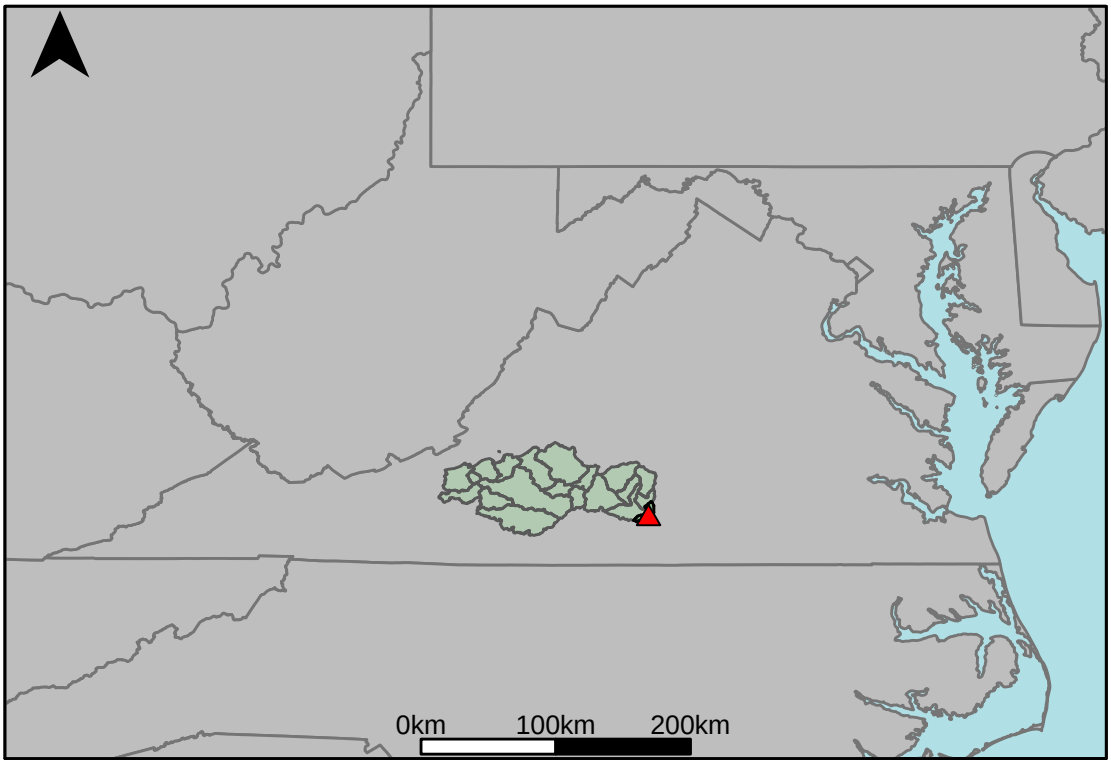
Appendix H.13: USGS Gage 02066000 vs. OR5_8200_8370



This river segment follows part of the flow of the Roanoke River. The gage is located in Halifax County, VA (Lat 3654'54", Long 7844'28") approximately 43 miles northeast of Danville, VA. Drainage area is 2966 sq. miles. This gage started taking data in 1901 and is still taking data. Flow in this area is regulated by Leesville Lake, approximately 68.7 miles upstream, and Smith Mountain Lake, approximately 86.7 miles upstream. Both of these lakes have dams associated with them but there are no diversions. The average daily discharge error between the model and gage data for the 20 year timespan was 0%, with 42.5% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	1040	611	-41.2
Feb. Low Flow	1220	720	-41
Mar. Low Flow	1230	1370	11.4
Apr. Low Flow	1270	1880	48
May Low Flow	1500	2580	72
Jun. Low Flow	1680	2790	66.1
Jul. Low Flow	1560	1730	10.9
Aug. Low Flow	1930	1290	-33.2
Sep. Low Flow	1350	1090	-19.3
Oct. Low Flow	1140	736	-35.4
Nov. Low Flow	1050	686	-34.7
Dec. Low Flow	959	654	-31.8

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	3090	3090	0
Jan. Mean Flow	3570	3860	8.12
Feb. Mean Flow	4070	4710	15.7
Mar. Mean Flow	4860	5630	15.8
Apr. Mean Flow	4610	4680	1.52
May Mean Flow	3450	3200	-7.25
Jun. Mean Flow	2790	2610	-6.45
Jul. Mean Flow	2030	1610	-20.7
Aug. Mean Flow	1880	1400	-25.5
Sep. Mean Flow	2680	2430	-9.33
Oct. Mean Flow	2010	1980	-1.49
Nov. Mean Flow	2510	2350	-6.37
Dec. Mean Flow	2740	2760	0.73

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	2170	1350	-37.8
Feb. High Flow	6200	3510	-43.4
Mar. High Flow	4320	4360	0.93
Apr. High Flow	9350	8680	-7.17
May High Flow	10400	6430	-38.2
Jun. High Flow	13400	13200	-1.49
Jul. High Flow	11500	11800	2.61
Aug. High Flow	5830	5270	-9.61
Sep. High Flow	4470	3560	-20.4
Oct. High Flow	3300	1980	-40
Nov. High Flow	2860	1430	-50
Dec. High Flow	2670	1220	-54.3

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	350	108	-69.1
Med. 1 Day Min	918	387	-57.8
Min. 3 Day Min	393	110	-72
Med. 3 Day Min	945	404	-57.2
Min. 7 Day Min	406	113	-72.2
Med. 7 Day Min	972	422	-56.6
Min. 30 Day Min	458	144	-68.6
Med. 30 Day Min	1060	614	-42.1
Min. 90 Day Min	522	271	-48.1
Med. 90 Day Min	1400	845	-39.6
7Q10	605	169	-72.1
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	852	718	-15.7
Mean Baseflow	1640	1820	11

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	78700	74300	-5.59
Med. 1 Day Max	31500	35100	11.4
Max. 3 Day Max	63200	61700	-2.37
Med. 3 Day Max	26600	23000	-13.5
Max. 7 Day Max	37000	36500	-1.35
Med. 7 Day Max	18500	16600	-10.3
Max. 30 Day Max	18300	16200	-11.5
Med. 30 Day Max	7600	8070	6.18
Max. 90 Day Max	10600	12000	13.2
Med. 90 Day Max	5320	5730	7.71

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	489	177	-63.8
5% Non-Exceedance	781	395	-49.4
50% Non-Exceedance	1860	1830	-1.61
95% Non-Exceedance	8880	9530	7.32
99% Non-Exceedance	23100	20900	-9.52
Sept. 10% Non-Exceedance	412	782	89.8

Fig. 1: Hydrograph

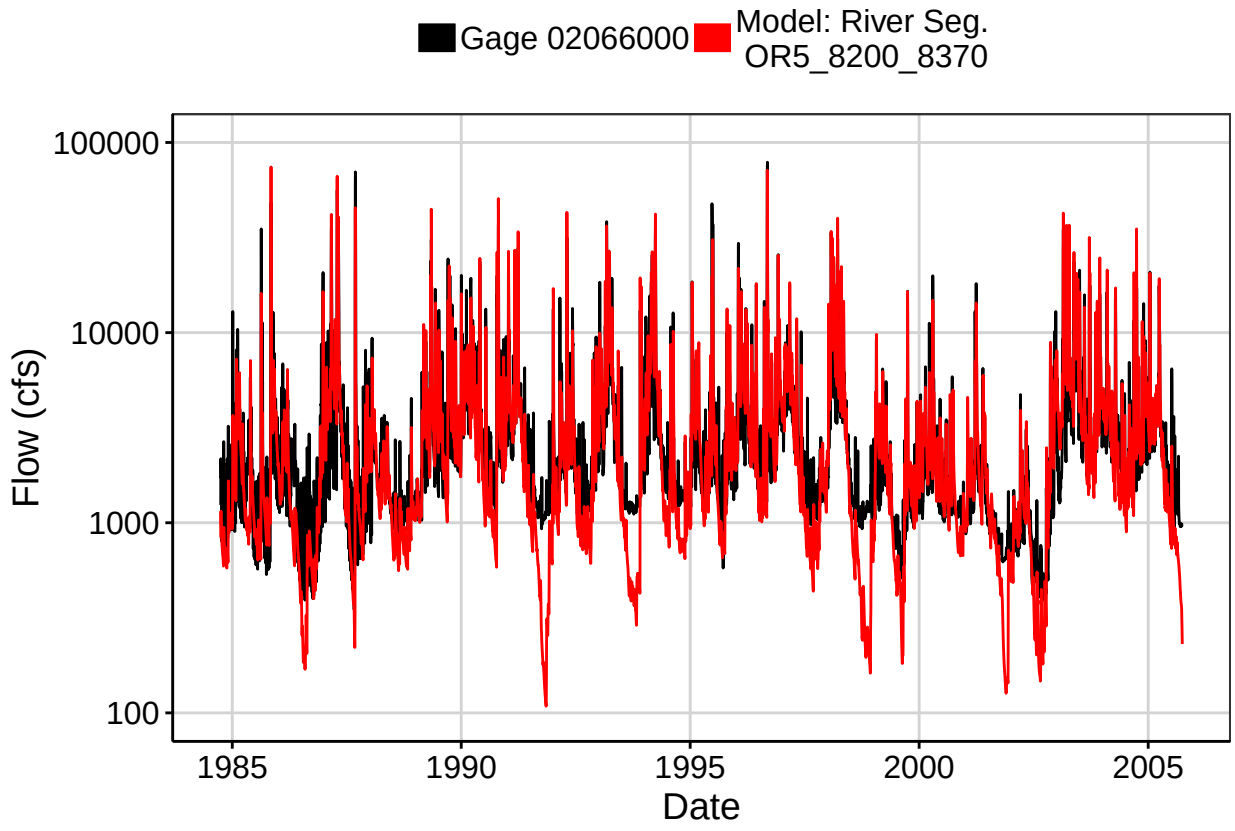


Fig. 2: Zoomed Hydrograph

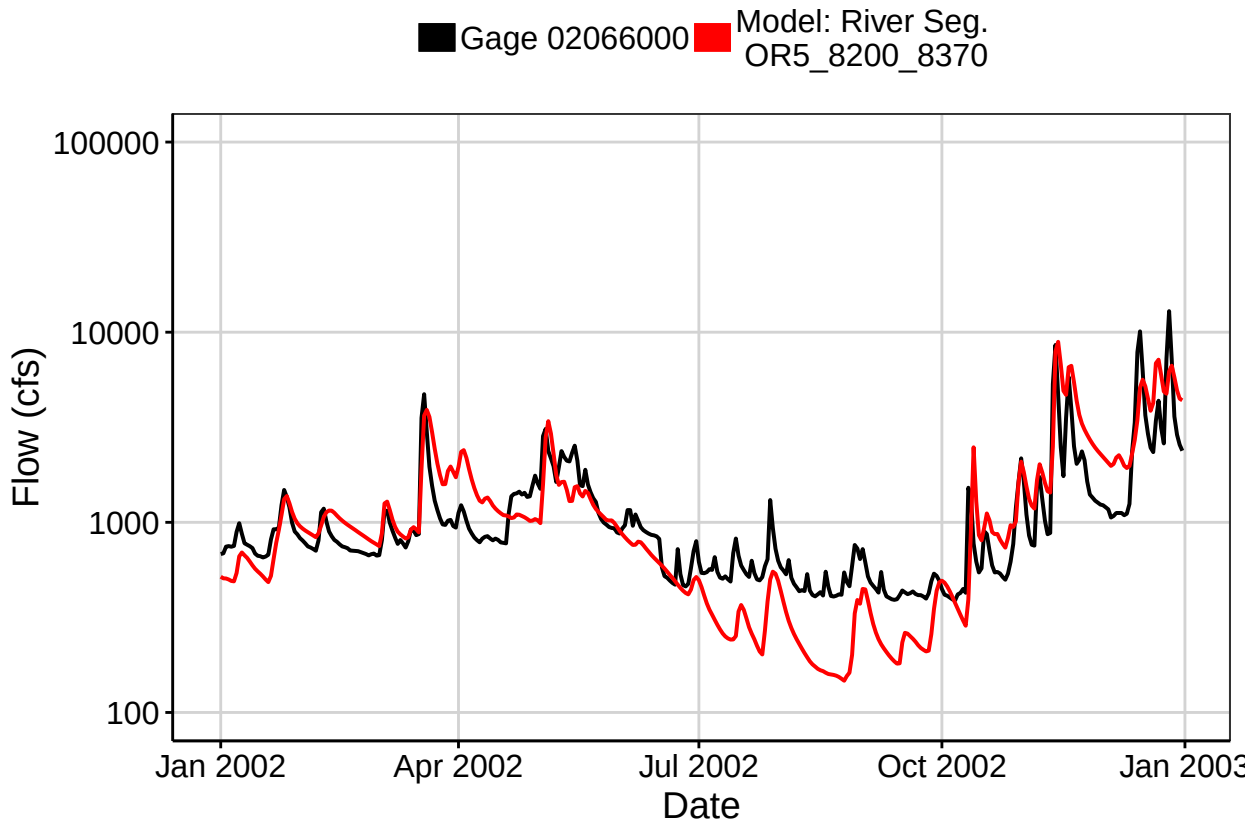


Fig. 3: Flow Exceedance

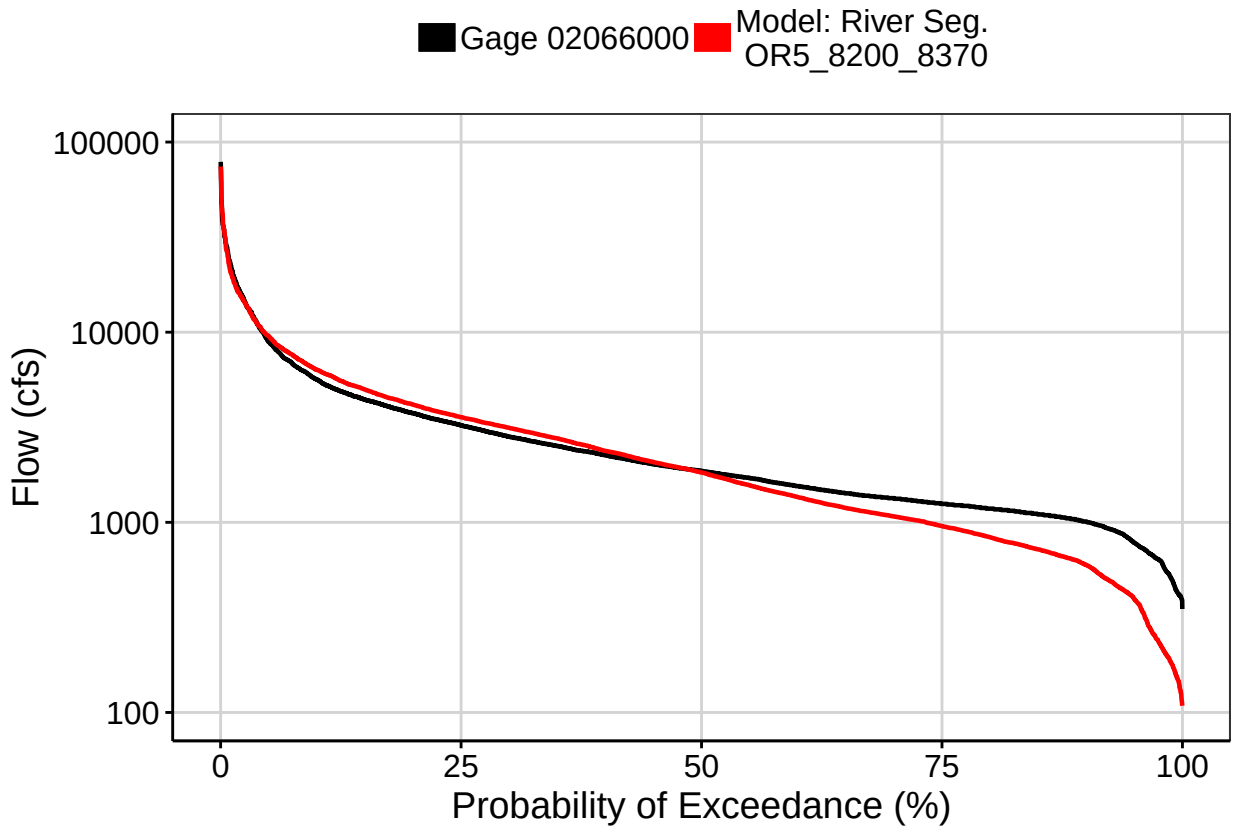


Fig. 4: Baseflow

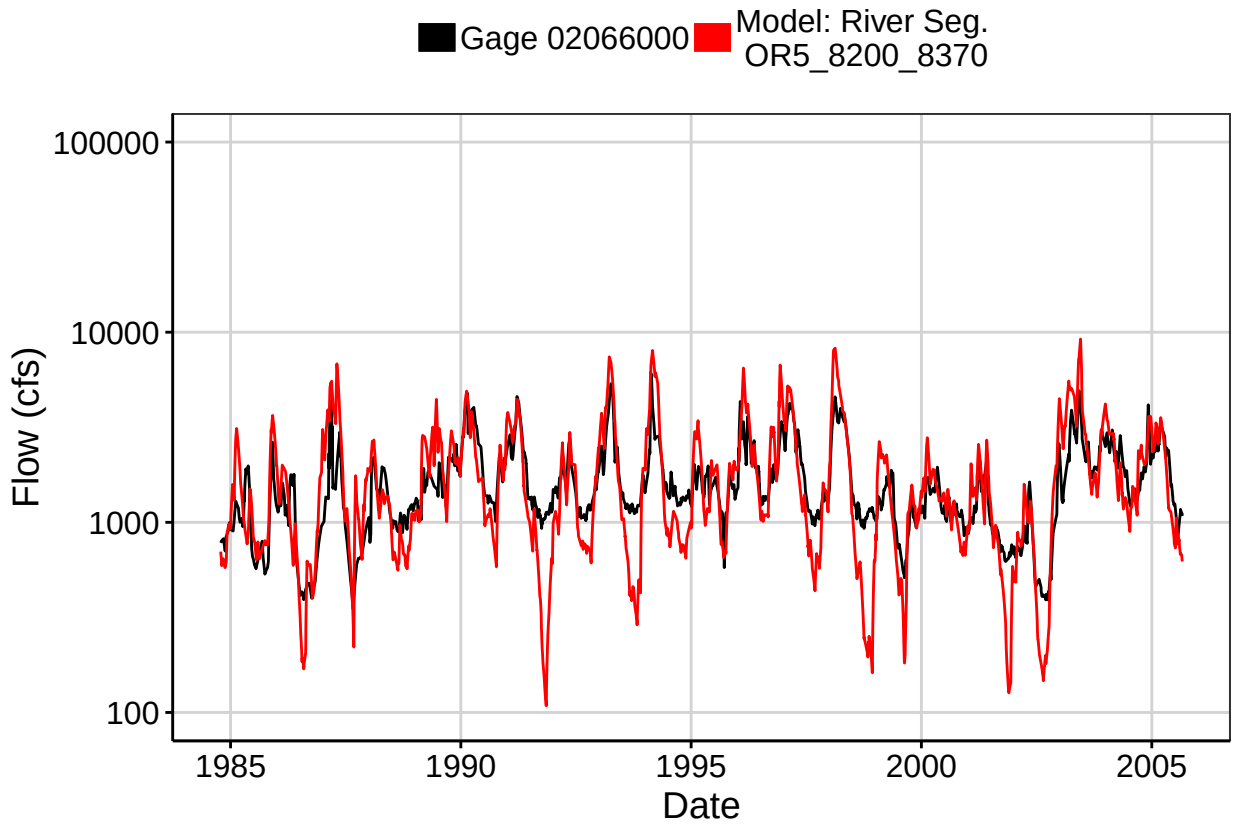


Fig. 5: Combined Baseflow

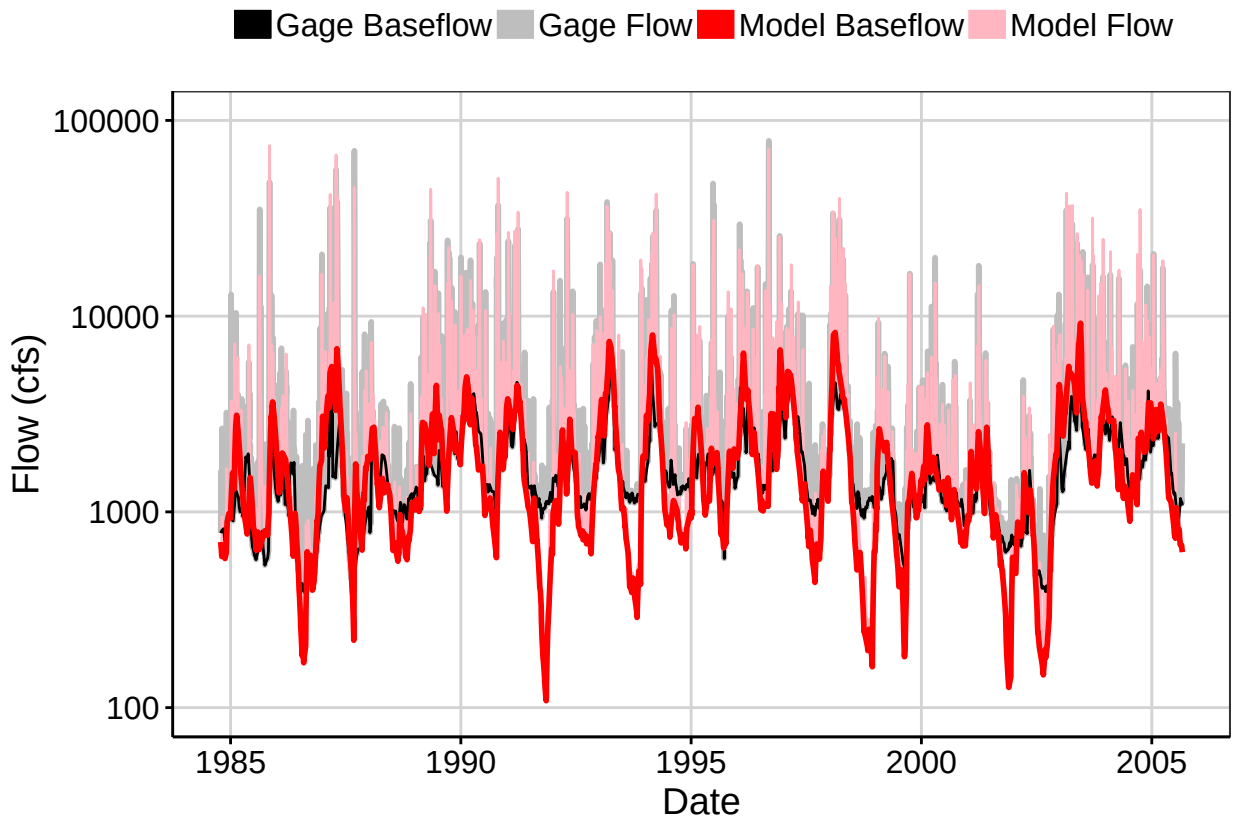


Fig. 6: Largest Error Segment

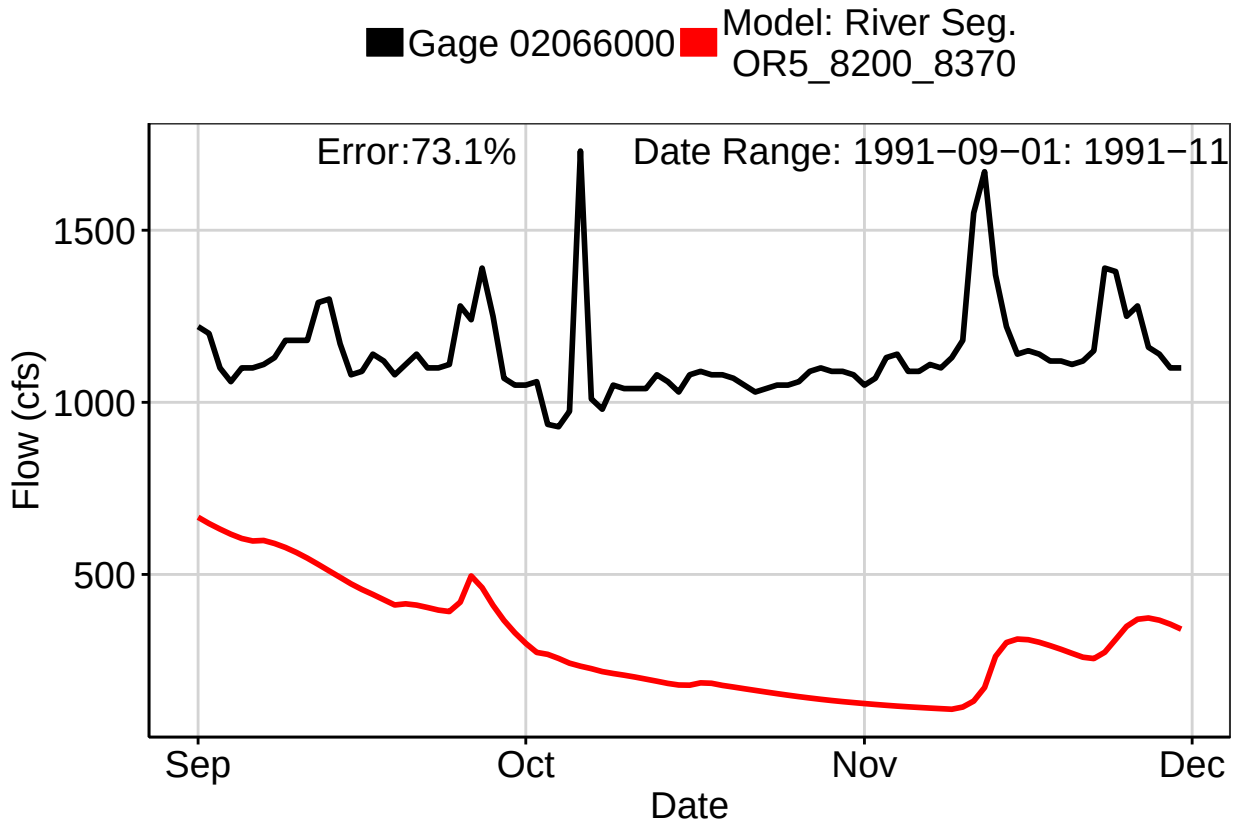


Fig. 7: Second Largest Error Segment

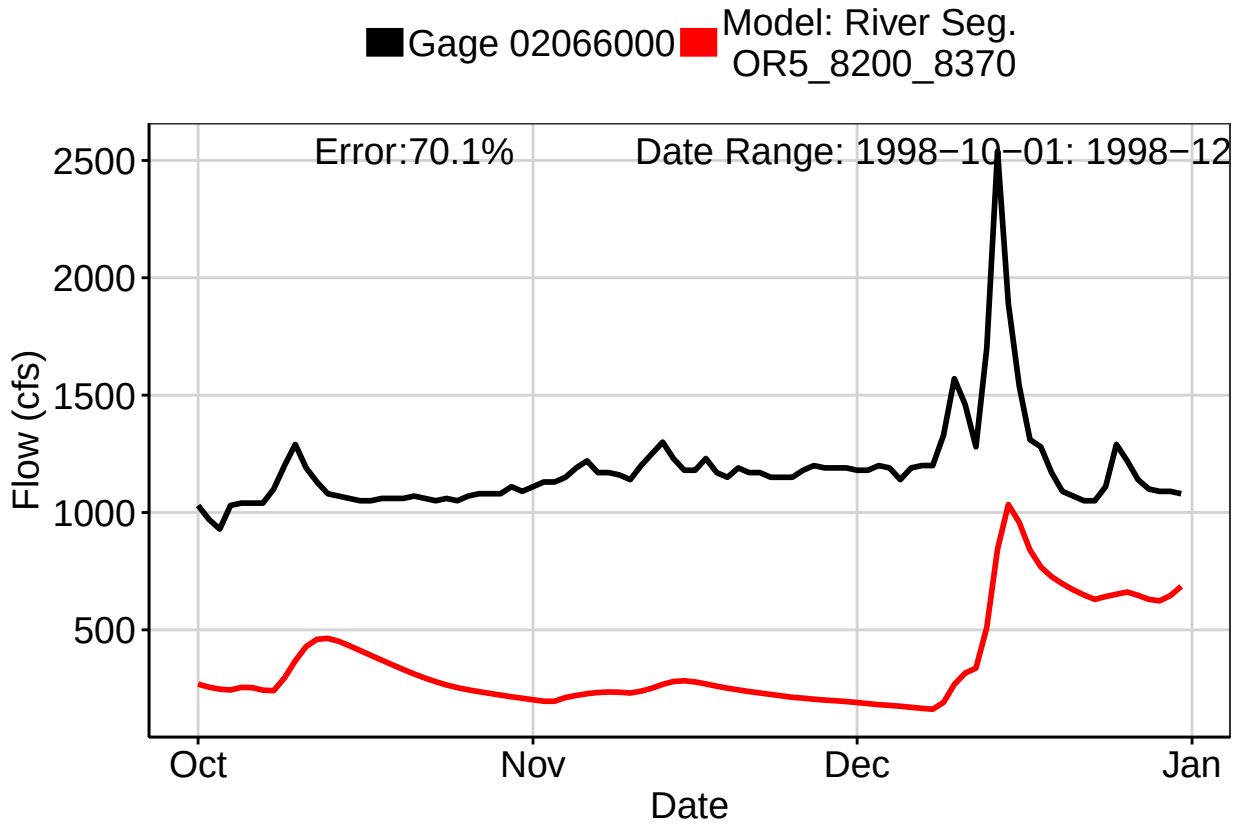


Fig. 8: Third Largest Error Segment

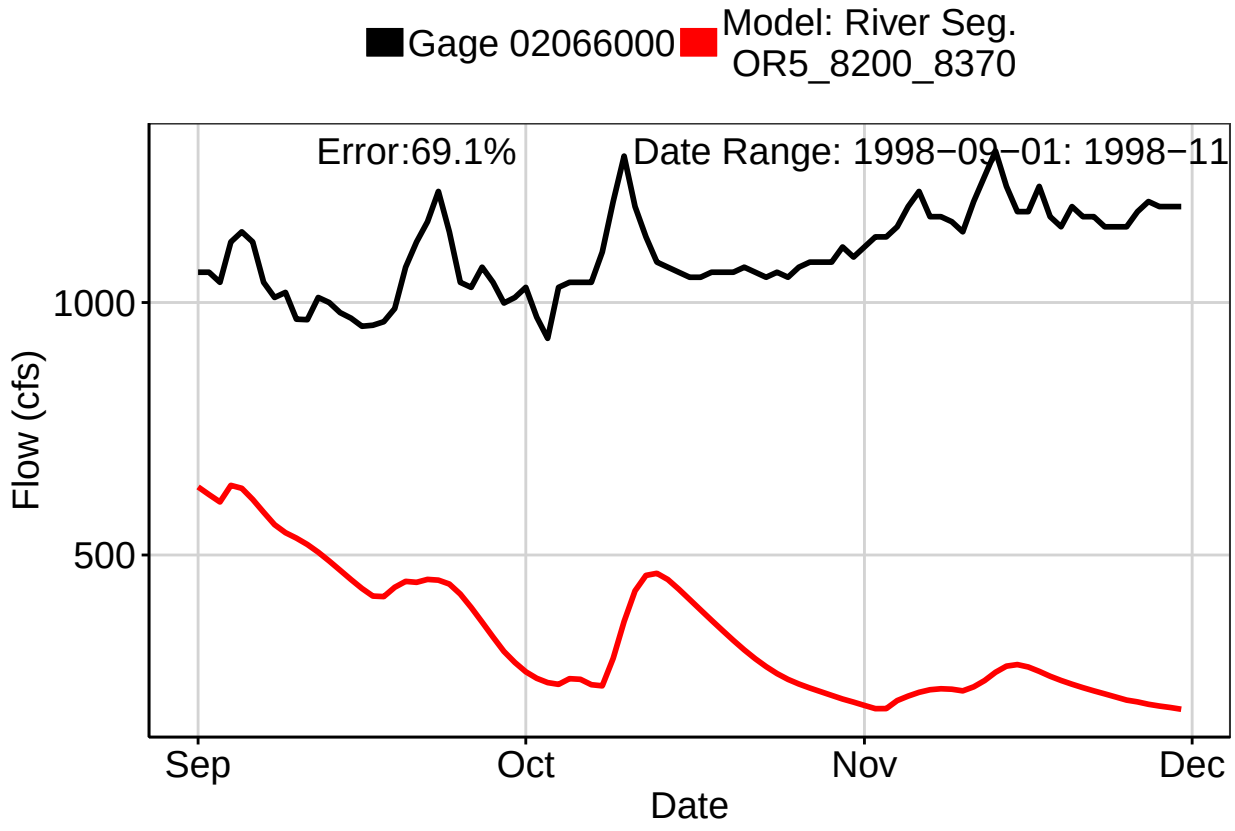


Fig. 9: Residuals Plot