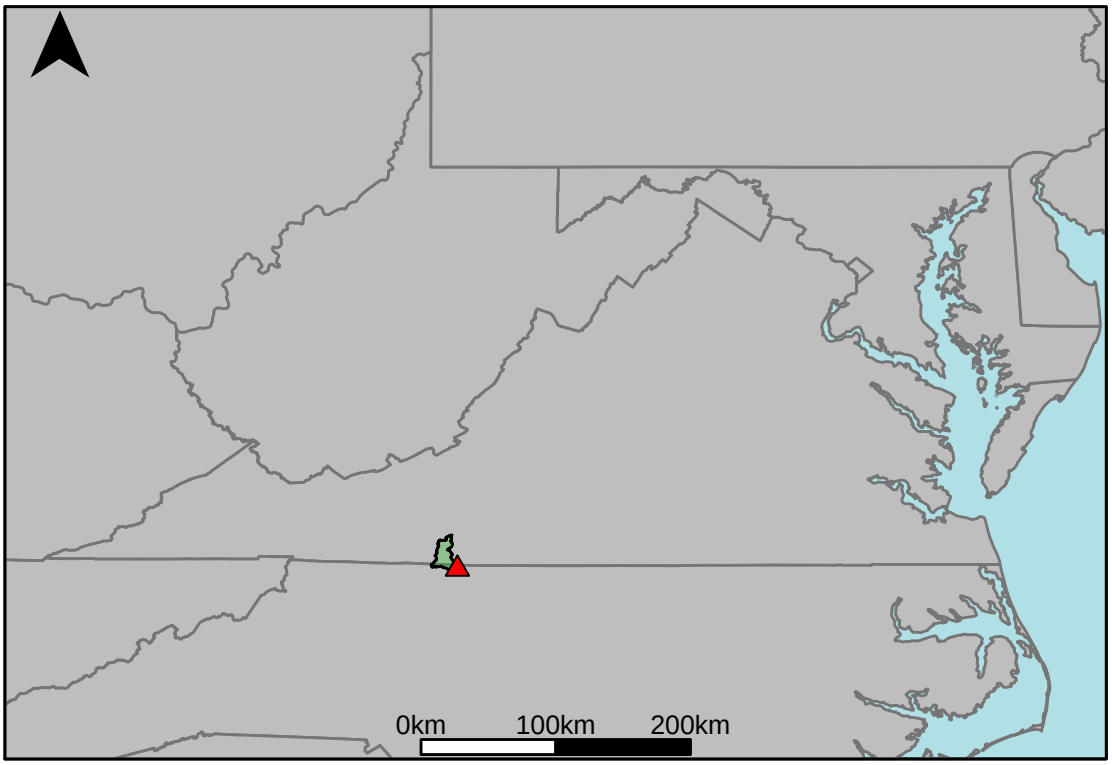
Appendix C: Dan River Gages
Appendix C.1: USGS Gage 02068500 vs. OD2_8840_9020



This river segment follows part of the flow of the Dan River. The gage is located in Stokes County, NC (Lat 3630'54", Long 8018'11") approximately 26 miles southwest of Martinsville, VA. Drainage area is 129 sq. miles. This gage started taking data in 1924 and is still taking data but there is a gap from 1987-10-13 to 1991-11-30. The Talbot and Townes reservoirs are located above the Pinnacles Hydroelectric Plant in Virginia 28 miles above the station. There are also several gristmills but they are not expected to affect the flow. The average daily discharge error between the model and gage data for the 20 year timespan was -6.22%, with 54.6% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	75	67.7	-9.73
Feb. Low Flow	88.1	76	-13.7
Mar. Low Flow	90.9	94.2	3.63
Apr. Low Flow	106	117	10.4
May Low Flow	133	161	21.1
Jun. Low Flow	131	162	23.7
Jul. Low Flow	134	129	-3.73
Aug. Low Flow	120	98.2	-18.2
Sep. Low Flow	108	78.6	-27.2
Oct. Low Flow	97.1	65.3	-32.7
Nov. Low Flow	84	56.1	-33.2
Dec. Low Flow	76	62.7	-17.5

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	193	205	6.22
Jan. Mean Flow	208	239	14.9
Feb. Mean Flow	212	274	29.2
Mar. Mean Flow	268	338	26.1
Apr. Mean Flow	267	284	6.37
May Mean Flow	197	192	-2.54
Jun. Mean Flow	197	189	-4.06
Jul. Mean Flow	161	119	-26.1
Aug. Mean Flow	181	161	-11
Sep. Mean Flow	160	170	6.25
Oct. Mean Flow	123	121	-1.63
Nov. Mean Flow	158	178	12.7
Dec. Mean Flow	185	194	4.86

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	174	162	-6.9
Feb. High Flow	286	350	22.4
Mar. High Flow	441	332	-24.7
Apr. High Flow	420	452	7.62
May High Flow	413	487	17.9
Jun. High Flow	497	1010	103
Jul. High Flow	465	747	60.6
Aug. High Flow	371	476	28.3
Sep. High Flow	311	229	-26.4
Oct. High Flow	233	160	-31.3
Nov. High Flow	261	250	-4.21
Dec. High Flow	274	231	-15.7

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	21	18.7	-11
Med. 1 Day Min	60.5	38.6	-36.2
Min. 3 Day Min	25.7	18.9	-26.5
Med. 3 Day Min	63.7	39.3	-38.3
Min. 7 Day Min	41	20	-51.2
Med. 7 Day Min	71.1	41.1	-42.2
Min. 30 Day Min	52.7	24.5	-53.5
Med. 30 Day Min	87.2	54	-38.1
Min. 90 Day Min	66.3	44.2	-33.3
Med. 90 Day Min	117	75	-35.9
7Q10	46.4	25.4	-45.3
Year of 90-Day Min. Flow	2002	1986	100
Drought Year Mean	93.6	91.1	-2.67
Mean Baseflow	130	127	-2.31

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	6430	5780	-10.1
Med. 1 Day Max	1820	2370	30.2
Max. 3 Day Max	3010	3160	4.98
Med. 3 Day Max	1000	1540	54
Max. 7 Day Max	1540	1630	5.84
Med. 7 Day Max	675	1020	51.1
Max. 30 Day Max	768	783	1.95
Med. 30 Day Max	403	530	31.5
Max. 90 Day Max	551	594	7.8
Med. 90 Day Max	276	308	11.6

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	51	29.4	-42.4
5% Non-Exceedance	65	44.4	-31.7
50% Non-Exceedance	143	140	-2.1
95% Non-Exceedance	446	554	24.2
99% Non-Exceedance	929	1160	24.9
Sept. 10% Non-Exceedance	45.6	62.9	37.9

Fig. 1: Hydrograph

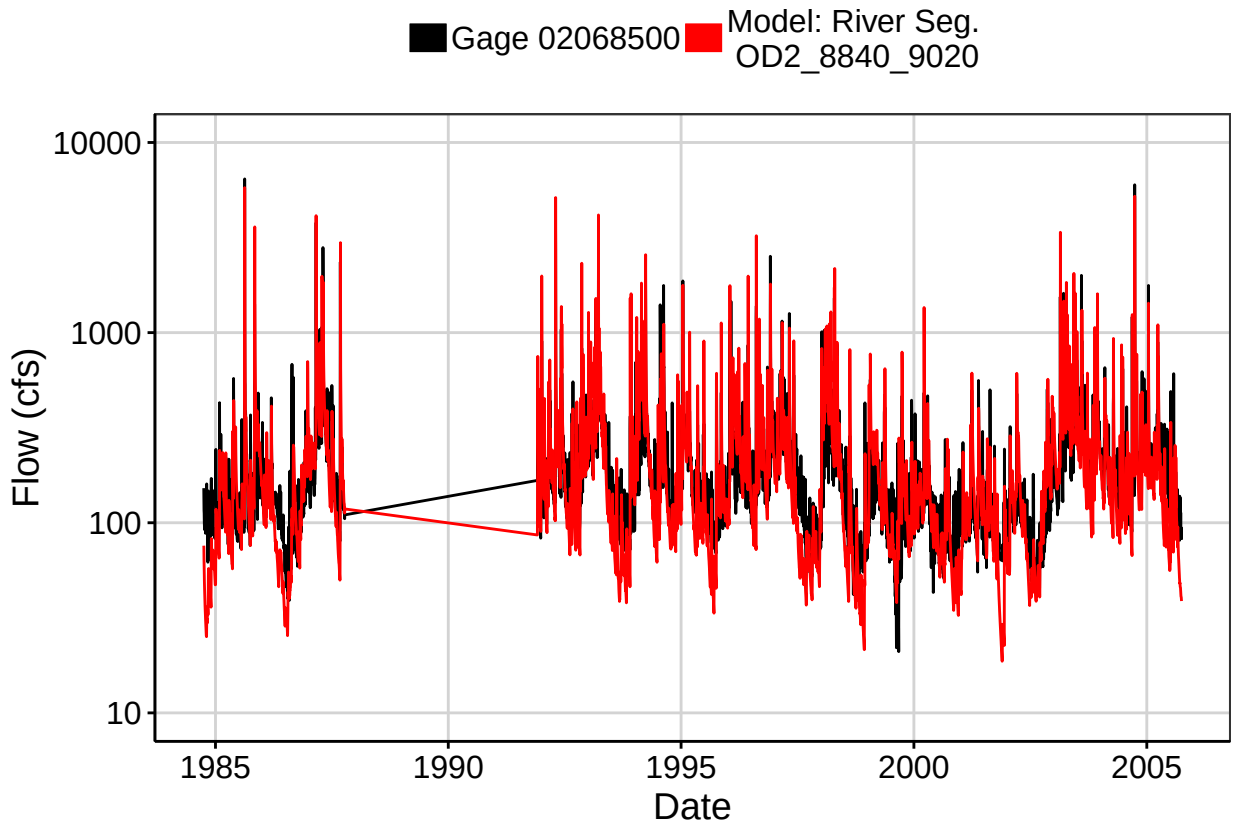


Fig. 2: Zoomed Hydrograph

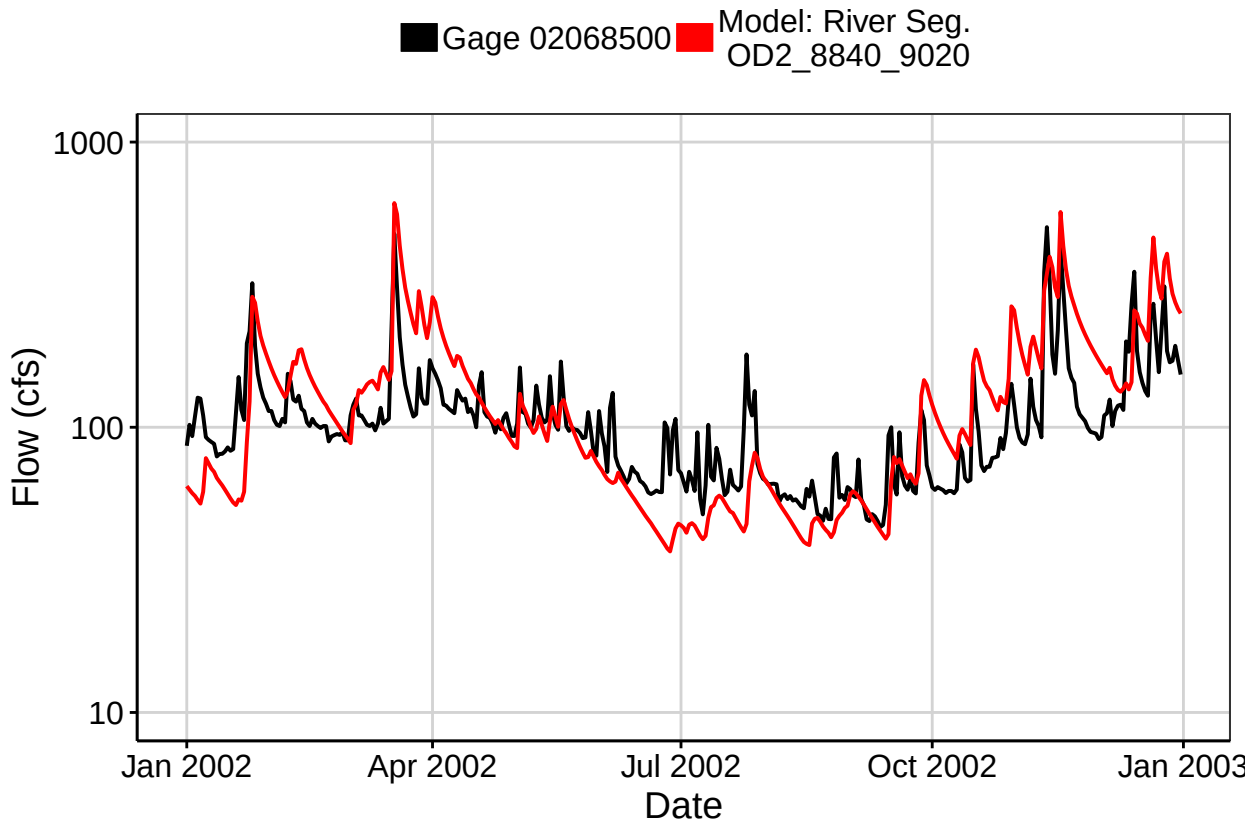


Fig. 3: Flow Exceedance

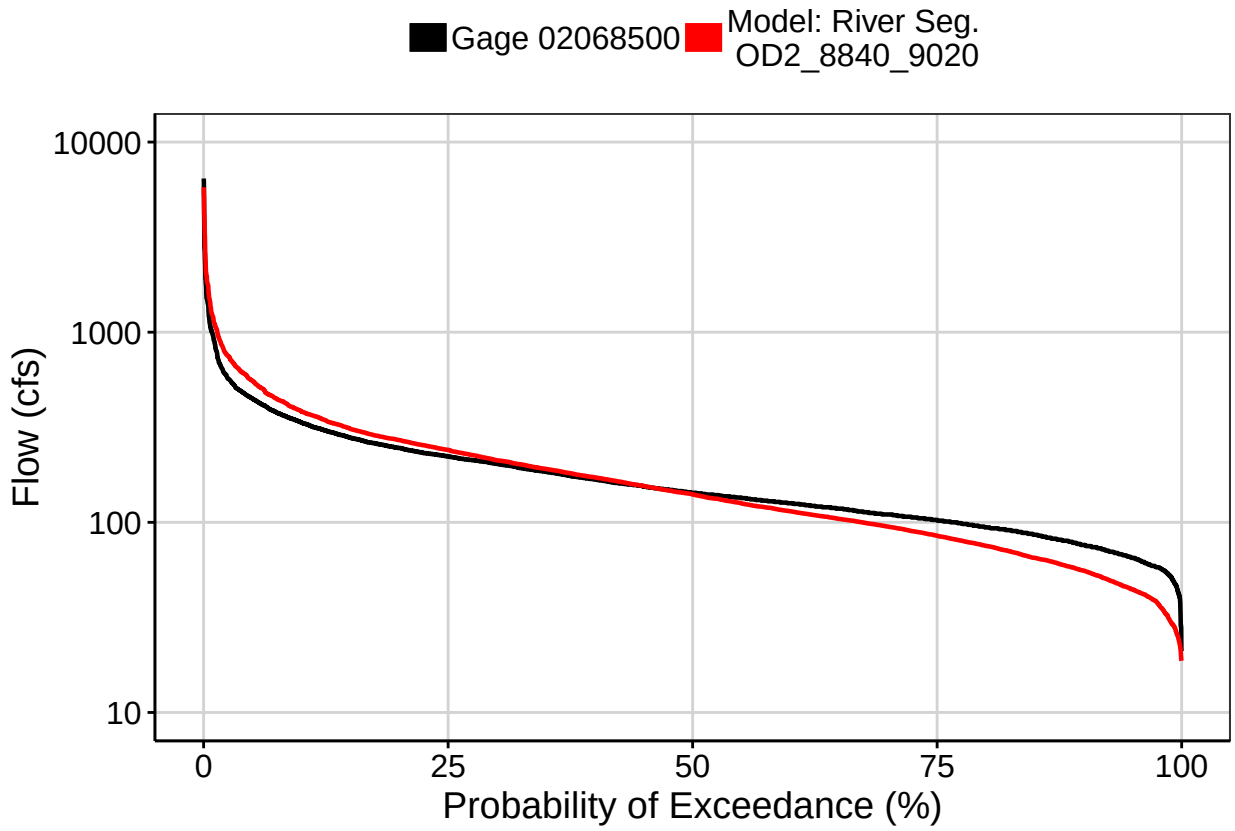


Fig. 4: Baseflow

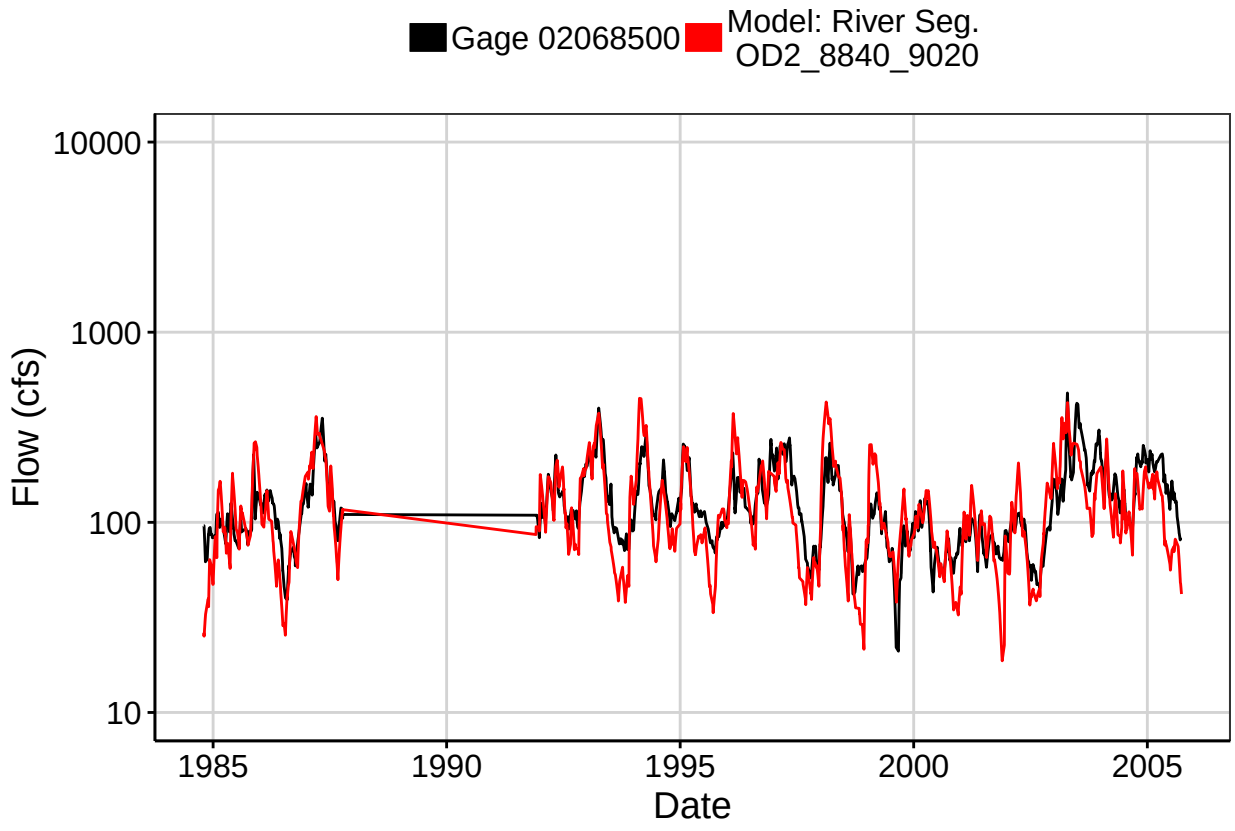


Fig. 5: Combined Baseflow

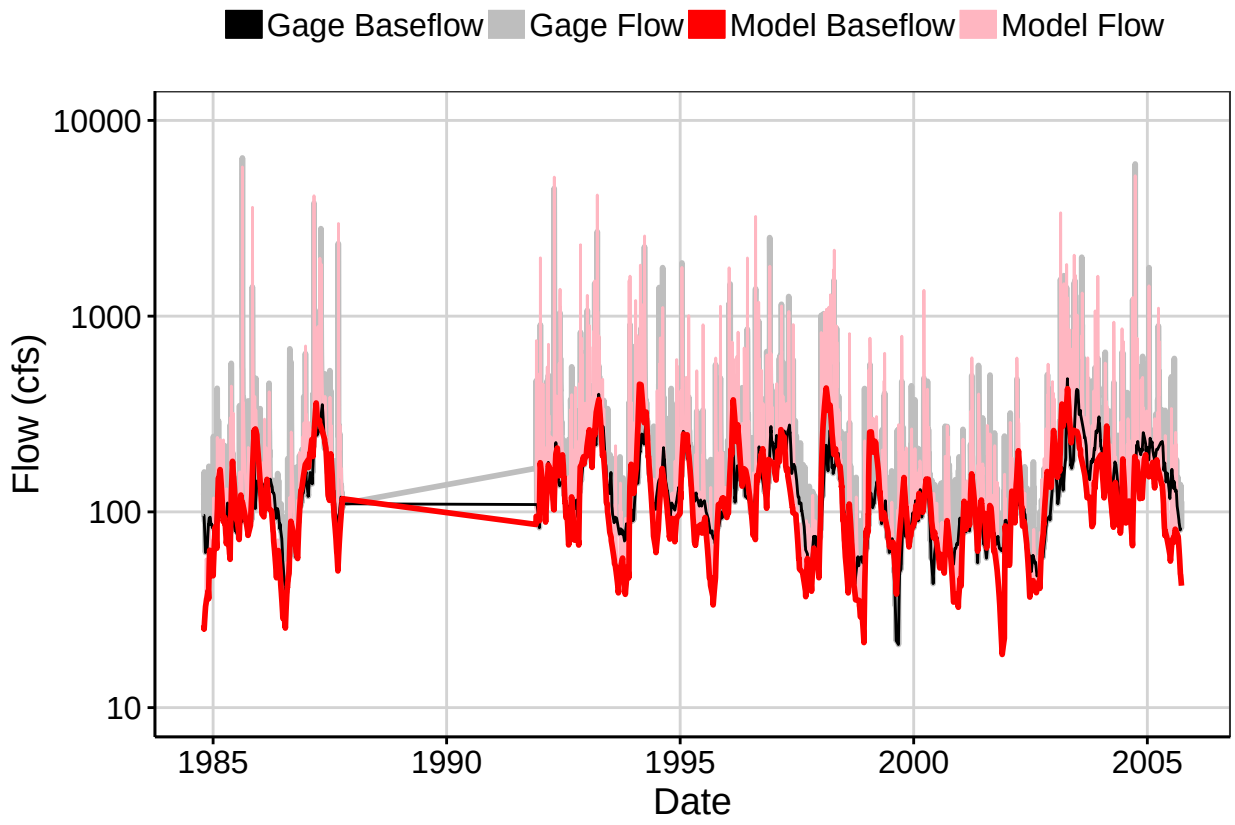


Fig. 6: Largest Error Segment

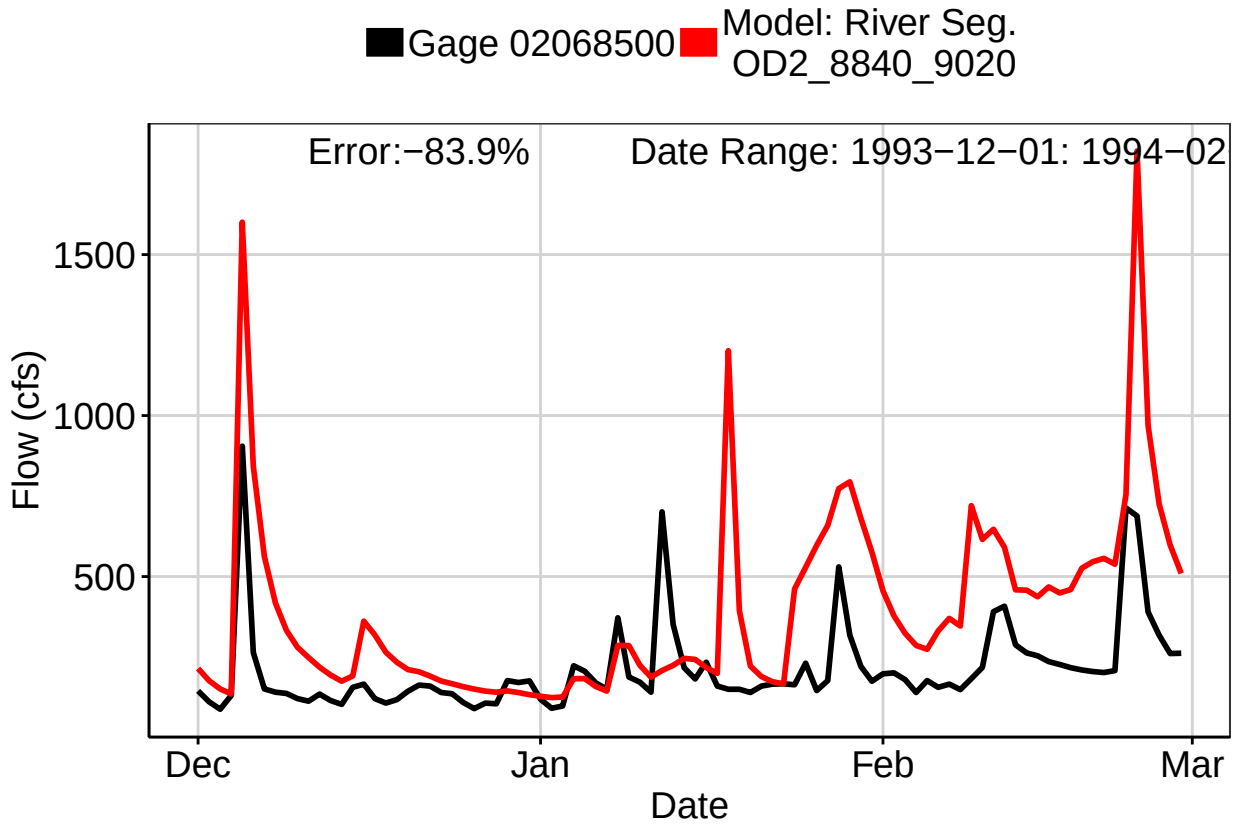


Fig. 7: Second Largest Error Segment

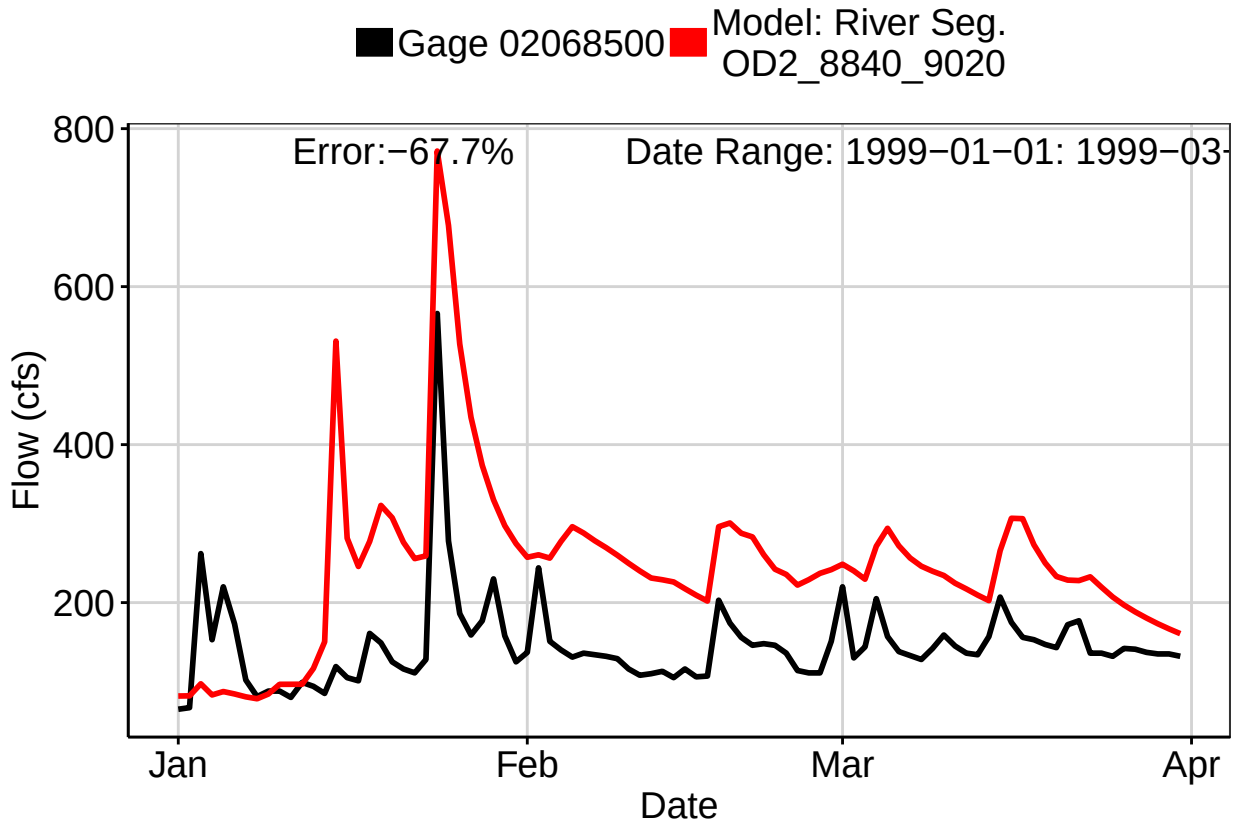


Fig. 8: Third Largest Error Segment

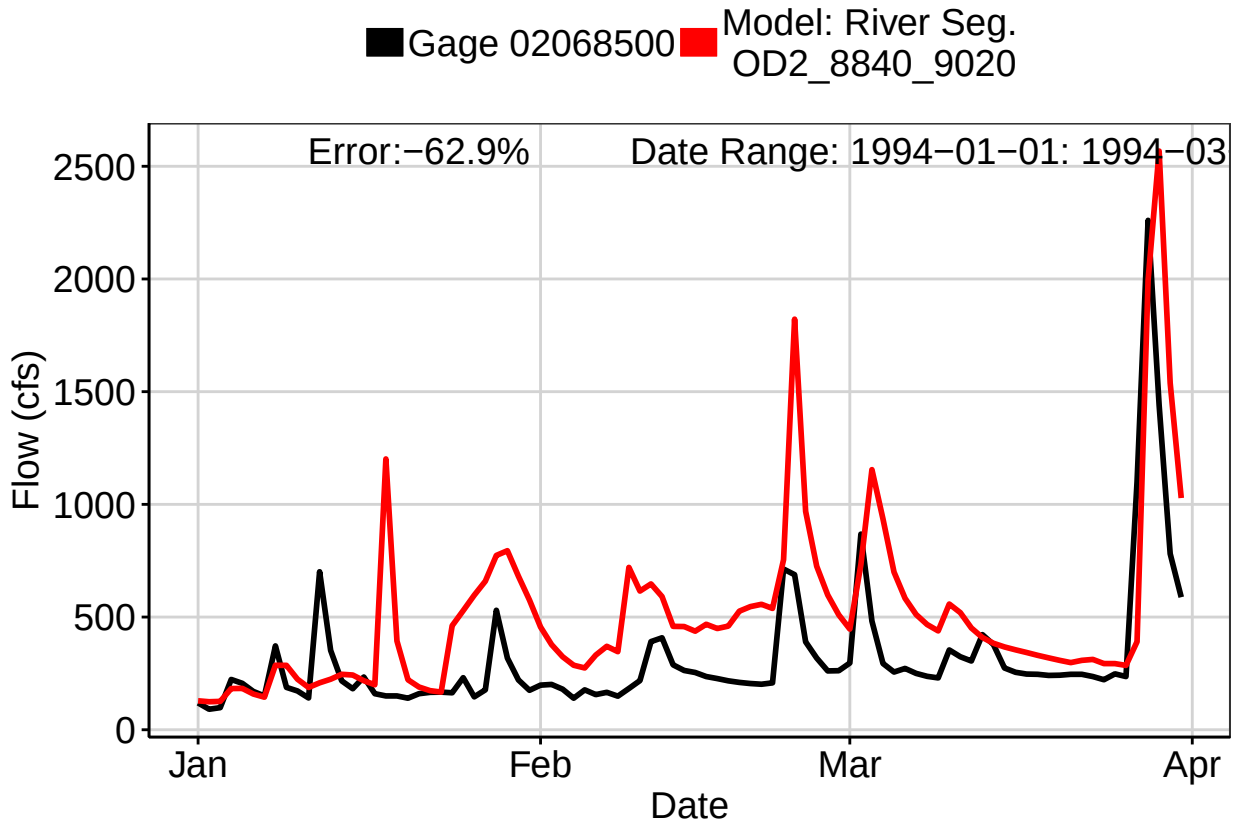


Fig. 9: Residuals Plot