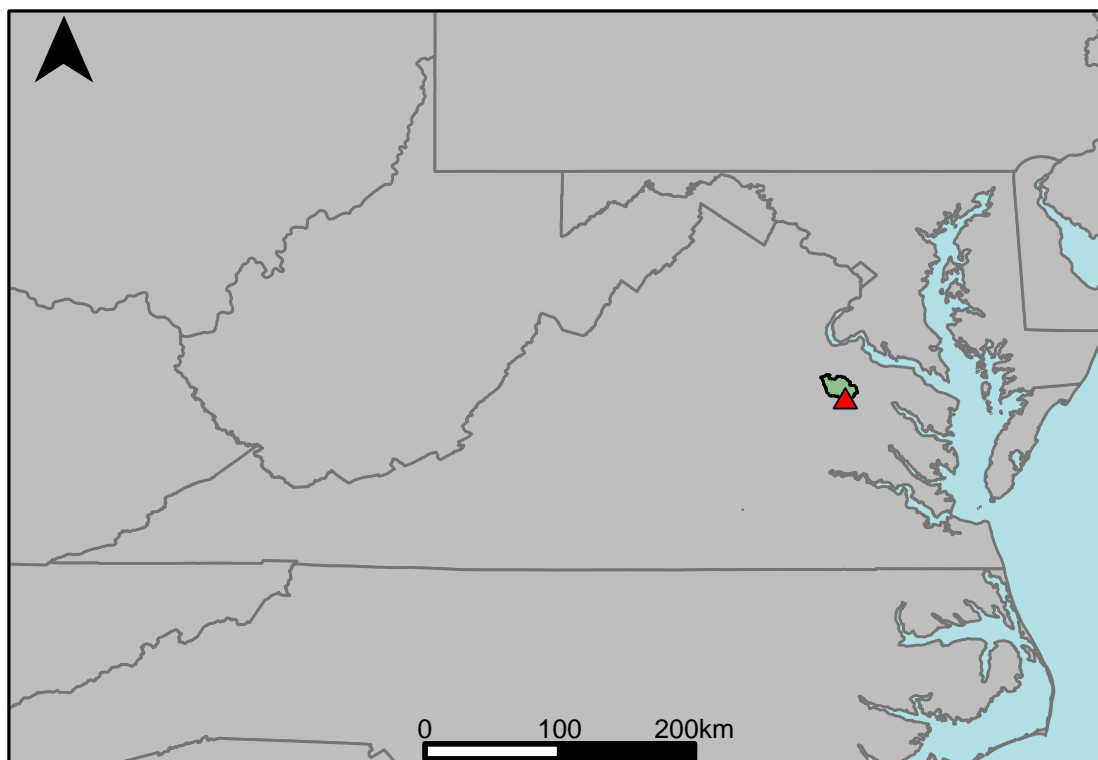# Appendix D.8: USGS Gage 01674500
vs. YM1_6370_6620
Mattaponi River

This river segment follows part of the flow of the Mattaponi River, a tributary of the York. The gage is located in King and Queen County (Lat. 37°53'02.0", Long. -77°09'55.0"), approximately 15 miles southeast of Bowling Green, VA. Drainage area is 603 sq. miles. This gage started taking data in 1941 and is still taking data. Diurnal fluctuations at times during low flow are caused by a gristmill on the Po River. The average daily discharge error between the model and gage data for the 20 year timespan was 1.91%, with 44.6% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	44	55.8	26.8
Feb. Low Flow	130	106	-18.5
Mar. Low Flow	222	168	-24.3
Apr. Low Flow	340	342	0.59
May Low Flow	493	460	-6.69
Jun. Low Flow	395	364	-7.85
Jul. Low Flow	394	330	-16.2
Aug. Low Flow	231	219	-5.19
Sep. Low Flow	109	154	41.3
Oct. Low Flow	55	63.2	14.9
Nov. Low Flow	43	64.2	49.3
Dec. Low Flow	31	58.3	88.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	523	513	-1.91
Jan. Mean Flow	705	678	-3.83
Feb. Mean Flow	878	914	4.1
Mar. Mean Flow	970	1050	8.25
Apr. Mean Flow	883	712	-19.4
May Mean Flow	585	507	-13.3
Jun. Mean Flow	348	331	-4.89
Jul. Mean Flow	197	225	14.2
Aug. Mean Flow	220	271	23.2
Sep. Mean Flow	239	372	55.6
Oct. Mean Flow	233	252	8.15
Nov. Mean Flow	423	364	-13.9
Dec. Mean Flow	619	509	-17.8

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	387	303	-21.7
Feb. High Flow	722	597	-17.3
Mar. High Flow	1120	1040	-7.14
Apr. High Flow	1150	1290	12.2
May High Flow	1300	1600	23.1
Jun. High Flow	1410	2150	52.5
Jul. High Flow	1590	1750	10.1
Aug. High Flow	1270	1030	-18.9
Sep. High Flow	694	484	-30.3
Oct. High Flow	515	399	-22.5
Nov. High Flow	471	325	-31
Dec. High Flow	160	208	30

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.25	2.59	936
Med. 1 Day Min	24	29.8	24.2
Min. 3 Day Min	0.27	2.84	964
Med. 3 Day Min	25.3	31.6	24.9
Min. 7 Day Min	0.34	3.41	912
Med. 7 Day Min	26.4	36.5	38.3
Min. 30 Day Min	2.39	11.7	390
Med. 30 Day Min	47.8	59.5	24.5
Min. 90 Day Min	7.95	32.3	306
Med. 90 Day Min	119	130	9.24
7Q10	3.33	9.36	181
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	81.9	100	22.1
Mean Baseflow	292	306	4.79

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7780	23100	197
Med. 1 Day Max	2850	5440	90.9
Max. 3 Day Max	6870	11600	68.9
Med. 3 Day Max	2550	3190	25.1
Max. 7 Day Max	5120	7900	54.3
Med. 7 Day Max	2310	2000	-13.4
Max. 30 Day Max	3160	3410	7.91
Med. 30 Day Max	1310	1260	-3.82
Max. 90 Day Max	2460	2450	-0.41
Med. 90 Day Max	1020	802	-21.4

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	5.7	13.2	132
5% Non-Exceedance	26	35.6	36.9
50% Non-Exceedance	327	320	-2.14
95% Non-Exceedance	1750	1480	-15.4
99% Non-Exceedance	2890	3320	14.9
Sept. 10% Non-Exceedance	16	27.4	71.2

Fig. 1: Hydrograph
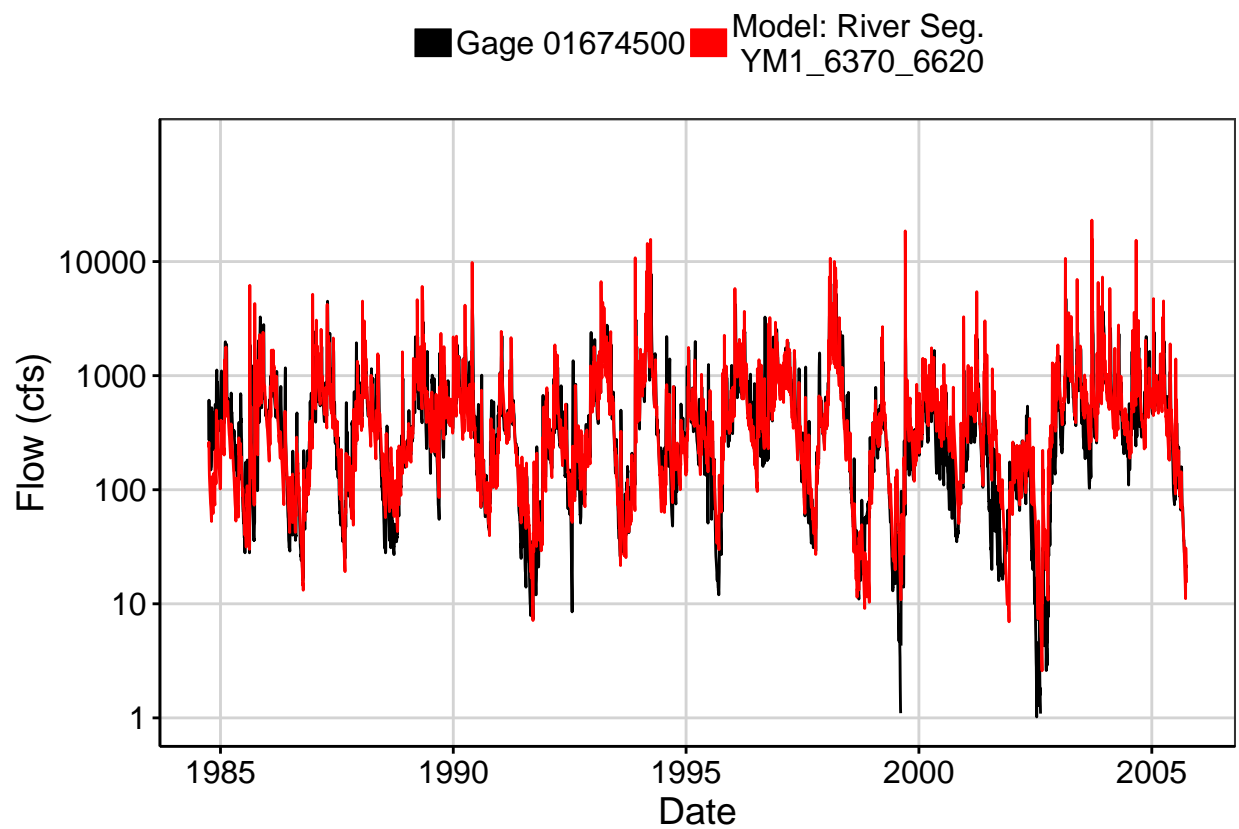
Fig. 2: Zoomed Hydrograph
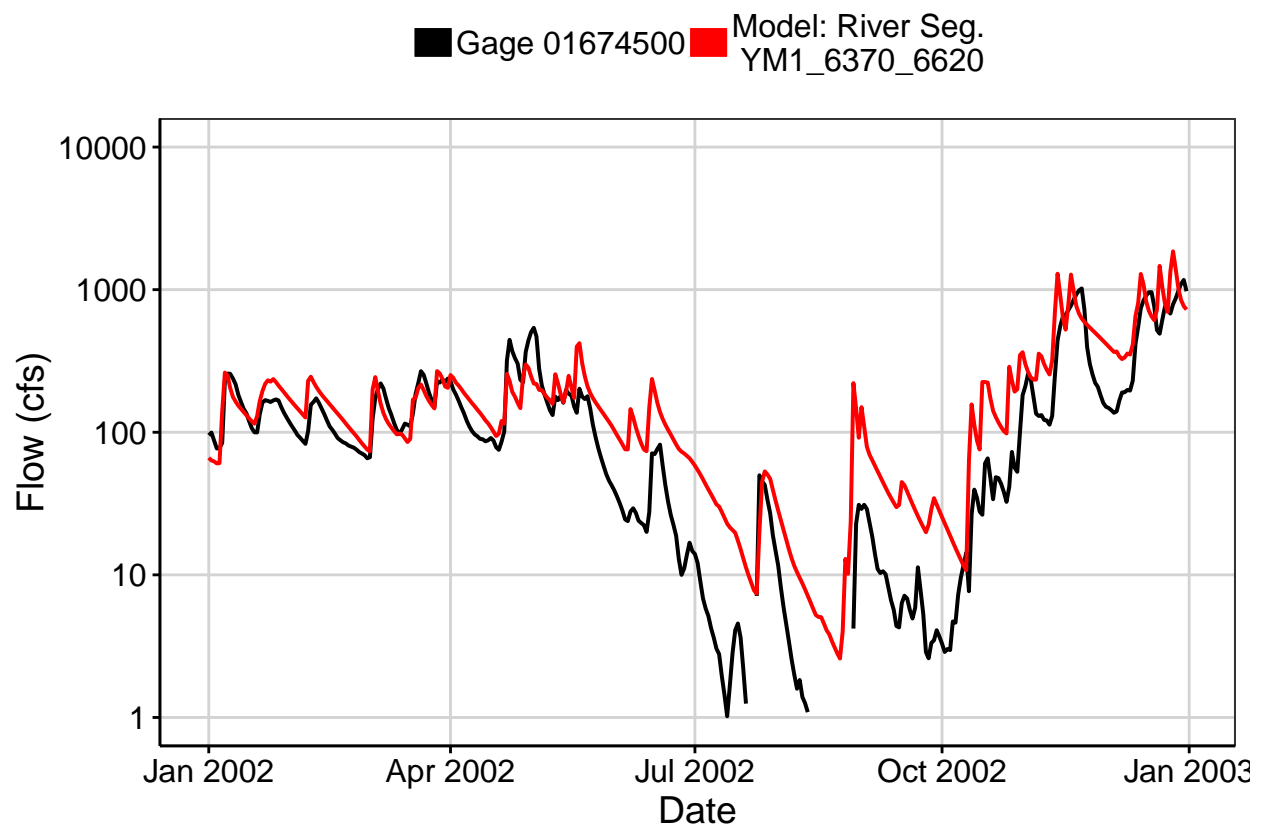
Fig. 3: Flow Exceedance

Fig. 4: Baseflow

Legend: ■ Gage 01674500 ■ Model: River Seg. YM1_6370_6620
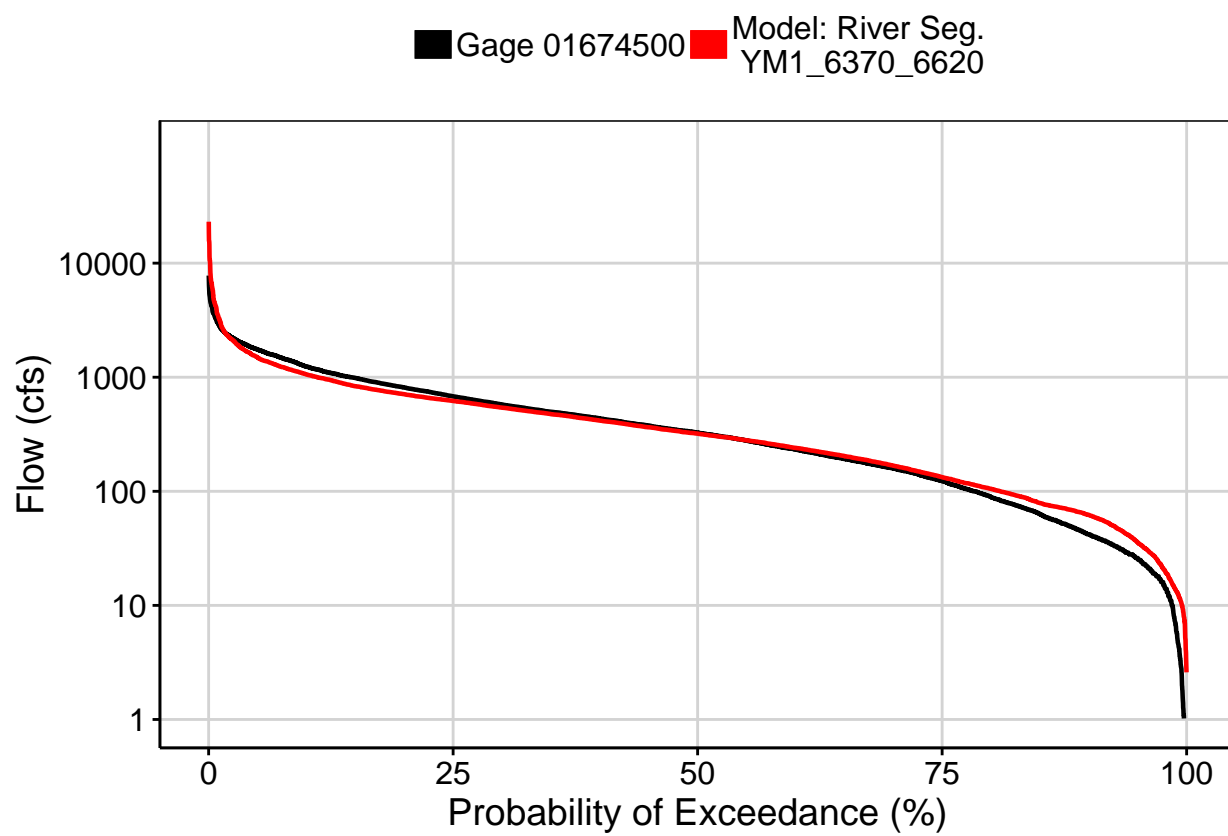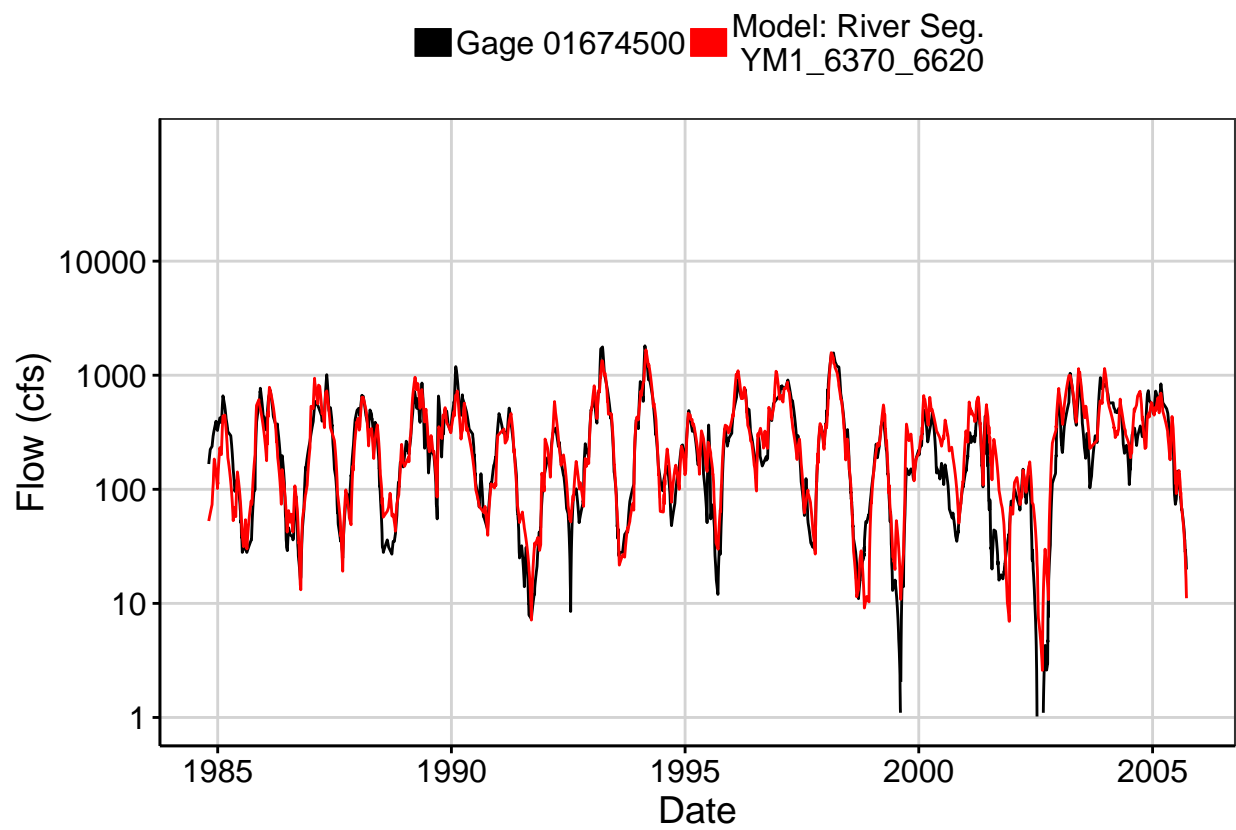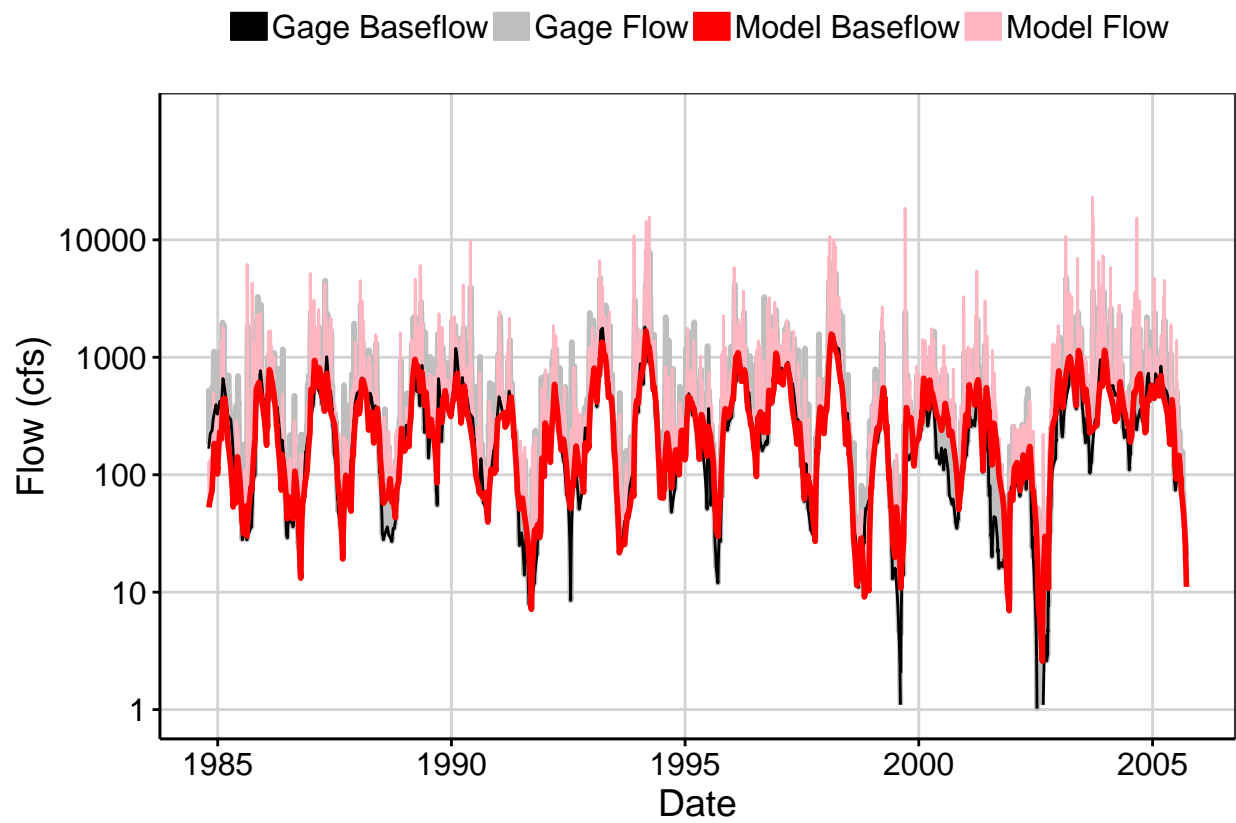
Fig. 5: Combined Baseflow
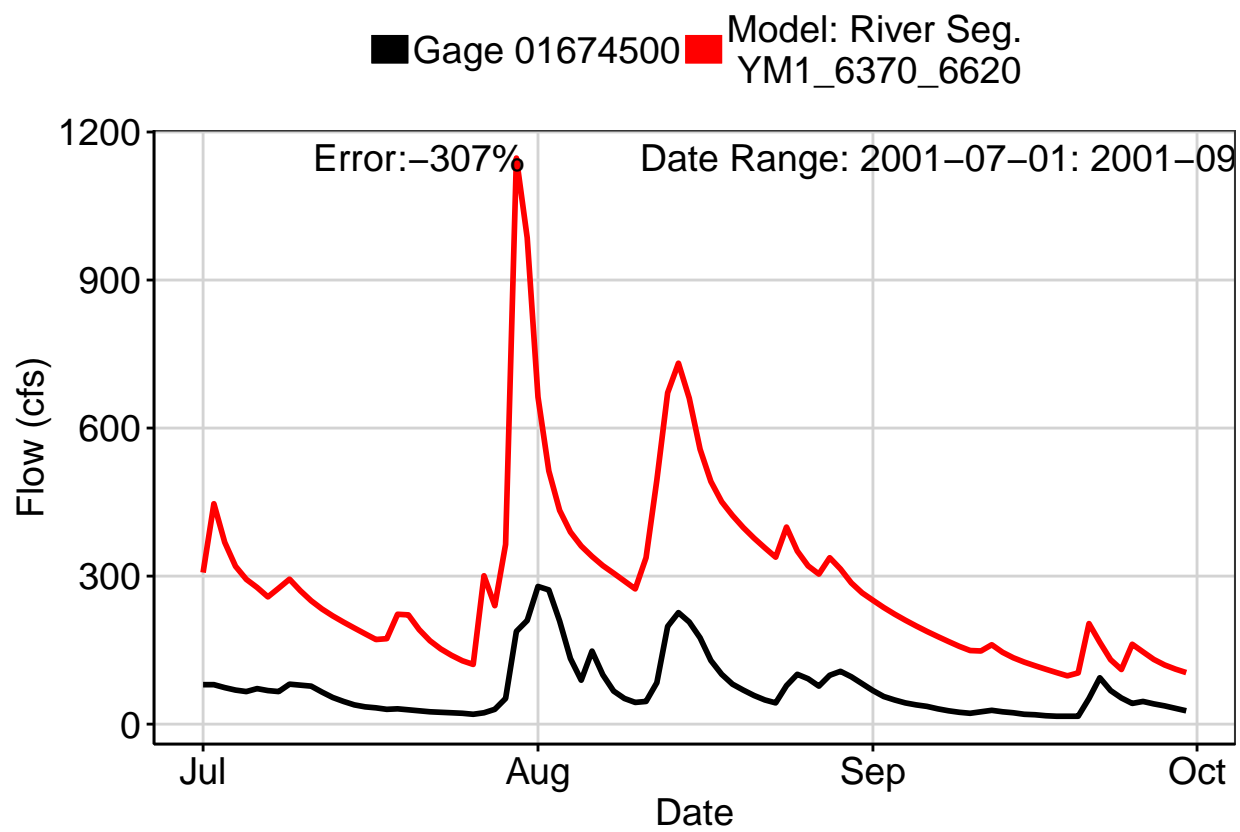
Fig. 6: Largest Error Segment
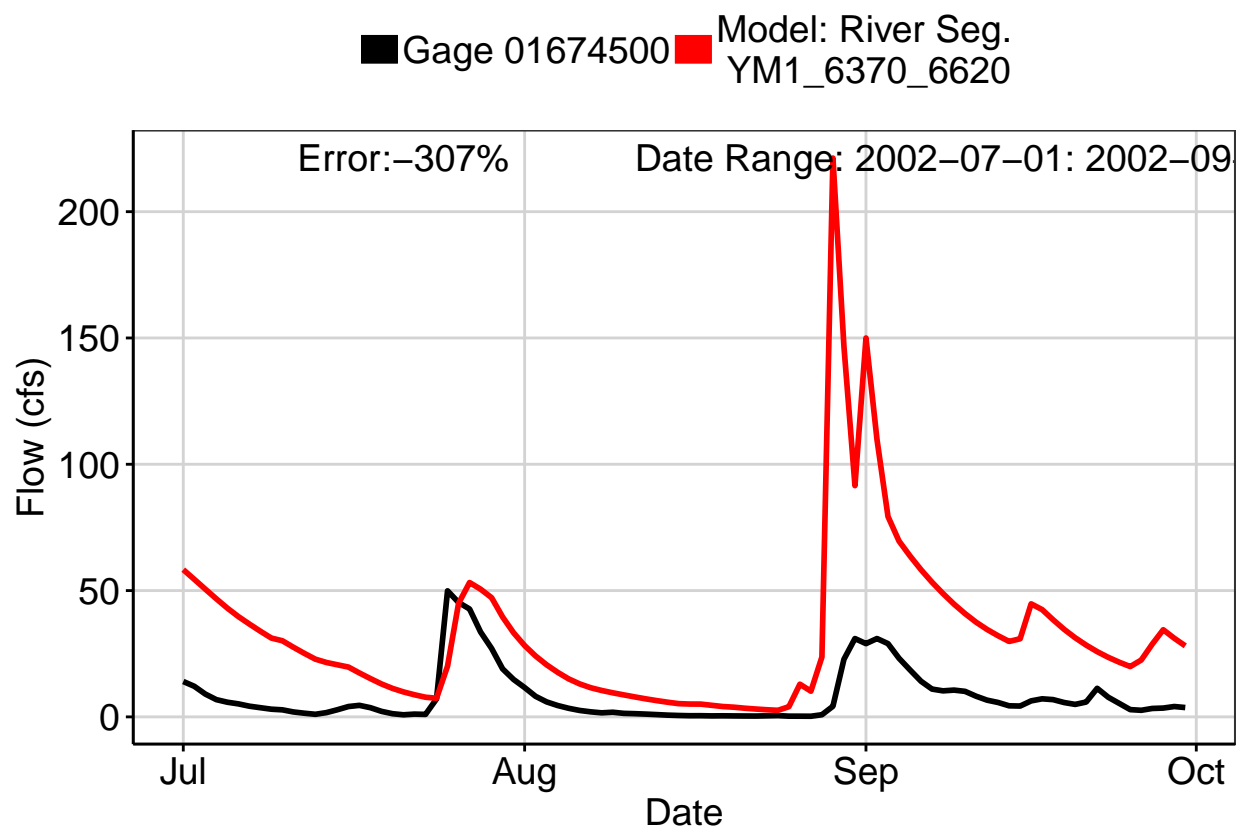
Fig. 7: Second Largest Error Segment

Fig. 8: Third Largest Error Segment

Fig. 9: Residuals Plot