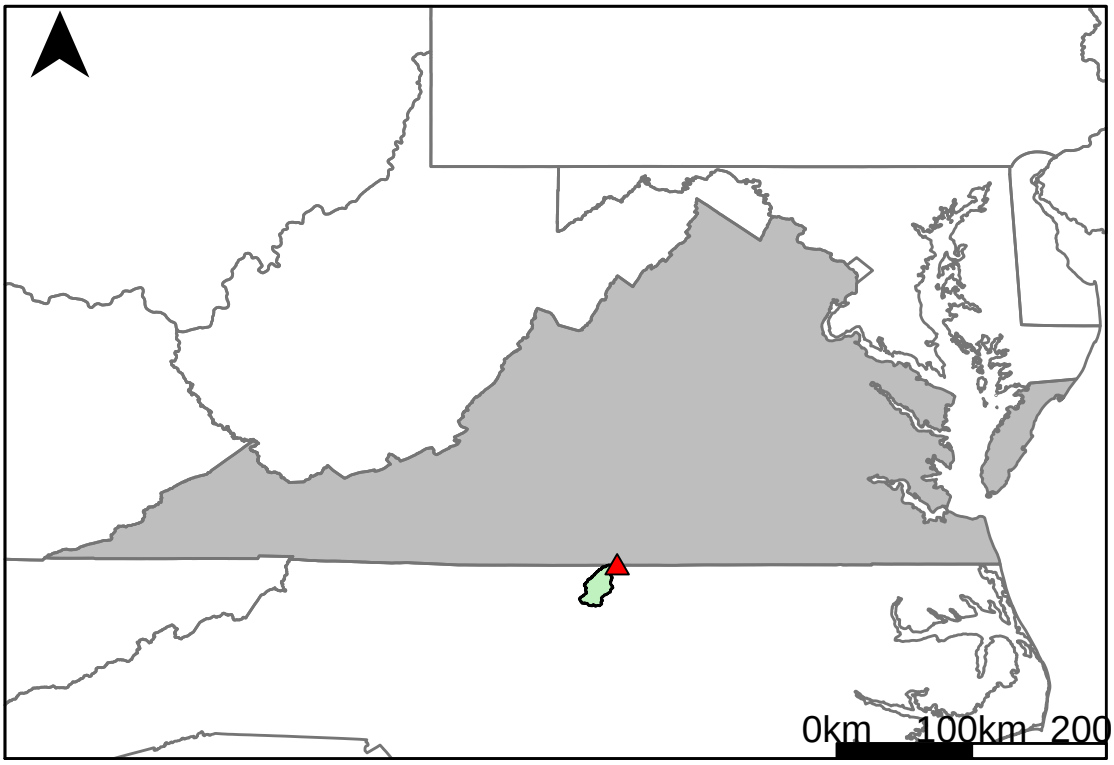
Appendix C.11: USGS Gage 02077303 vs. OD2_8920_8830



This river segment follows part of the flow of the Hyco River, a tributary of the Dan River. The gage is located in Person County, NC (Lat 3631'21", Long 7858'51") approximately 24 miles southeast of Danville, VA. Drainage area is 202 sq. miles. This gage started taking data in 1973 and is still taking data. It is regulated by the Afterbay Dam which is 200ft upstream of the gage. The cities of Roxboro and Oxford use the Dam in cases of emergency to supply their citizens with water. The average daily discharge error between the model and gage data for the 20 year timespan was -33.8%, with 68.3% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	16	15.1	5.63
Feb. Low Flow	13	54.9	-322
Mar. Low Flow	15	92.8	-519
Apr. Low Flow	18	150	-733
May Low Flow	57	225	-295
Jun. Low Flow	54	184	-241
Jul. Low Flow	20	176	-780
Aug. Low Flow	16.5	13	21.2
Sep. Low Flow	15	32	-113
Oct. Low Flow	13	18.4	-41.5
Nov. Low Flow	14	13	7.14
Dec. Low Flow	14.4	13	9.72

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	148	198	-33.8
Jan. Mean Flow	253	330	-30.4
Feb. Mean Flow	271	335	-23.6
Mar. Mean Flow	385	428	-11.2
Apr. Mean Flow	231	339	-46.8
May Mean Flow	106	114	-7.55
Jun. Mean Flow	82.3	133	-61.6
Jul. Mean Flow	45.1	73.7	-63.4
Aug. Mean Flow	64.5	65.7	-1.86
Sep. Mean Flow	89.9	152	-69.1
Oct. Mean Flow	60.7	126	-108
Nov. Mean Flow	75.6	121	-60.1
Dec. Mean Flow	118	173	-46.6

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	25	96.5	-286
Feb. High Flow	18	191	-961
Mar. High Flow	355	258	27.3
Apr. High Flow	983	499	49.2
May High Flow	940	499	46.9
Jun. High Flow	1490	716	51.9
Jul. High Flow	1120	578	48.4
Aug. High Flow	188	287	-52.7
Sep. High Flow	35	91.2	-161
Oct. High Flow	36	58.7	-63.1
Nov. High Flow	36	34.2	5
Dec. High Flow	26	63.8	-145

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.27	13	-4710
Med. 1 Day Min	8.8	13	-47.7
Min. 3 Day Min	0.33	13	-3800
Med. 3 Day Min	8.8	13	-47.7
Min. 7 Day Min	0.45	13	-2810
Med. 7 Day Min	9.03	13	-44
Min. 30 Day Min	0.8	13	-1520
Med. 30 Day Min	13.5	13.1	2.96
Min. 90 Day Min	4.12	13	-216
Med. 90 Day Min	17.1	24.2	-41.5
7Q10	1.77	13.3	-651
Year of 90-Day Min. Flow	2002	1986	100
Drought Year Mean	5.11	198	-3770
Mean Baseflow	40	119	-198

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7000	11100	-58.6
Med. 1 Day Max	3280	1590	51.5
Max. 3 Day Max	4570	6140	-34.4
Med. 3 Day Max	2500	1300	48
Max. 7 Day Max	2650	3650	-37.7
Med. 7 Day Max	1540	1090	29.2
Max. 30 Day Max	1250	1300	-4
Med. 30 Day Max	578	503	13
Max. 90 Day Max	772	831	-7.64
Med. 90 Day Max	274	371	-35.4

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	1.99	13	-553
5% Non-Exceedance	4.21	13	-209
50% Non-Exceedance	23	118	-413
95% Non-Exceedance	697	673	3.44
99% Non-Exceedance	2000	1370	31.5
Sept. 10% Non-Exceedance	12.9	13	-0.78

Fig. 1: Hydrograph

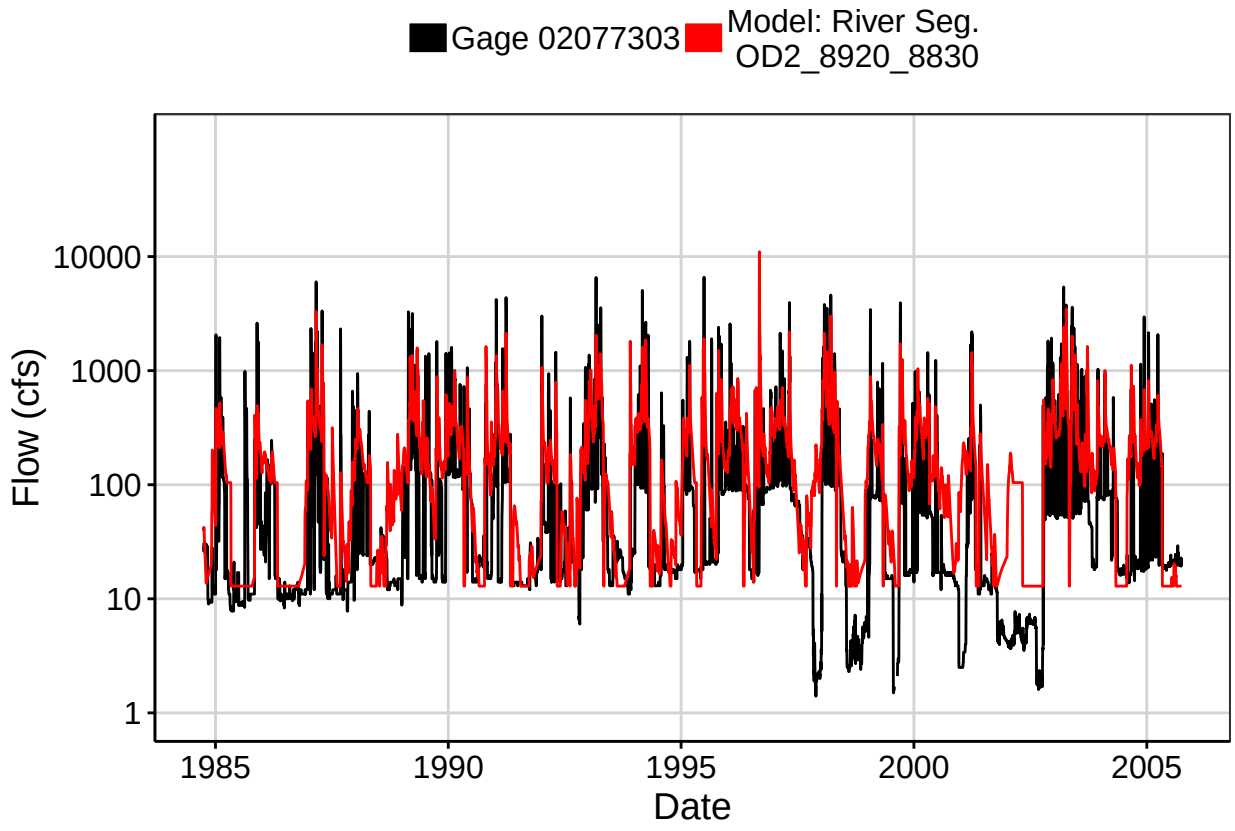


Fig. 2: Zoomed Hydrograph

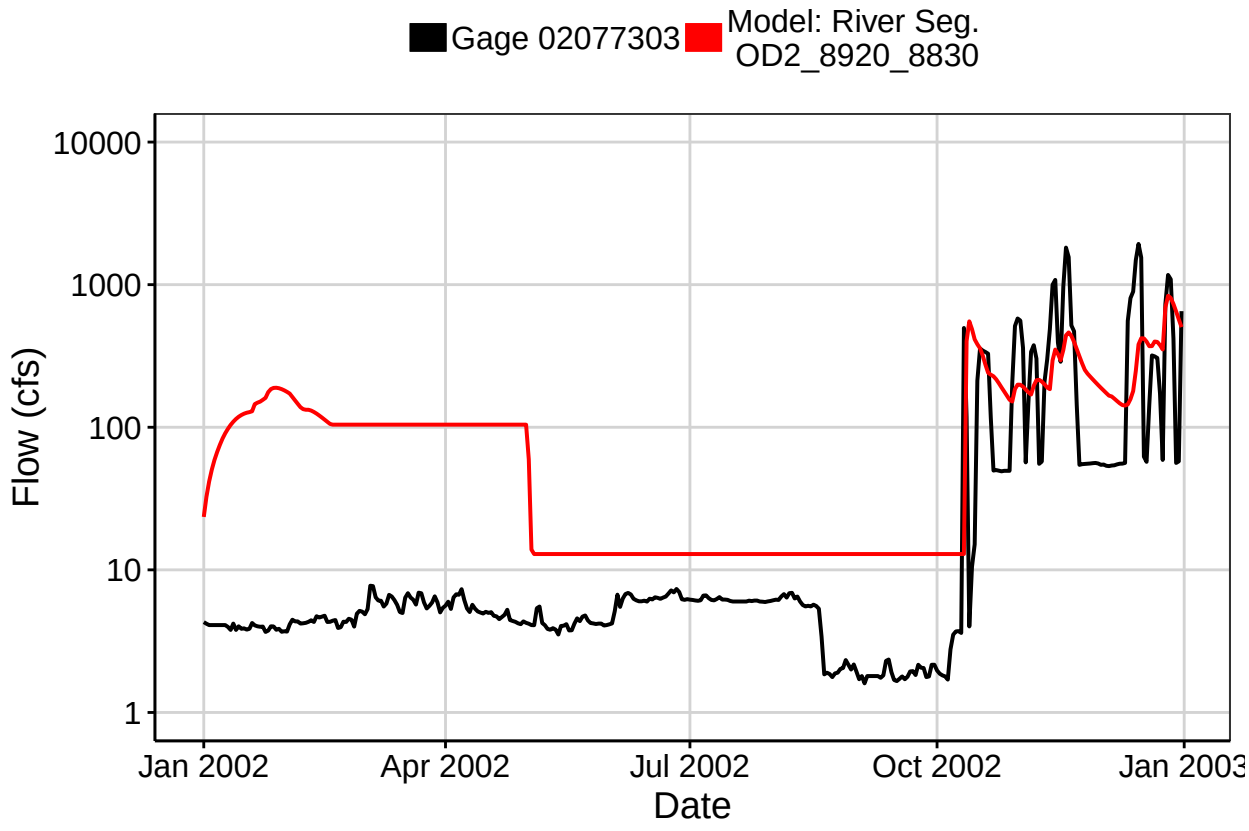


Fig. 3: Flow Exceedance

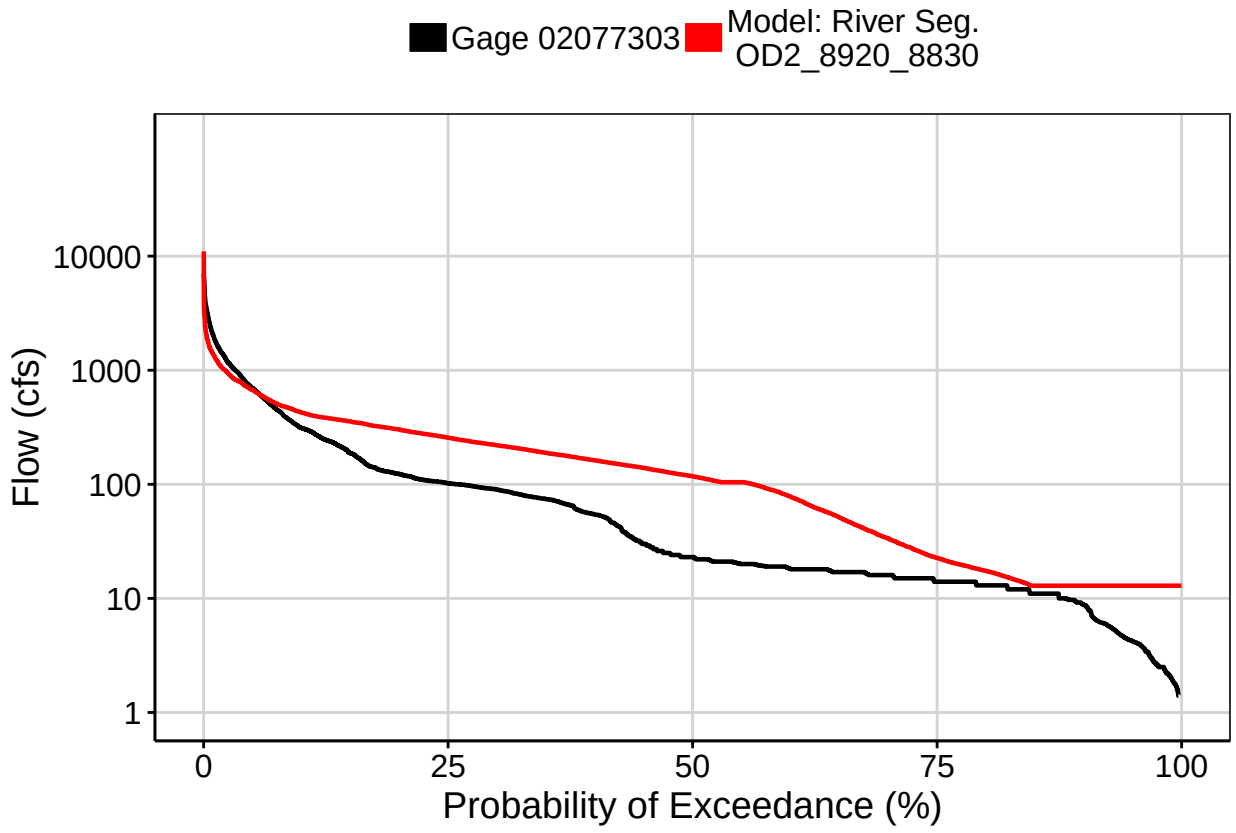


Fig. 4: Baseflow

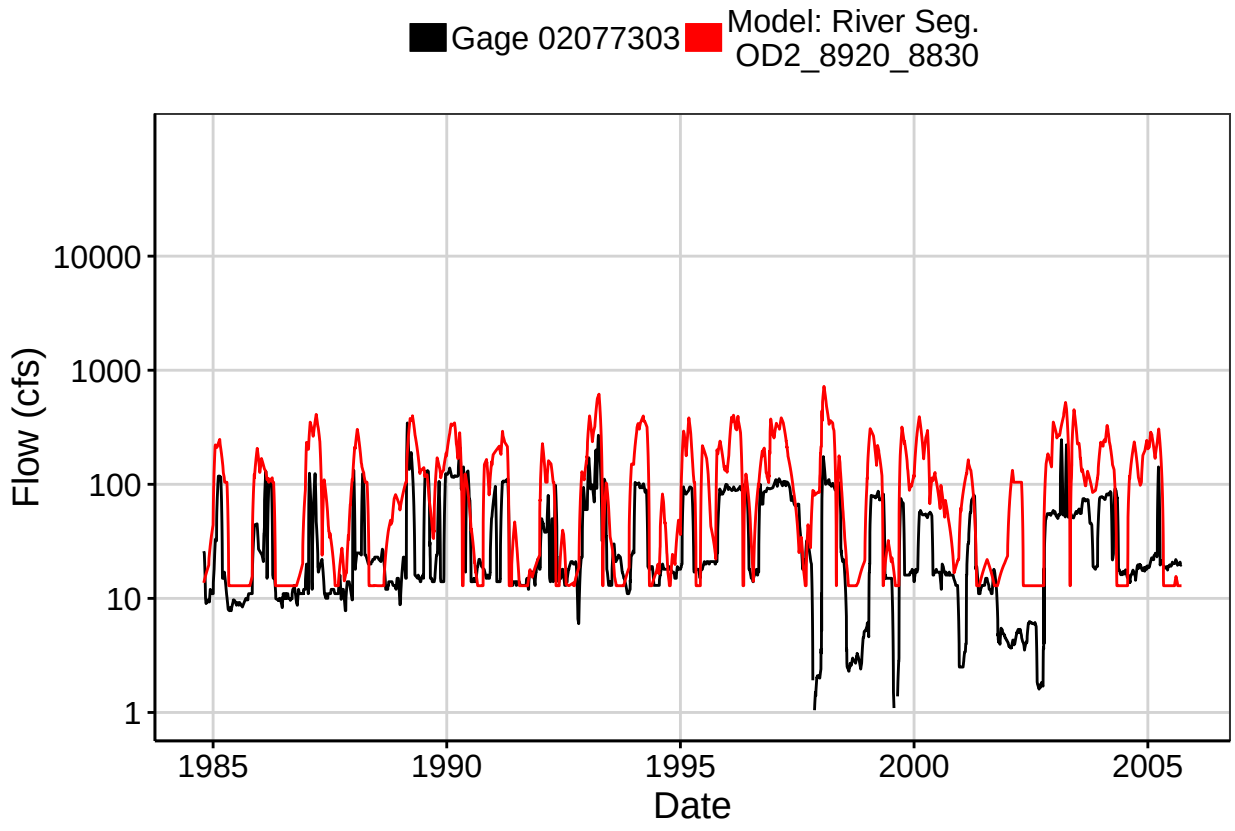


Fig. 5: Combined Baseflow

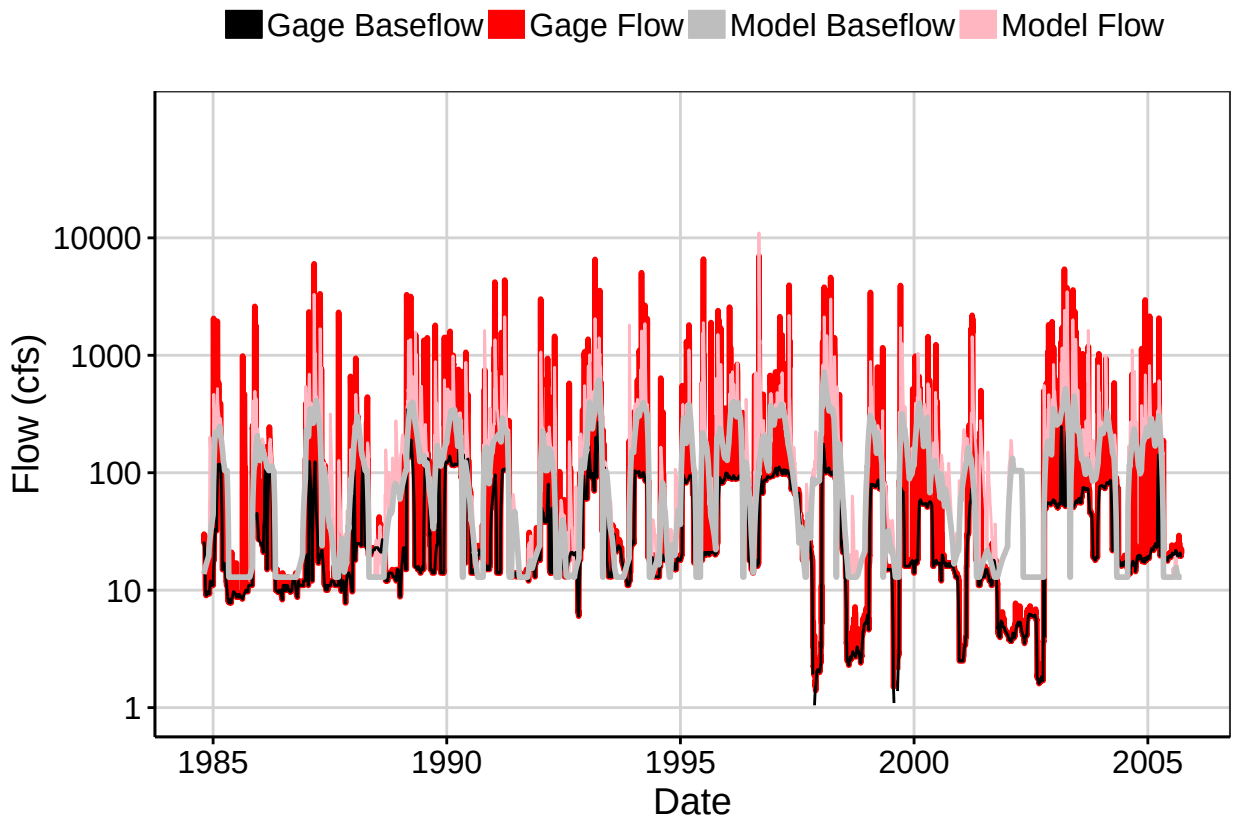


Fig. 6: Largest Error Segment

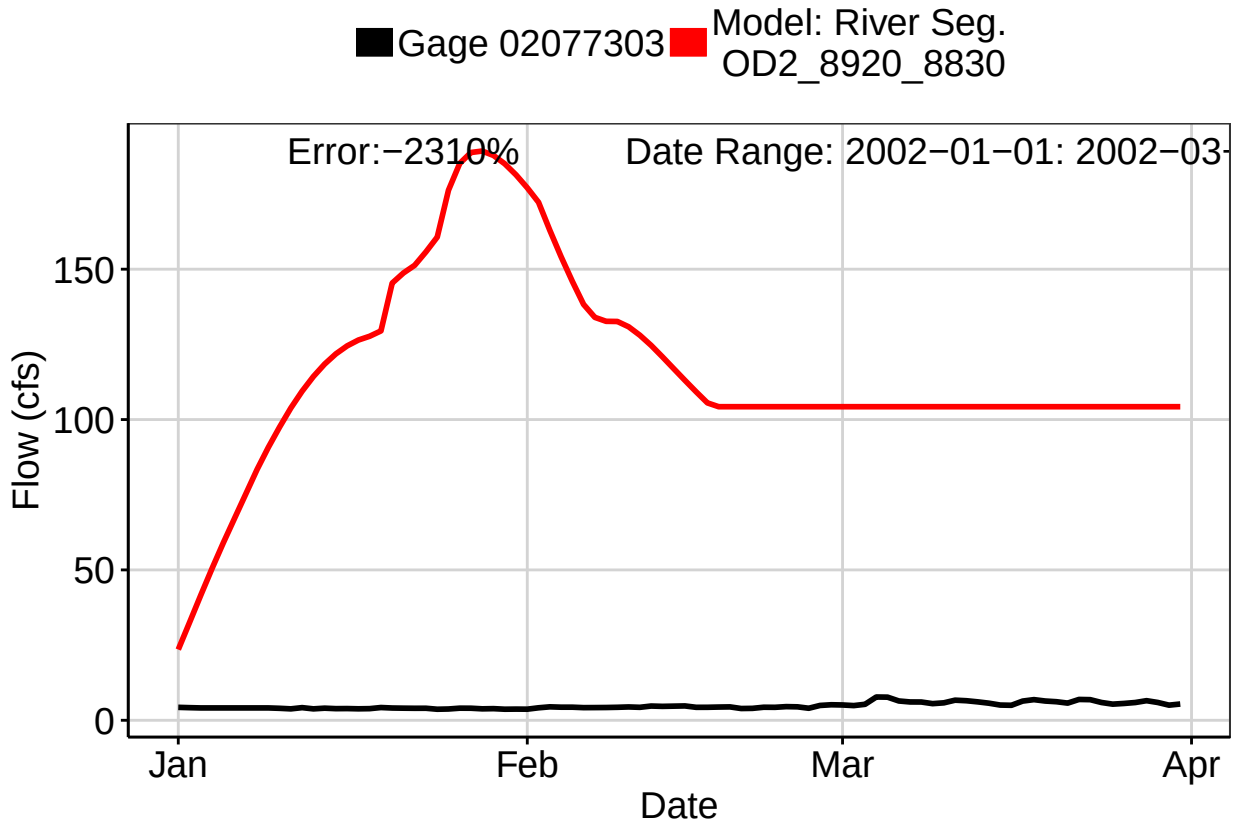


Fig. 7: Second Largest Error Segment

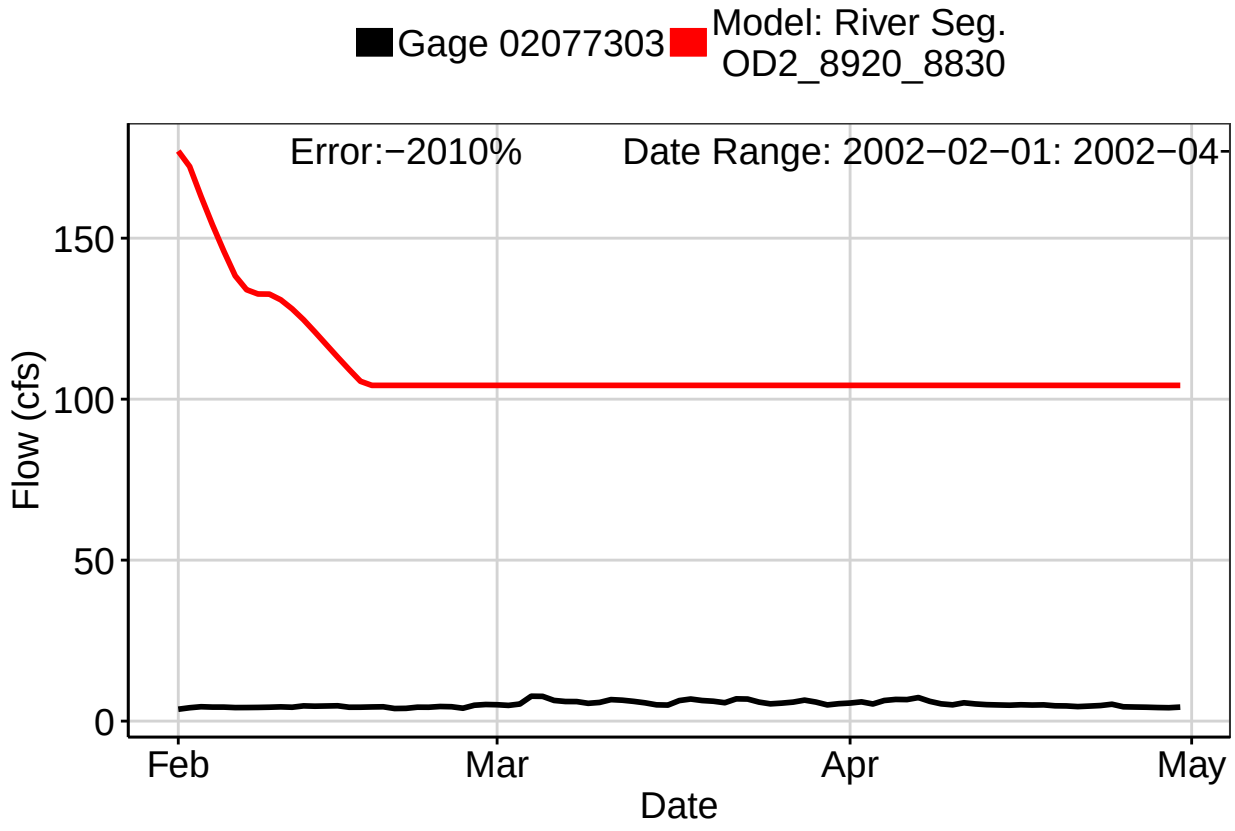


Fig. 8: Third Largest Error Segment

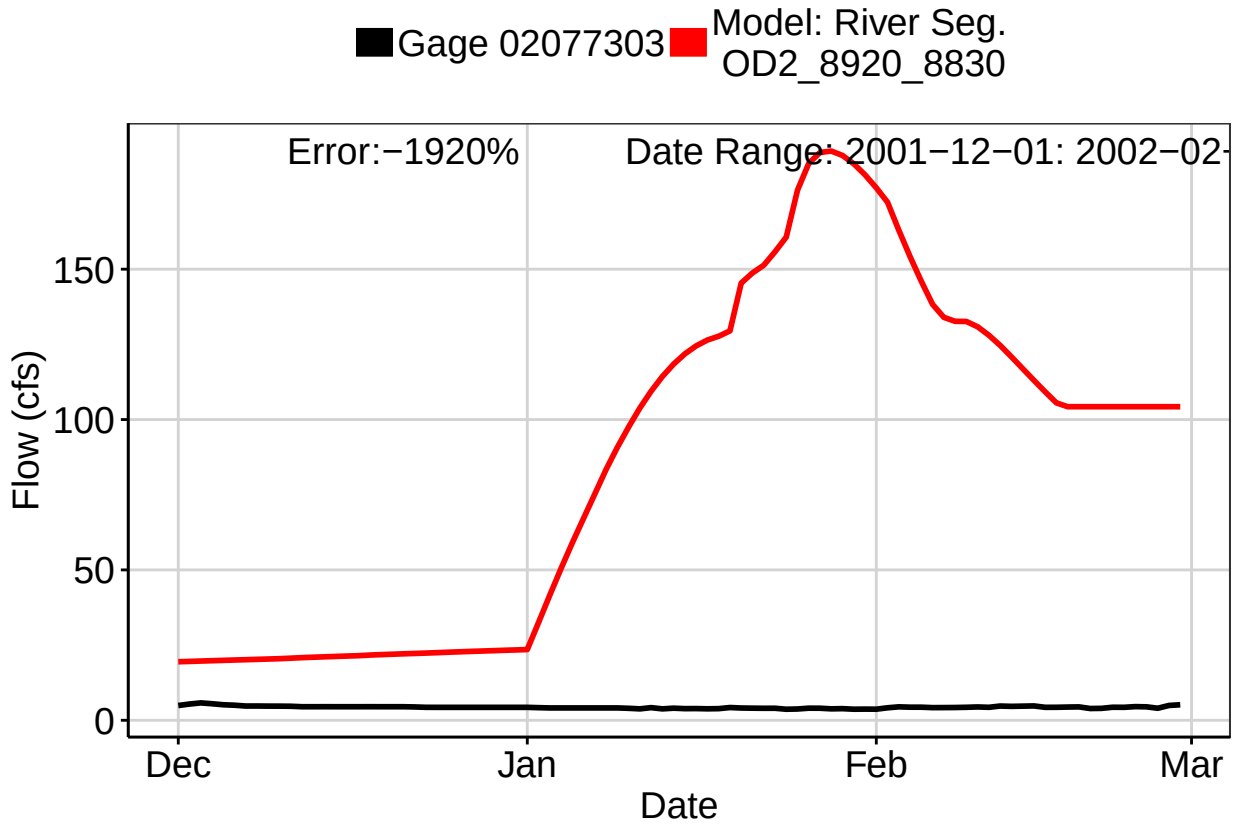


Fig. 9: Residuals Plot