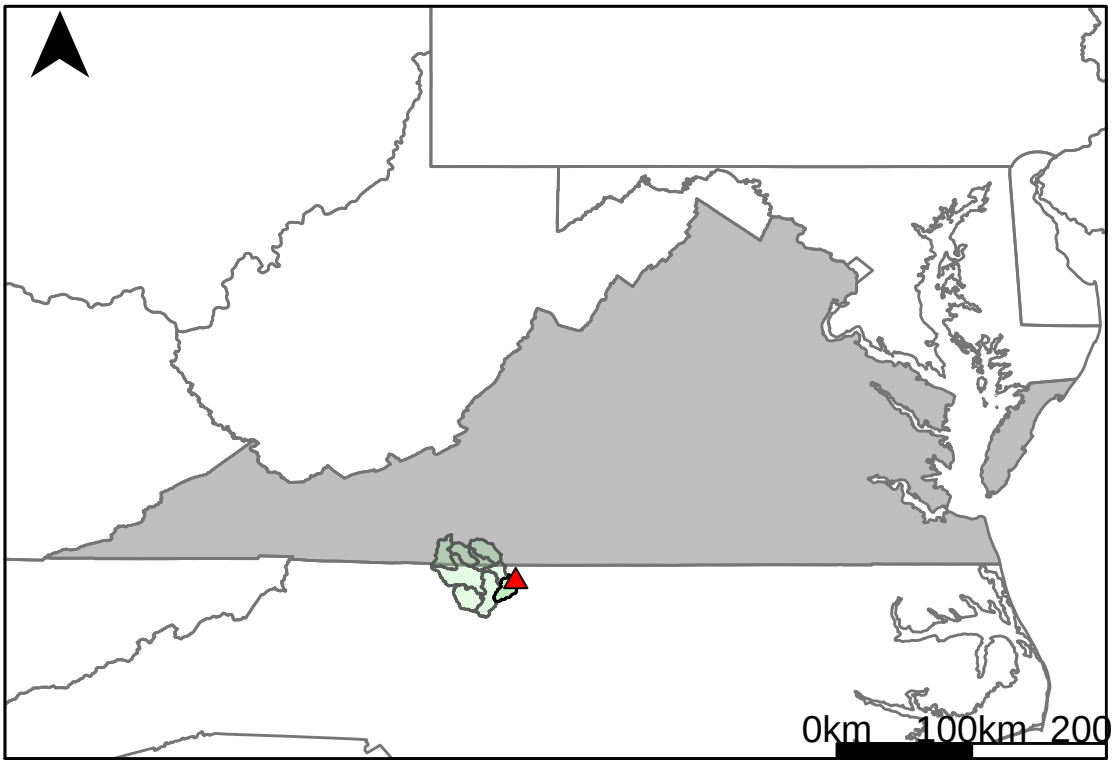
Appendix C.4: USGS Gage 02071000 vs. OD4_9140_8990



This river segment follows part of the flow of the Dan River, a tributary of the Roanoke River. The gage is located in Rockingham County, NC (Lat 3624'45", Long 7949'34") approximately 27 miles southwest of Danville, VA. Drainage area is 1053 sq. miles. This gage started taking data in 1939 and is still taking data. There are slight diurnal fluctuations and regulations at low flow stages caused by the Talbott and Townes reservoirs. The average daily discharge error between the model and gage data for the 20 year timespan was -1.72%, with 34.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	424	275	35.1
Feb. Low Flow	510	367	28
Mar. Low Flow	591	549	7.11
Apr. Low Flow	618	658	-6.47
May Low Flow	814	967	-18.8
Jun. Low Flow	880	952	-8.18
Jul. Low Flow	804	812	-1
Aug. Low Flow	715	699	2.24
Sep. Low Flow	632	558	11.7
Oct. Low Flow	488	448	8.2
Nov. Low Flow	391	387	1.02
Dec. Low Flow	338	311	7.99

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	1160	1180	-1.72
Jan. Mean Flow	1340	1390	-3.73
Feb. Mean Flow	1410	1570	-11.3
Mar. Mean Flow	1890	2150	-13.8
Apr. Mean Flow	1630	1780	-9.2
May Mean Flow	1220	1230	-0.82
Jun. Mean Flow	1070	1090	-1.87
Jul. Mean Flow	884	716	19
Aug. Mean Flow	827	778	5.93
Sep. Mean Flow	887	929	-4.74
Oct. Mean Flow	811	781	3.7
Nov. Mean Flow	895	819	8.49
Dec. Mean Flow	1050	1010	3.81

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	1020	778	23.7
Feb. High Flow	2070	2110	-1.93
Mar. High Flow	3190	2120	33.5
Apr. High Flow	3940	4000	-1.52
May High Flow	4230	2650	37.4
Jun. High Flow	6330	6460	-2.05
Jul. High Flow	2880	3540	-22.9
Aug. High Flow	2130	2600	-22.1
Sep. High Flow	1810	1310	27.6
Oct. High Flow	1520	941	38.1
Nov. High Flow	2060	790	61.7
Dec. High Flow	1300	767	41

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	63	93.4	-48.3
Med. 1 Day Min	297	242	18.5
Min. 3 Day Min	63.7	95.1	-49.3
Med. 3 Day Min	310	244	21.3
Min. 7 Day Min	65.3	99.1	-51.8
Med. 7 Day Min	340	256	24.7
Min. 30 Day Min	99.6	106	-6.43
Med. 30 Day Min	402	324	19.4
Min. 90 Day Min	156	186	-19.2
Med. 90 Day Min	586	435	25.8
7Q10	142	142	0
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	373	1180	-216
Mean Baseflow	709	743	-4.8

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	27800	30900	-11.2
Med. 1 Day Max	15600	13900	10.9
Max. 3 Day Max	18800	19600	-4.26
Med. 3 Day Max	9560	9490	0.73
Max. 7 Day Max	10100	10700	-5.94
Med. 7 Day Max	5590	5550	0.72
Max. 30 Day Max	5040	5720	-13.5
Med. 30 Day Max	2560	2800	-9.38
Max. 90 Day Max	3450	3920	-13.6
Med. 90 Day Max	1630	2030	-24.5

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	172	158	8.14
5% Non-Exceedance	296	231	22
50% Non-Exceedance	797	771	3.26
95% Non-Exceedance	2860	3130	-9.44
99% Non-Exceedance	7510	8260	-9.99
Sept. 10% Non-Exceedance	295	292	1.02

Fig. 1: Hydrograph

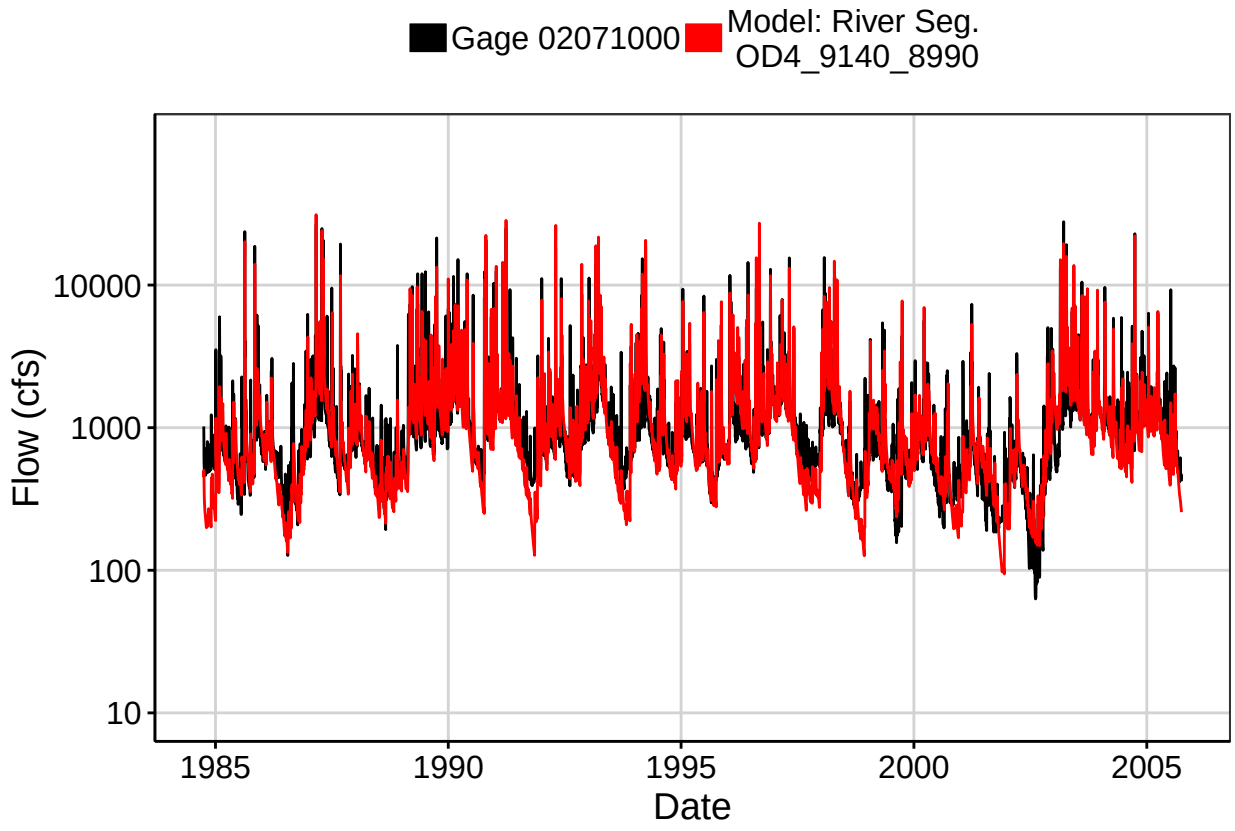


Fig. 2: Zoomed Hydrograph

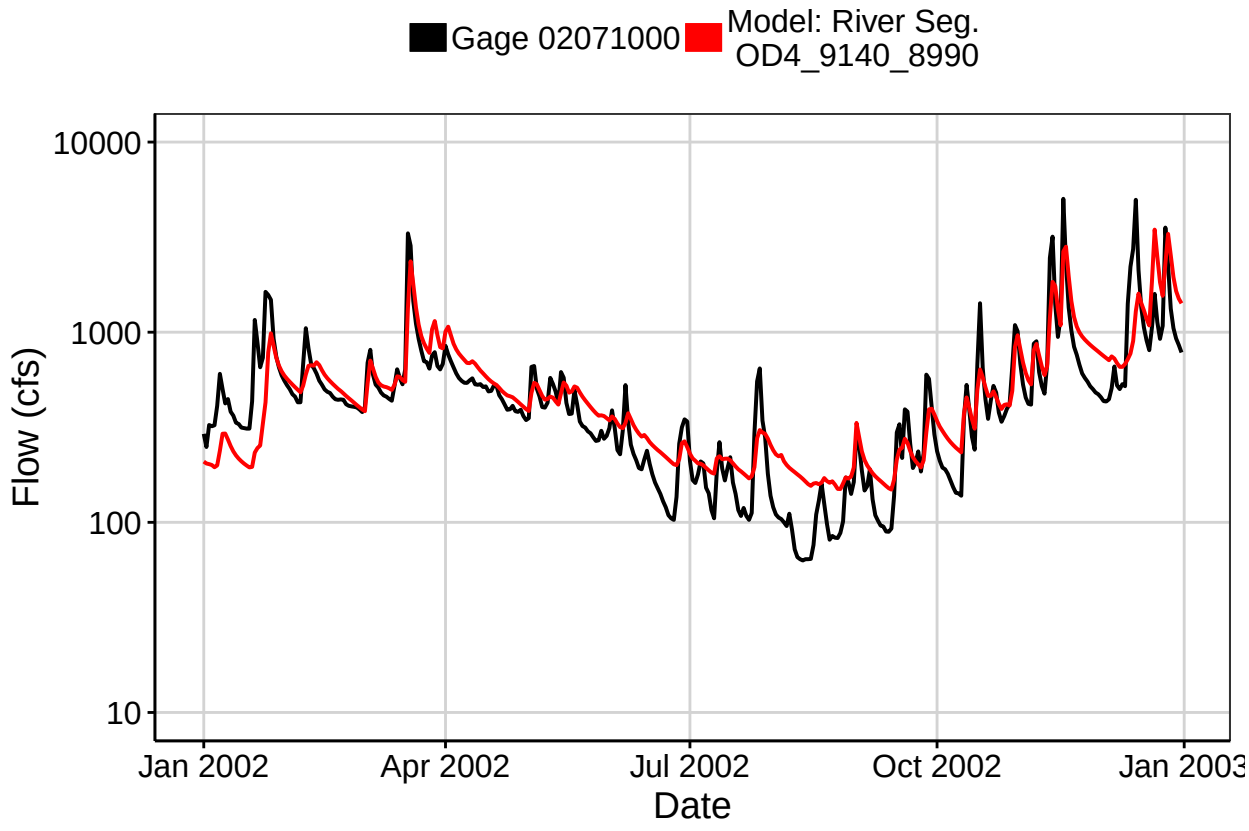


Fig. 3: Flow Exceedance

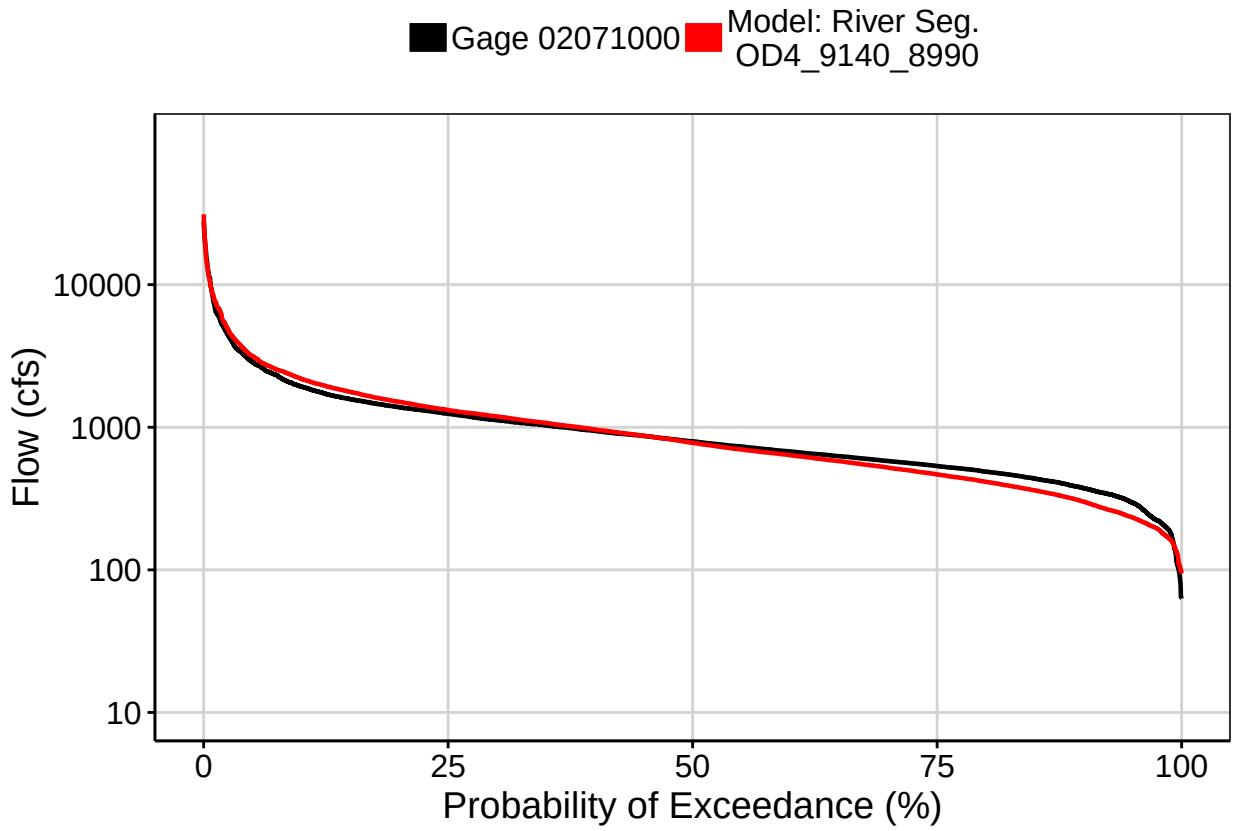


Fig. 4: Baseflow

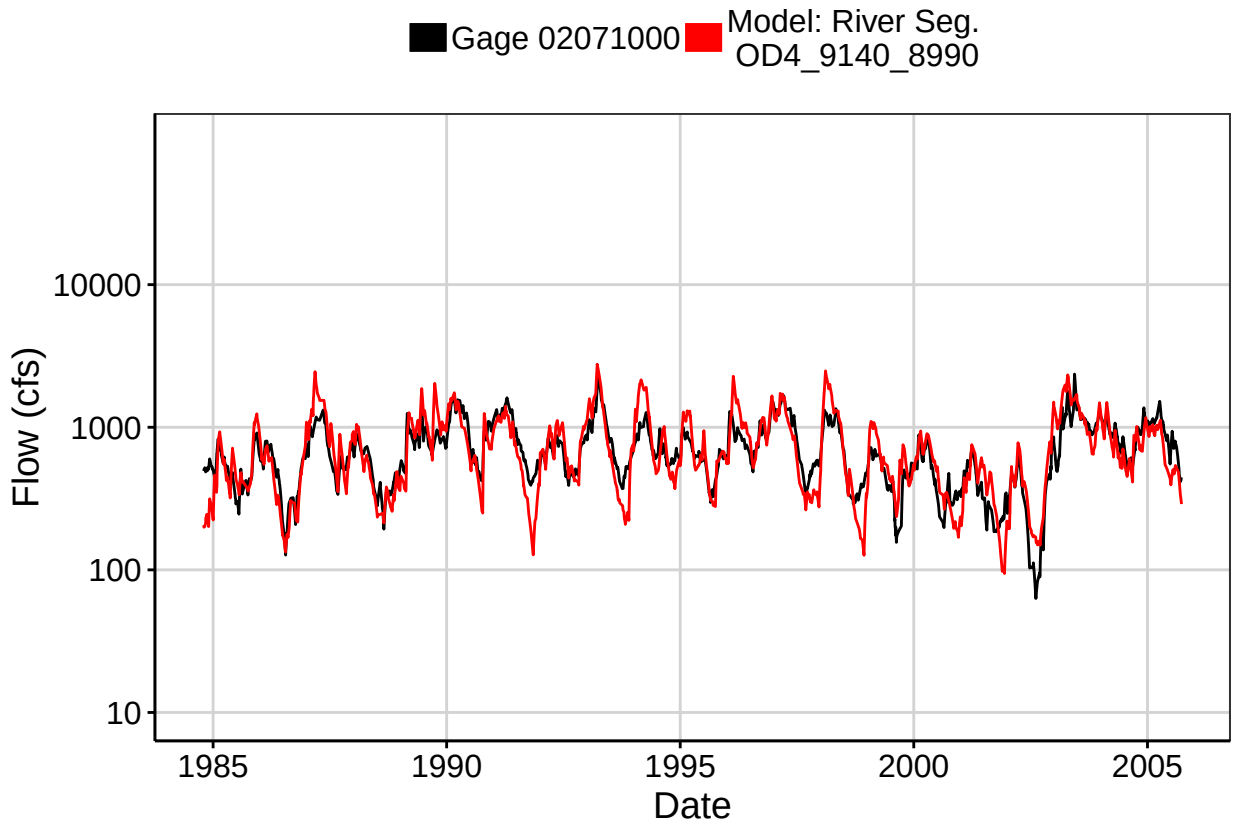


Fig. 5: Combined Baseflow

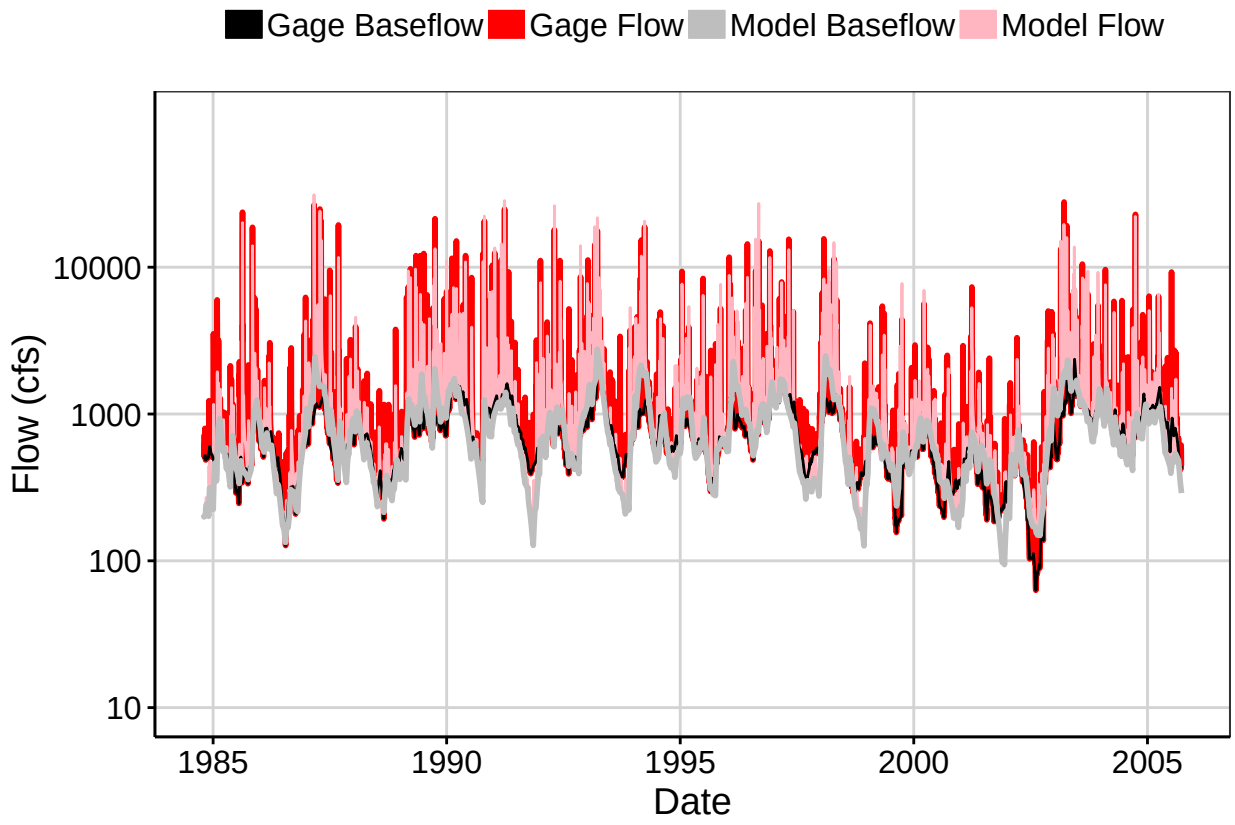


Fig. 6: Largest Error Segment

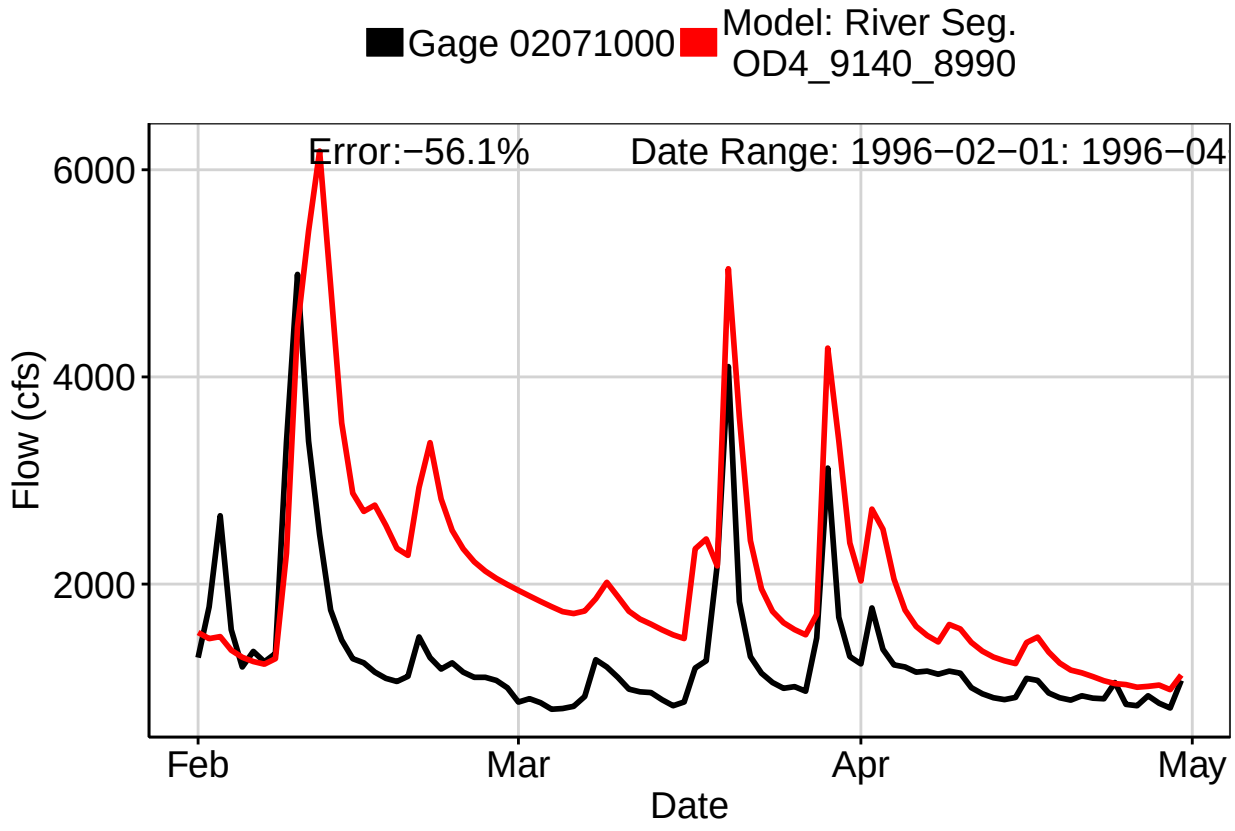


Fig. 7: Second Largest Error Segment

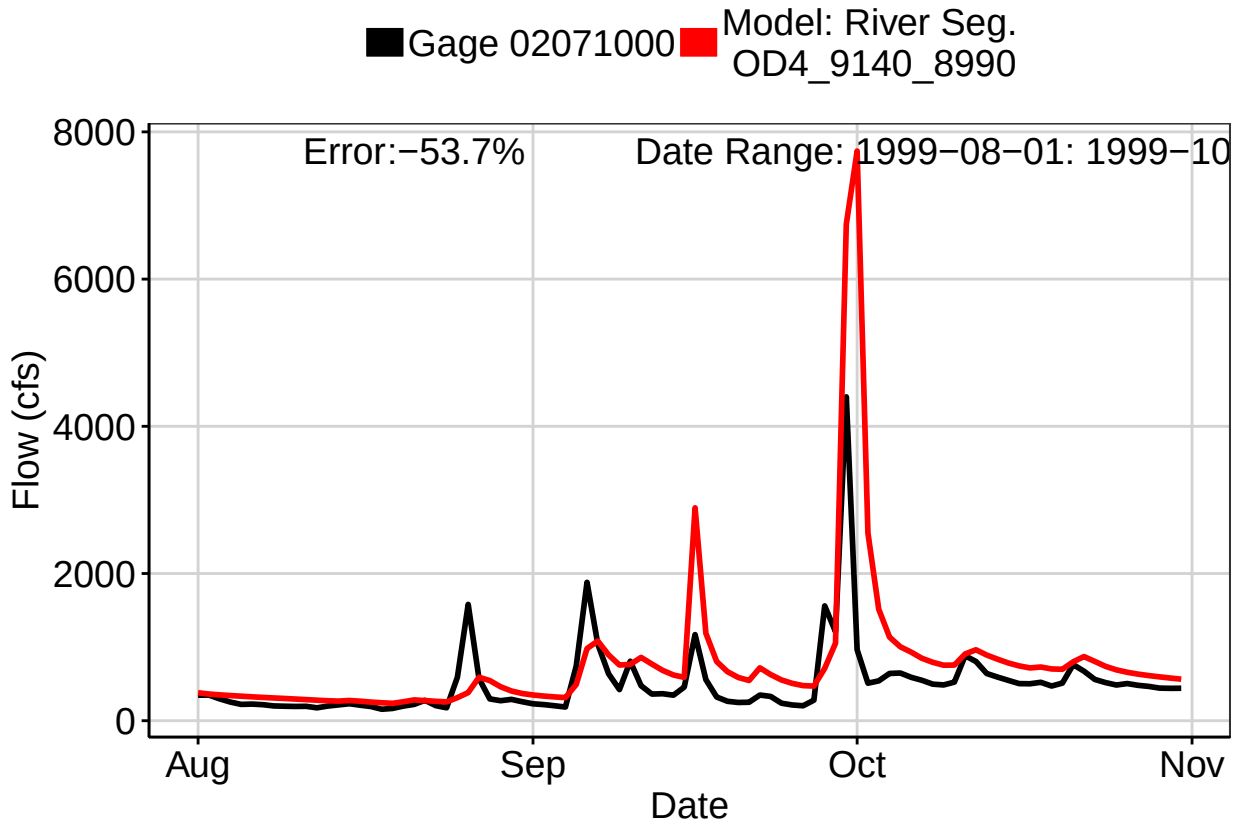


Fig. 8: Third Largest Error Segment

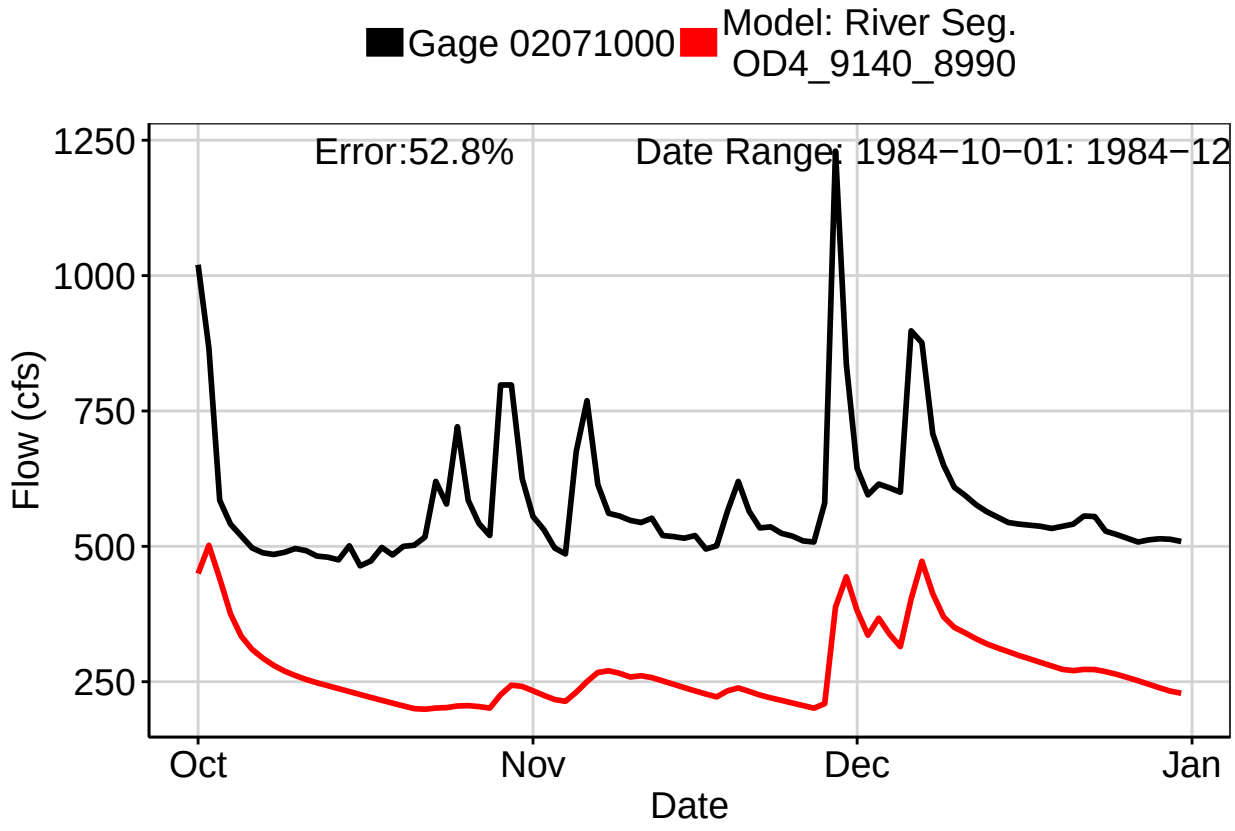


Fig. 9: Residuals Plot