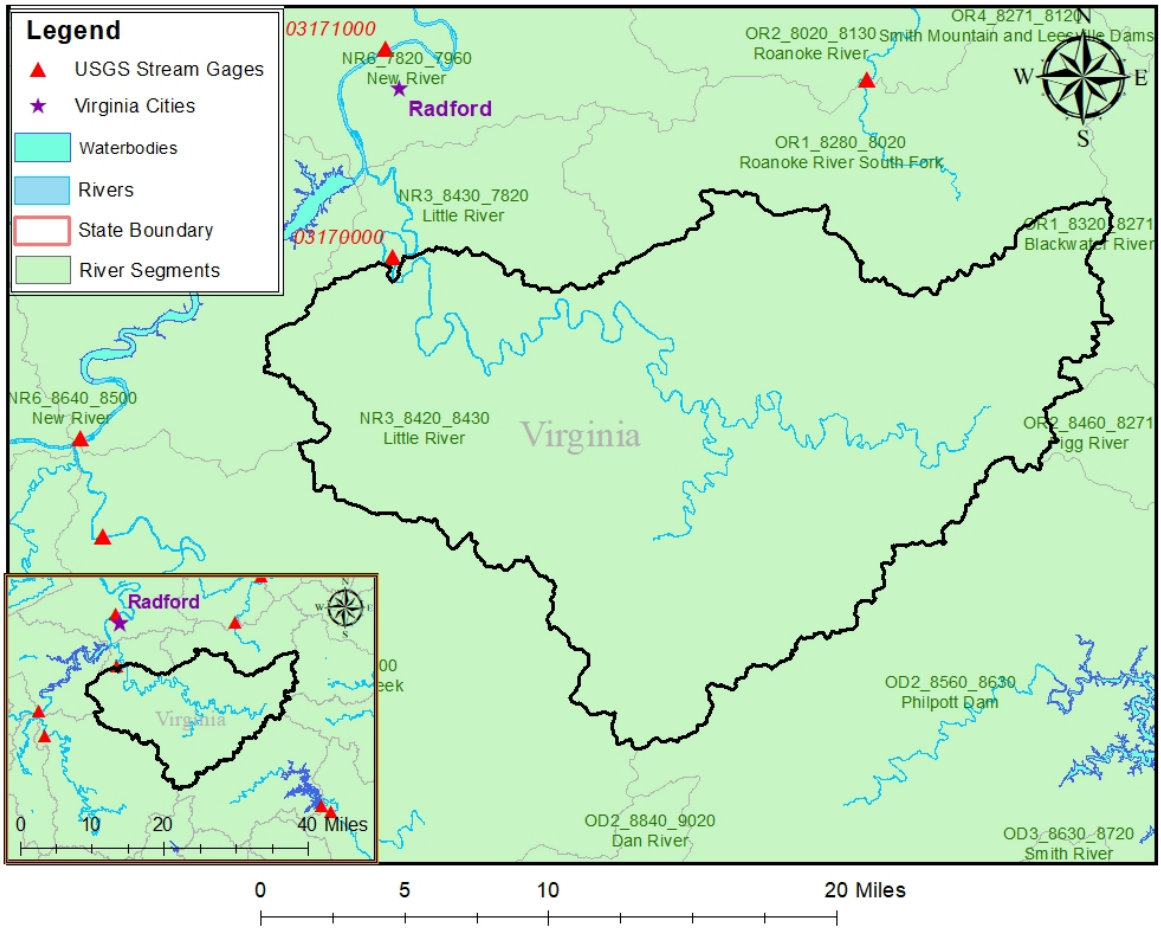
03170000 vs. NR3_8420_8430

Daniel Hildebrand, Hailey Alspaugh, and Kelsey Reitz

July 11, 2018



This river segment follows part of the flow of the Little River, a tributary of the New River. The gage is located in Pulaski County, VA (Lat 3702'15", Long 8033'25") approximately 6 miles south of Radford, VA. Drainage area is 309 sq. miles. This gage started taking data in 1928 and is still taking data. There are no known anthropogenic alterations in this area that would affect the flow conditions. The average daily discharge error between the model and gage data for the 20 year timespan was -1.96%, with 39.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	133	79.3	40.4
Feb. Low Flow	150	113	24.7
Mar. Low Flow	178	187	-5.06
Apr. Low Flow	130	195	-50
May Low Flow	200	322	-61
Jun. Low Flow	276	351	-27.2
Jul. Low Flow	301	238	20.9
Aug. Low Flow	279	203	27.2
Sep. Low Flow	218	167	23.4
Oct. Low Flow	169	122	27.8
Nov. Low Flow	142	108	23.9
Dec. Low Flow	122	92.2	24.4

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	357	364	-1.96
Jan. Mean Flow	398	442	-11.1
Feb. Mean Flow	471	569	-20.8
Mar. Mean Flow	532	643	-20.9
Apr. Mean Flow	500	554	-10.8
May Mean Flow	399	374	6.27
Jun. Mean Flow	358	340	5.03
Jul. Mean Flow	257	213	17.1
Aug. Mean Flow	232	197	15.1
Sep. Mean Flow	280	247	11.8
Oct. Mean Flow	233	211	9.44
Nov. Mean Flow	318	283	11
Dec. Mean Flow	318	307	3.46

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	394	198	49.7
Feb. High Flow	763	475	37.7
Mar. High Flow	695	464	33.2
Apr. High Flow	925	954	-3.14
May High Flow	1000	906	9.4
Jun. High Flow	1560	1560	0
Jul. High Flow	895	1050	-17.3
Aug. High Flow	865	711	17.8
Sep. High Flow	594	438	26.3
Oct. High Flow	471	343	27.2
Nov. High Flow	399	220	44.9
Dec. High Flow	446	240	46.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	31	10.9	64.8
Med. 1 Day Min	95	51.2	46.1
Min. 3 Day Min	31.3	11.1	64.5
Med. 3 Day Min	98.5	52.6	46.6
Min. 7 Day Min	32	11.7	63.4
Med. 7 Day Min	105	57	45.7
Min. 30 Day Min	52.9	18.1	65.8
Med. 30 Day Min	133	77.7	41.6
Min. 90 Day Min	75.4	47	37.7
Med. 90 Day Min	189	125	33.9
7Q10	59.2	26.1	55.9
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	148	133	10.1
Mean Baseflow	235	238	-1.28

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	9330	9580	-2.68
Med. 1 Day Max	3760	4110	-9.31
Max. 3 Day Max	4810	5570	-15.8
Med. 3 Day Max	2340	2800	-19.7
Max. 7 Day Max	2790	3530	-26.5
Med. 7 Day Max	1500	1760	-17.3
Max. 30 Day Max	1480	1900	-28.4
Med. 30 Day Max	785	927	-18.1
Max. 90 Day Max	1030	1330	-29.1
Med. 90 Day Max	587	637	-8.52

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	73	33.7	53.8
5% Non-Exceedance	104	63.3	39.1
50% Non-Exceedance	261	237	9.2
95% Non-Exceedance	804	984	-22.4
99% Non-Exceedance	1860	2190	-17.7
Sept. 10% Non-Exceedance	58.8	101	-71.8

Fig. 1: Hydrograph

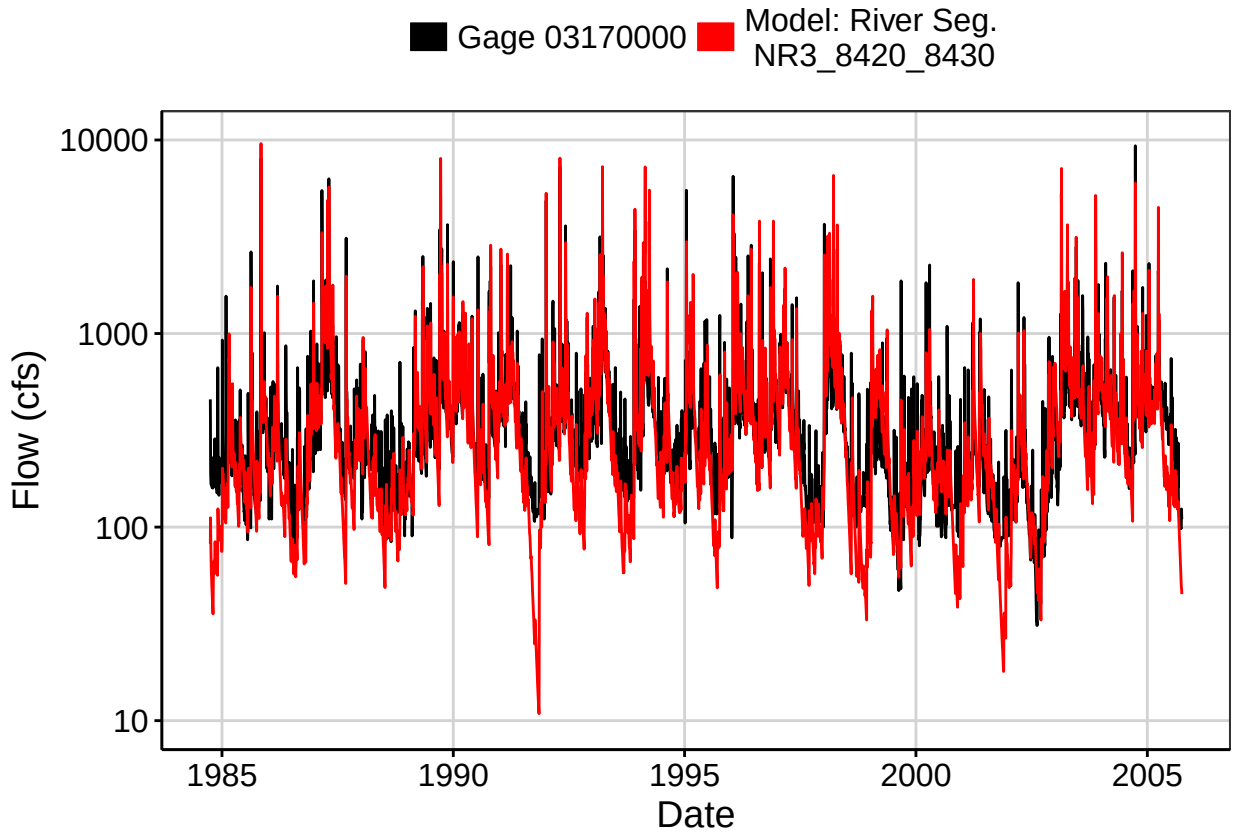


Fig. 2: Zoomed Hydrograph

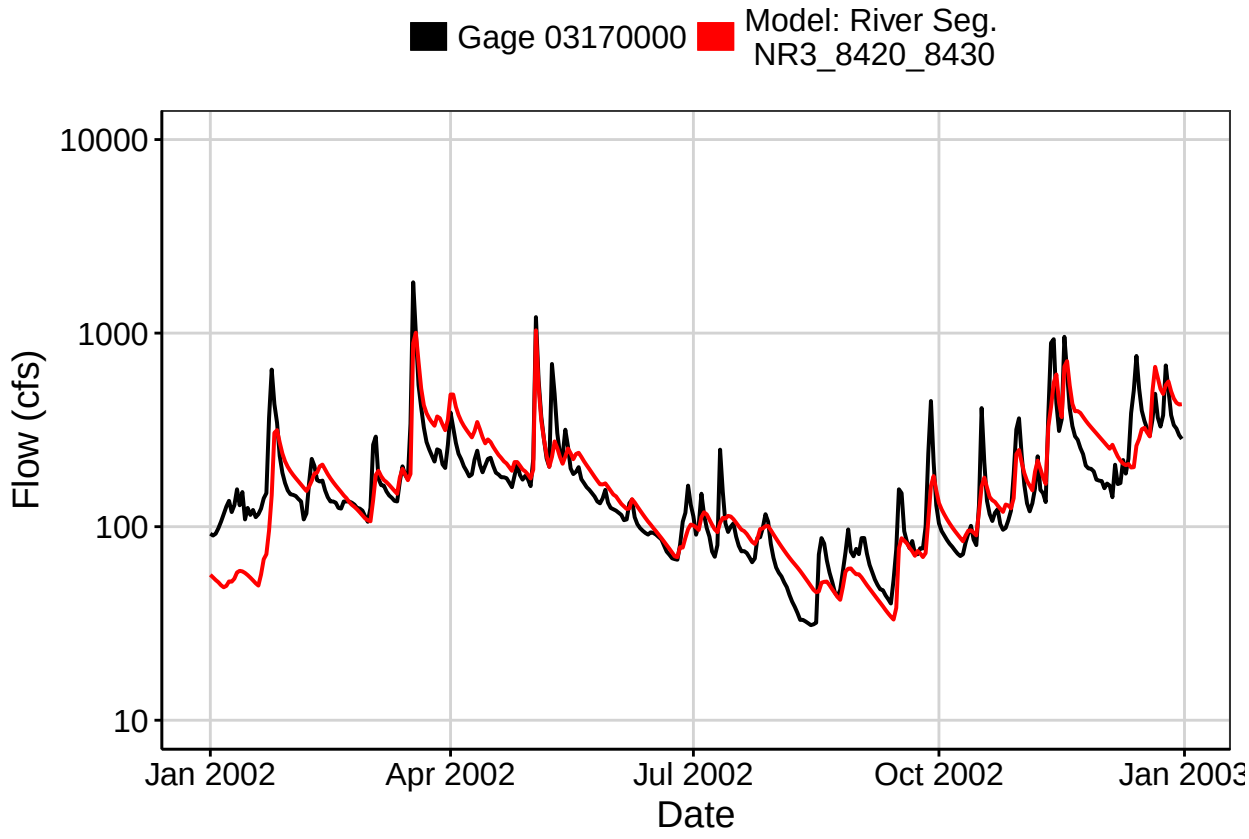


Fig. 3: Flow Exceedance

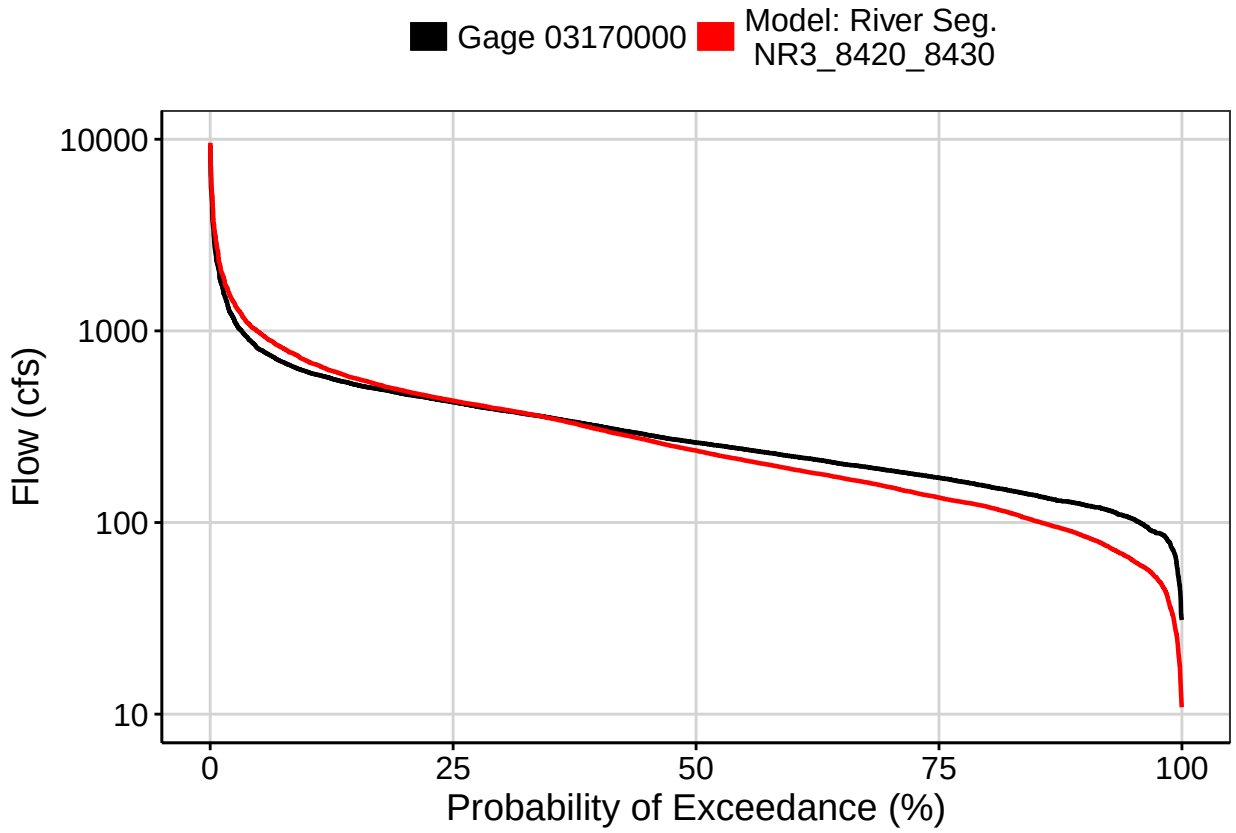


Fig. 4: Baseflow

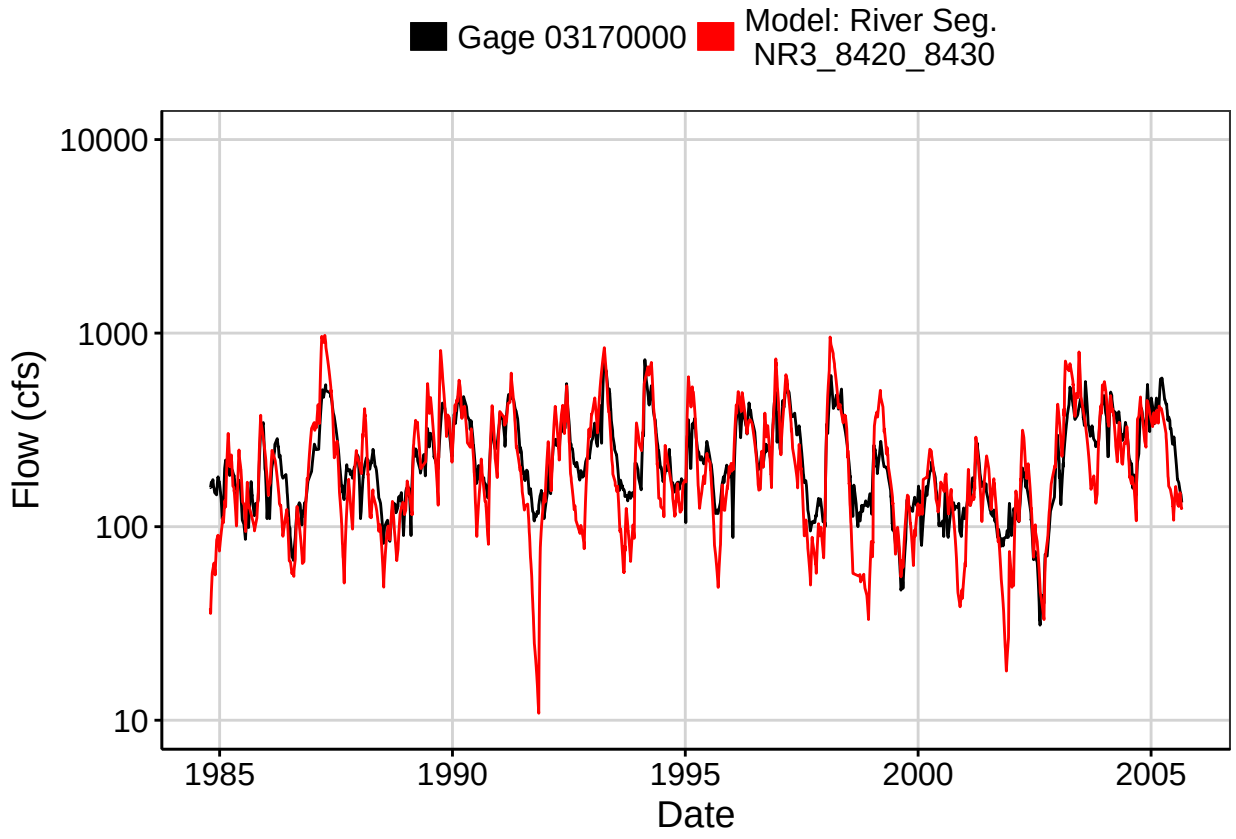


Fig. 5: Combined Baseflow

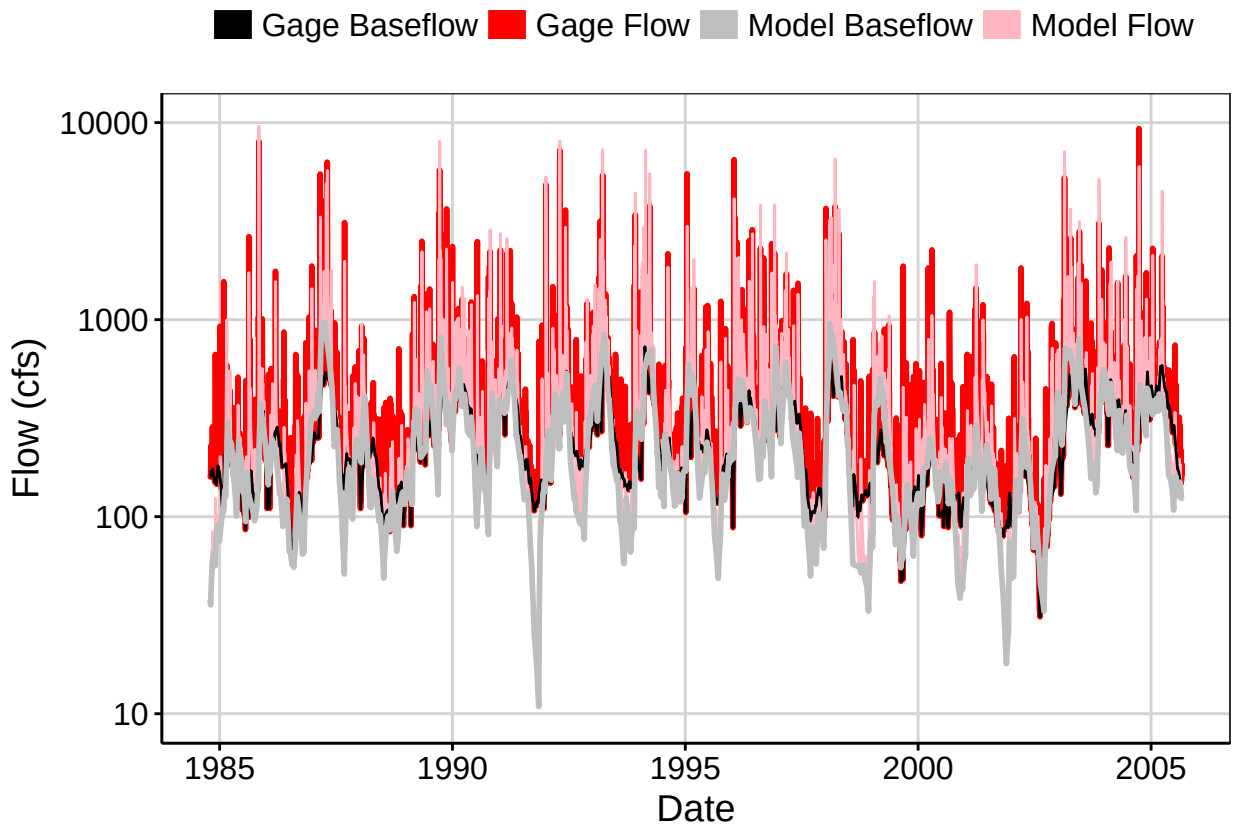


Fig. 6: Largest Error Segment

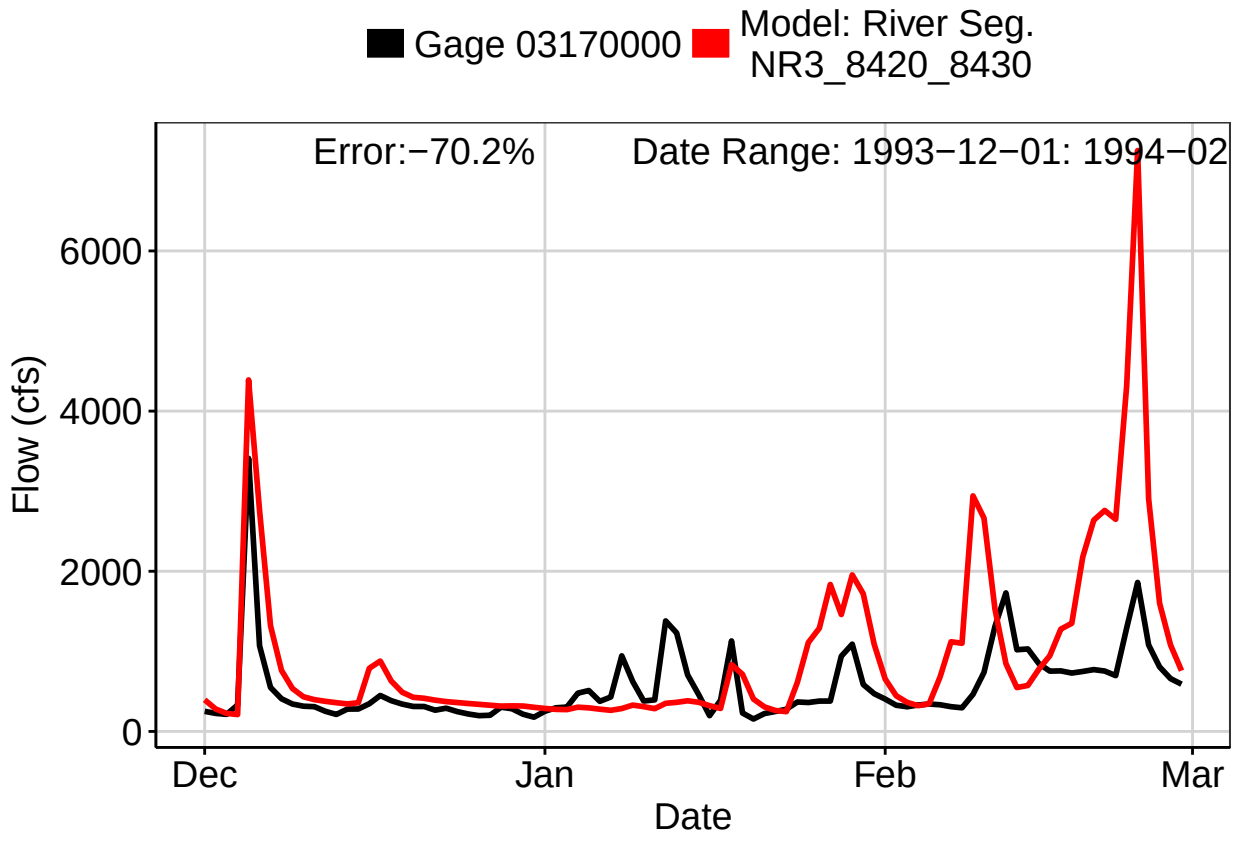


Fig. 7: Second Largest Error Segment

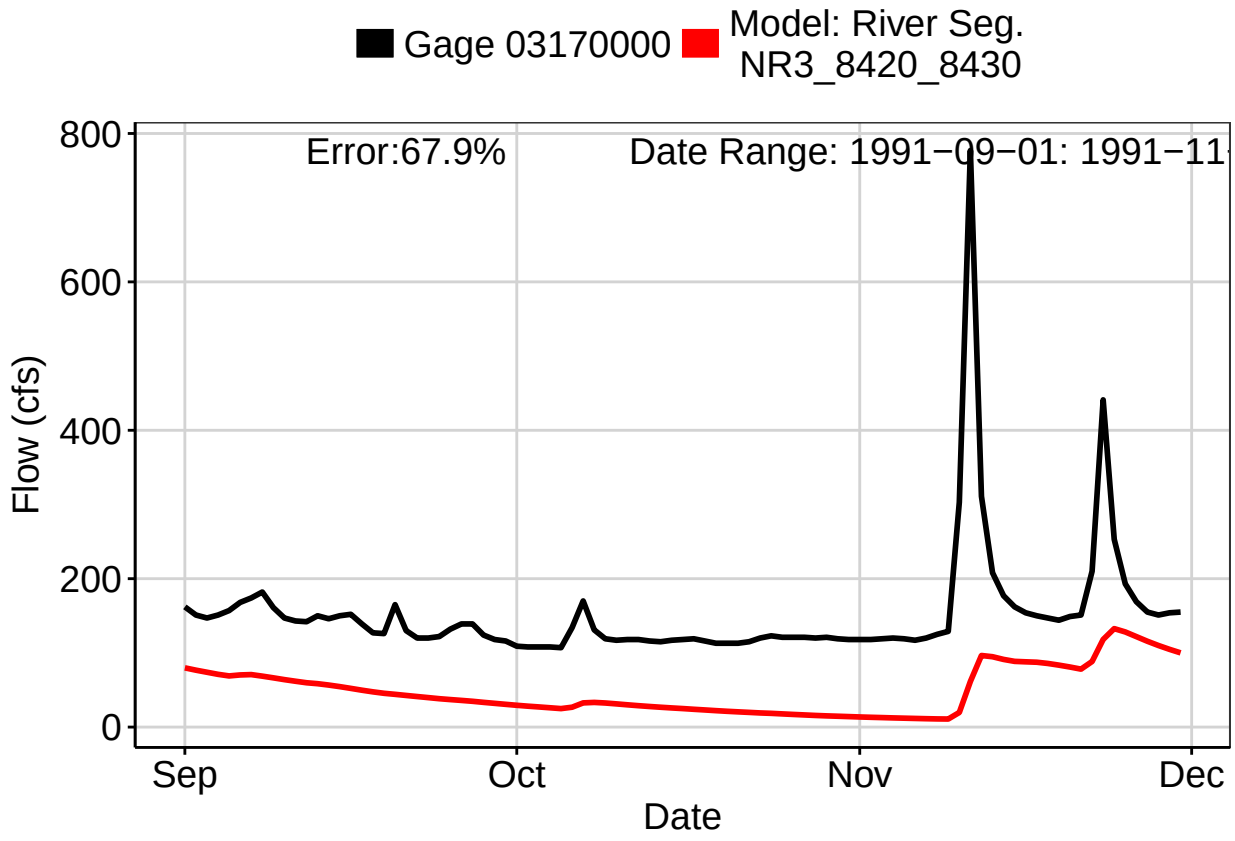


Fig. 8: Third Largest Error Segment

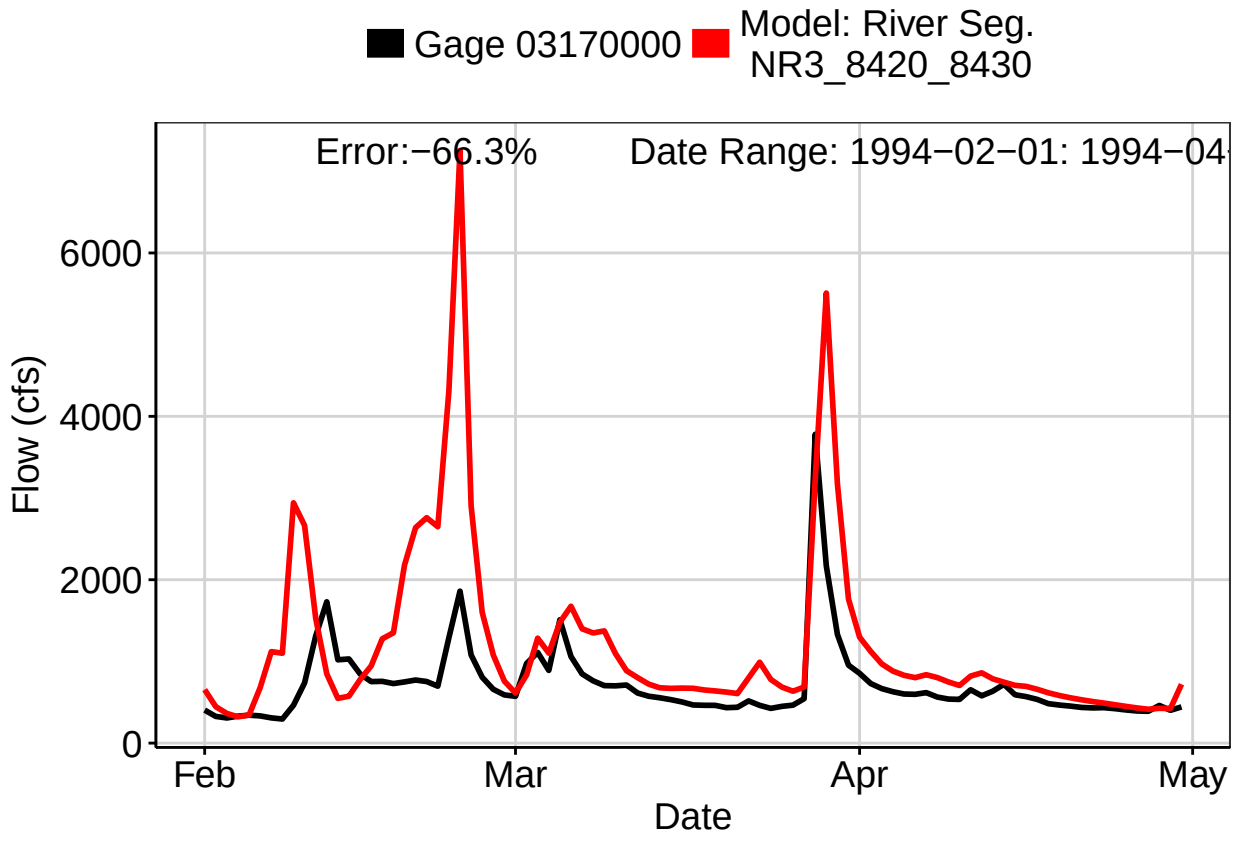


Fig. 9: Residuals Plot