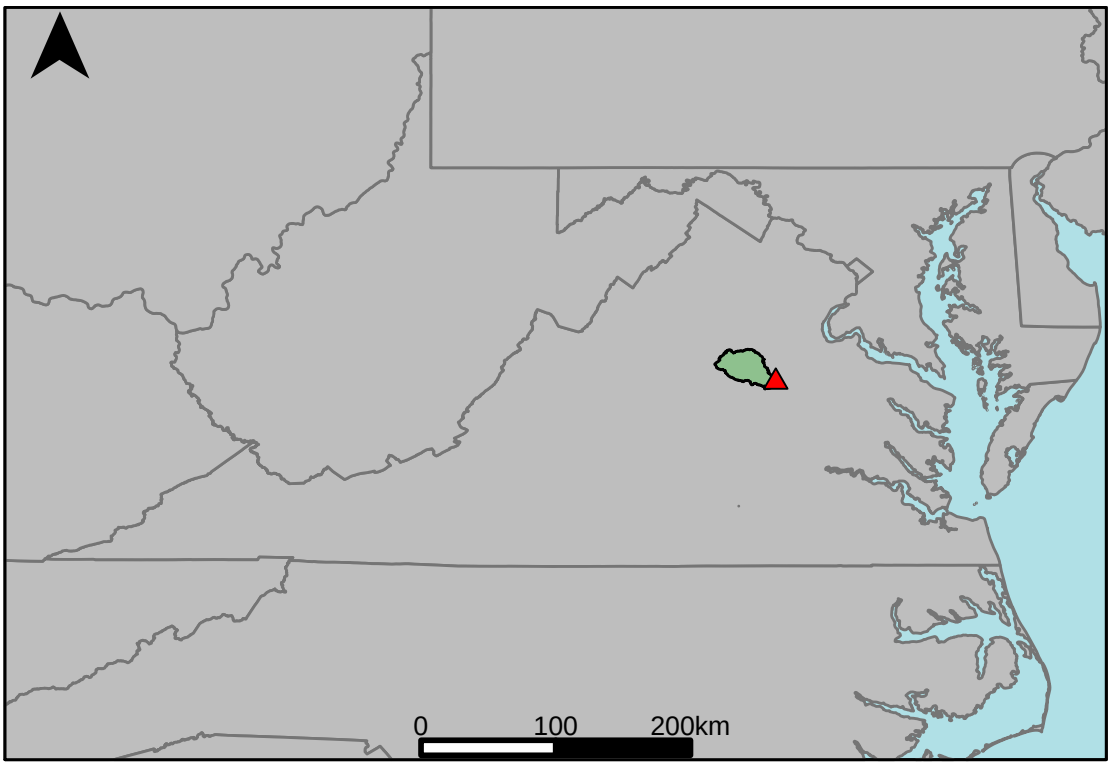
Appendix D: York River Basin
Appendix D.1: USGS Gage 01670400 vs. YP2_6390_6330 Pamunkey River



This river segment follows part of the flow of the Mattaponi River, a tributary of the York. The gage is located in Spotsylvania County (Lat. 38°00'46.5", Long. -77°42'05.0"), approximately 11 miles east of Mineral, VA. Drainage area is 342 sq. miles. This gage started taking data in 1978 and is still taking data. Flow here is regulated by Lake Anna which is 0.5 mi upstream. The average daily discharge error between the model and gage data for the 20 year timespan was 5.26%, with 33.3% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	42	48.9	16.4
Feb. Low Flow	45	49.8	10.7
Mar. Low Flow	45	107	138
Apr. Low Flow	69	187	171
May Low Flow	68	197	190
Jun. Low Flow	68	193	184
Jul. Low Flow	67	184	175
Aug. Low Flow	53	78.1	47.4
Sep. Low Flow	46	63.2	37.4
Oct. Low Flow	48	49.3	2.71
Nov. Low Flow	41	48.2	17.6
Dec. Low Flow	43	46.5	8.14

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	285	270	-5.26
Jan. Mean Flow	408	404	-0.98
Feb. Mean Flow	417	420	0.72
Mar. Mean Flow	595	623	4.71
Apr. Mean Flow	392	398	1.53
May Mean Flow	371	326	-12.1
Jun. Mean Flow	219	197	-10
Jul. Mean Flow	125	110	-12
Aug. Mean Flow	120	125	4.17
Sep. Mean Flow	97.5	85.5	-12.3
Oct. Mean Flow	89.1	83.1	-6.73
Nov. Mean Flow	292	233	-20.2
Dec. Mean Flow	298	248	-16.8

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	79	60.8	-23
Feb. High Flow	1640	183	-88.8
Mar. High Flow	1790	216	-87.9
Apr. High Flow	2040	1520	-25.5
May High Flow	1570	979	-37.6
Jun. High Flow	2220	1860	-16.2
Jul. High Flow	1280	647	-49.5
Aug. High Flow	1140	310	-72.8
Sep. High Flow	711	193	-72.9
Oct. High Flow	203	66.7	-67.1
Nov. High Flow	285	54.4	-80.9
Dec. High Flow	80	49.2	-38.5

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	38	42.8	12.6
Med. 1 Day Min	40	44.8	12
Min. 3 Day Min	38.3	42.8	11.7
Med. 3 Day Min	41	44.8	9.27
Min. 7 Day Min	39.4	42.8	8.63
Med. 7 Day Min	42.4	44.8	5.66
Min. 30 Day Min	41.8	42.9	2.63
Med. 30 Day Min	45.5	45.1	-0.88
Min. 90 Day Min	45.6	45.3	-0.66
Med. 90 Day Min	58.2	51	-12.4
7Q10	39.8	43.4	9.05
Year of 90-Day Min. Flow	1989	1992	100
Drought Year Mean	291	251	-13.7
Mean Baseflow	91.7	132	43.9

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	8330	8760	5.16
Med. 1 Day Max	5420	6320	16.6
Max. 3 Day Max	7090	6920	-2.4
Med. 3 Day Max	4580	5530	20.7
Max. 7 Day Max	4250	4390	3.29
Med. 7 Day Max	2770	3160	14.1
Max. 30 Day Max	1830	1920	4.92
Med. 30 Day Max	962	980	1.87
Max. 90 Day Max	1180	1290	9.32
Med. 90 Day Max	614	549	-10.6

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	40	43.1	7.75
5% Non-Exceedance	42	44.8	6.67
50% Non-Exceedance	94	124	31.9
95% Non-Exceedance	1190	922	-22.5
99% Non-Exceedance	2900	2820	-2.76
Sept. 10% Non-Exceedance	42	44.9	6.9

Fig. 1: Hydrograph

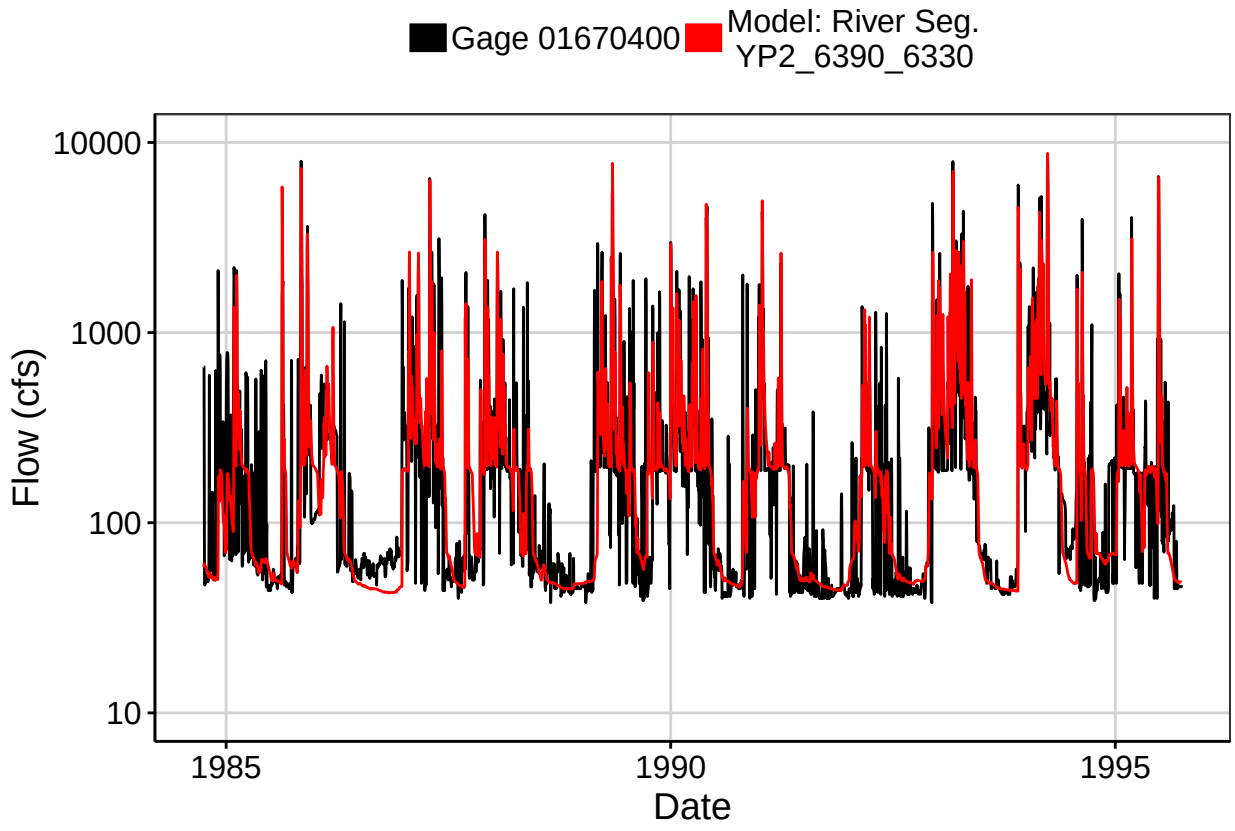


Fig. 2: Zoomed Hydrograph

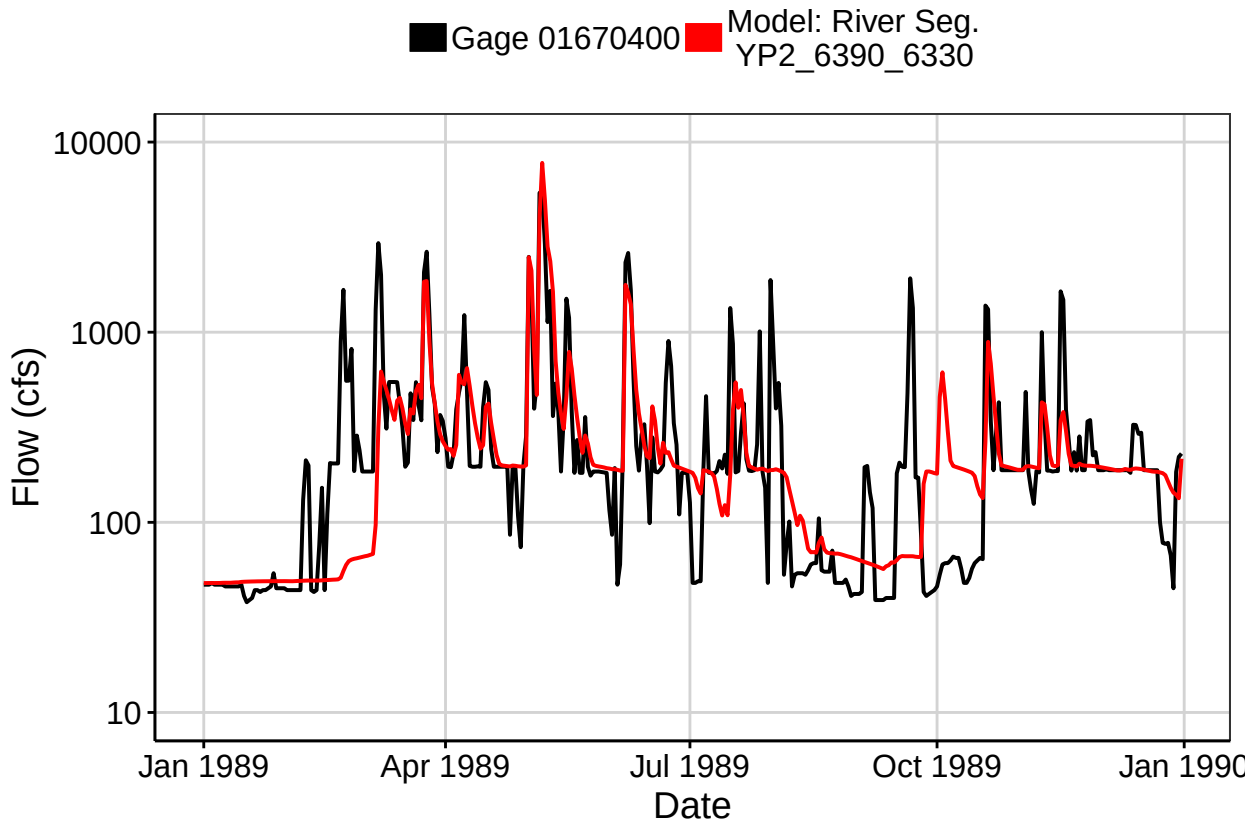


Fig. 3: Flow Exceedance

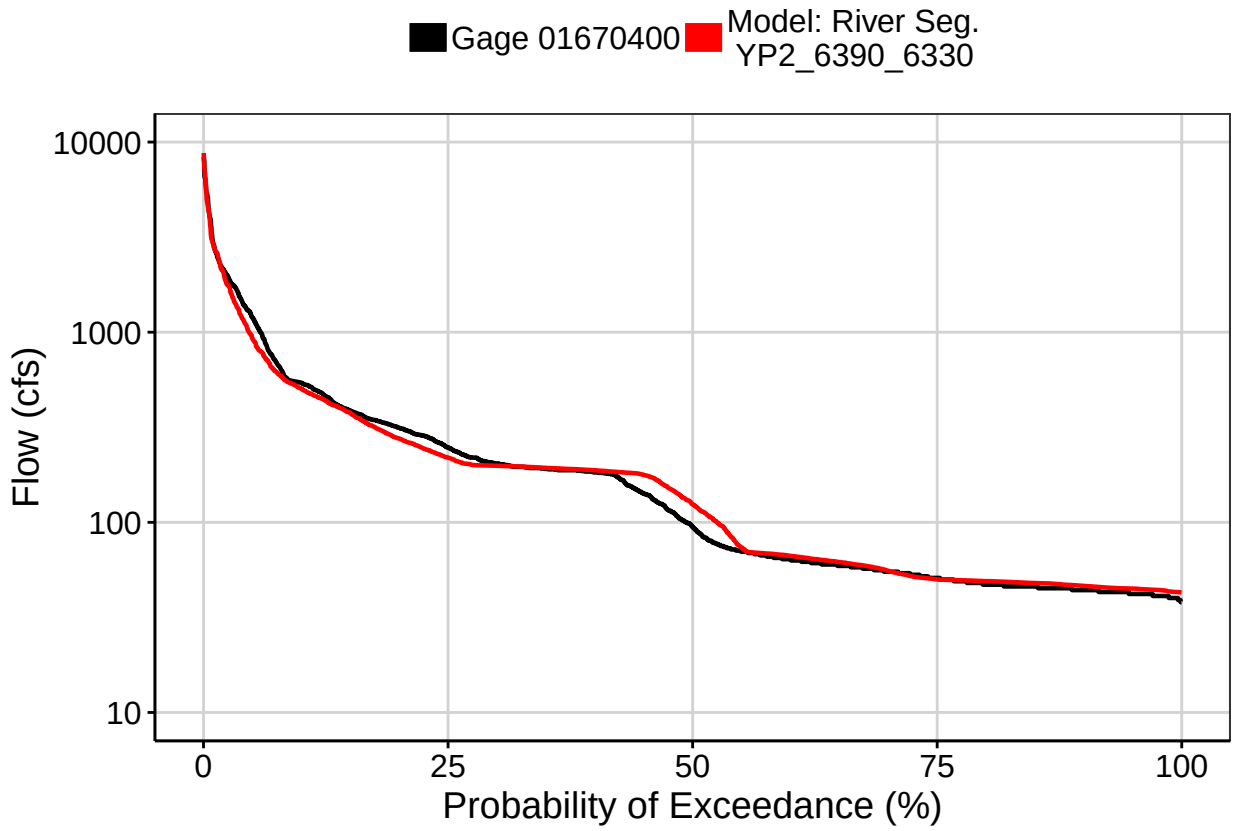


Fig. 4: Baseflow

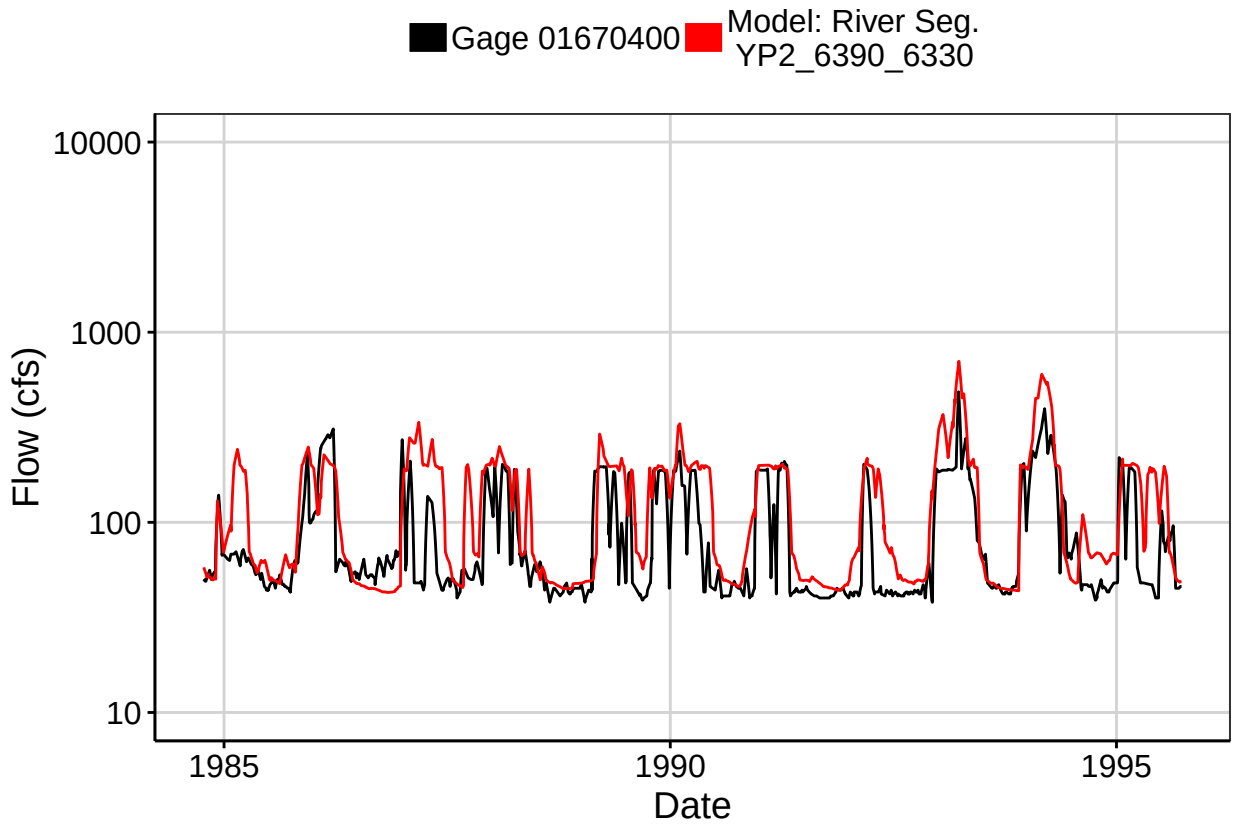


Fig. 5: Combined Baseflow

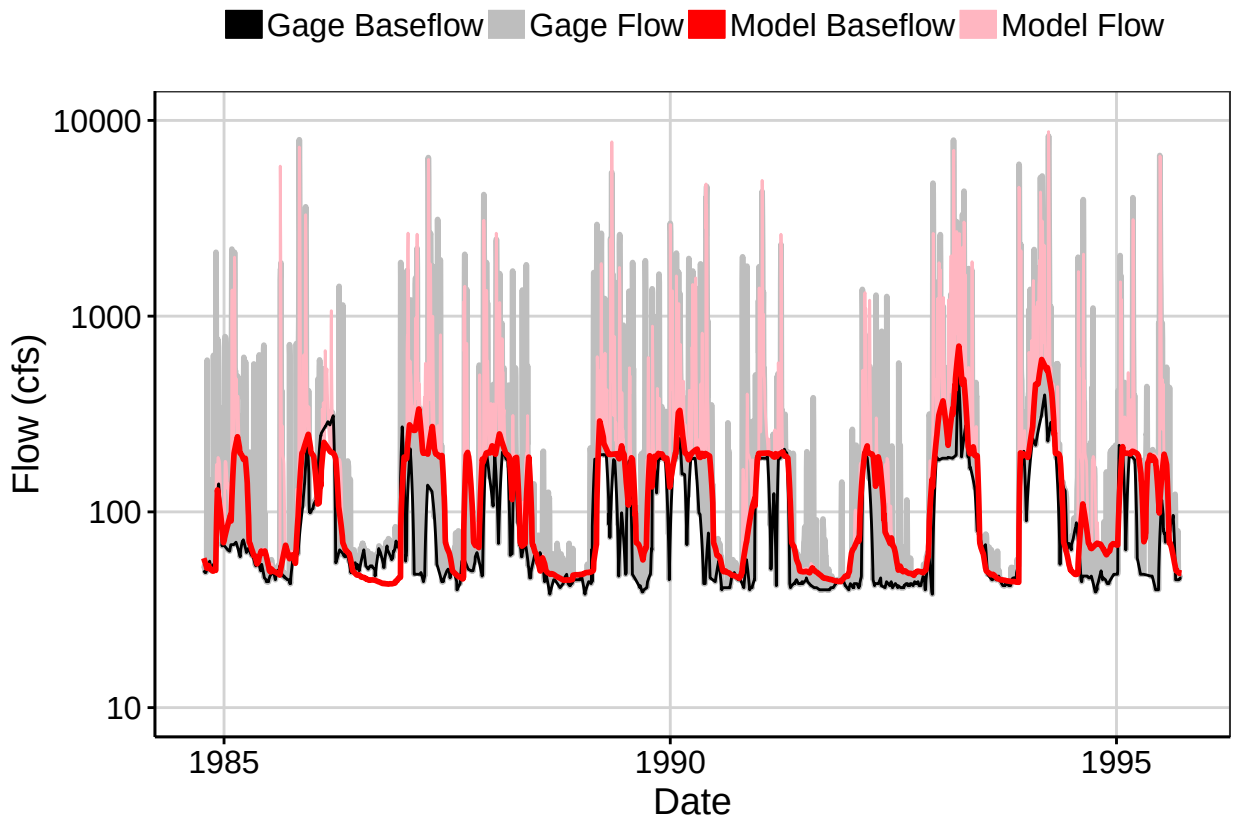


Fig. 6: Largest Error Segment

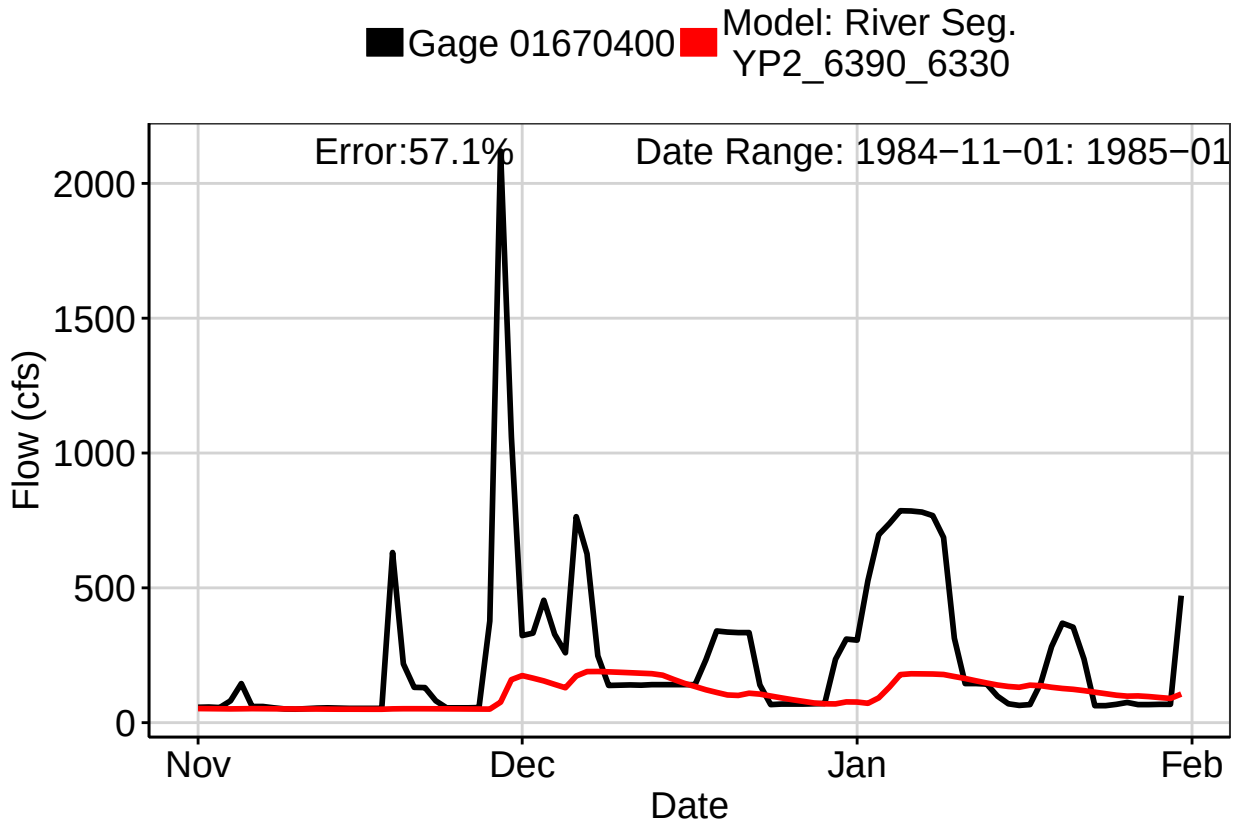


Fig. 7: Second Largest Error Segment

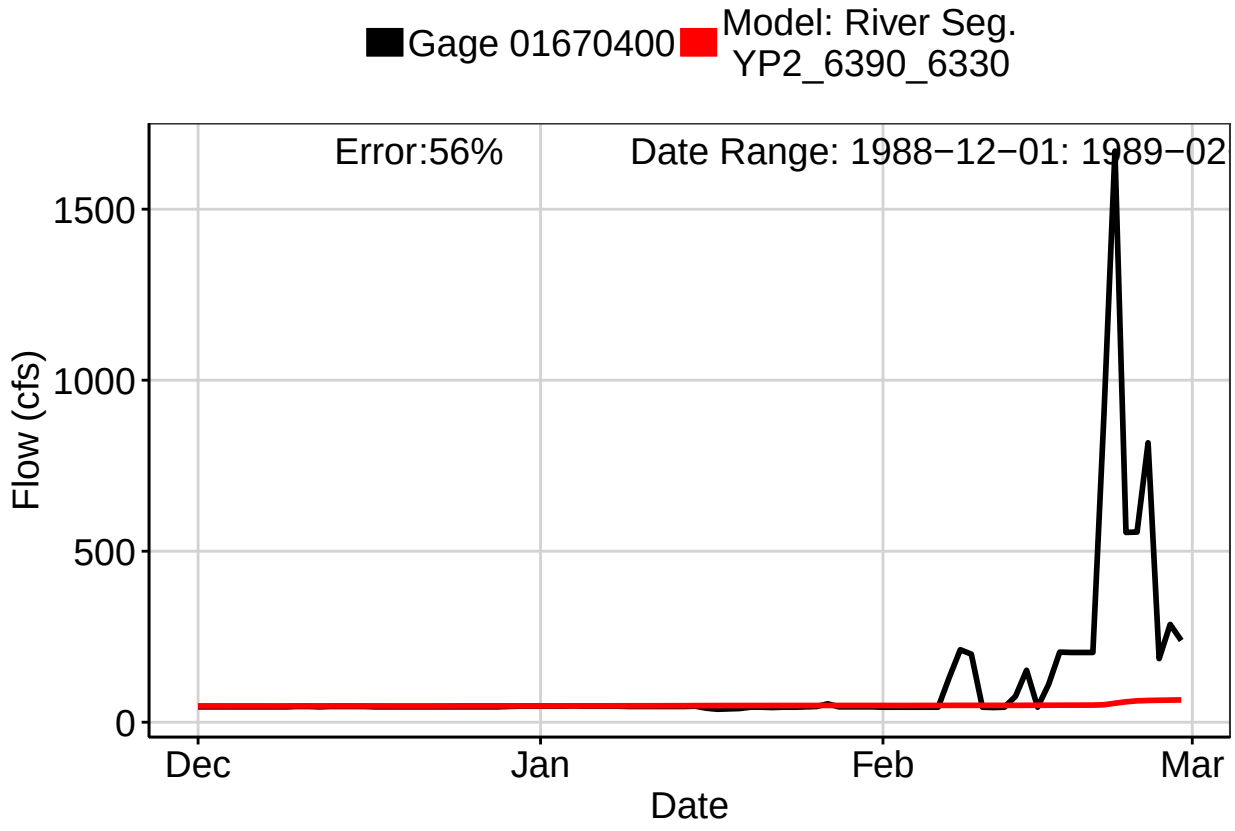


Fig. 8: Third Largest Error Segment

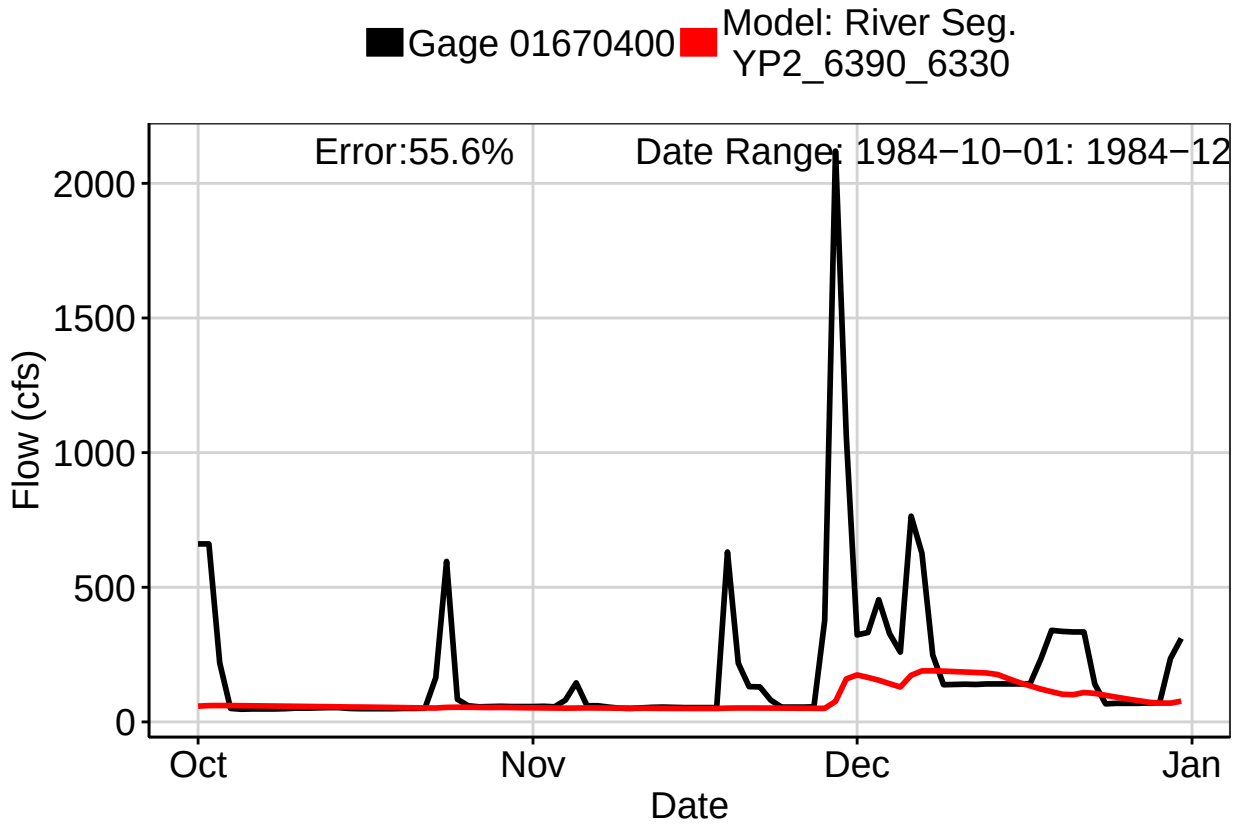


Fig. 9: Residuals Plot