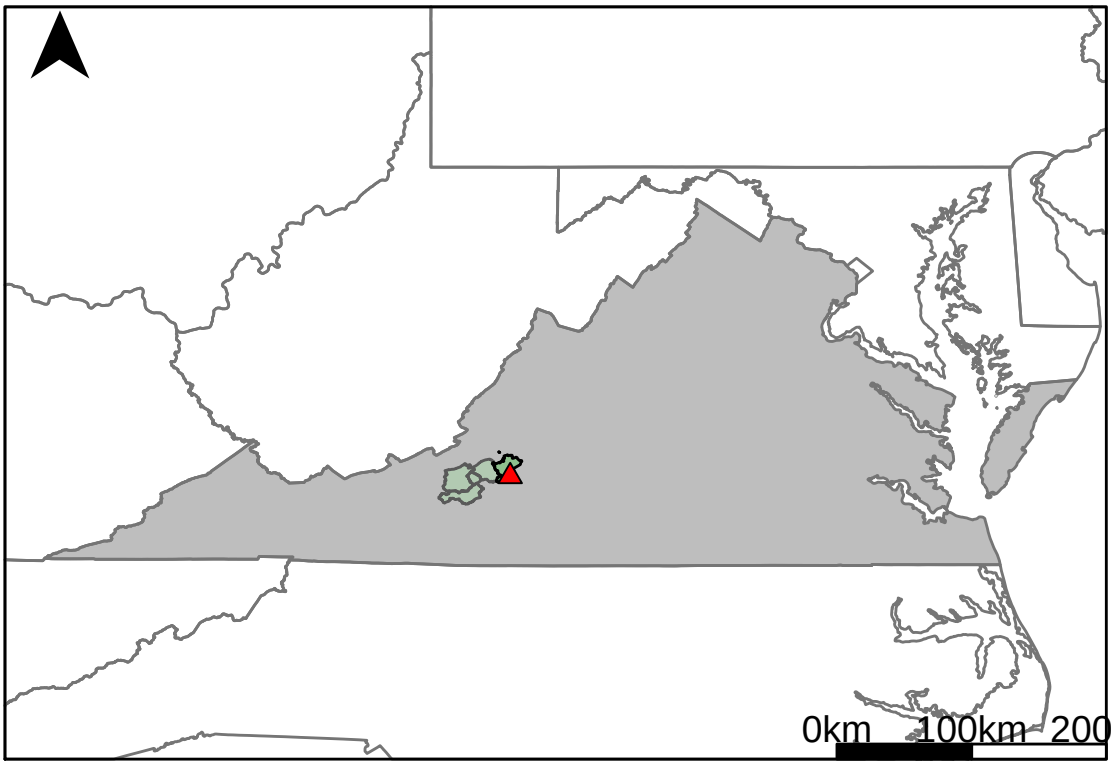
02056000 vs. OR3_7740_8271



This river segment follows part of the flow of the Roanoke River. The gage is located in Roanoke County, VA (Lat 3715'18", Long 7952'18") approximately 4 miles southeast of Roanoke, VA. Drainage area is 509 sq. miles. This gage started taking data in 1926 and is still taking data. There is complete regulation of low flow conditions in this area due to a power plant located only 200 ft upstream. There is very little storage at the facility, so excess water frequently overtops the dam. The average daily discharge error between the model and gage data for the 20 year timespan was 3.86%, with 29.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	137	65.9	51.9
Feb. Low Flow	156	105	32.7
Mar. Low Flow	192	214	-11.5
Apr. Low Flow	210	222	-5.71
May Low Flow	323	383	-18.6
Jun. Low Flow	363	351	3.31
Jul. Low Flow	315	281	10.8
Aug. Low Flow	245	238	2.86
Sep. Low Flow	224	192	14.3
Oct. Low Flow	178	110	38.2
Nov. Low Flow	135	89.2	33.9
Dec. Low Flow	128	63.6	50.3

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	544	523	3.86
Jan. Mean Flow	639	655	-2.5
Feb. Mean Flow	807	791	1.98
Mar. Mean Flow	909	890	2.09
Apr. Mean Flow	854	777	9.02
May Mean Flow	612	600	1.96
Jun. Mean Flow	515	492	4.47
Jul. Mean Flow	340	323	5
Aug. Mean Flow	304	247	18.8
Sep. Mean Flow	413	396	4.12
Oct. Mean Flow	279	269	3.58
Nov. Mean Flow	422	429	-1.66
Dec. Mean Flow	458	428	6.55

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	364	672	-84.6
Feb. High Flow	727	1120	-54.1
Mar. High Flow	1050	904	13.9
Apr. High Flow	1710	1820	-6.43
May High Flow	1610	1470	8.7
Jun. High Flow	2980	2830	5.03
Jul. High Flow	1700	1540	9.41
Aug. High Flow	1440	1470	-2.08
Sep. High Flow	727	886	-21.9
Oct. High Flow	621	688	-10.8
Nov. High Flow	563	639	-13.5
Dec. High Flow	341	536	-57.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	79.5	0.83	99
Med. 1 Day Min	114	45.3	60.3
Min. 3 Day Min	81	5.06	93.8
Med. 3 Day Min	122	49.5	59.4
Min. 7 Day Min	82.4	7.15	91.3
Med. 7 Day Min	131	54.9	58.1
Min. 30 Day Min	103	10.6	89.7
Med. 30 Day Min	153	90.7	40.7
Min. 90 Day Min	123	46.8	62
Med. 90 Day Min	205	158	22.9
7Q10	102	17.7	82.6
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	176	523	-197
Mean Baseflow	283	270	4.59

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	19700	26500	-34.5
Med. 1 Day Max	8200	7590	7.44
Max. 3 Day Max	12500	12600	-0.8
Med. 3 Day Max	4590	4580	0.22
Max. 7 Day Max	6810	6240	8.37
Med. 7 Day Max	3060	2920	4.58
Max. 30 Day Max	3710	2950	20.5
Med. 30 Day Max	1400	1460	-4.29
Max. 90 Day Max	2130	1850	13.1
Med. 90 Day Max	918	951	-3.59

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	104	18.6	82.1
5% Non-Exceedance	130	49.5	61.9
50% Non-Exceedance	302	303	-0.33
95% Non-Exceedance	1490	1540	-3.36
99% Non-Exceedance	4280	4400	-2.8
Sept. 10% Non-Exceedance	43.4	43.5	-0.23

Fig. 1: Hydrograph

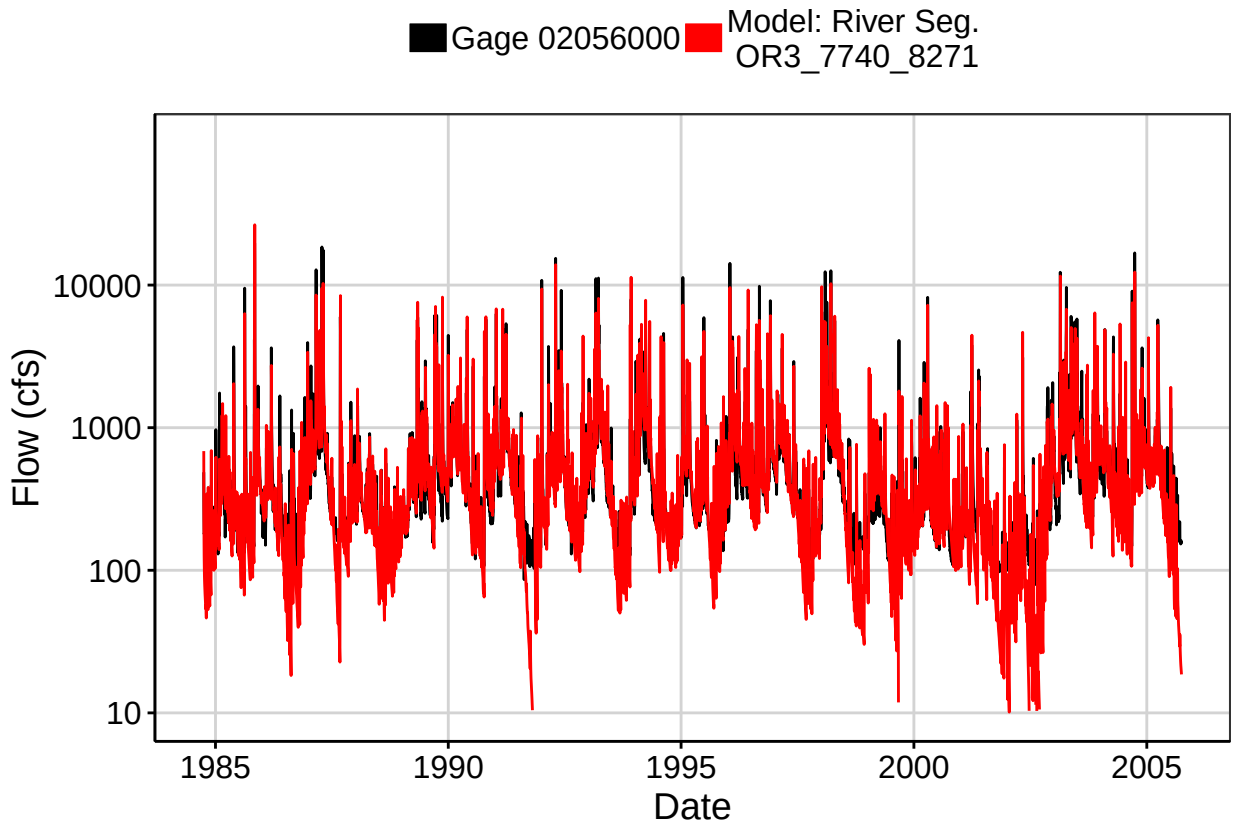


Fig. 2: Zoomed Hydrograph

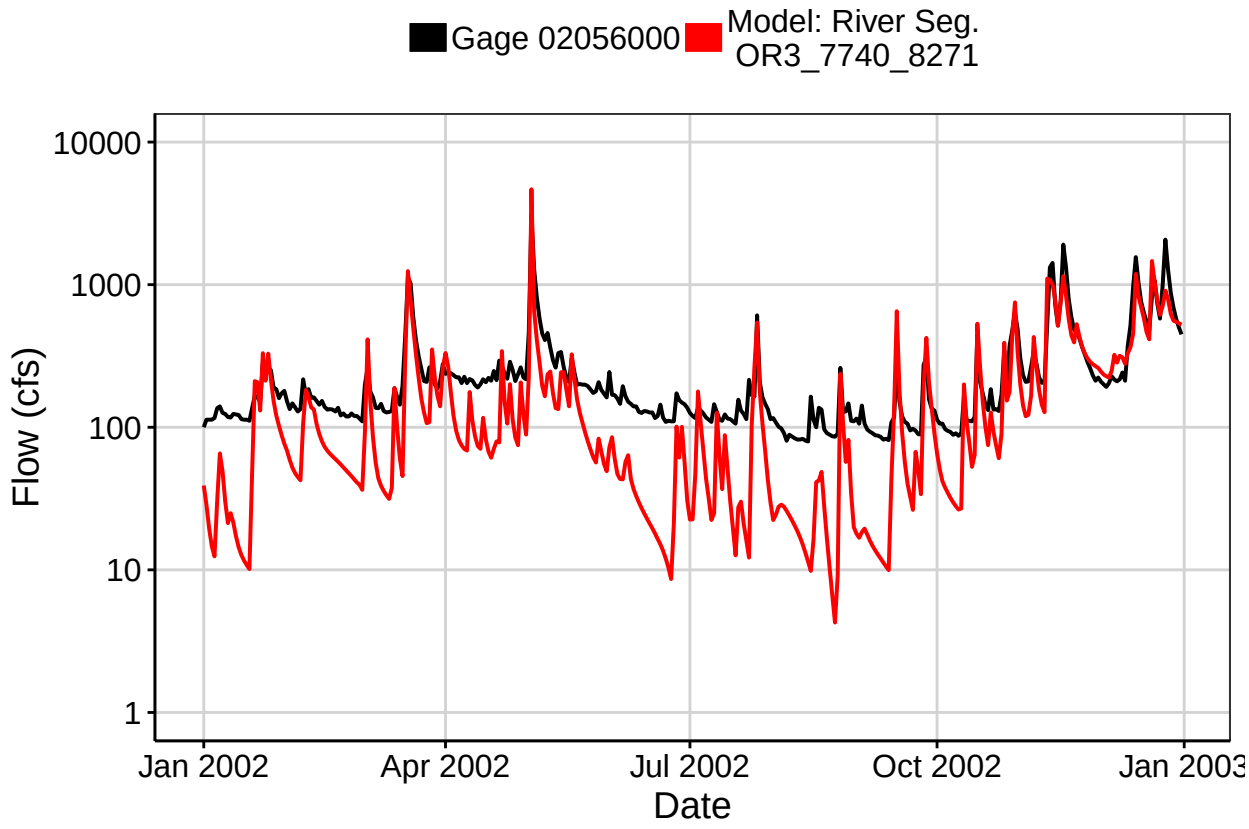


Fig. 3: Flow Exceedance

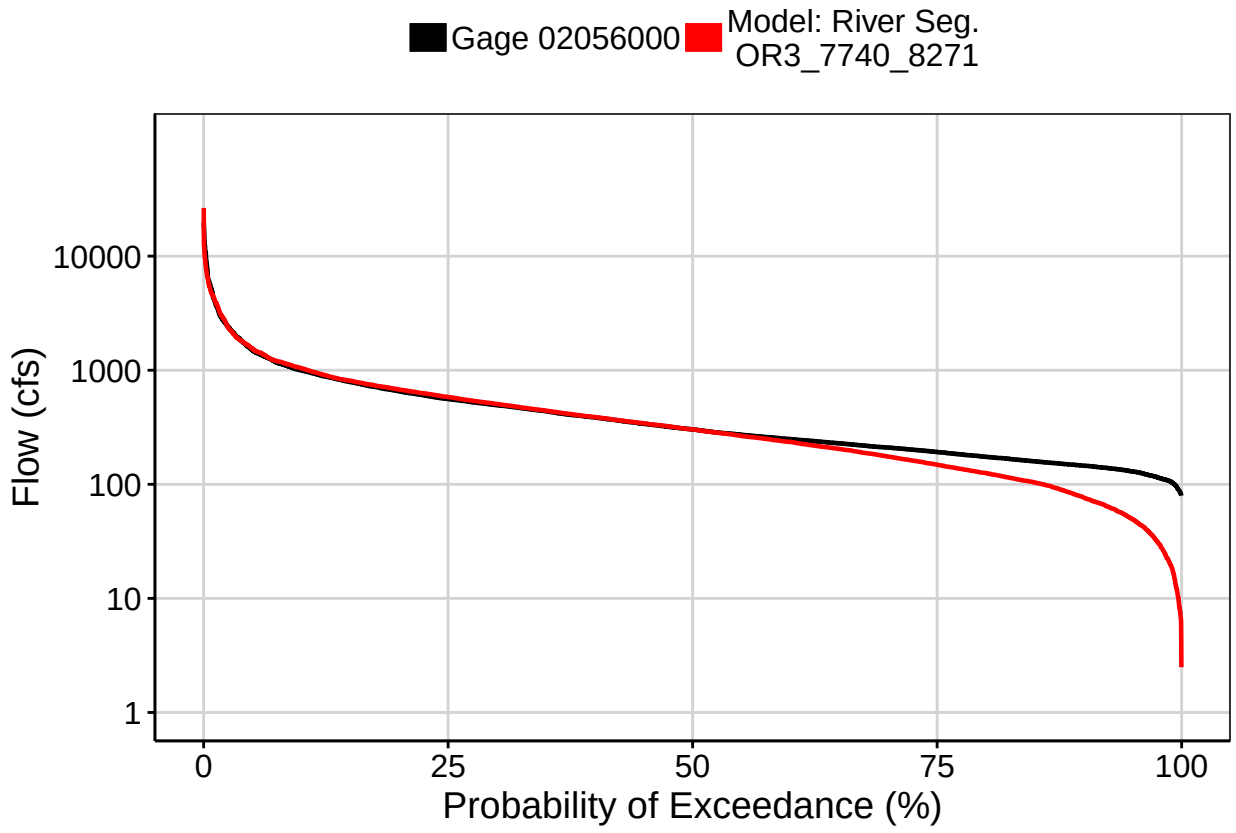


Fig. 4: Baseflow

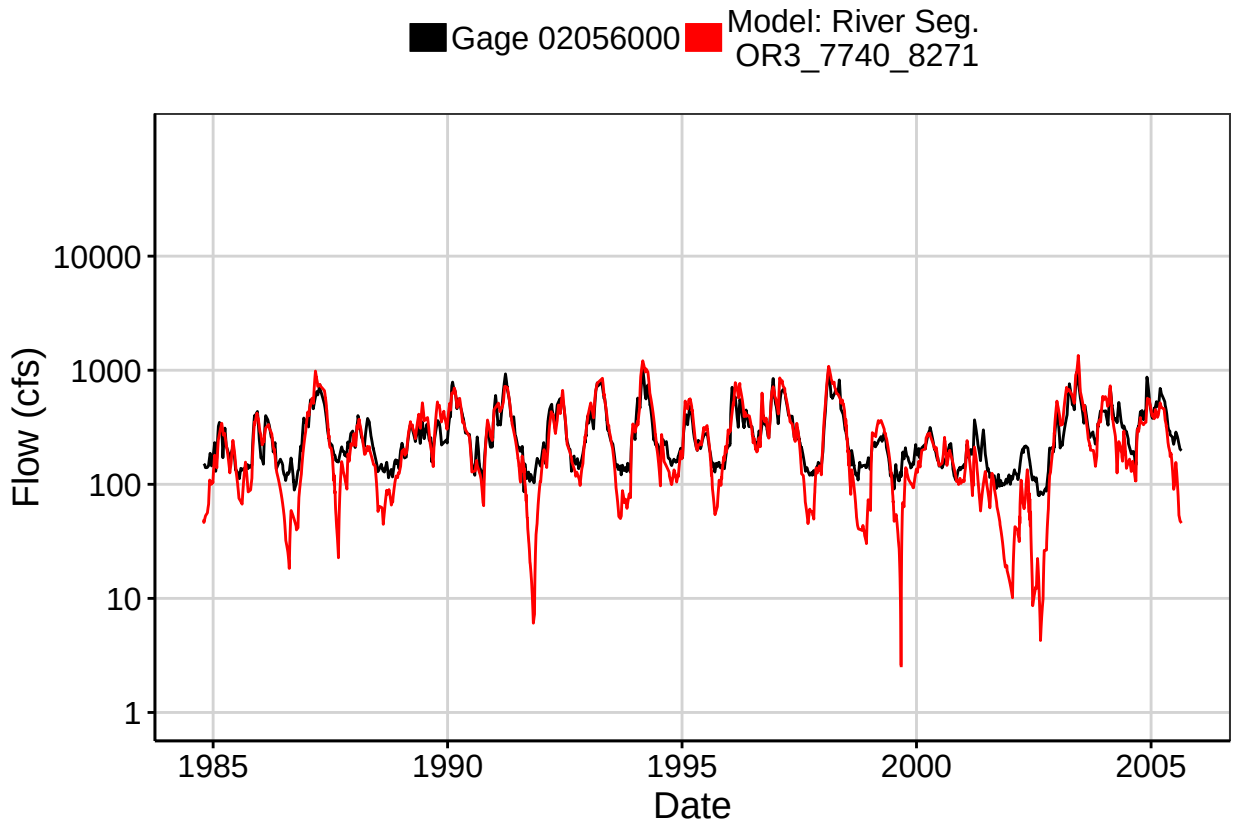


Fig. 5: Combined Baseflow

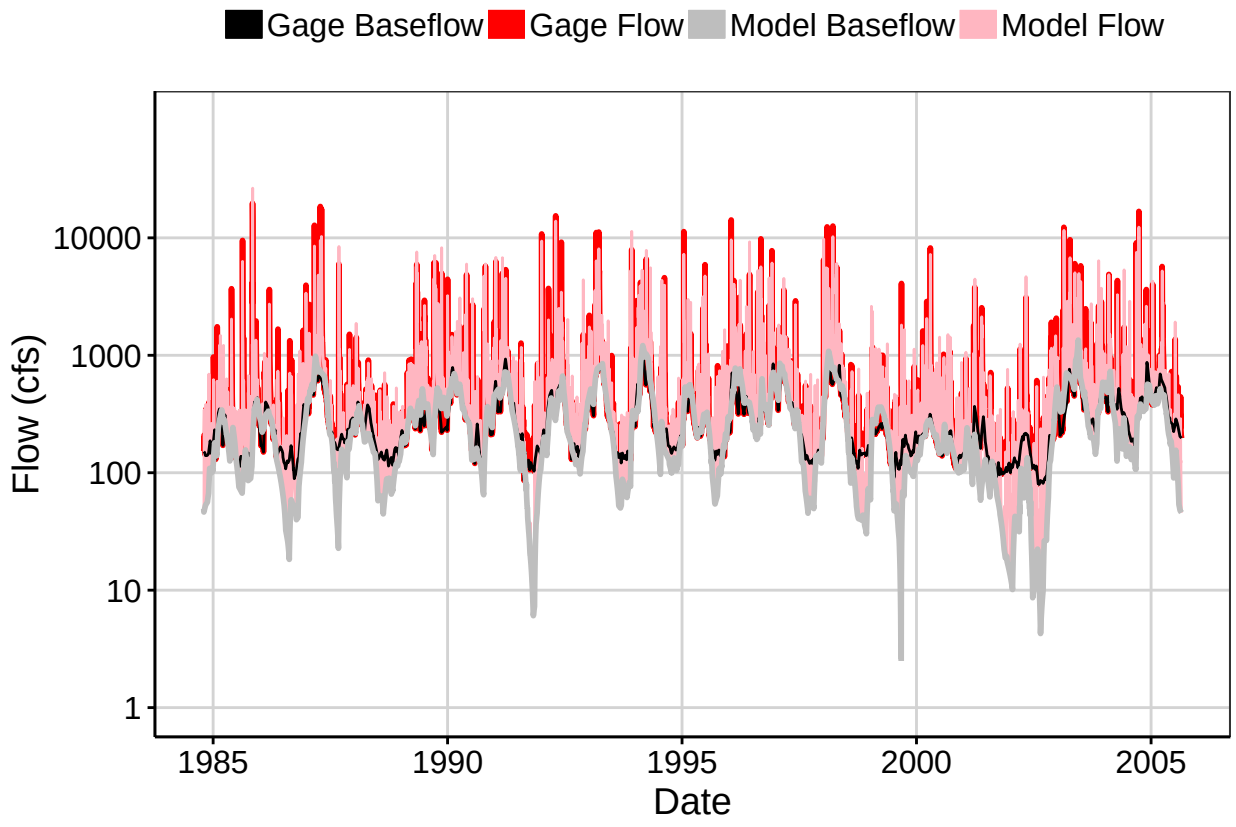


Fig. 6: Largest Error Segment

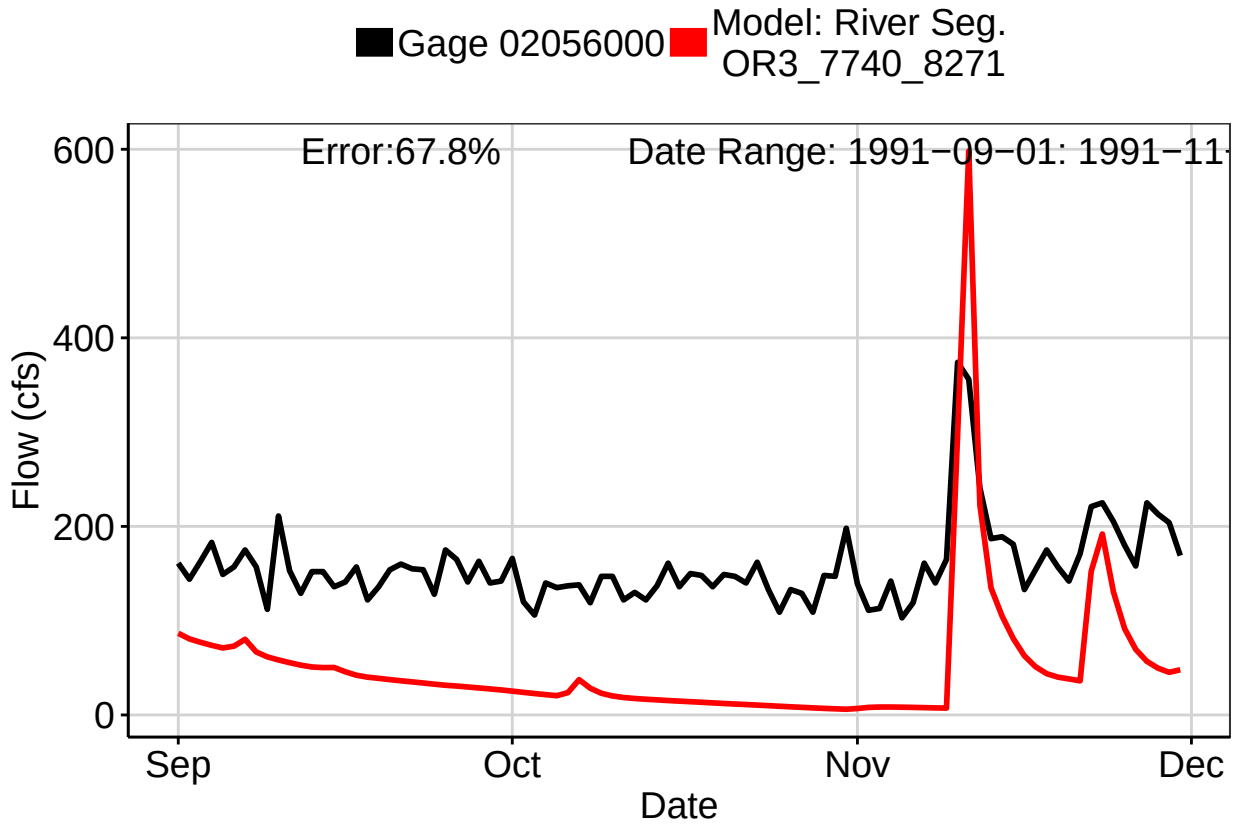


Fig. 7: Second Largest Error Segment

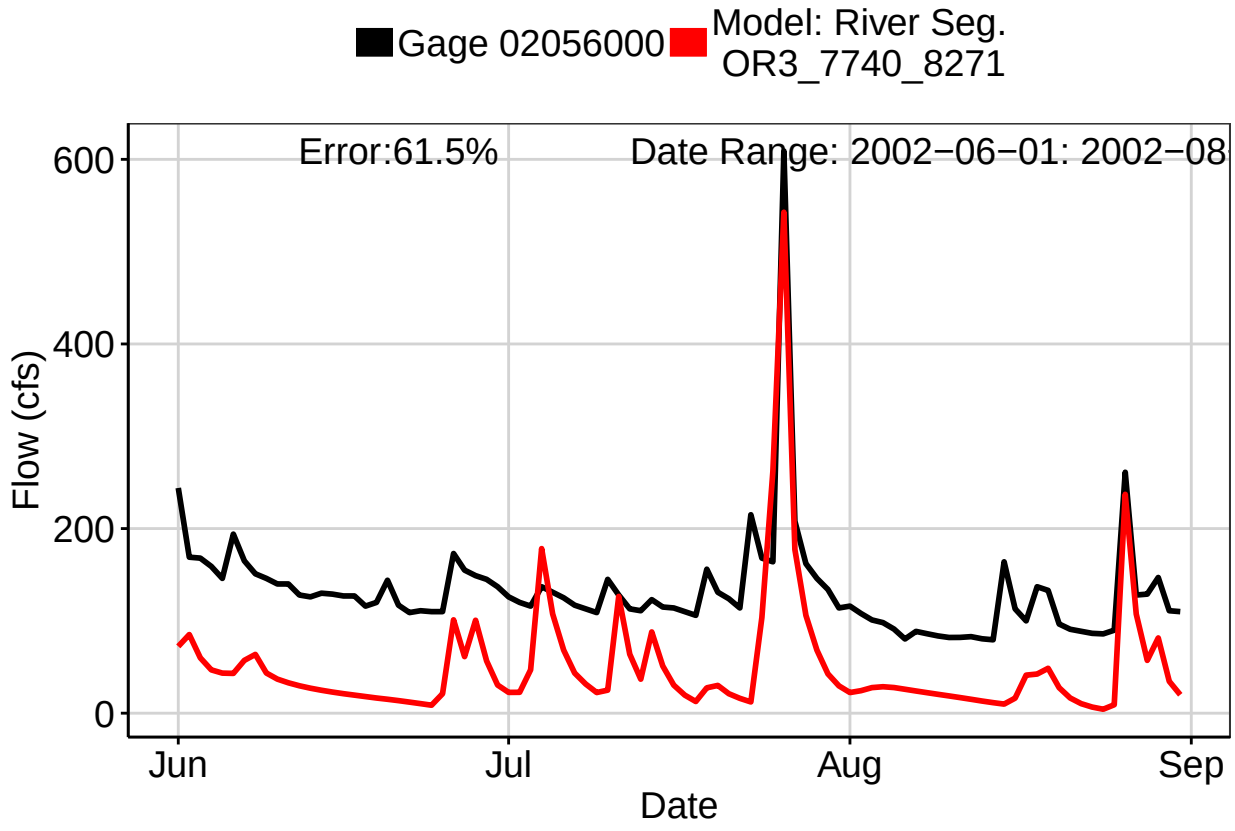


Fig. 8: Third Largest Error Segment

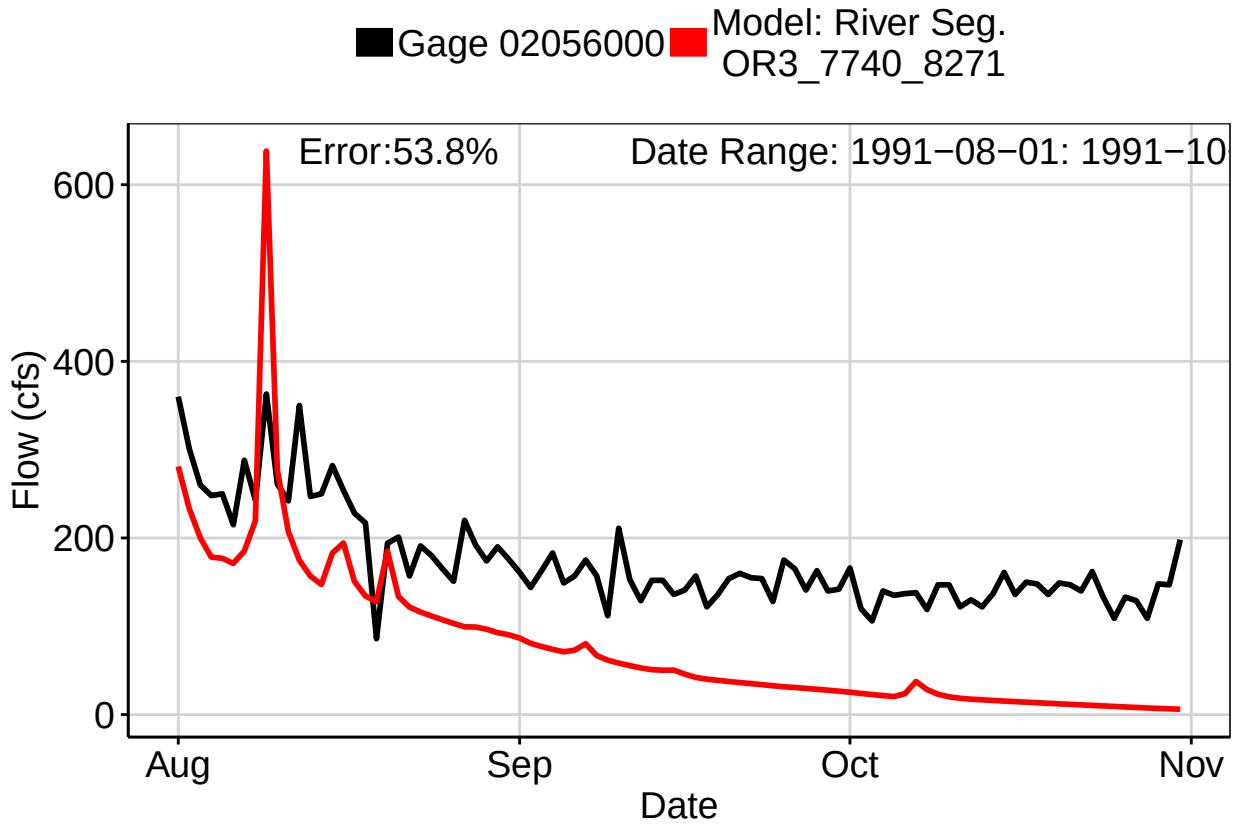


Fig. 9: Residuals Plot