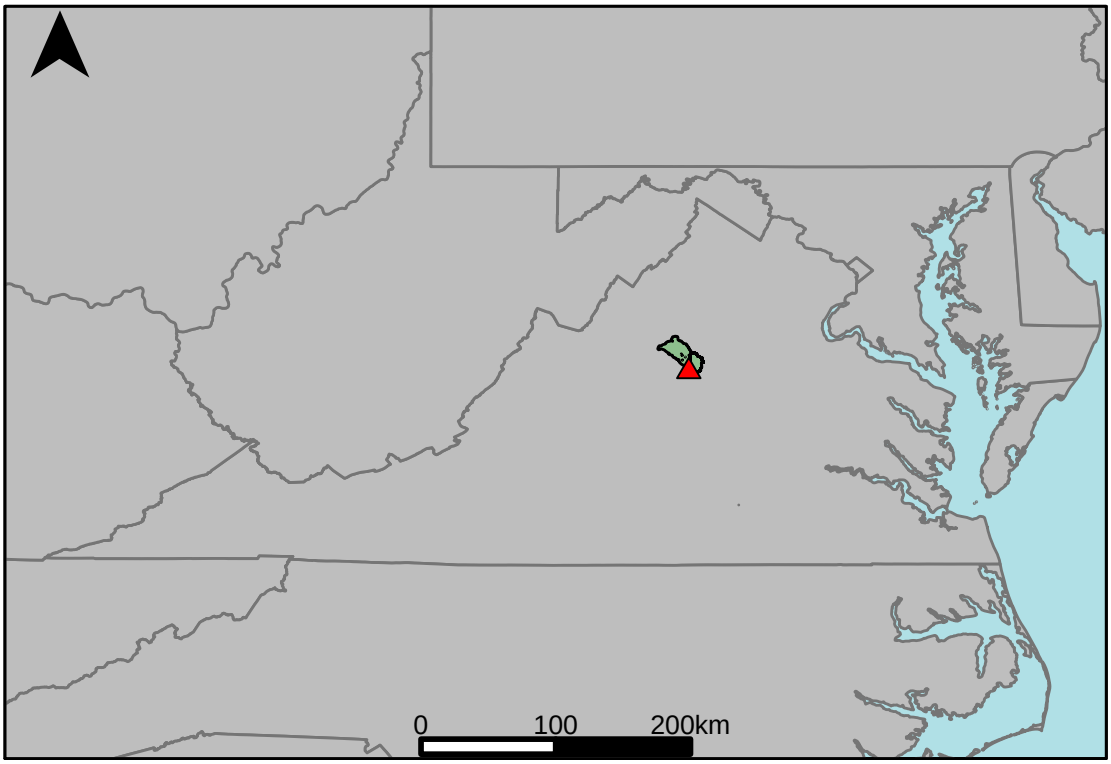
Appendix A.30: USGS Gage 02032680 vs. JL2_6240_6520 Lower James River



This river segment follows part of the flow of the North Fork of Rivanna, a tributary of the James. The gage is located in Albemarle County (Lat. 38°05'16.5", Long. -78°24'43.0"), approximately 5.3 miles northeast of Charlottesville, VA. Drainage area is 174 sq. miles. This gage started taking data in 1970 but was decommissioned in 1992. 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 3.16%, with 36.9% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	23.5	9.83	-58.2
Feb. Low Flow	57.5	43.9	-23.7
Mar. Low Flow	89.5	92.6	3.46
Apr. Low Flow	97	118	21.6
May Low Flow	118	110	-6.78
Jun. Low Flow	112	124	10.7
Jul. Low Flow	98	82.3	-16
Aug. Low Flow	85	48.6	-42.8
Sep. Low Flow	40.5	51.1	26.2
Oct. Low Flow	32.5	14	-56.9
Nov. Low Flow	24	17.7	-26.2
Dec. Low Flow	20.5	16.6	-19

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	190	184	-3.16
Jan. Mean Flow	217	211	-2.76
Feb. Mean Flow	205	214	4.39
Mar. Mean Flow	235	232	-1.28
Apr. Mean Flow	300	238	-20.7
May Mean Flow	271	229	-15.5
Jun. Mean Flow	147	119	-19
Jul. Mean Flow	96.9	123	26.9
Aug. Mean Flow	70.5	86.2	22.3
Sep. Mean Flow	147	180	22.4
Oct. Mean Flow	169	151	-10.7
Nov. Mean Flow	229	221	-3.49
Dec. Mean Flow	197	206	4.57

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	142	182	28.2
Feb. High Flow	335	441	31.6
Mar. High Flow	744	636	-14.5
Apr. High Flow	611	492	-19.5
May High Flow	456	383	-16
Jun. High Flow	926	594	-35.9
Jul. High Flow	592	377	-36.3
Aug. High Flow	486	406	-16.5
Sep. High Flow	322	280	-13
Oct. High Flow	288	354	22.9
Nov. High Flow	118	129	9.32
Dec. High Flow	150	121	-19.3

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	6	0.32	-94.6
Med. 1 Day Min	15.5	6.65	-57.1
Min. 3 Day Min	6.67	0.36	-94.5
Med. 3 Day Min	16.2	7.1	-56.2
Min. 7 Day Min	8.21	0.56	-93.1
Med. 7 Day Min	17.6	8.4	-52.3
Min. 30 Day Min	11.7	5.4	-53.8
Med. 30 Day Min	23.5	20.7	-11.9
Min. 90 Day Min	30.8	20.8	-32.5
Med. 90 Day Min	62.4	55.1	-11.7
7Q10	8.57	1.76	-79.5
Year of 90-Day Min. Flow	1986	1986	0
Drought Year Mean	191	166	-13.1
Mean Baseflow	85.1	90.4	6.23

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7990	7440	-6.88
Med. 1 Day Max	4880	3410	-30.1
Max. 3 Day Max	5770	4420	-23.4
Med. 3 Day Max	2640	2240	-15.2
Max. 7 Day Max	2990	2740	-8.36
Med. 7 Day Max	1520	1440	-5.26
Max. 30 Day Max	1080	937	-13.2
Med. 30 Day Max	593	586	-1.18
Max. 90 Day Max	472	463	-1.91
Med. 90 Day Max	379	367	-3.17

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	12	2.9	-75.8
5% Non-Exceedance	19	11.9	-37.4
50% Non-Exceedance	112	118	5.36
95% Non-Exceedance	550	463	-15.8
99% Non-Exceedance	1650	1580	-4.24
Sept. 10% Non-Exceedance	16	15.5	-3.12

Fig. 1: Hydrograph

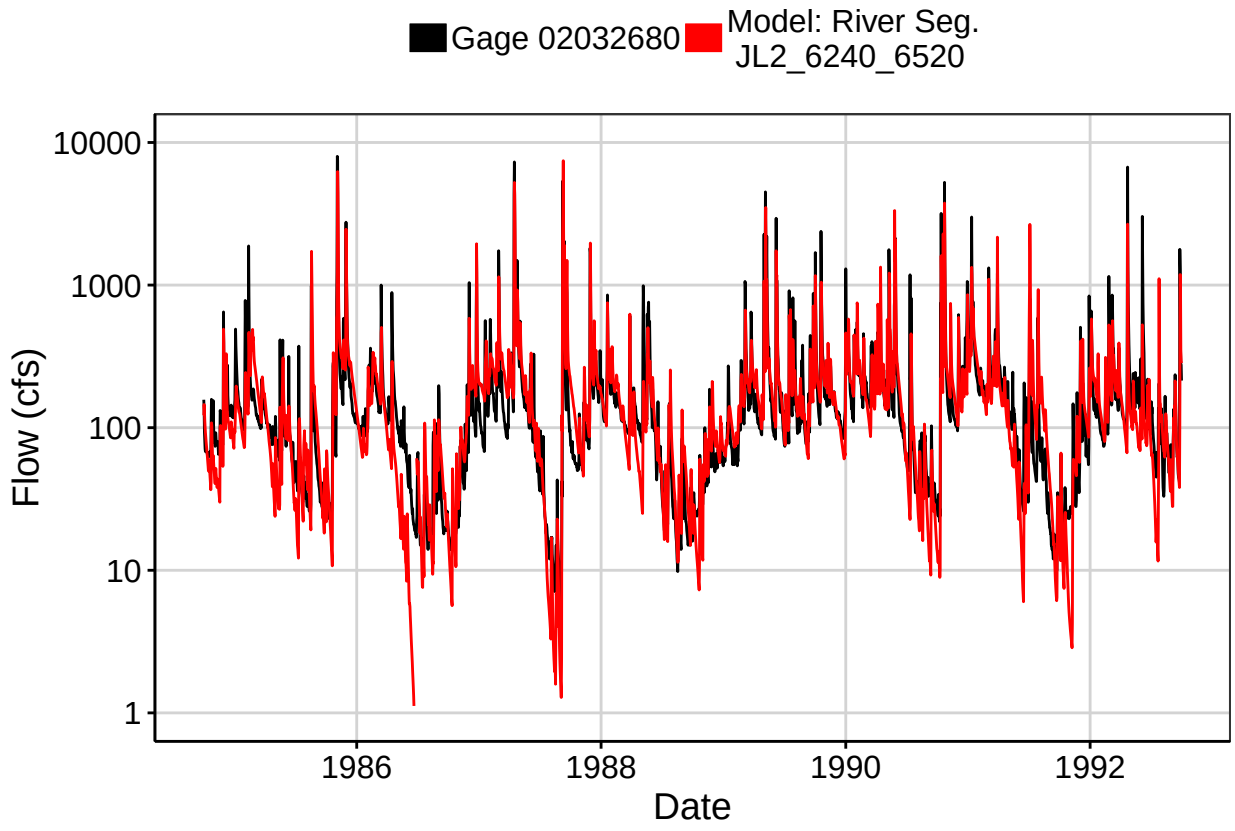


Fig. 2: Zoomed Hydrograph

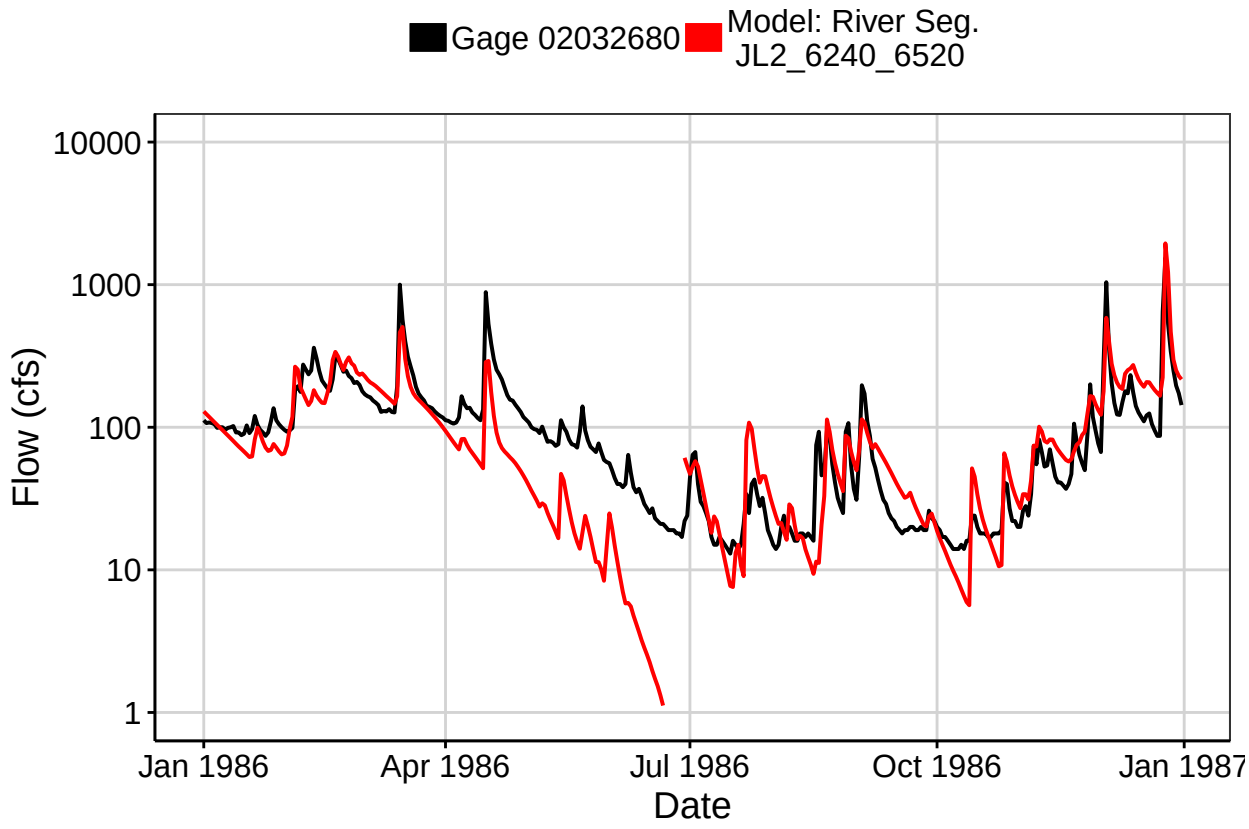


Fig. 3: Flow Exceedance

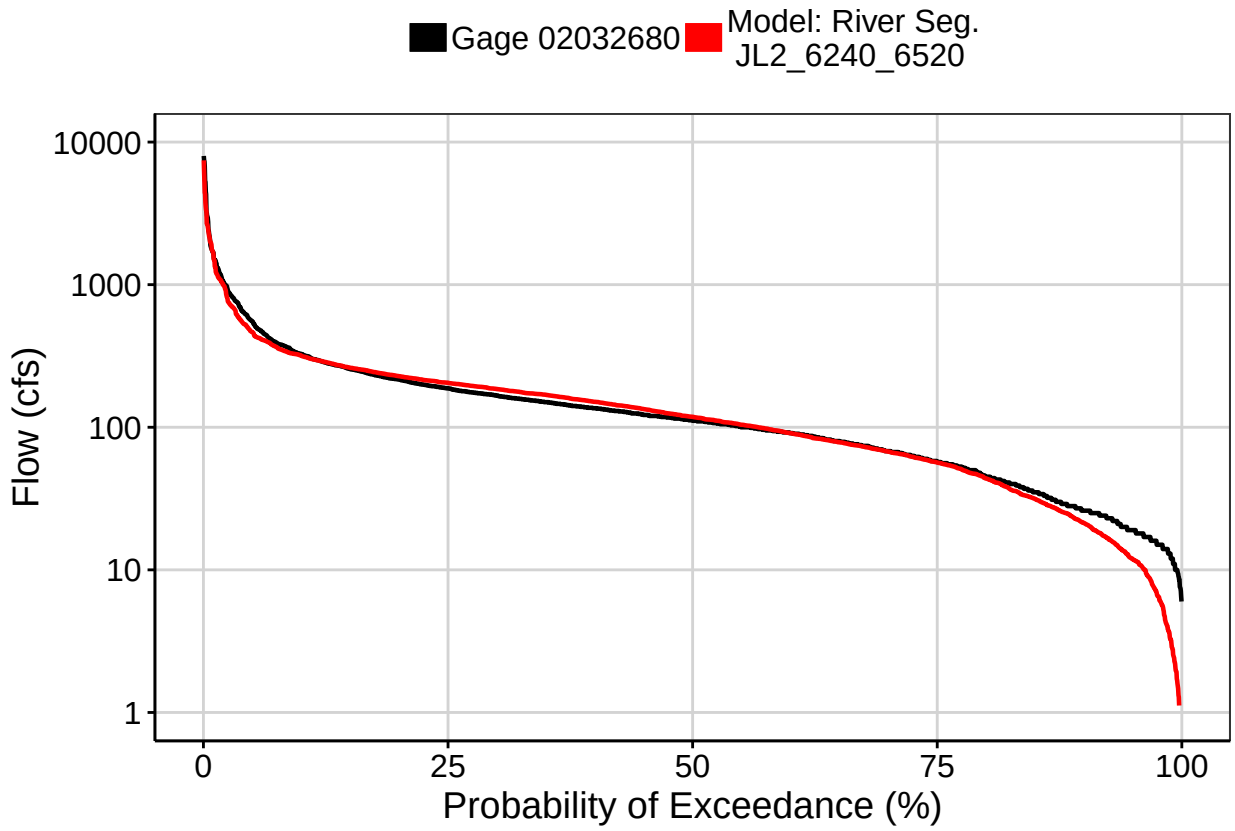


Fig. 4: Baseflow

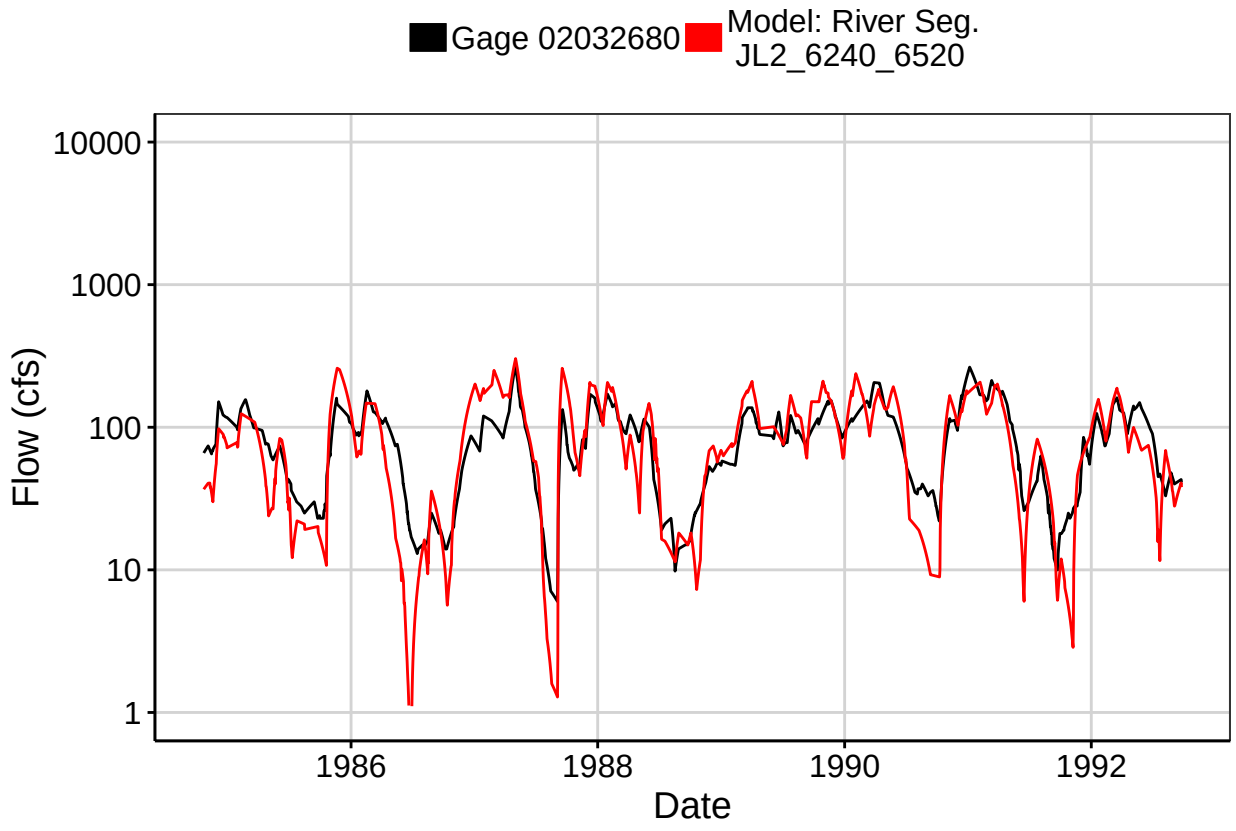


Fig. 5: Combined Baseflow

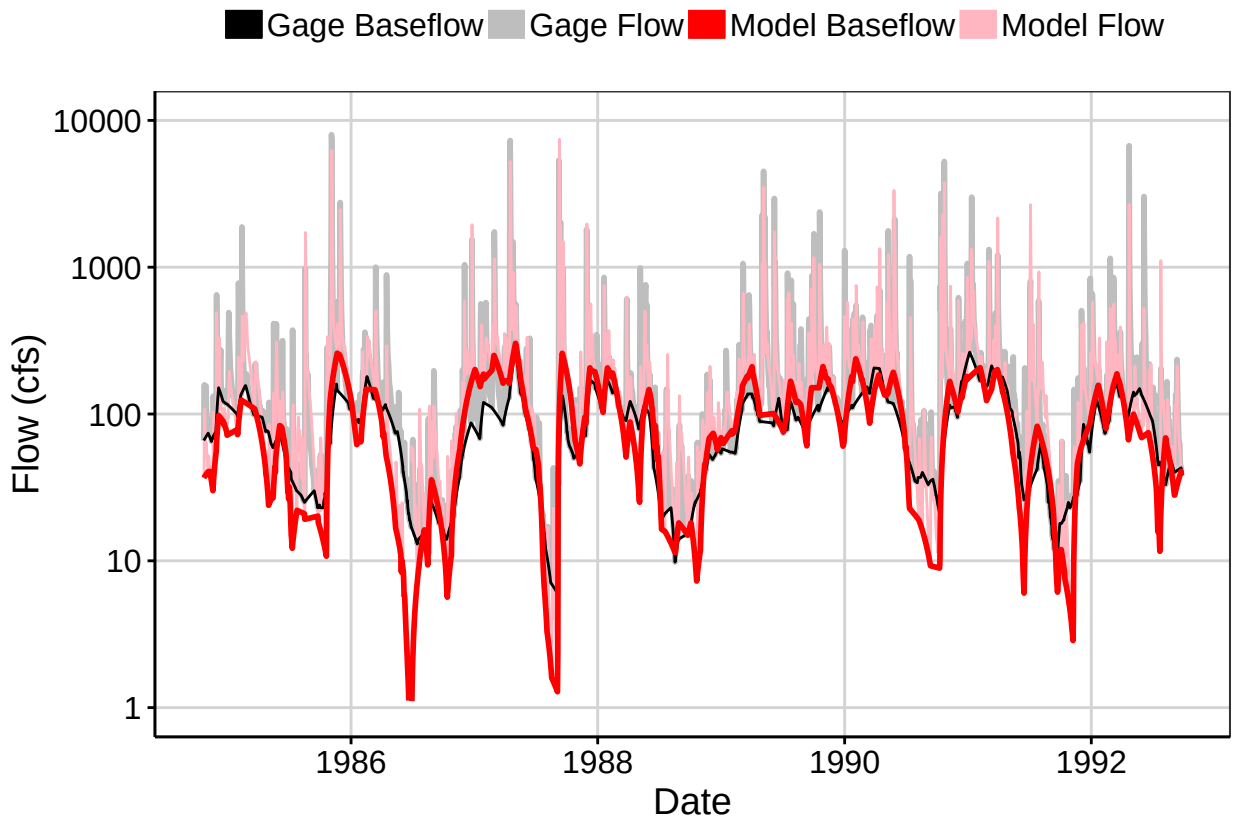


Fig. 6: Largest Error Segment

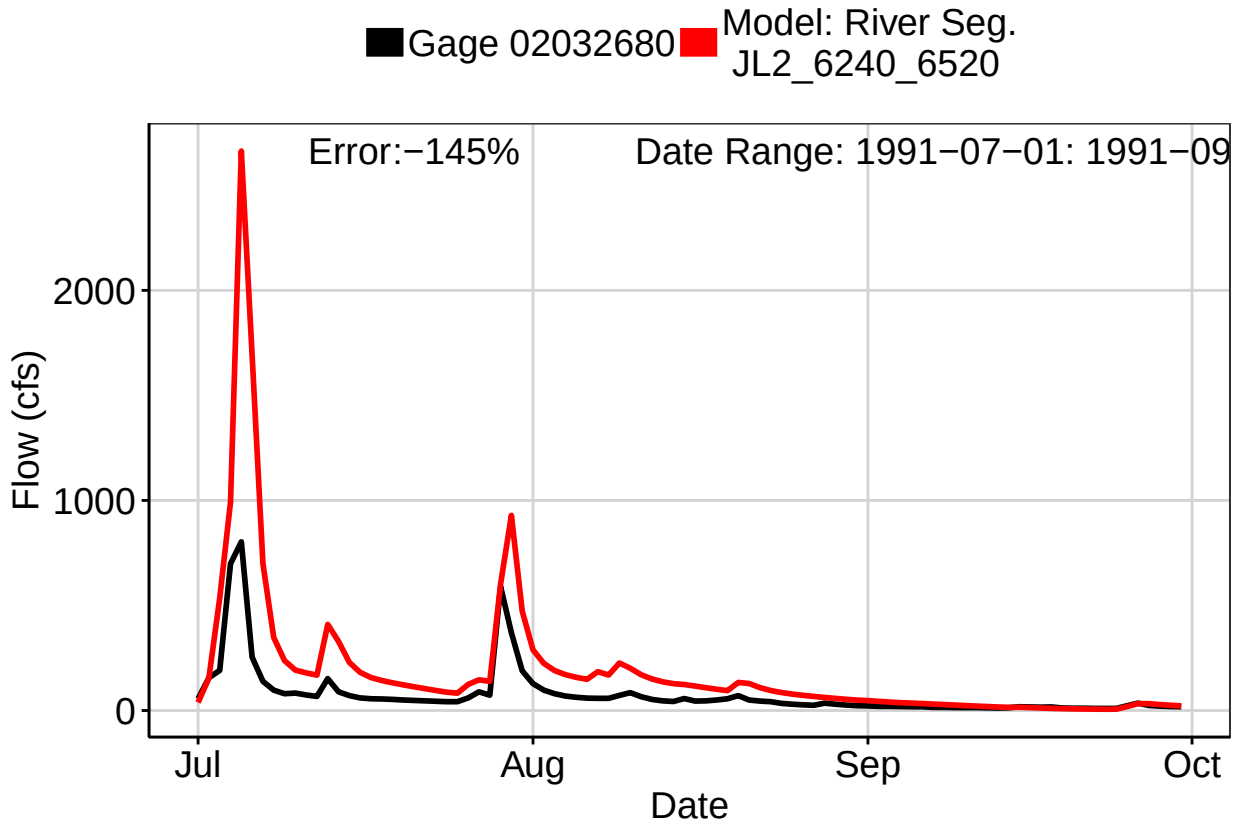


Fig. 7: Second Largest Error Segment

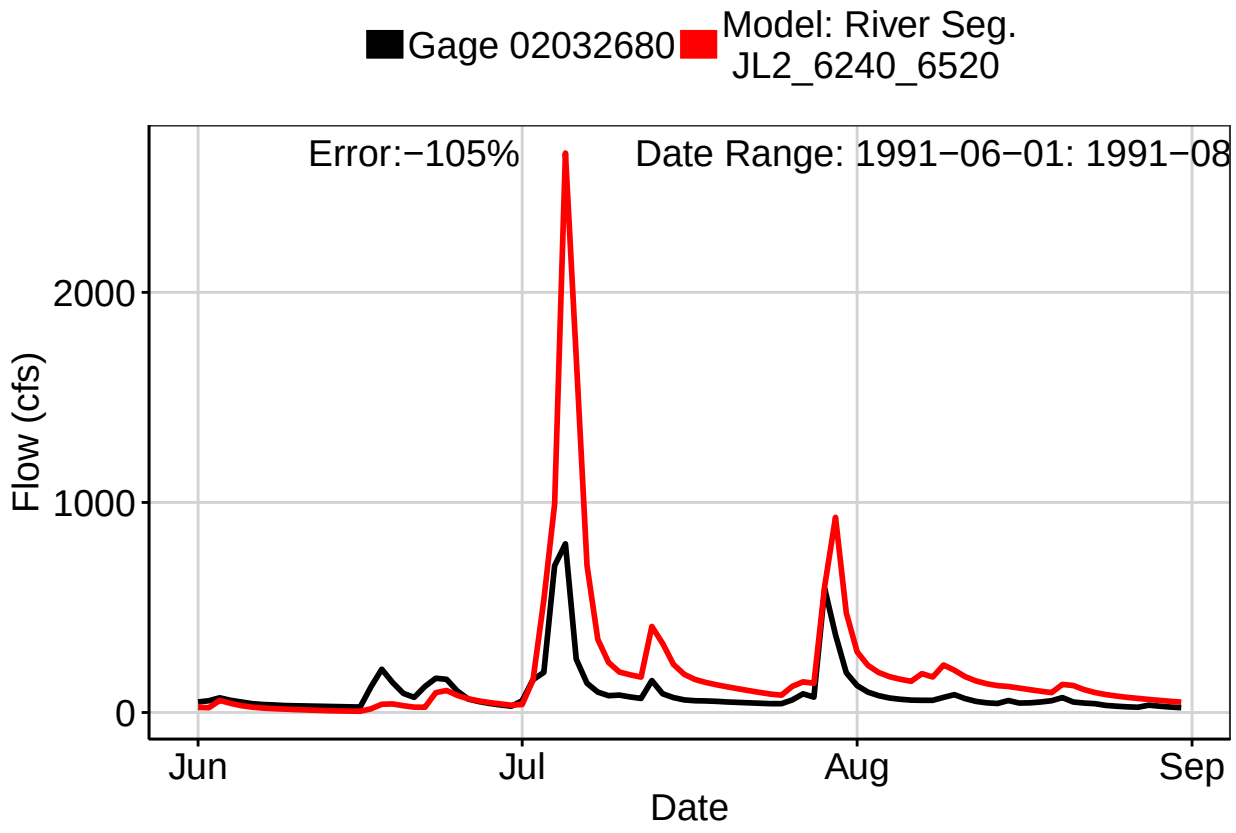


Fig. 8: Third Largest Error Segment

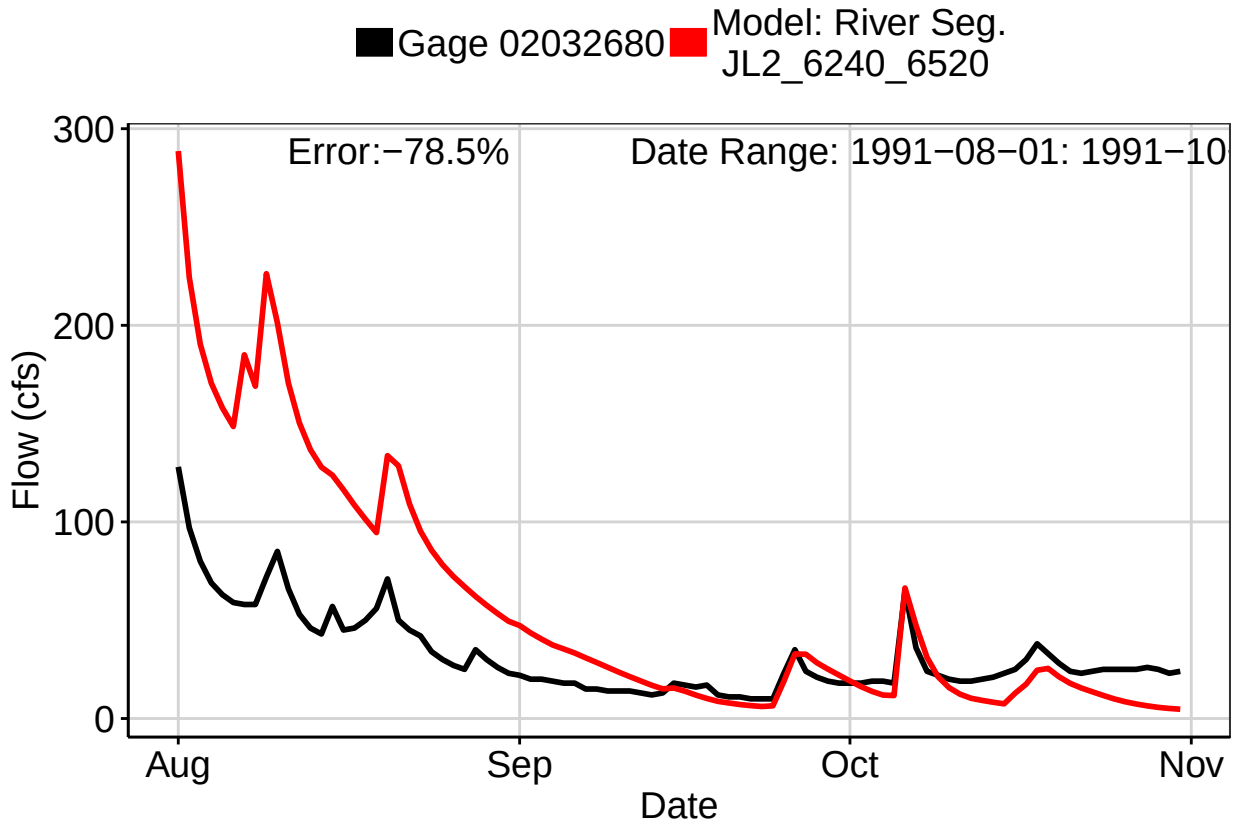


Fig. 9: Residuals Plot