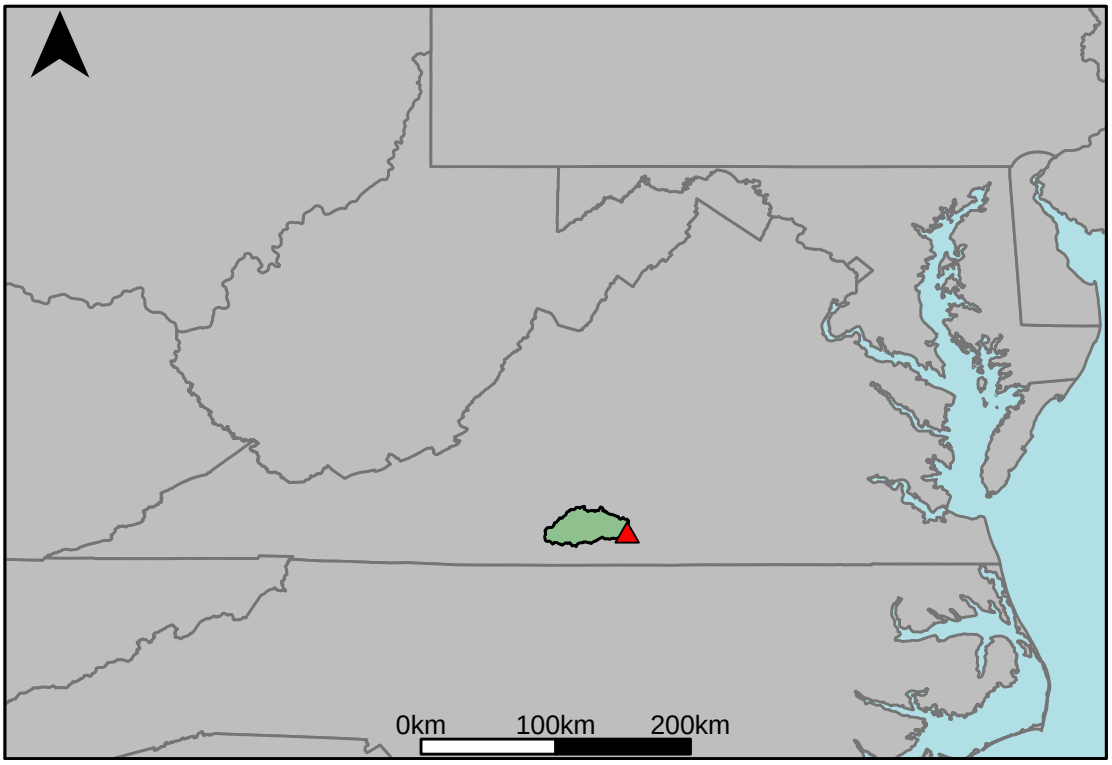
Appendix C.13: USGS Gage 02077000 vs. OD3_8340_8520



This river segment follows part of the flow of the Banister River, a tributary of the Dan River. The gage is located in Halifax County, VA (Lat 3646'35", Long 7854'58") approximately 30 miles northeast of Danville, VA. Drainage area is 547 sq. miles. This gage started taking data in 1904 and is still taking data. Flow in this area is regulated by a reservoir and hydroelectric generating facility about a half mile upstream. The average daily discharge error between the model and gage data for the 20 year timespan was -3.21%, with 46.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	91	66.6	-26.8
Feb. Low Flow	174	83.6	-52
Mar. Low Flow	215	167	-22.3
Apr. Low Flow	213	252	18.3
May Low Flow	323	452	39.9
Jun. Low Flow	365	443	21.4
Jul. Low Flow	308	323	4.87
Aug. Low Flow	215	203	-5.58
Sep. Low Flow	159	136	-14.5
Oct. Low Flow	107	83	-22.4
Nov. Low Flow	107	63.1	-41
Dec. Low Flow	93	48.9	-47.4

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	498	514	3.21
Jan. Mean Flow	660	652	-1.21
Feb. Mean Flow	711	830	16.7
Mar. Mean Flow	863	1100	27.5
Apr. Mean Flow	696	790	13.5
May Mean Flow	505	504	-0.2
Jun. Mean Flow	398	404	1.51
Jul. Mean Flow	263	200	-24
Aug. Mean Flow	269	204	-24.2
Sep. Mean Flow	416	412	-0.96
Oct. Mean Flow	317	312	-1.58
Nov. Mean Flow	408	350	-14.2
Dec. Mean Flow	493	437	-11.4

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	427	237	-44.5
Feb. High Flow	1260	872	-30.8
Mar. High Flow	1290	1450	12.4
Apr. High Flow	1960	1890	-3.57
May High Flow	2170	1660	-23.5
Jun. High Flow	2420	3320	37.2
Jul. High Flow	1460	2120	45.2
Aug. High Flow	894	744	-16.8
Sep. High Flow	791	376	-52.5
Oct. High Flow	495	278	-43.8
Nov. High Flow	456	208	-54.4
Dec. High Flow	376	194	-48.4

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	18	0.25	-98.6
Med. 1 Day Min	70	30.9	-55.9
Min. 3 Day Min	18	0.58	-96.8
Med. 3 Day Min	90.3	32.6	-63.9
Min. 7 Day Min	18.3	1.34	-92.7
Med. 7 Day Min	93.8	36.6	-61
Min. 30 Day Min	22.2	4.49	-79.8
Med. 30 Day Min	123	55.5	-54.9
Min. 90 Day Min	39.6	22.5	-43.2
Med. 90 Day Min	184	100	-45.7
7Q10	33.7	7.03	-79.1
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	136	97.4	-28.4
Mean Baseflow	239	267	11.7

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	22300	36500	63.7
Med. 1 Day Max	5910	7810	32.1
Max. 3 Day Max	18300	20900	14.2
Med. 3 Day Max	4450	5060	13.7
Max. 7 Day Max	10900	12500	14.7
Med. 7 Day Max	2970	2880	-3.03
Max. 30 Day Max	3080	3650	18.5
Med. 30 Day Max	1180	1450	22.9
Max. 90 Day Max	1640	2150	31.1
Med. 90 Day Max	865	1020	17.9

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	29	8.57	-70.4
5% Non-Exceedance	80	32.5	-59.4
50% Non-Exceedance	292	268	-8.22
95% Non-Exceedance	1460	1590	8.9
99% Non-Exceedance	4400	4610	4.77
Sept. 10% Non-Exceedance	32.6	76	133

Fig. 1: Hydrograph

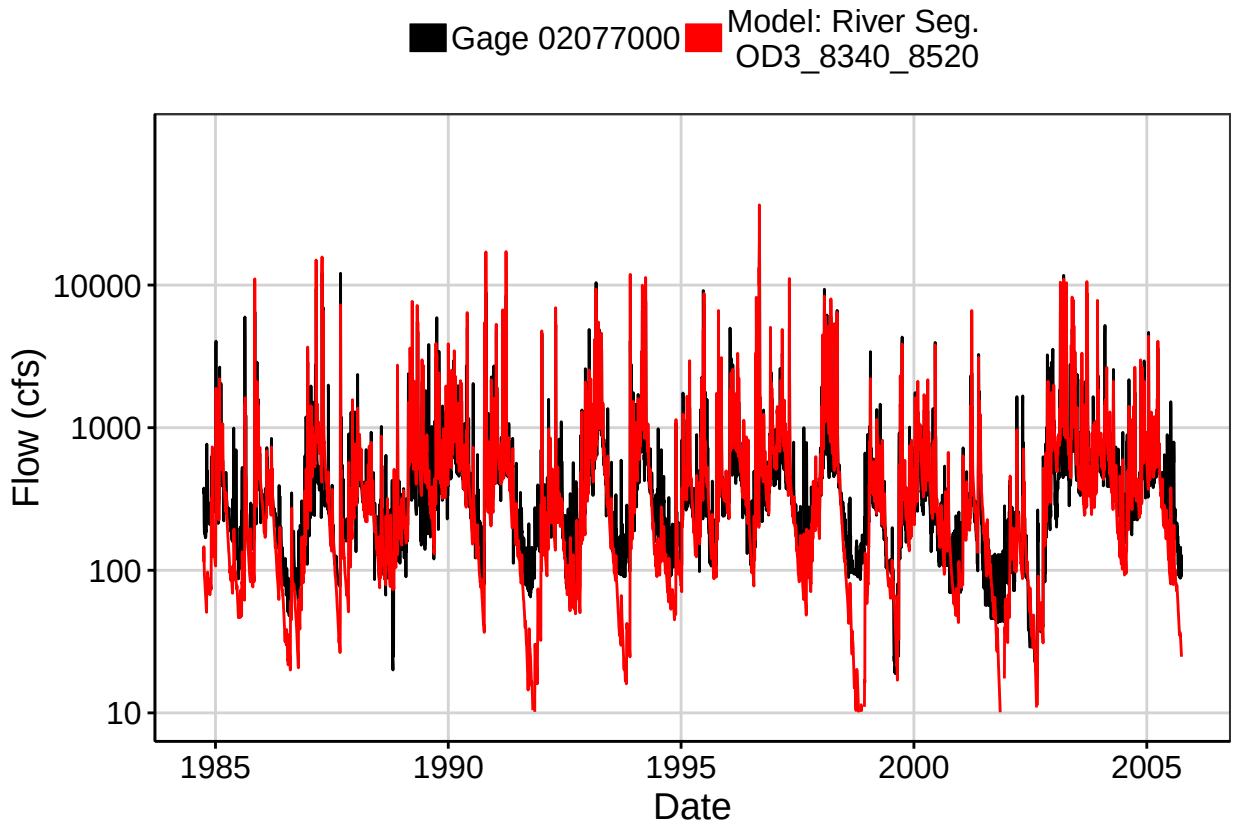


Fig. 2: Zoomed Hydrograph

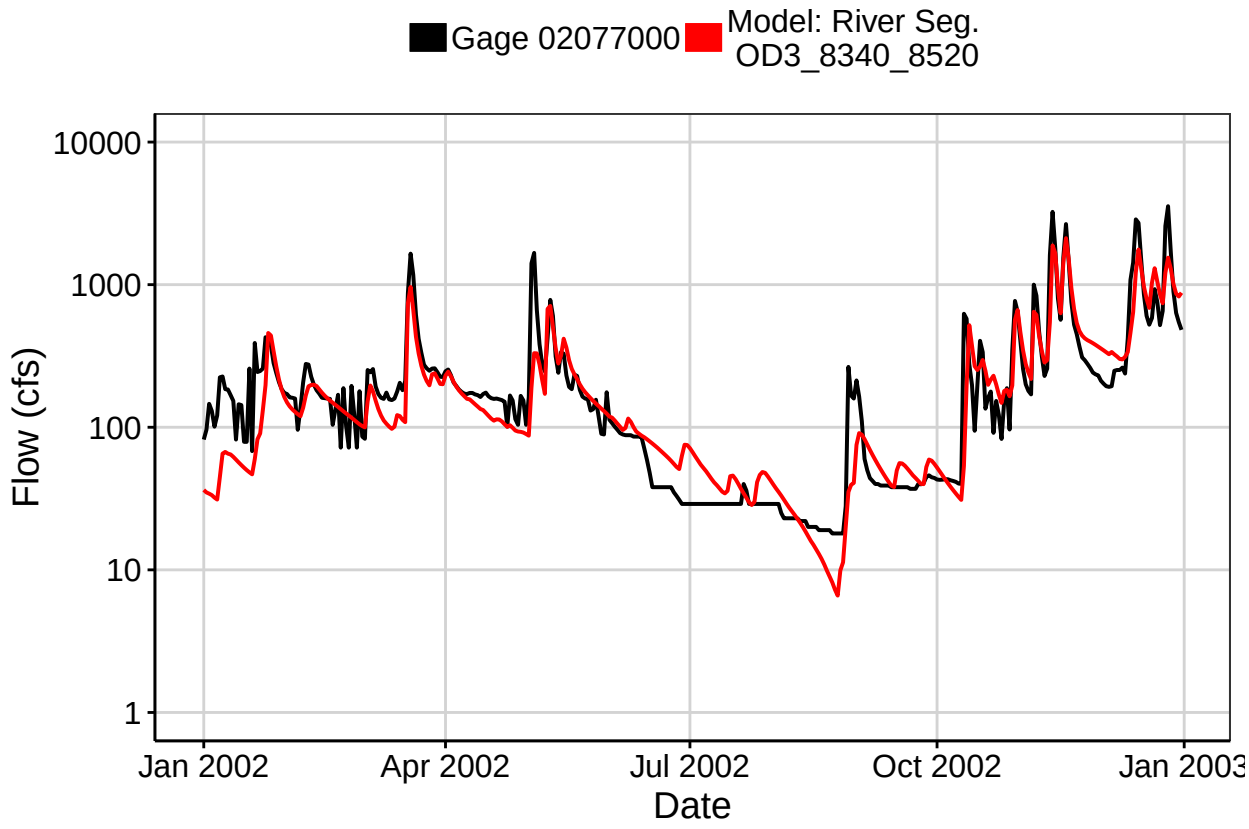


Fig. 3: Flow Exceedance

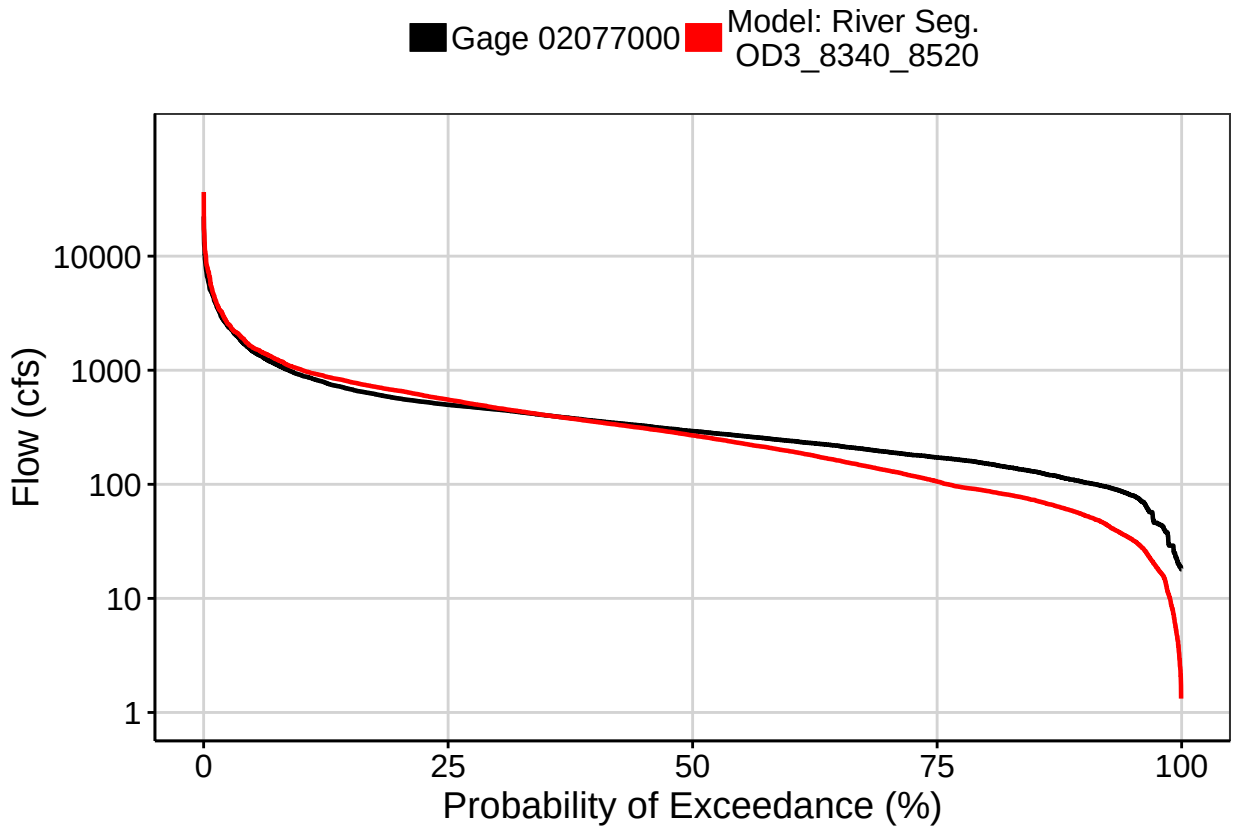


Fig. 4: Baseflow

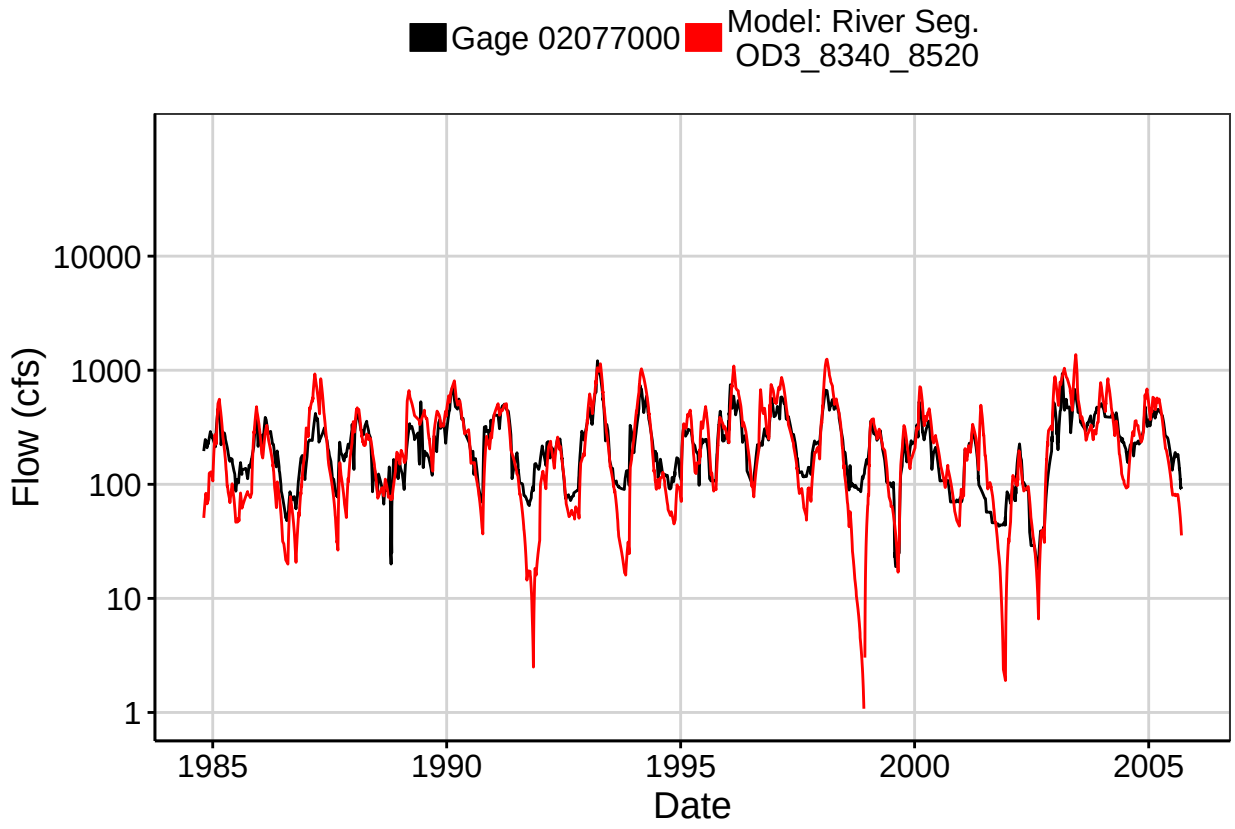


Fig. 5: Combined Baseflow

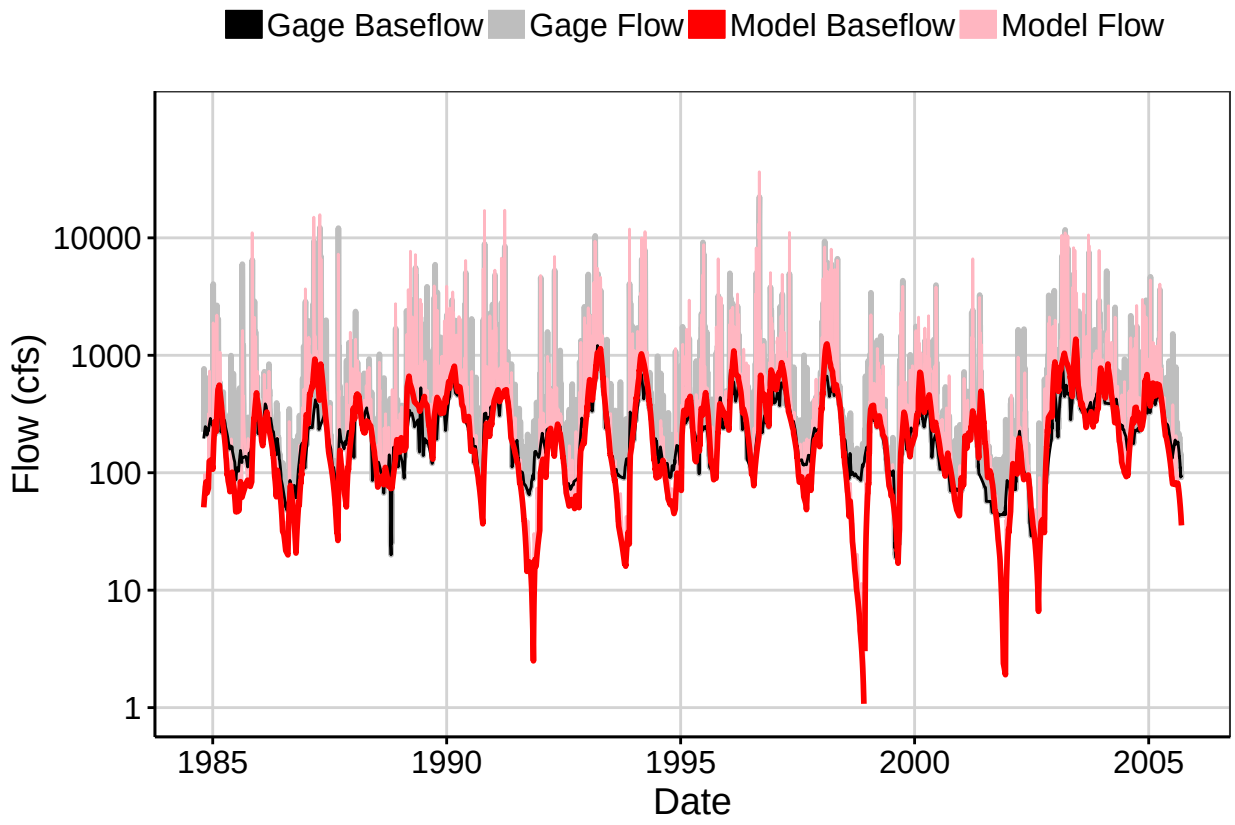


Fig. 6: Largest Error Segment

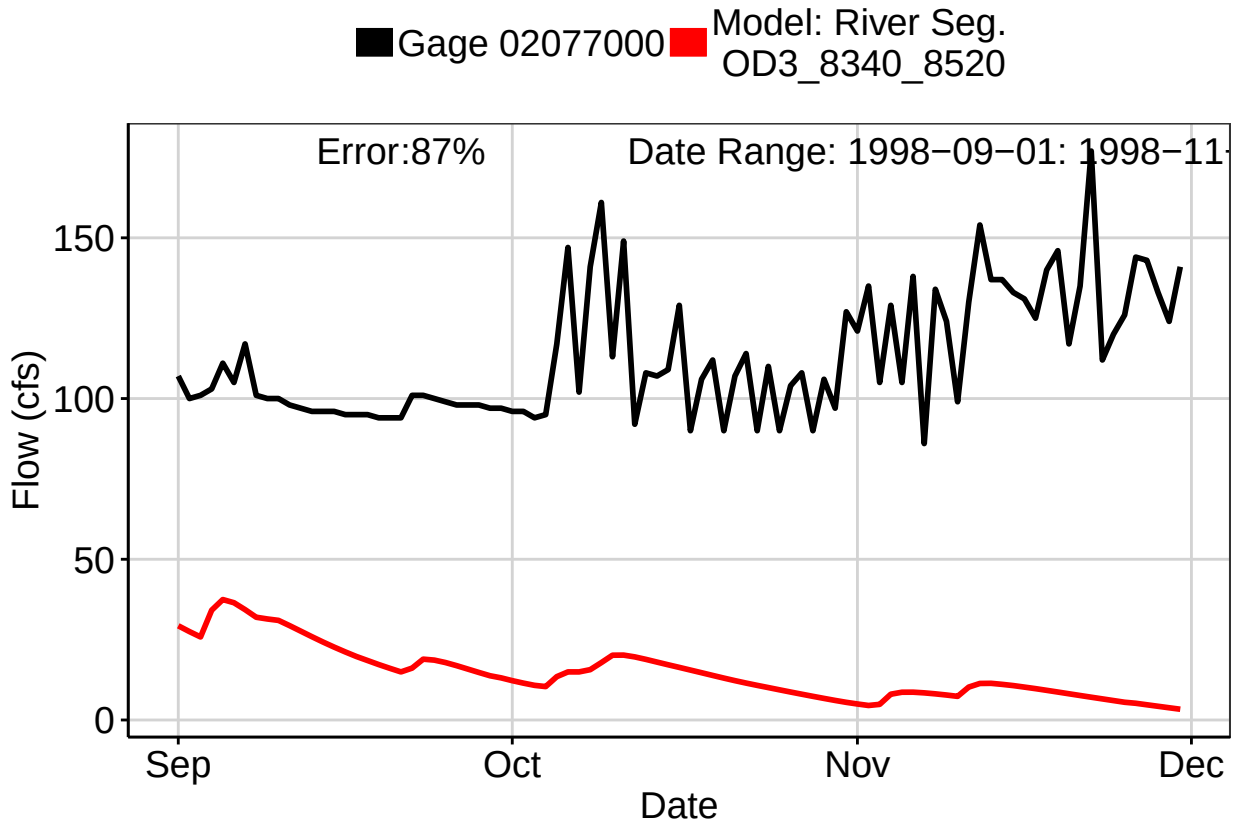


Fig. 7: Second Largest Error Segment

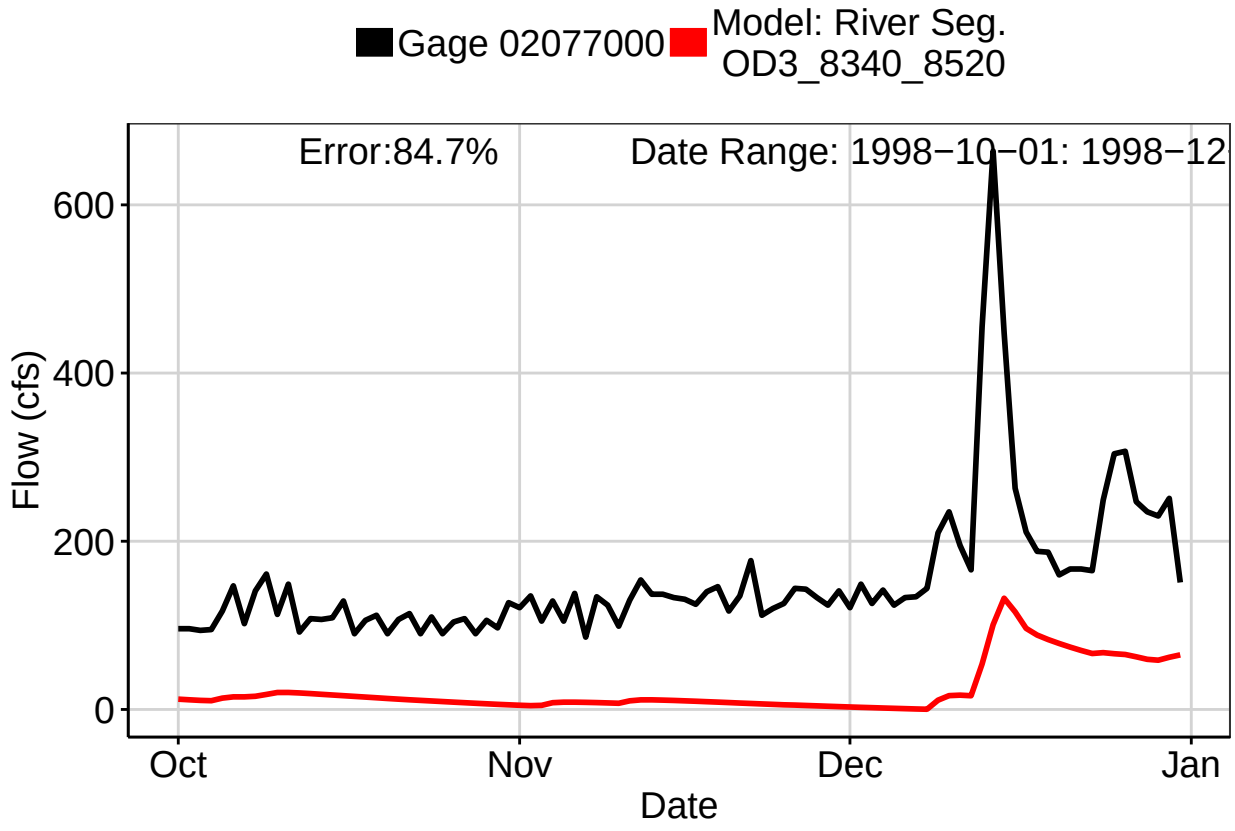


Fig. 8: Third Largest Error Segment

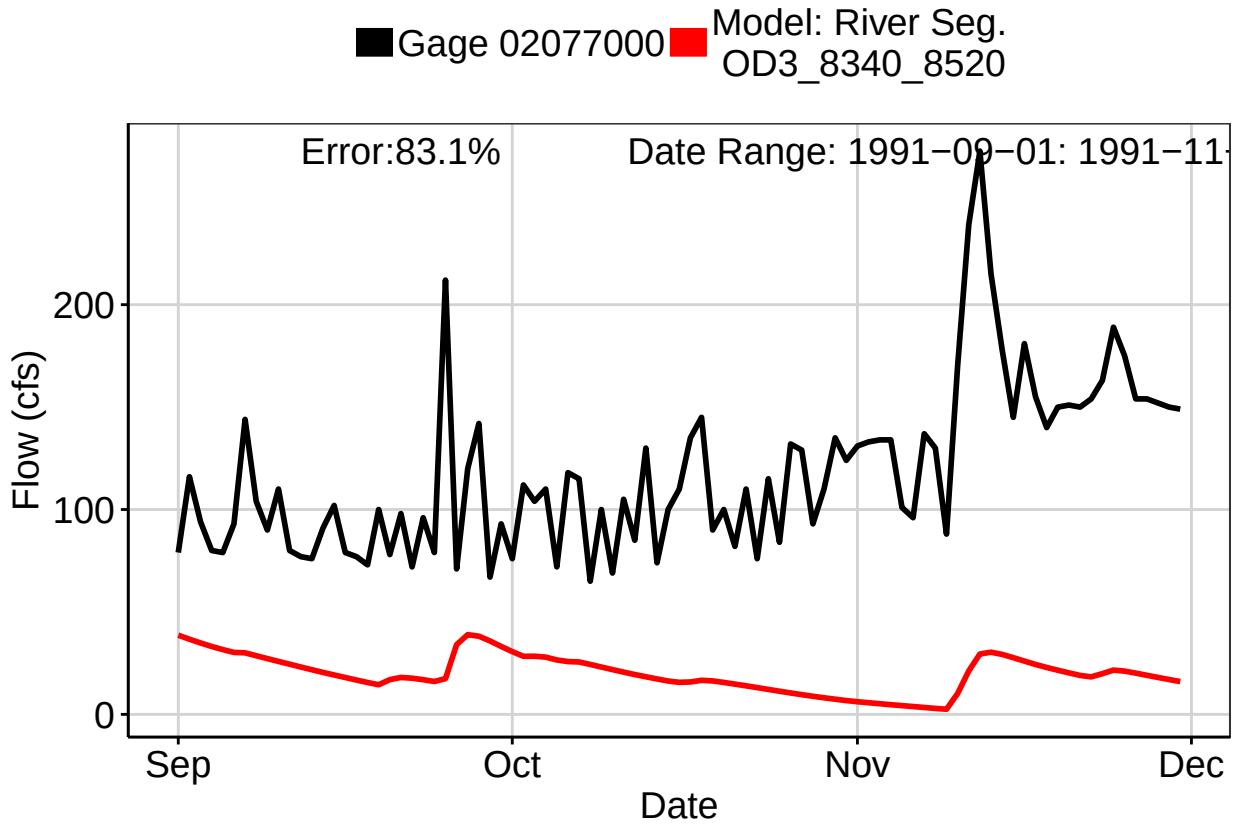


Fig. 9: Residuals Plot