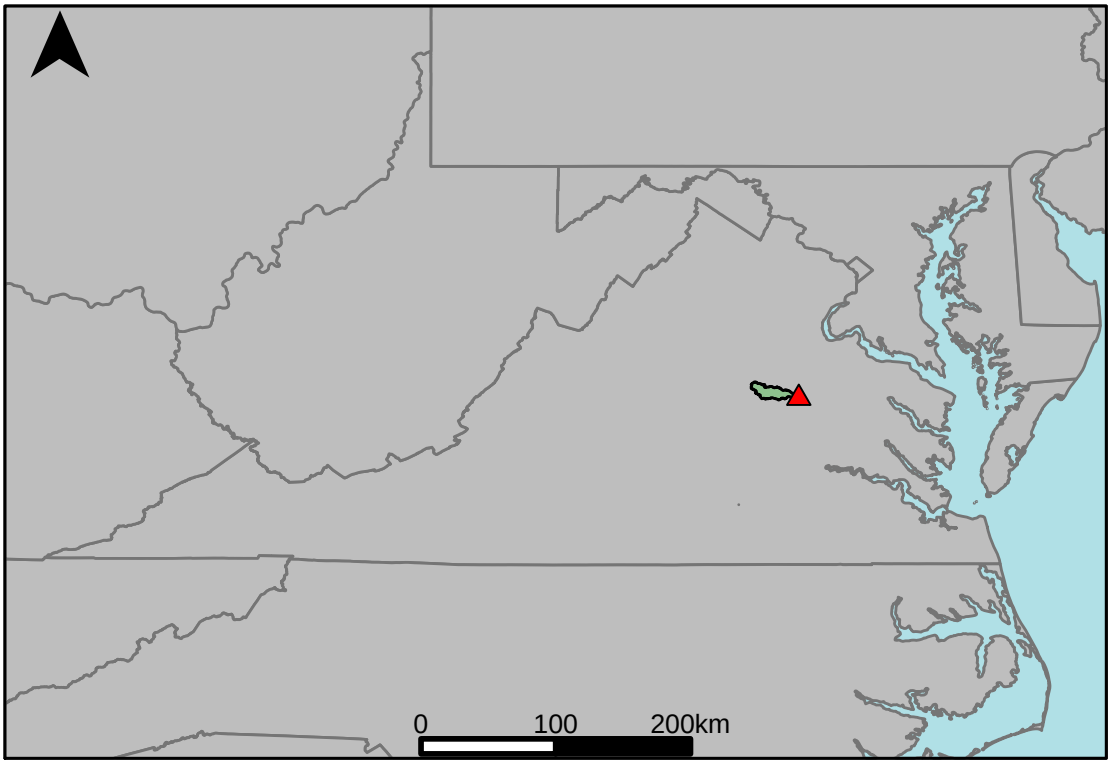
Appendix D.2: USGS Gage 01671100 vs. YP1_6570_6680 Pamunkey River



This river segment follows part of the flow of the Little River, a tributary of the York. The gage is located in Hanover County (Lat. 37°52'21.5", Long. -77°30'46.9"), approximately 8.2 miles north of Ashland, VA. Drainage area is 107 sq. miles. This gage started taking data in 1961 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 -6.27%, with 52.5% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	5.7	5.72	0.35
Feb. Low Flow	22.2	15.1	-32
Mar. Low Flow	41	29.3	-28.5
Apr. Low Flow	55	55.4	0.73
May Low Flow	72.4	72.9	0.69
Jun. Low Flow	70	59.6	-14.9
Jul. Low Flow	59	45.5	-22.9
Aug. Low Flow	31.5	32	1.59
Sep. Low Flow	16.5	18.5	12.1
Oct. Low Flow	8.1	7.2	-11.1
Nov. Low Flow	4.25	7.55	77.6
Dec. Low Flow	4.9	6.81	39

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	94.1	100	6.27
Jan. Mean Flow	132	146	10.6
Feb. Mean Flow	163	170	4.29
Mar. Mean Flow	192	201	4.69
Apr. Mean Flow	142	126	-11.3
May Mean Flow	112	97.7	-12.8
Jun. Mean Flow	50.1	65	29.7
Jul. Mean Flow	34.3	44	28.3
Aug. Mean Flow	36.6	44.8	22.4
Sep. Mean Flow	43.4	73.8	70
Oct. Mean Flow	35.3	43.8	24.1
Nov. Mean Flow	85.6	92.1	7.59
Dec. Mean Flow	109	106	-2.75

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	81.2	59.5	-26.7
Feb. High Flow	217	357	64.5
Mar. High Flow	288	312	8.33
Apr. High Flow	387	490	26.6
May High Flow	386	360	-6.74
Jun. High Flow	504	635	26
Jul. High Flow	410	304	-25.9
Aug. High Flow	314	225	-28.3
Sep. High Flow	110	130	18.2
Oct. High Flow	104	102	-1.92
Nov. High Flow	62.1	71.3	14.8
Dec. High Flow	77	39.2	-49.1

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.05	0	-100
Med. 1 Day Min	1.6	3.24	102
Min. 3 Day Min	0.06	0	-100
Med. 3 Day Min	1.63	3.5	115
Min. 7 Day Min	0.14	0.07	-49.1
Med. 7 Day Min	1.89	4.19	122
Min. 30 Day Min	0.37	0.68	83.7
Med. 30 Day Min	7.08	8.55	20.8
Min. 90 Day Min	2.02	5.49	172
Med. 90 Day Min	16.6	21.2	27.7
7Q10	0.33	0.44	30.5
Year of 90-Day Min. Flow	1999	2002	100
Drought Year Mean	31.7	55.3	74.4
Mean Baseflow	41.3	43.6	5.57

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	3320	6370	91.9
Med. 1 Day Max	1150	1970	71.3
Max. 3 Day Max	2350	2700	14.9
Med. 3 Day Max	795	1270	59.7
Max. 7 Day Max	1360	1840	35.3
Med. 7 Day Max	561	737	31.4
Max. 30 Day Max	728	671	-7.83
Med. 30 Day Max	253	293	15.8
Max. 90 Day Max	512	472	-7.81
Med. 90 Day Max	173	185	6.94

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.57	1.07	87.7
5% Non-Exceedance	2.1	4.4	110
50% Non-Exceedance	48	50.5	5.21
95% Non-Exceedance	332	339	2.11
99% Non-Exceedance	840	936	11.4
Sept. 10% Non-Exceedance	1.2	3.73	211

Fig. 1: Hydrograph

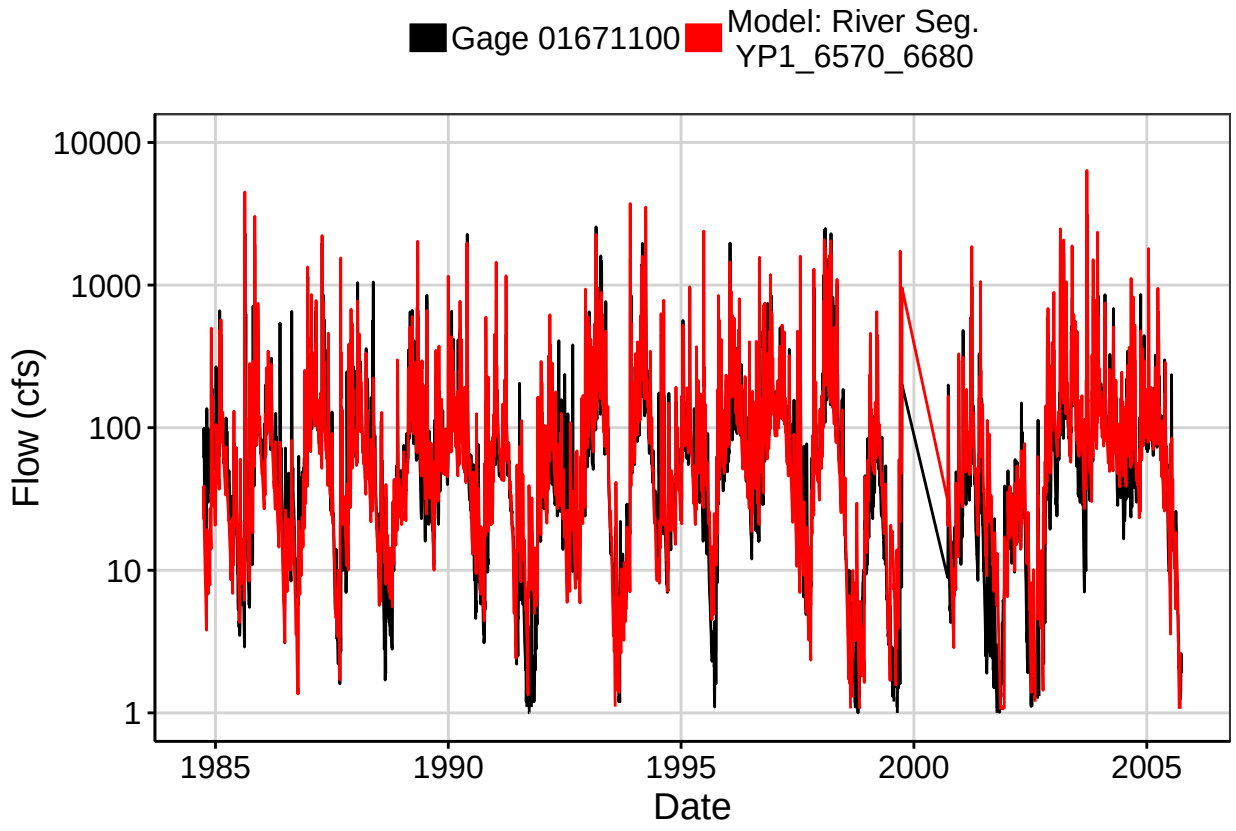


Fig. 2: Zoomed Hydrograph

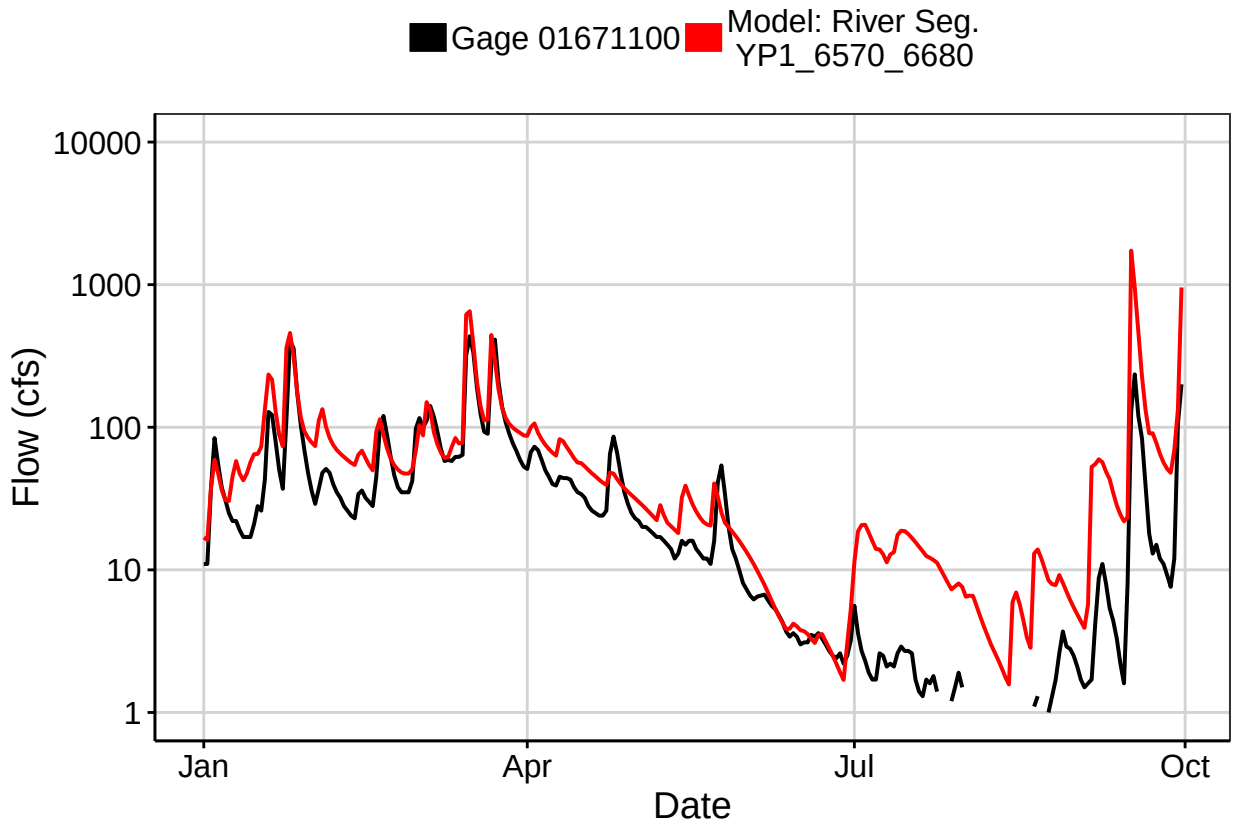


Fig. 3: Flow Exceedance

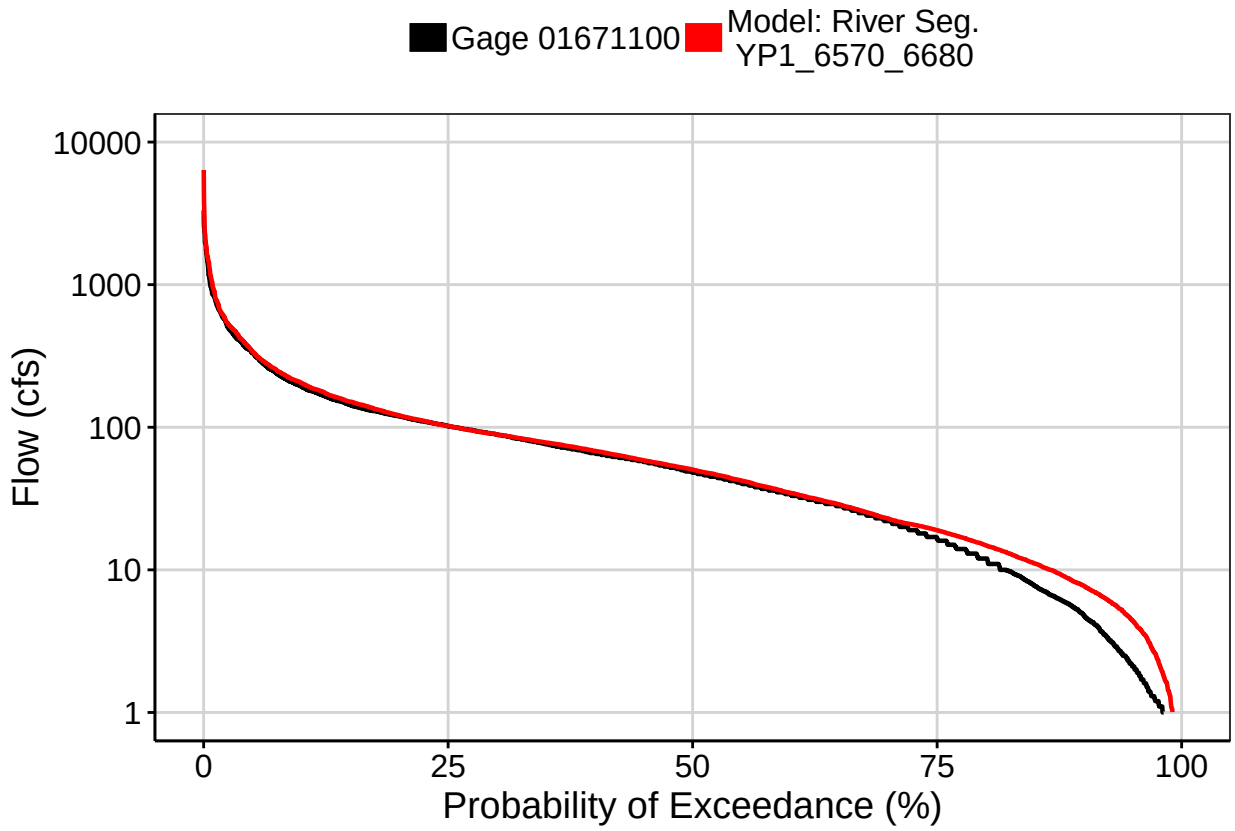


Fig. 4: Baseflow

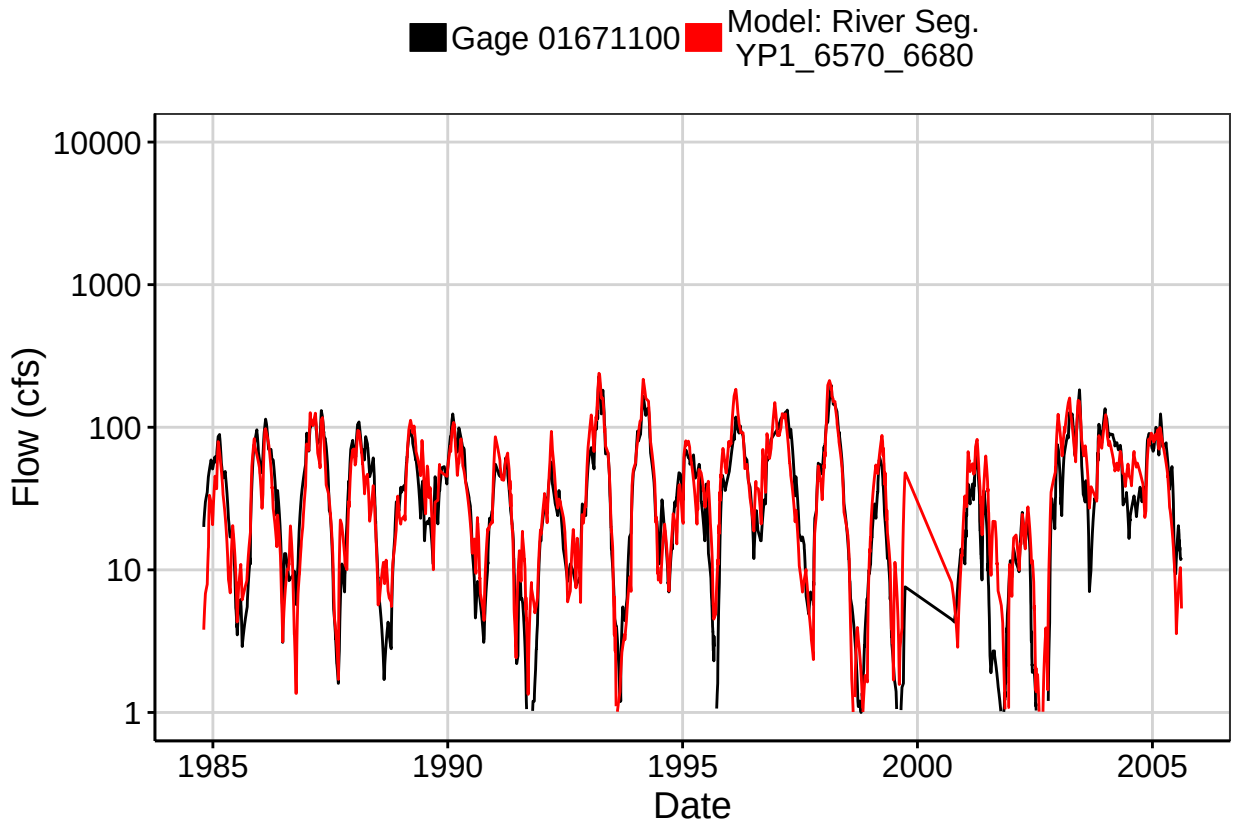


Fig. 5: Combined Baseflow

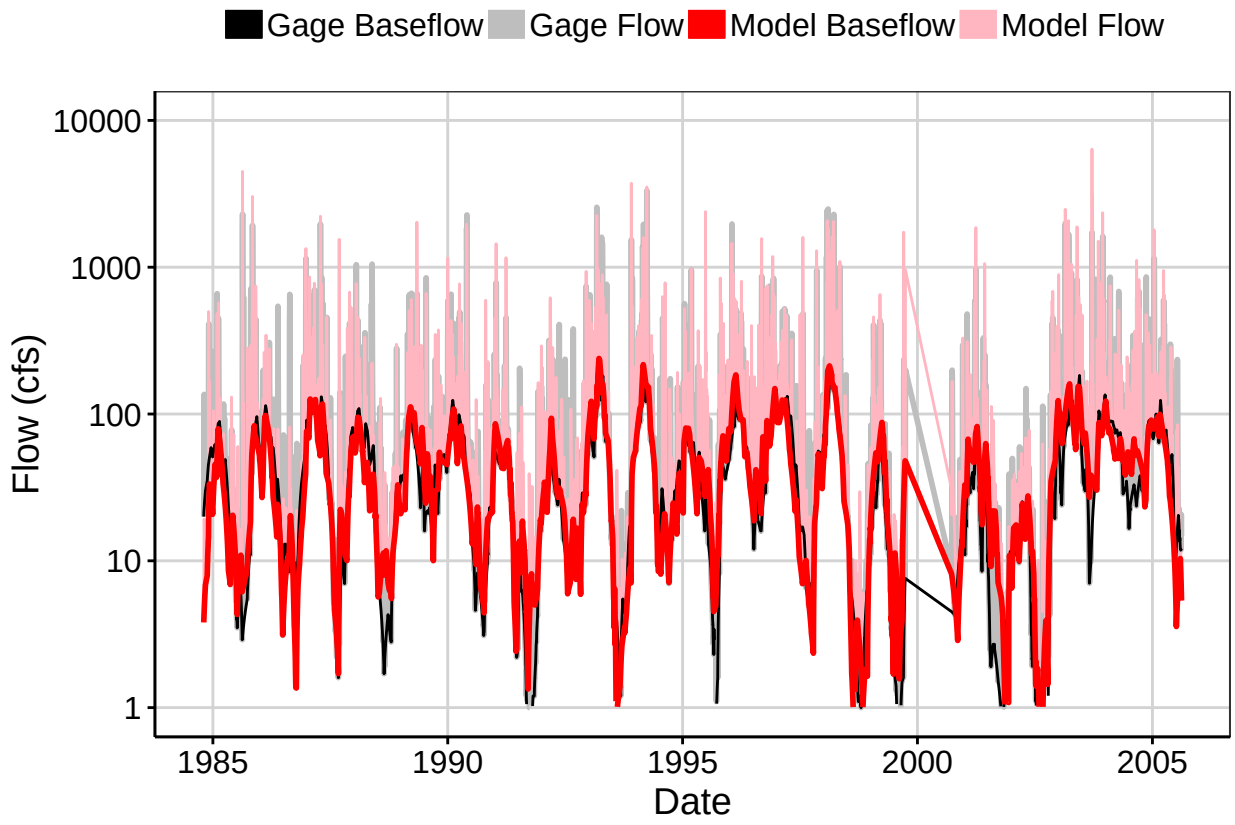


Fig. 6: Largest Error Segment

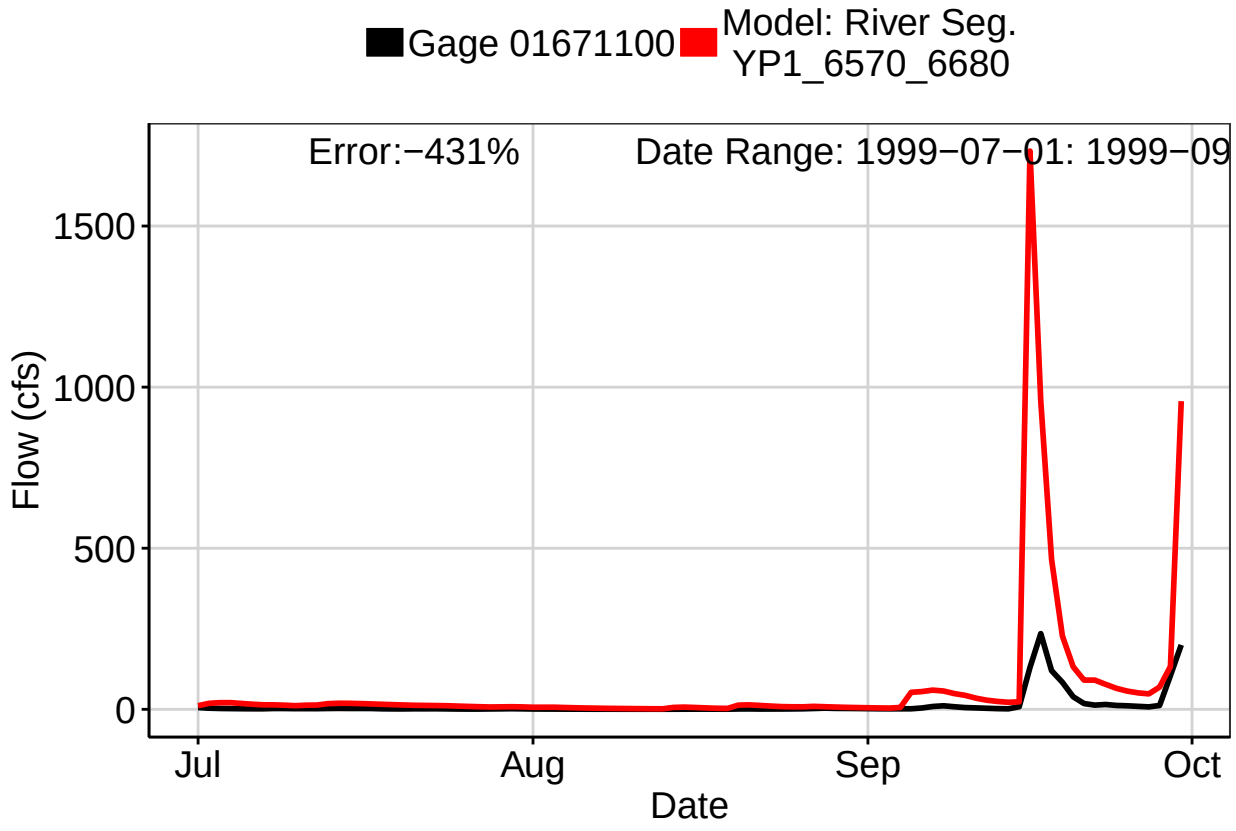


Fig. 7: Second Largest Error Segment

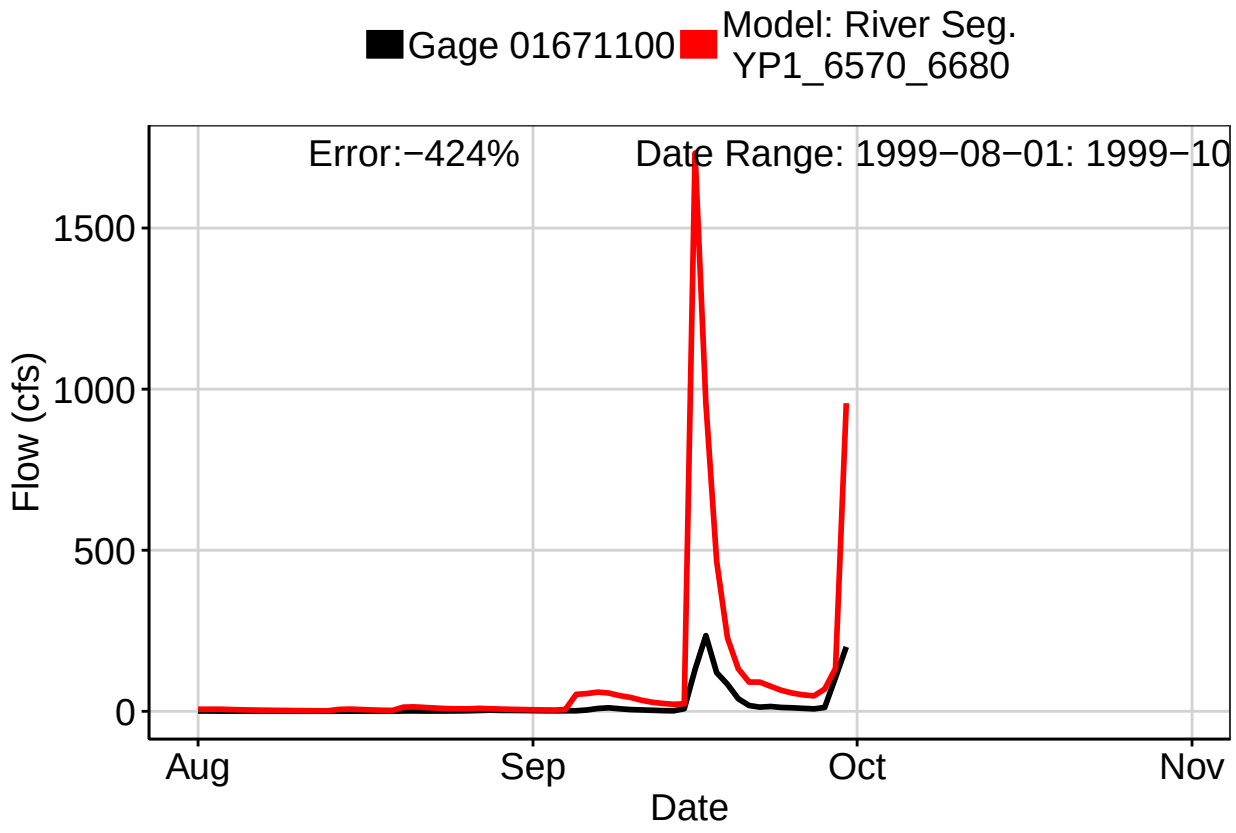


Fig. 8: Third Largest Error Segment

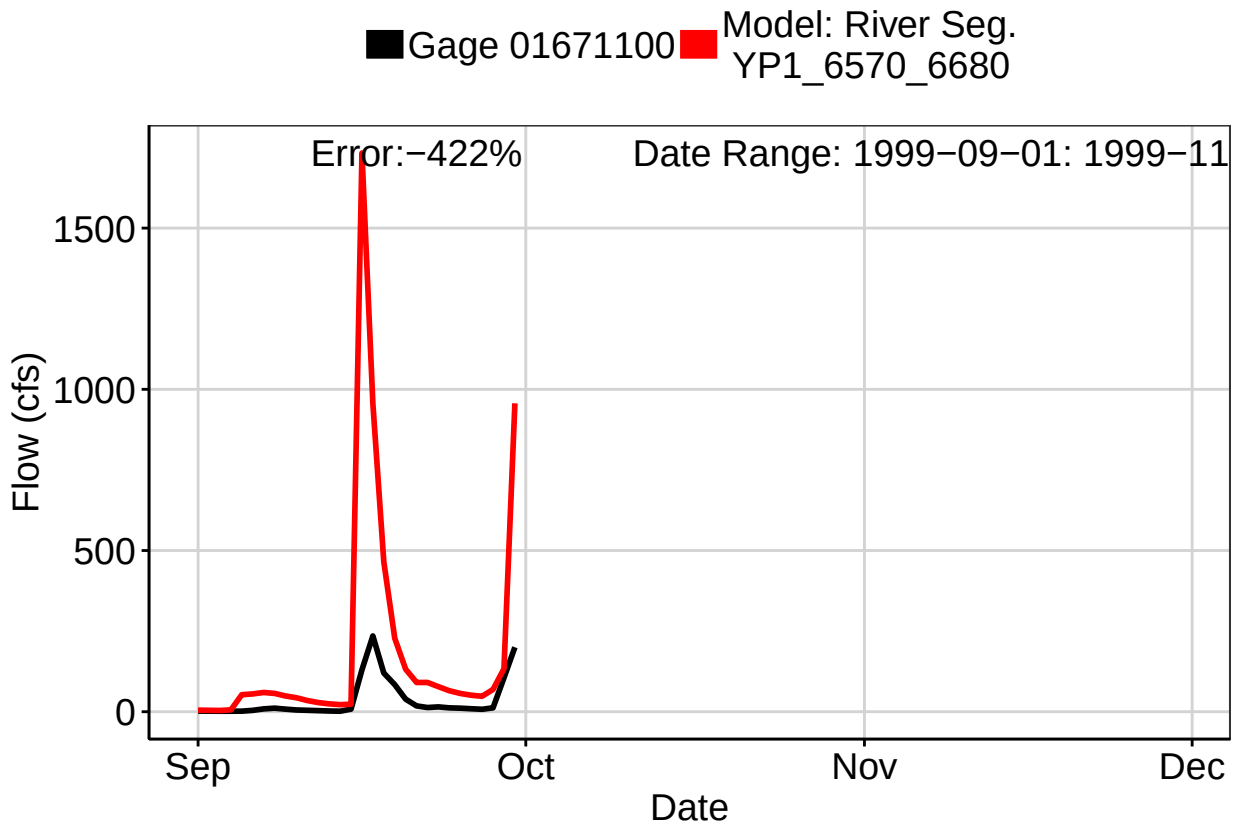


Fig. 9: Residuals Plot