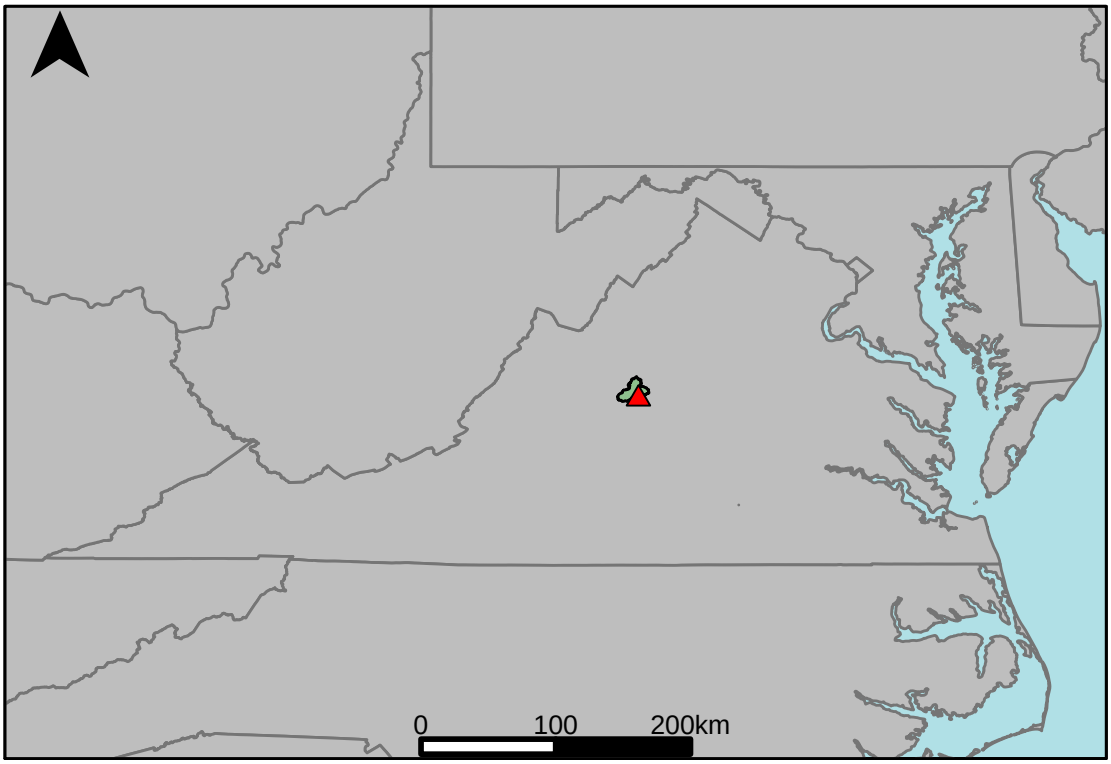
Appendix A.24: USGS Gage 02028500 vs. JL1_6770_6850 Lower James River



This river segment follows part of the flow of the Rockfish River, a tributary of the James. The gage is located in Nelson County (Lat. 37°52'10.5", Long. -78°49'24.1"), approximately 14 miles southeast of Waynesboro, VA. Drainage area is 94.8 sq. miles. This gage started taking data in 1943 and is still taking data. There are no known anthropogenic alterations in this area that would affect the flow conditions. The average daily discharge error between the model and gage data for the 20 year timespan was -6.21%, with 56.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	19	36.4	91.6
Feb. Low Flow	43	55.7	29.5
Mar. Low Flow	65	85.9	32.2
Apr. Low Flow	68	89.3	31.3
May Low Flow	90	109	21.1
Jun. Low Flow	107	118	10.3
Jul. Low Flow	94	72.3	-23.1
Aug. Low Flow	67	54.4	-18.8
Sep. Low Flow	33	31.6	-4.24
Oct. Low Flow	24	18.7	-22.1
Nov. Low Flow	16	31.2	95
Dec. Low Flow	12	22.6	88.3

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	145	154	6.21
Jan. Mean Flow	184	189	2.72
Feb. Mean Flow	181	204	12.7
Mar. Mean Flow	233	230	-1.29
Apr. Mean Flow	211	179	-15.2
May Mean Flow	160	151	-5.62
Jun. Mean Flow	126	117	-7.14
Jul. Mean Flow	74.2	91.3	23
Aug. Mean Flow	61	84	37.7
Sep. Mean Flow	116	160	37.9
Oct. Mean Flow	85.5	116	35.7
Nov. Mean Flow	157	162	3.18
Dec. Mean Flow	154	165	7.14

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	156	192	23.1
Feb. High Flow	388	456	17.5
Mar. High Flow	352	361	2.56
Apr. High Flow	496	347	-30
May High Flow	317	369	16.4
Jun. High Flow	524	683	30.3
Jul. High Flow	400	418	4.5
Aug. High Flow	335	264	-21.2
Sep. High Flow	198	230	16.2
Oct. High Flow	117	173	47.9
Nov. High Flow	88.1	137	55.5
Dec. High Flow	75	164	119

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.07	0.79	1020
Med. 1 Day Min	8.5	6.64	-21.9
Min. 3 Day Min	0.09	0.94	990
Med. 3 Day Min	8.5	7.03	-17.3
Min. 7 Day Min	0.12	1.26	959
Med. 7 Day Min	9.43	10.2	8.17
Min. 30 Day Min	0.64	3.95	519
Med. 30 Day Min	16	24.5	53.1
Min. 90 Day Min	1.36	15.7	1050
Med. 90 Day Min	34.4	56.9	65.4
7Q10	1.49	1.56	4.7
Year of 90-Day Min. Flow	2002	1999	100
Drought Year Mean	22.5	50	122
Mean Baseflow	73.9	86.3	16.8

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	5600	5450	-2.68
Med. 1 Day Max	1790	2060	15.1
Max. 3 Day Max	3960	2600	-34.3
Med. 3 Day Max	1220	1150	-5.74
Max. 7 Day Max	2360	1590	-32.6
Med. 7 Day Max	804	715	-11.1
Max. 30 Day Max	863	656	-24
Med. 30 Day Max	434	331	-23.7
Max. 90 Day Max	525	477	-9.14
Med. 90 Day Max	282	245	-13.1

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	1.64	3.33	103
5% Non-Exceedance	9.5	14	47.4
50% Non-Exceedance	86	105	22.1
95% Non-Exceedance	461	428	-7.16
99% Non-Exceedance	1020	969	-5
Sept. 10% Non-Exceedance	7.39	15.3	107

Fig. 1: Hydrograph

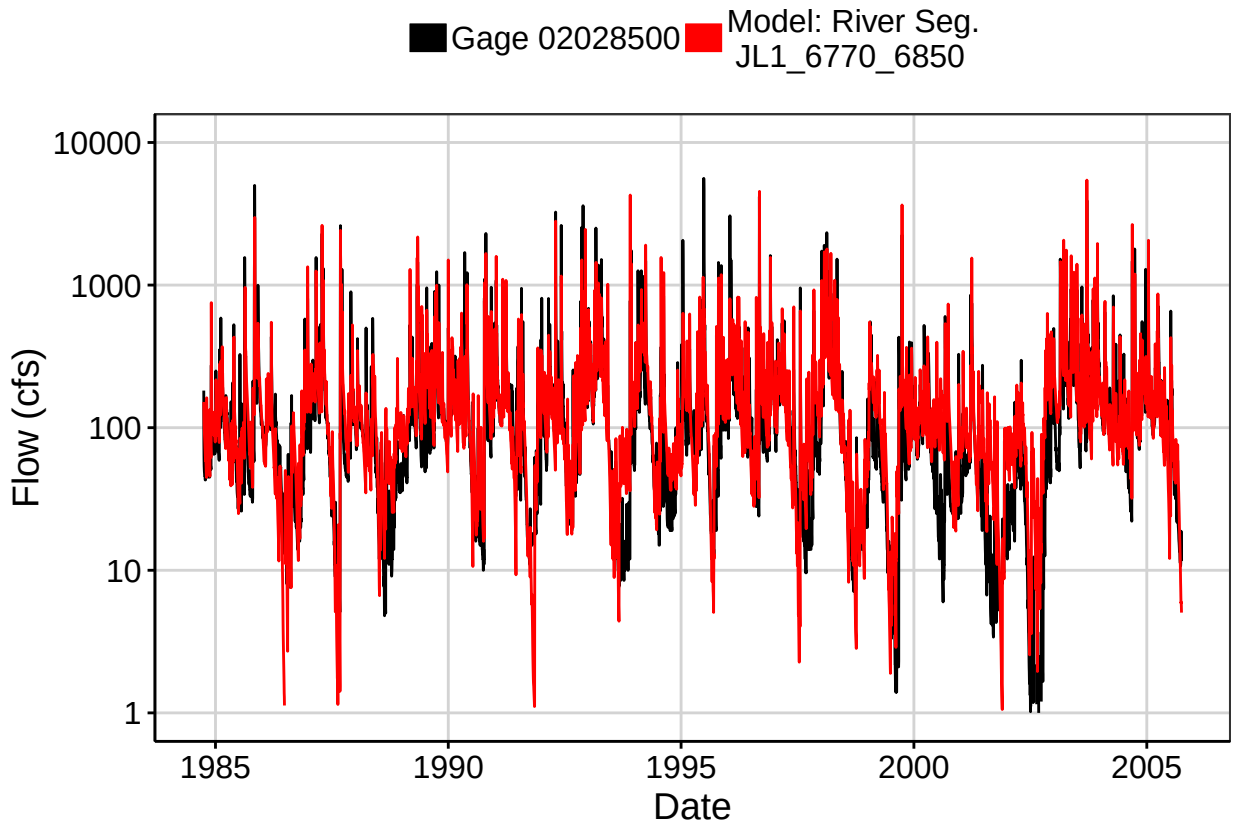


Fig. 2: Zoomed Hydrograph

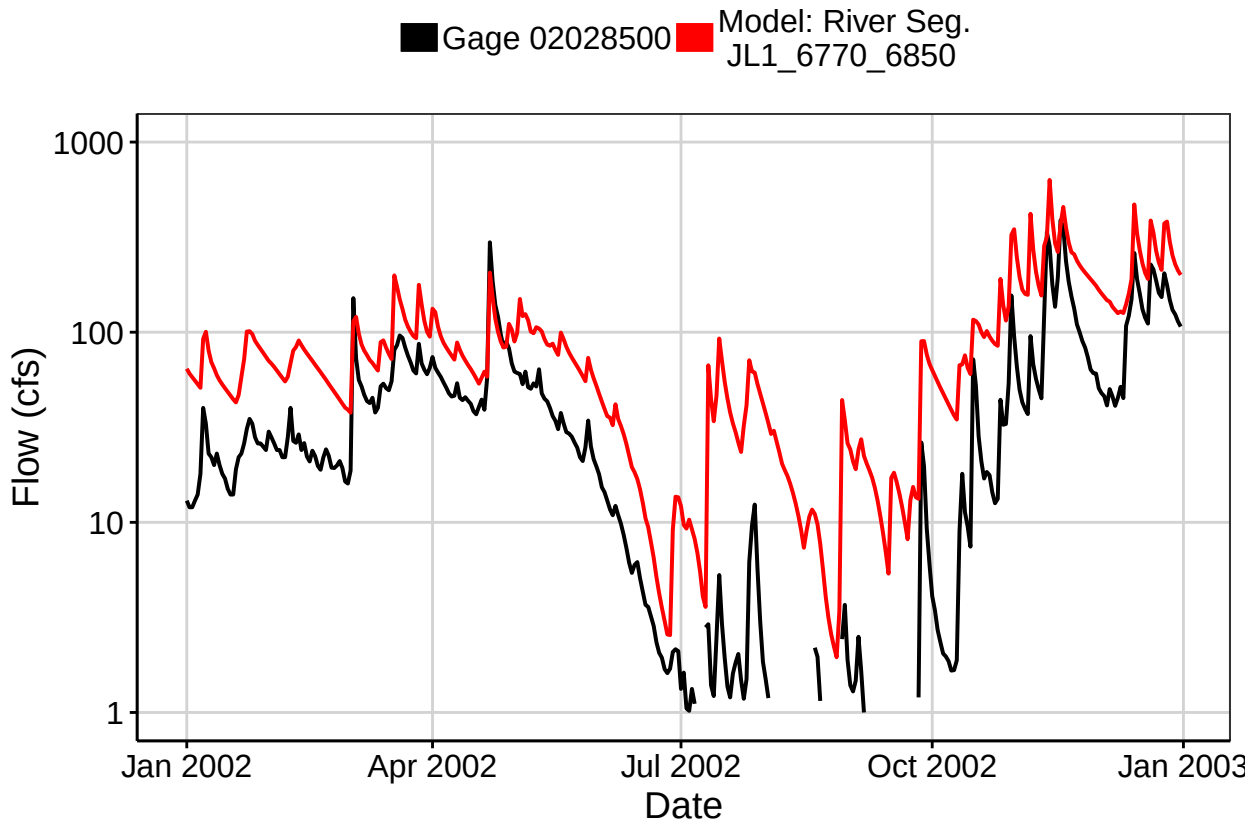


Fig. 3: Flow Exceedance

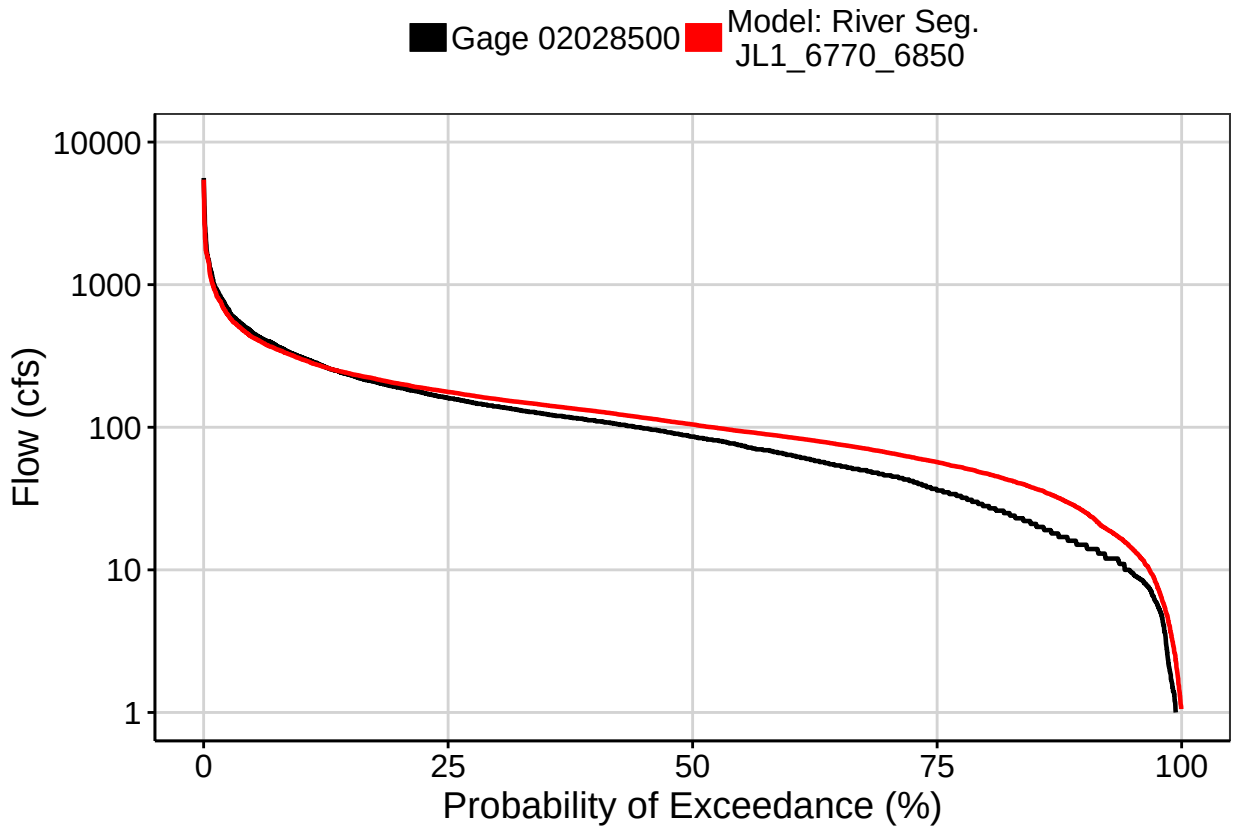


Fig. 4: Baseflow

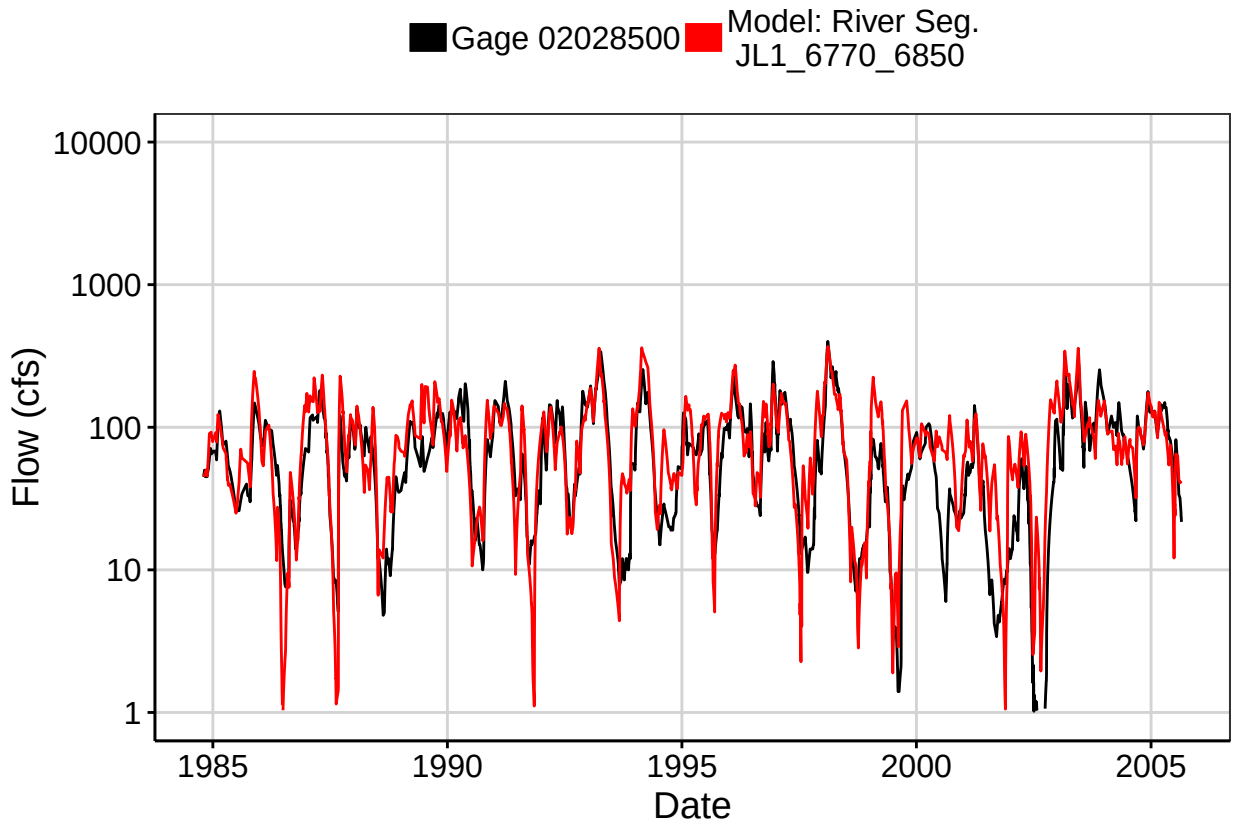


Fig. 5: Combined Baseflow

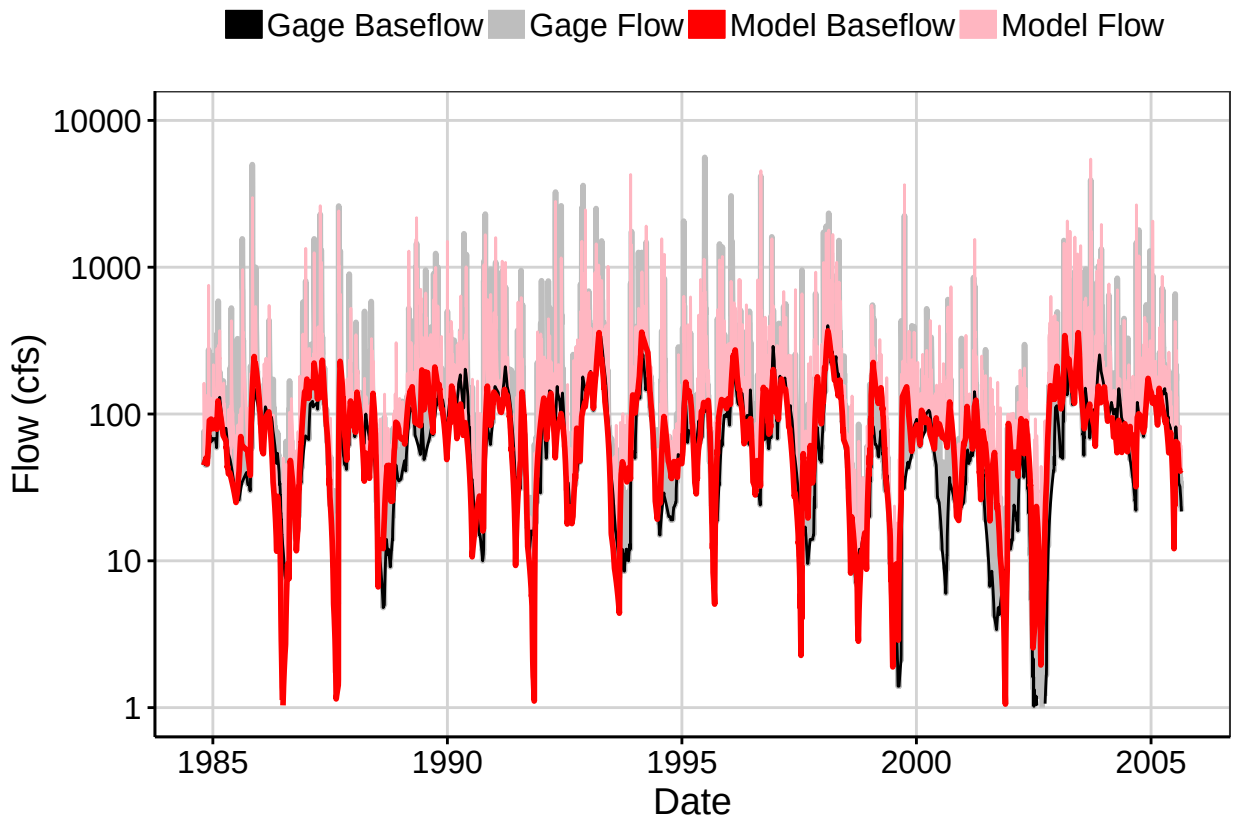


Fig. 6: Largest Error Segment

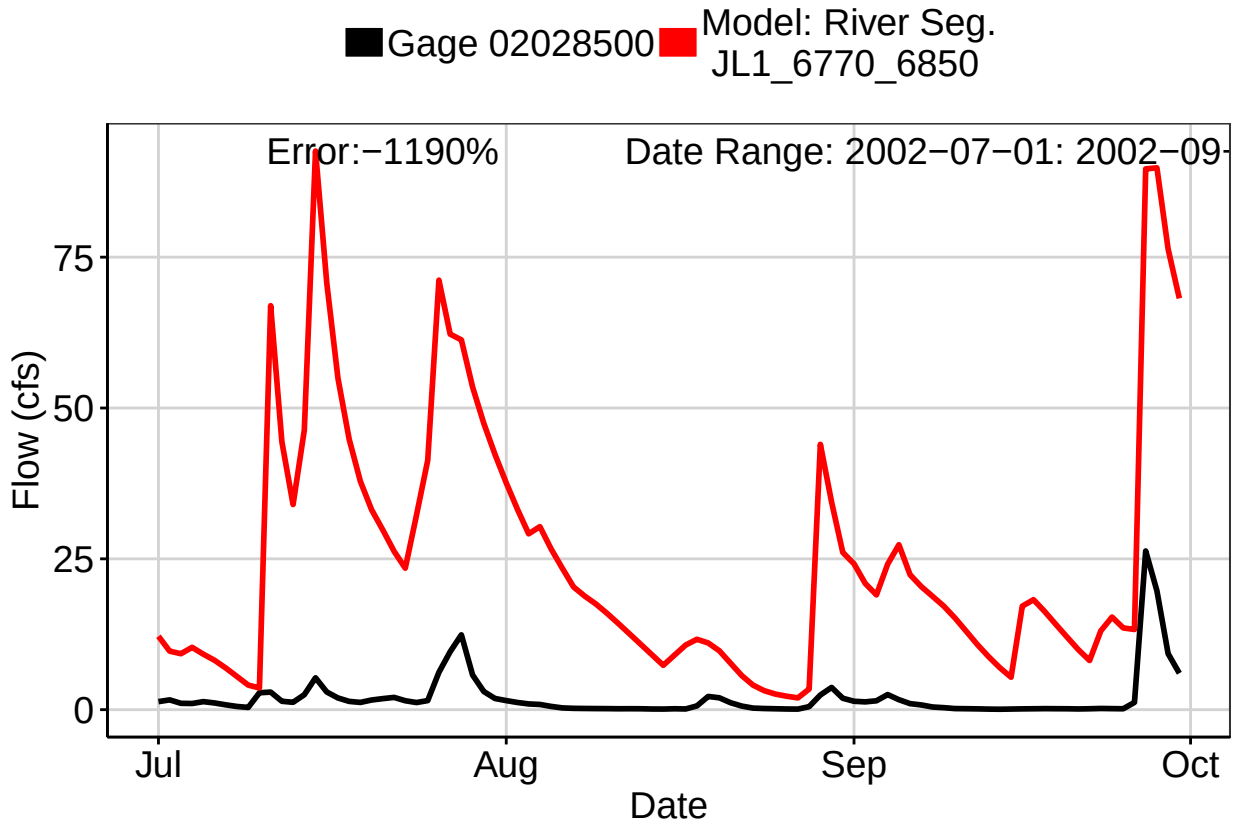


Fig. 7: Second Largest Error Segment

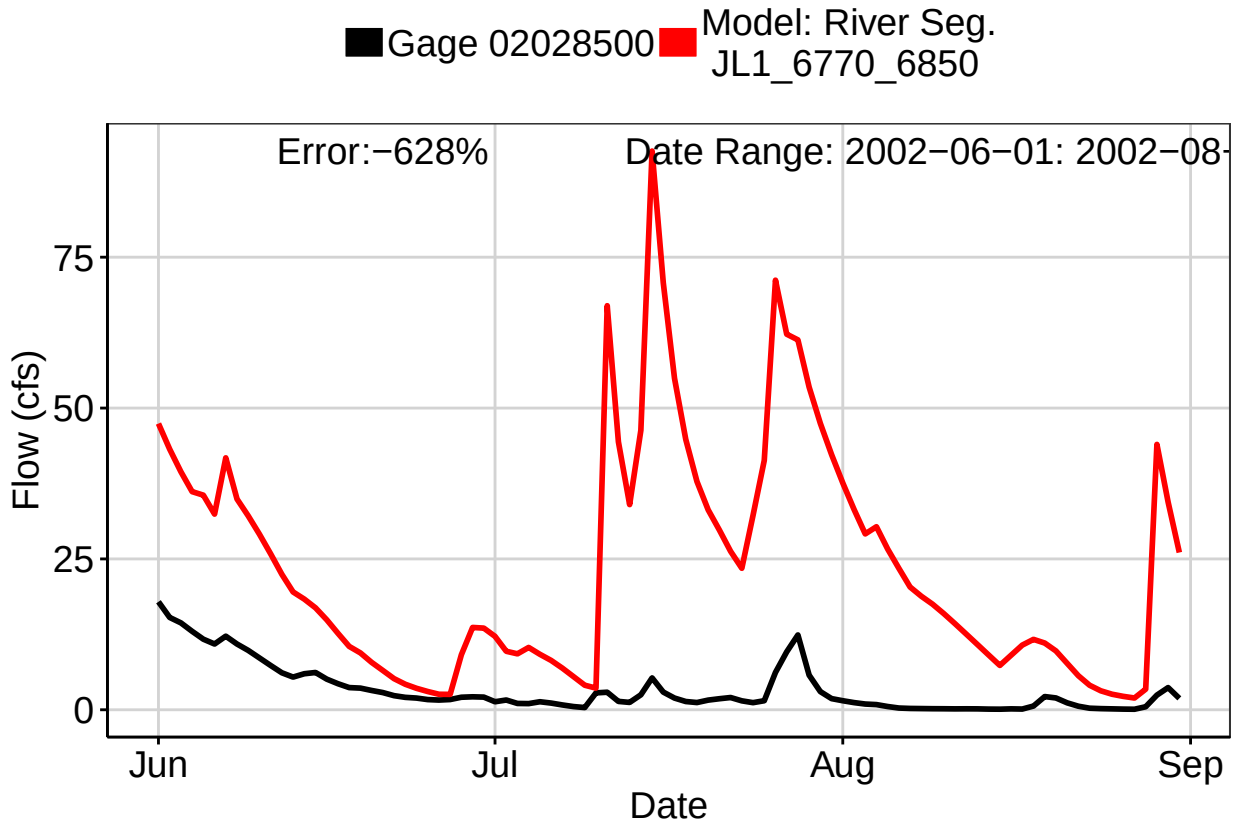


Fig. 8: Third Largest Error Segment

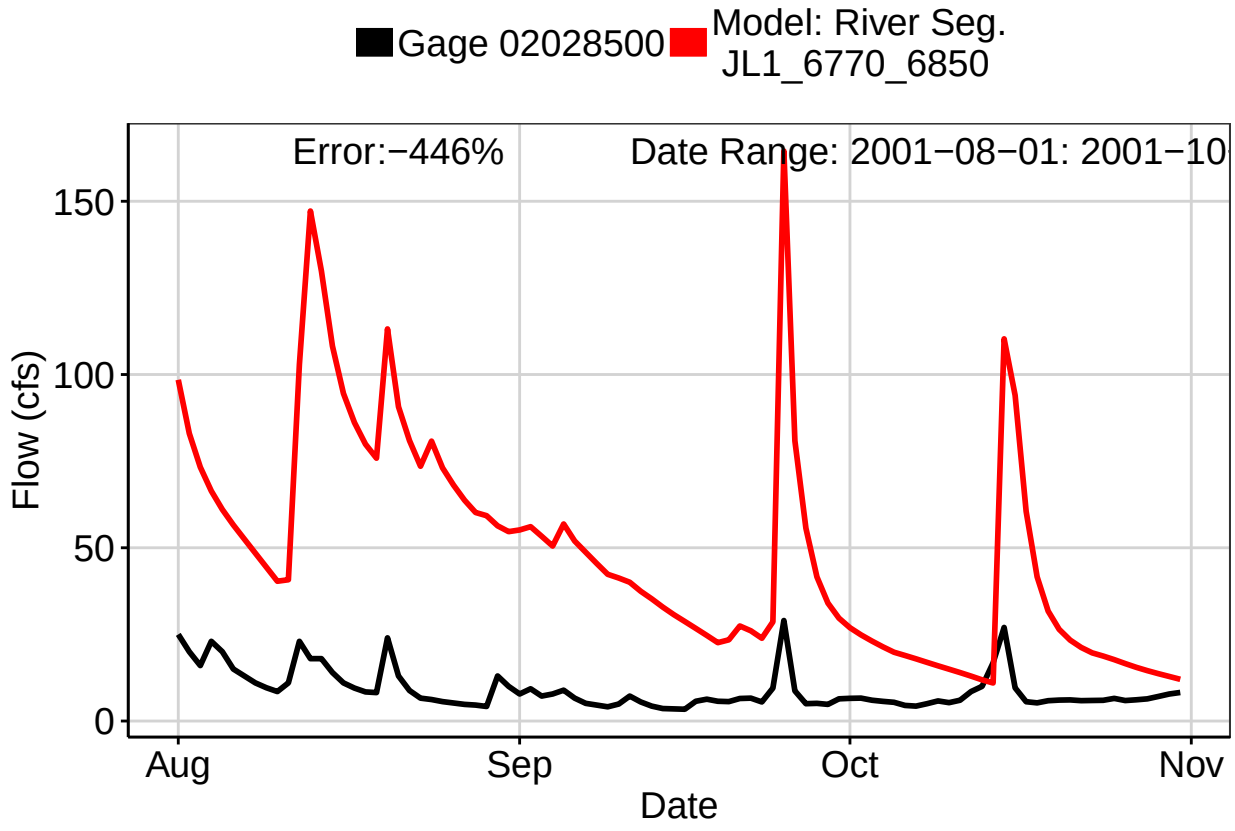


Fig. 9: Residuals Plot