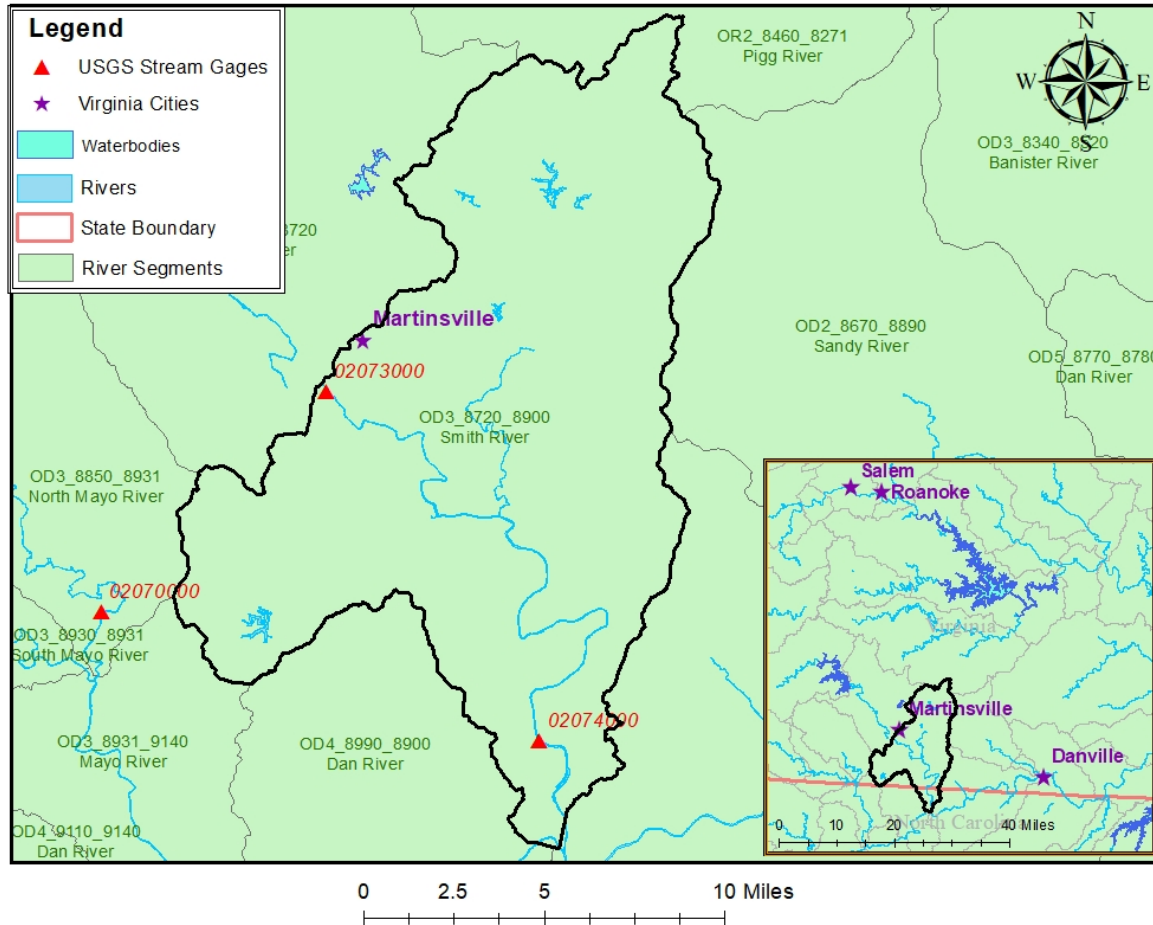


02074000 vs. OD3_8720_8900

Daniel Hildebrand, Hailey Alsbaugh, and Kelsey Reitz

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This river segment follows part of the flow of the Smith River, a tributary of the Dan River. The gage is located in Rockingham County, NC (Lat 36°31'32", Long 79°45'56") approximately 13 miles southeast of Martinsville, VA. Drainage area is 538 sq. miles. This gage started taking data in 1939 and is still taking data. This area is regulated by the Philpott Reservoir as well as a power plant in Martinsville, VA. The average daily discharge error between the model and gage data for the 20 year timespan was 7.12%, with 48.8% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	196	101	48.5
Feb. Low Flow	200	151	24.5
Mar. Low Flow	214	241	-12.6
Apr. Low Flow	220	293	-33.2
May Low Flow	270	407	-50.7
Jun. Low Flow	242	417	-72.3
Jul. Low Flow	347	269	22.5
Aug. Low Flow	288	226	21.5
Sep. Low Flow	245	169	31
Oct. Low Flow	204	129	36.8
Nov. Low Flow	187	106	43.3
Dec. Low Flow	183	117	36.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	702	652	7.12
Jan. Mean Flow	761	739	2.89
Feb. Mean Flow	747	901	-20.6
Mar. Mean Flow	961	1150	-19.7
Apr. Mean Flow	935	960	-2.67
May Mean Flow	762	666	12.6
Jun. Mean Flow	745	589	20.9
Jul. Mean Flow	616	384	37.7
Aug. Mean Flow	583	388	33.4
Sep. Mean Flow	657	523	20.4
Oct. Mean Flow	522	459	12.1
Nov. Mean Flow	550	495	10
Dec. Mean Flow	590	588	0.34

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	563	589	-4.62
Feb. High Flow	1110	1650	-48.6
Mar. High Flow	1330	1290	3.01
Apr. High Flow	1570	1620	-3.18
May High Flow	1720	1340	22.1
Jun. High Flow	2180	4140	-89.9
Jul. High Flow	1760	1760	0
Aug. High Flow	1600	1340	16.2
Sep. High Flow	1440	787	45.3
Oct. High Flow	1440	595	58.7
Nov. High Flow	1020	433	57.5
Dec. High Flow	928	397	57.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	72.8	55.9	23.2
Med. 1 Day Min	124	79.5	35.9
Min. 3 Day Min	86	61.9	28
Med. 3 Day Min	181	90.4	50.1
Min. 7 Day Min	99.8	75.8	24
Med. 7 Day Min	259	126	51.4
Min. 30 Day Min	125	93.6	25.1
Med. 30 Day Min	306	147	52
Min. 90 Day Min	137	118	13.9
Med. 90 Day Min	375	205	45.3
7Q10	150	86	42.7
Year of 90-Day Min. Flow	2002	1986	100
Drought Year Mean	254	235	7.48
Mean Baseflow	298	301	-1.01

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	15300	15500	-1.31
Med. 1 Day Max	6350	7800	-22.8
Max. 3 Day Max	8230	9930	-20.7
Med. 3 Day Max	4090	4510	-10.3
Max. 7 Day Max	5500	5880	-6.91
Med. 7 Day Max	2840	2840	0
Max. 30 Day Max	3050	3250	-6.56
Med. 30 Day Max	1520	1530	-0.66
Max. 90 Day Max	2050	2170	-5.85
Med. 90 Day Max	1150	1090	5.22

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	115	78.8	31.5
5% Non-Exceedance	185	115	37.8
50% Non-Exceedance	496	402	19
95% Non-Exceedance	1770	1800	-1.69
99% Non-Exceedance	3980	4230	-6.28
Sept. 10% Non-Exceedance	124	185	-49.2

Fig. 1: Hydrograph

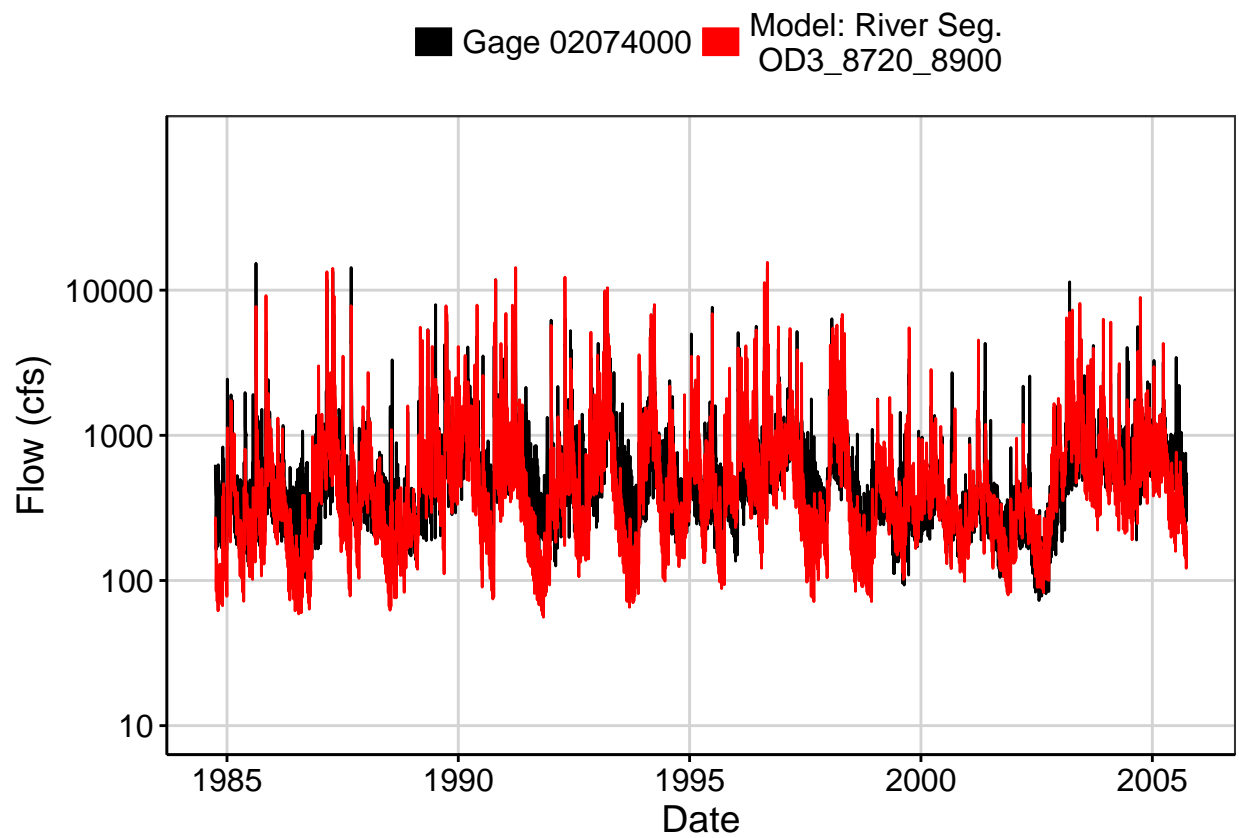


Fig. 2: Zoomed Hydrograph

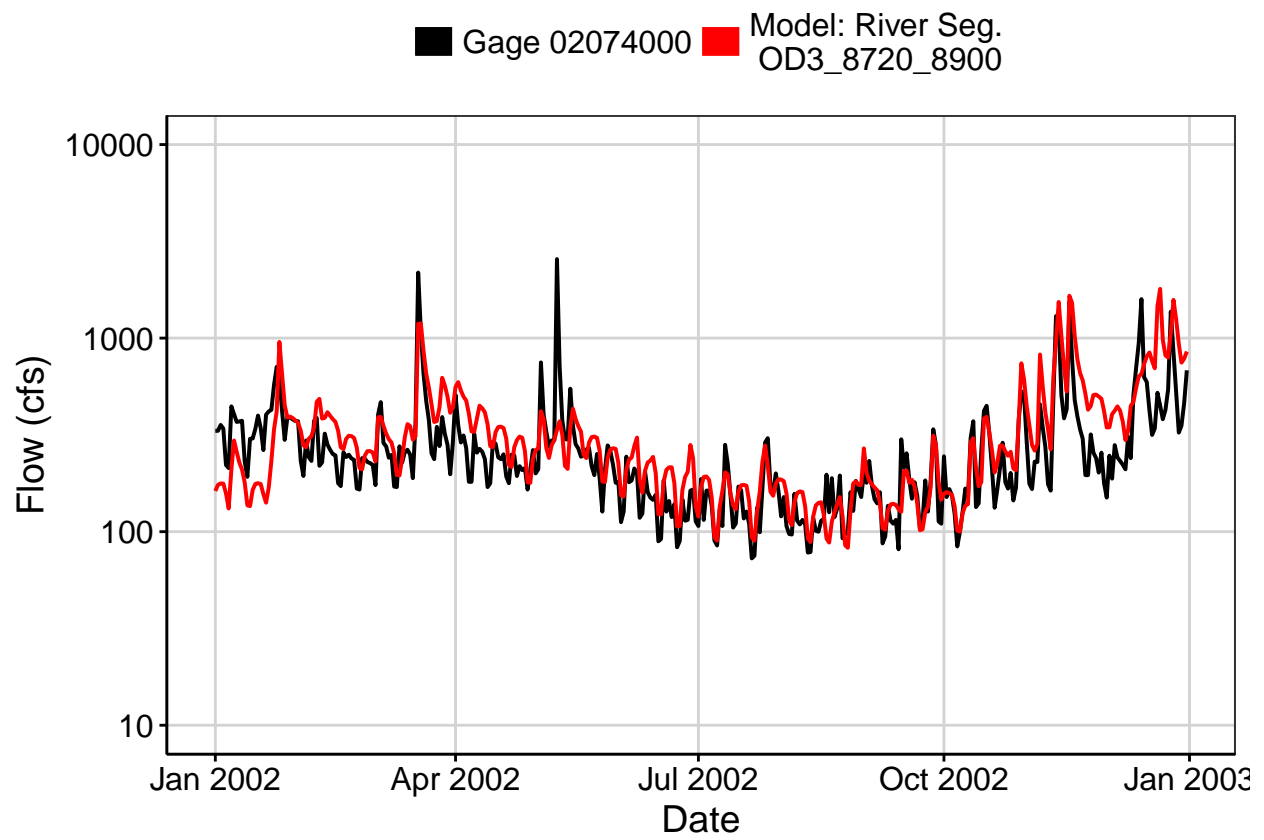


Fig. 3: Flow Exceedance

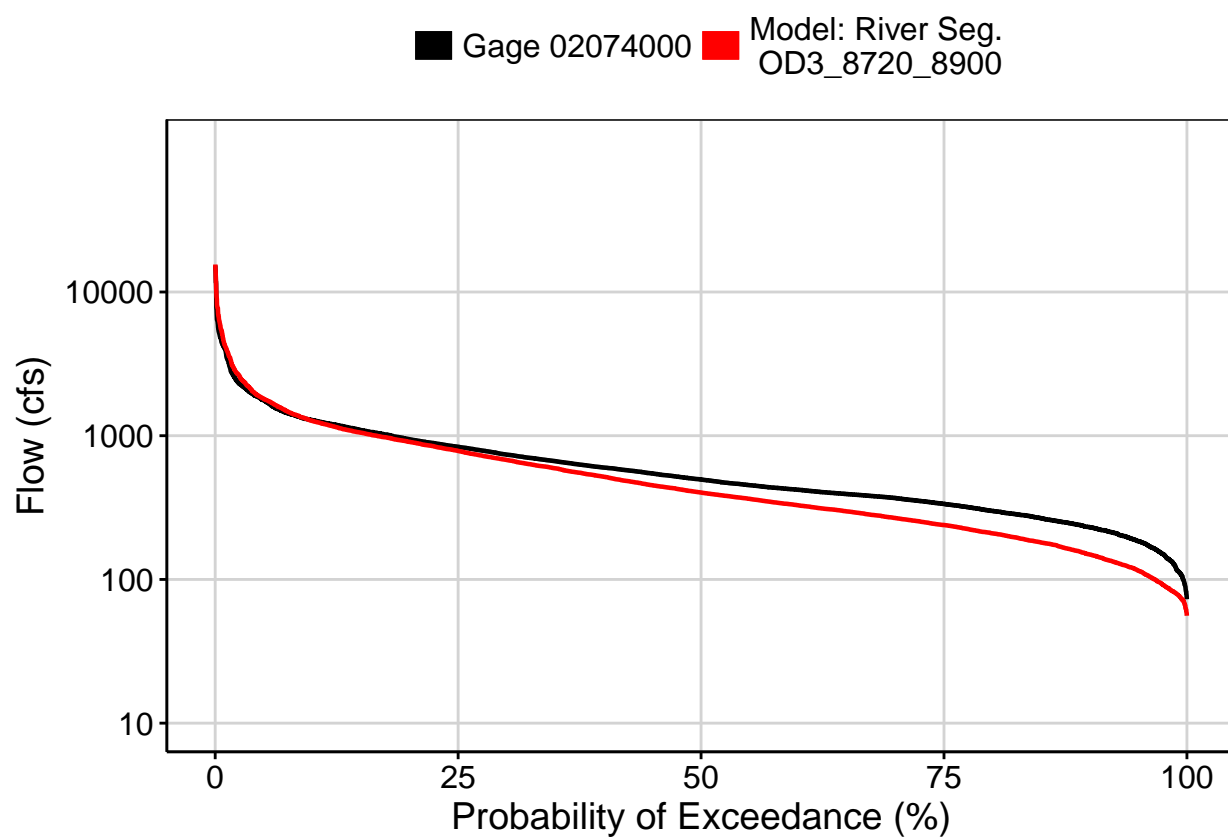


Fig. 4: Baseflow

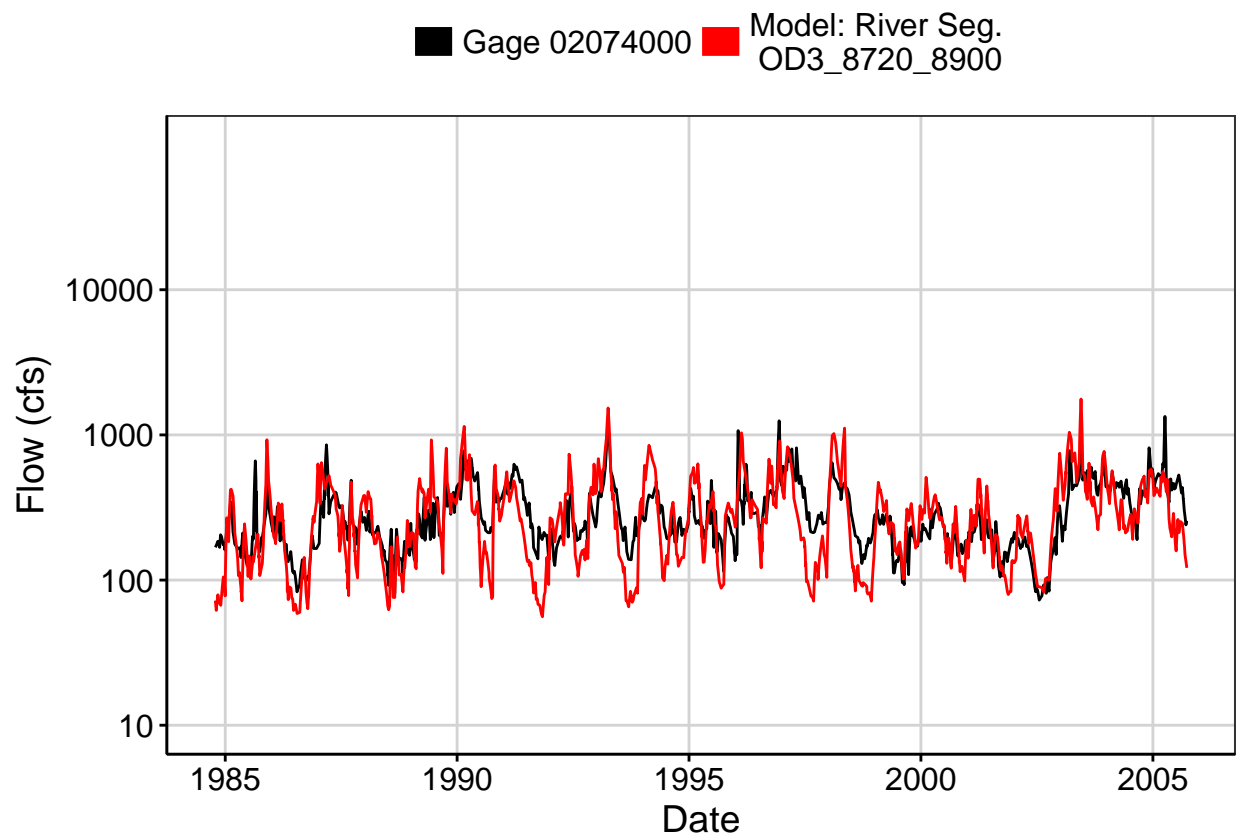


Fig. 5: Combined Baseflow

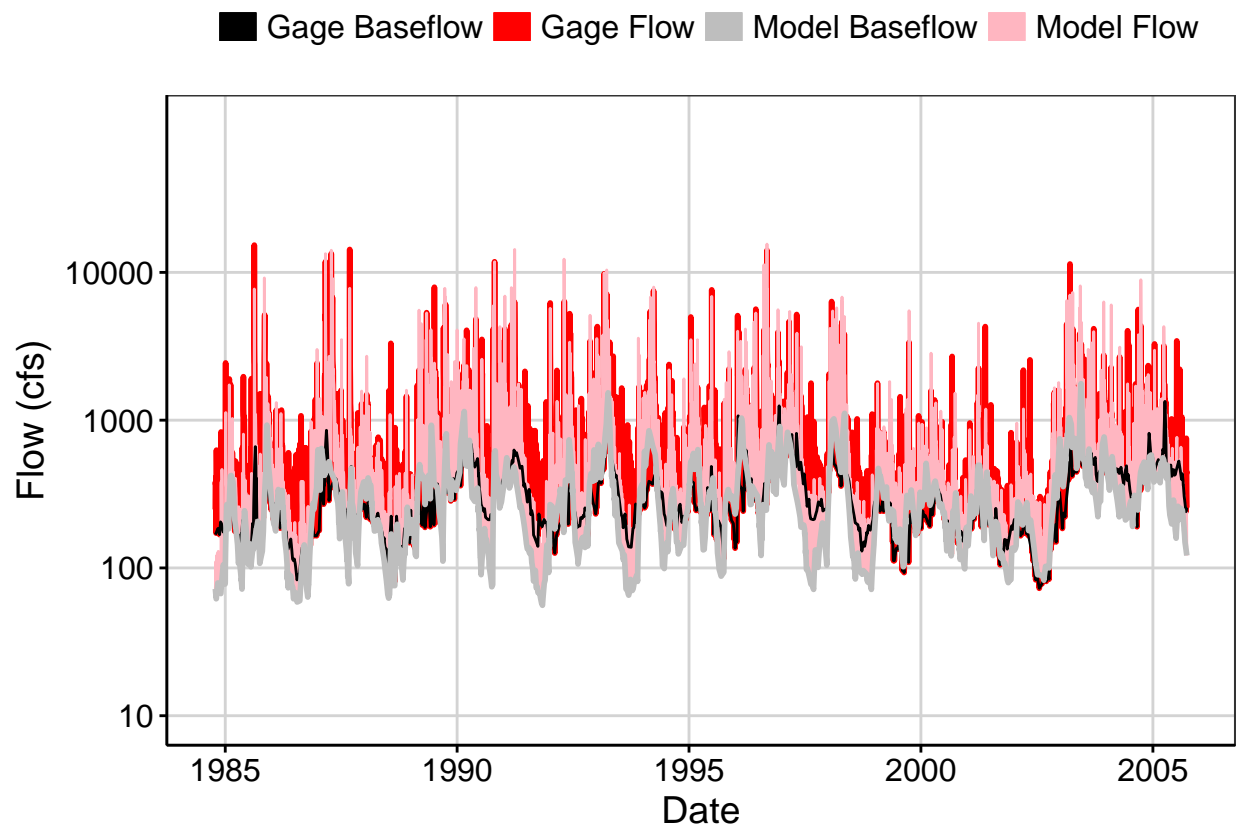


Fig. 6: Largest Error Segment

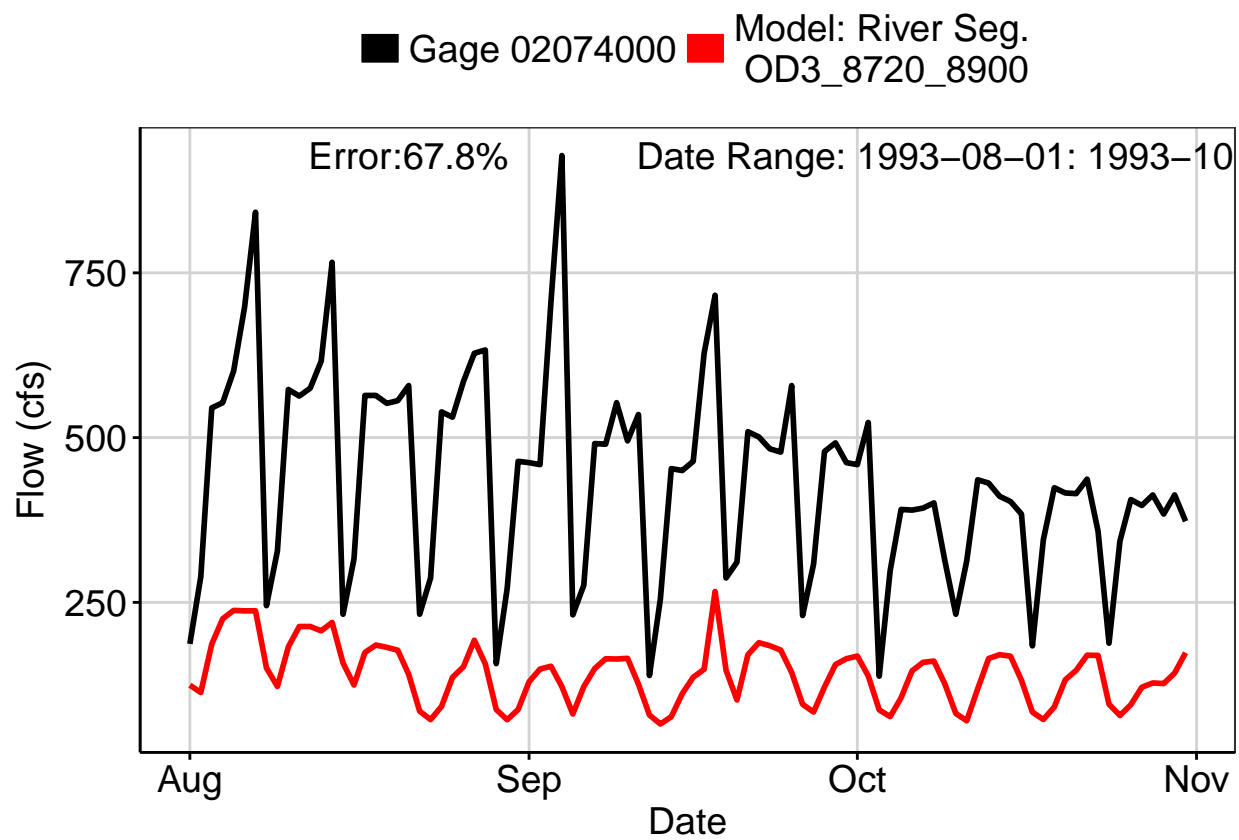


Fig. 7: Second Largest Error Segment

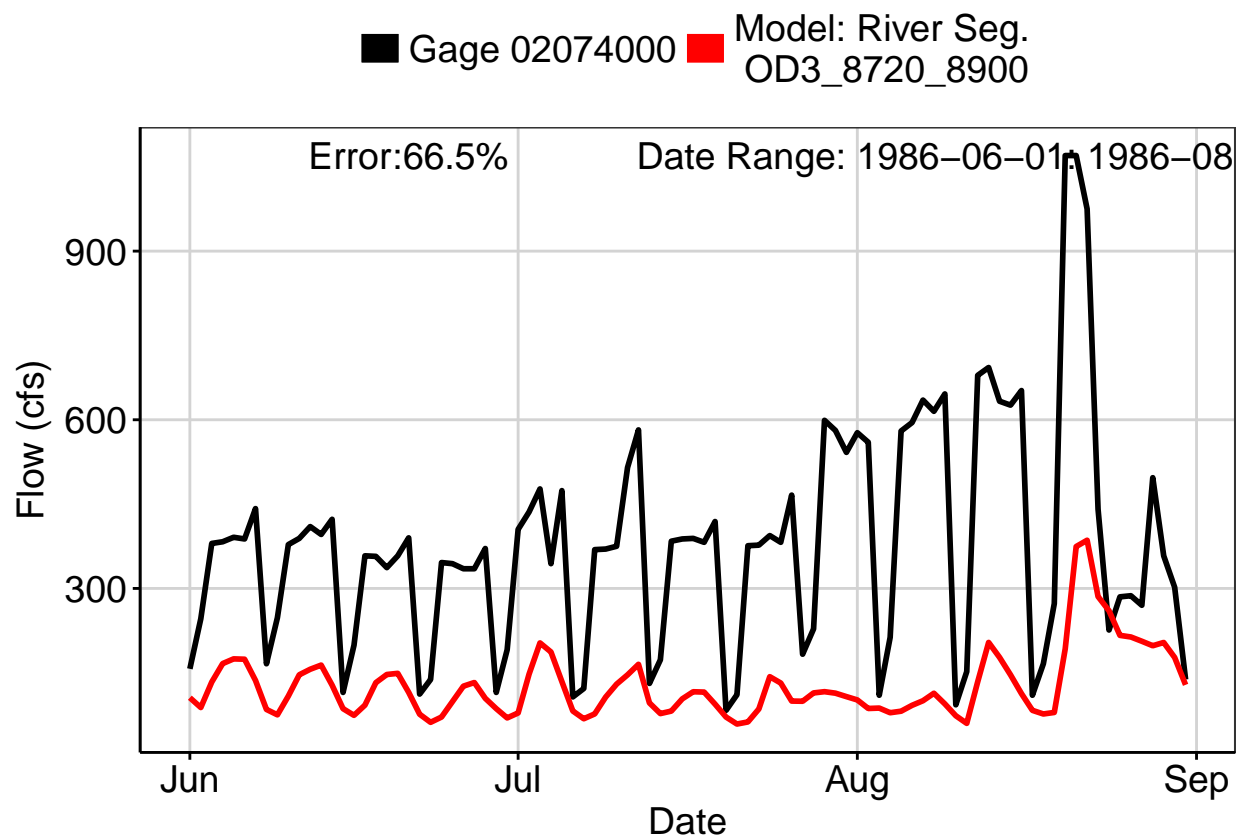


Fig. 8: Third Largest Error Segment

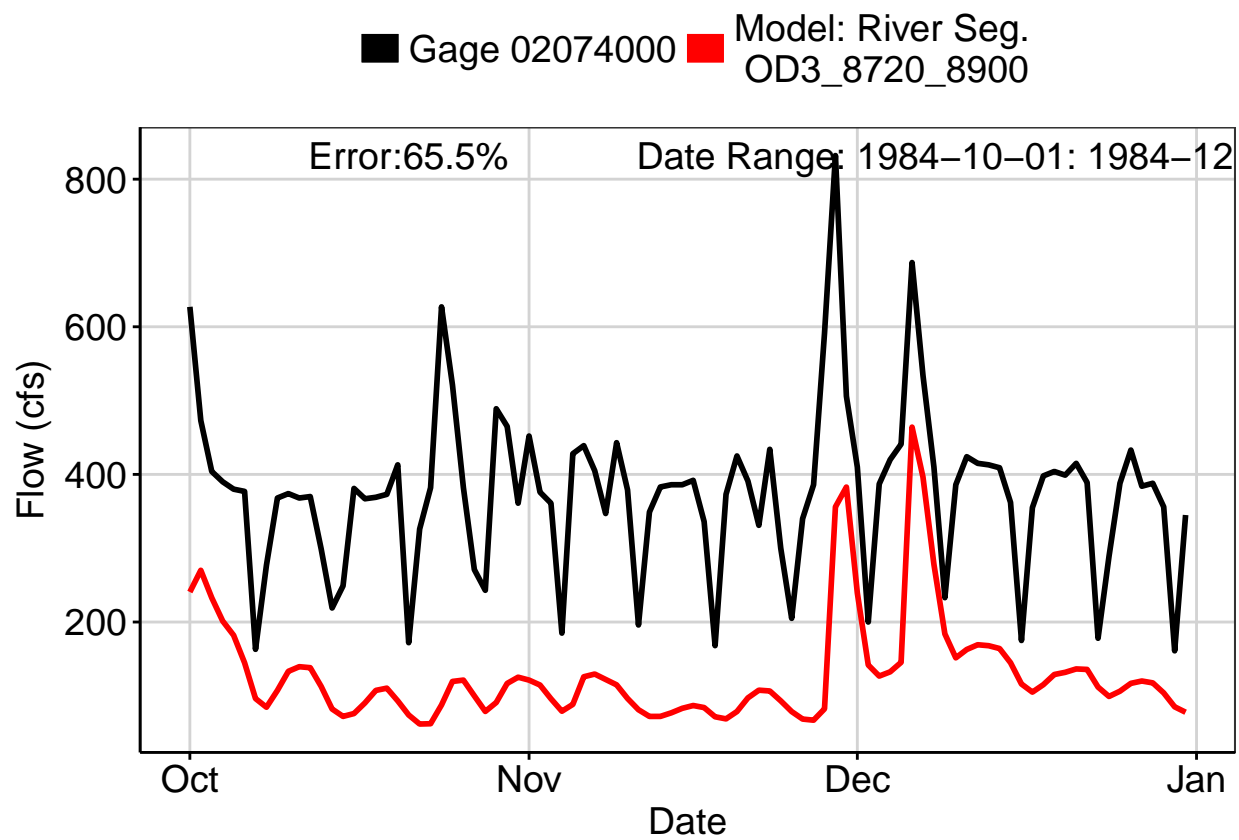


Fig. 9: Residuals Plot

