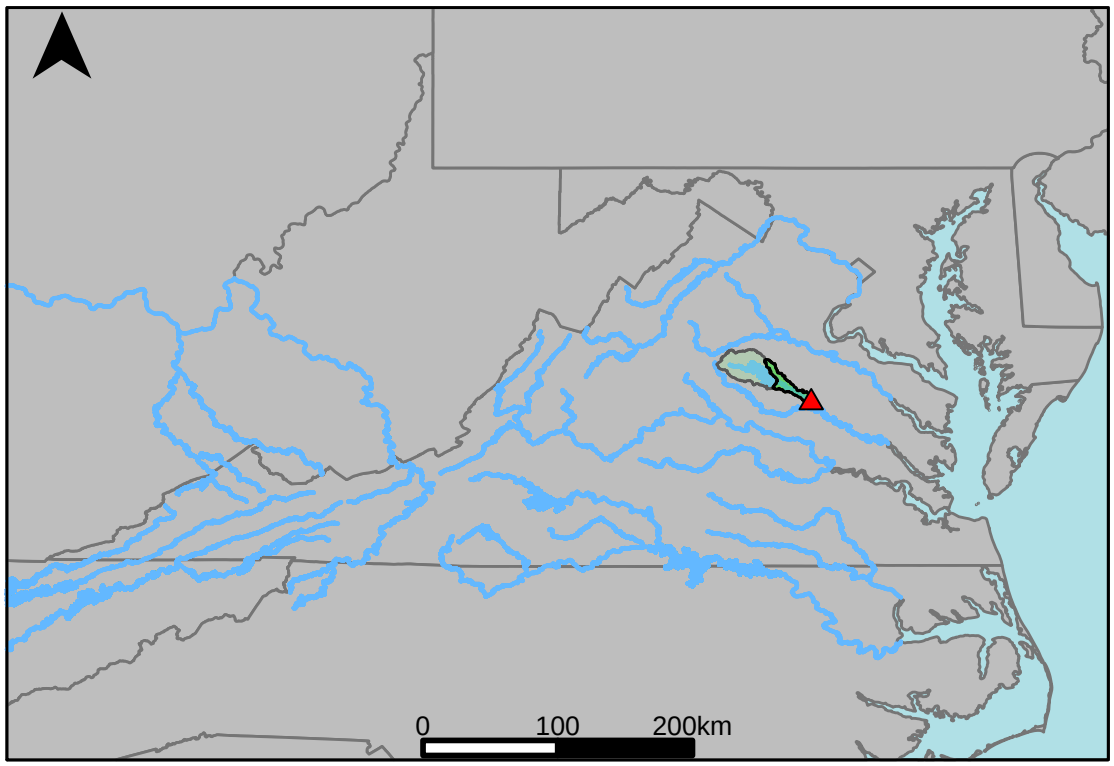
River Segment: YP3_6330_6700 - Scenario : CFBASE30Y20180615 : Gage 01671020 vs. VAHydro



This river segment follows part of the flow of the North Anna River at Hart Corner near Doswell, VA. Gage 01671020 is located in Hanover County, VA (Lat 37 51'00", Long 77 25'41") approximately 2.1 miles east of Doswell, VA. Drainage area is 462 sq. miles. This gage started taking data in 1979 and has been taking data periodically until now. Diversion at a point 0.8 mi upstream from station since 1973. Maximum discharge, 12,000 ft<U+00B3>/s, from rating curve extended above 10,100 ft<U+00B3>/s. The average daily discharge change between scenario 1 and scenario 2 for the 20 year timespan was -12.1126%, with 52.3% of its rolling three month time spans above 20% difference.

Table 1: Monthly Low Flows

	USGS Gage	VAHydro	Pct. Difference
Jan. Low Flow	51.7	51.37	-0.64
Feb. Low Flow	65	57.92	-10.9
Mar. Low Flow	94	76.62	-18.49
Apr. Low Flow	143	159.83	11.77
May Low Flow	189.5	184.98	-2.39
Jun. Low Flow	221	126.15	-42.92
Jul. Low Flow	141	102.14	-27.56
Aug. Low Flow	93.5	85.24	-8.83
Sep. Low Flow	70.25	67.93	-3.31
Oct. Low Flow	53.55	55.4	3.46
Nov. Low Flow	48.5	51.95	7.11
Dec. Low Flow	46	49.16	6.87

Table 2: Monthly Average Flows

	USGS Gage	VAHydro	Pct. Difference
Overall Mean Flow	365.85	321.54	-12.11
Jan. Mean Flow	494.69	500.99	1.27
Feb. Mean Flow	569.44	565.64	-0.67
Mar. Mean Flow	697.86	663.41	-4.94
Apr. Mean Flow	506.41	468.39	-7.51
May Mean Flow	457.69	348.91	-23.77
Jun. Mean Flow	272.64	181.19	-33.54
Jul. Mean Flow	139.34	95.27	-31.63
Aug. Mean Flow	120.2	76.64	-36.24
Sep. Mean Flow	192.37	143.28	-25.52
Oct. Mean Flow	162.62	137.94	-15.18
Nov. Mean Flow	339.15	254.28	-25.02
Dec. Mean Flow	451.04	436.58	-3.21

Table 3: Monthly High Flows

	USGS Gage	VAHydro	Pct. Difference
Jan. High Flow	239	176.5	-26.2
Feb. High Flow	799	299.9	-62.5
Mar. High Flow	877	676.5	-22.9
Apr. High Flow	1605	1100.3	-31.4
May High Flow	1445	814.2	-43.6
Jun. High Flow	2470	1530.1	-38
Jul. High Flow	1675	1217.9	-27.3
Aug. High Flow	1009	567.1	-43.8
Sep. High Flow	720	210.1	-70.8
Oct. High Flow	234.5	110.1	-53
Nov. High Flow	142	96.8	-31.8
Dec. High Flow	128	89.1	-30.4

Table 4: Period Low Flows

	USGS Gage	VAHydro	Pct. Difference
Min. 1 Day Min	7.58	20.89	175.53
Med. 1 Day Min	41.65	28.83	-30.79
Min. 3 Day Min	9.01	21.01	133.17
Med. 3 Day Min	42.45	29.35	-30.85
Min. 7 Day Min	12.75	21.18	66.16
Med. 7 Day Min	43.08	30.93	-28.2
Min. 30 Day Min	17.33	25	44.21
Med. 30 Day Min	48.67	48.55	-0.25
Min. 90 Day Min	30.4	31.06	2.19
Med. 90 Day Min	71.01	66.23	-6.73
7Q10	27.88	23.23	-16.66
Year of 90-Day Min. Flow	2008	2002	-0.3
Drought Year Mean	201.42	42.38	-78.96
Mean Baseflow	150.4	142.12	-5.5

Table 5: Period High Flows

	USGS Gage	VAHydro	Pct. Difference
Max. 1 Day Max	10900	9499.67	-12.85
Med. 1 Day Max	4670	3509.71	-24.85
Max. 3 Day Max	9353.33	7462.83	-20.21
Med. 3 Day Max	3920	3048.21	-22.24
Max. 7 Day Max	5685.71	5078.86	-10.67
Med. 7 Day Max	2539.07	2303.64	-9.27
Max. 30 Day Max	3125.97	3055.8	-2.24
Med. 30 Day Max	1166.38	1017.58	-12.76
Max. 90 Day Max	2064.02	1996.59	-3.27
Med. 90 Day Max	732.06	591.89	-19.15

Table 6: Non-Exceedance Flows

	USGS Gage	VAHydro	Pct. Difference
1% Non-Exceedance	32.3	24.51	-24.12
5% Non-Exceedance	40.3	36.44	-9.59
50% Non-Exceedance	145	109.37	-24.57
95% Non-Exceedance	1362	1265.37	-7.09
99% Non-Exceedance	3378.8	2946.17	-12.8
Sept. 10% Non-Exceedance	39	30.37	-22.12

Fig. 1: Hydrograph

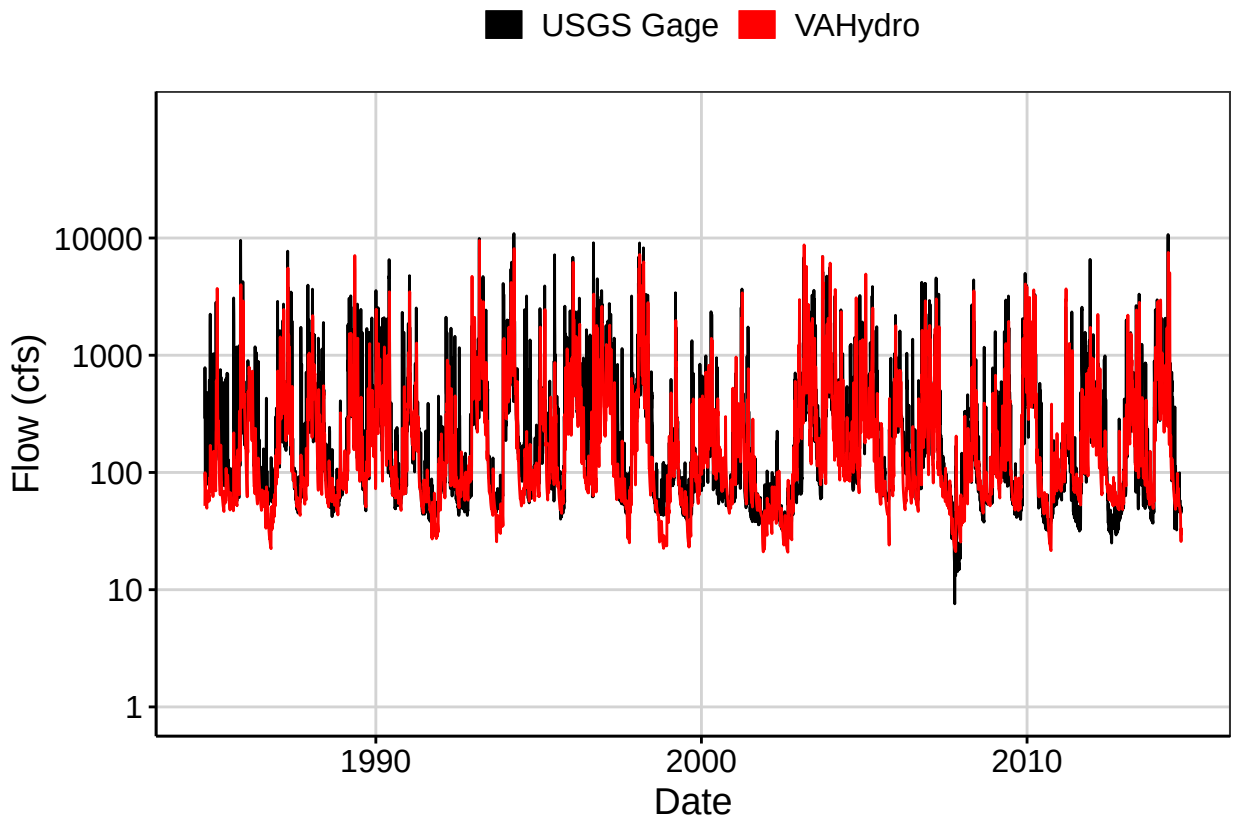


Fig. 2: Zoomed Hydrograph

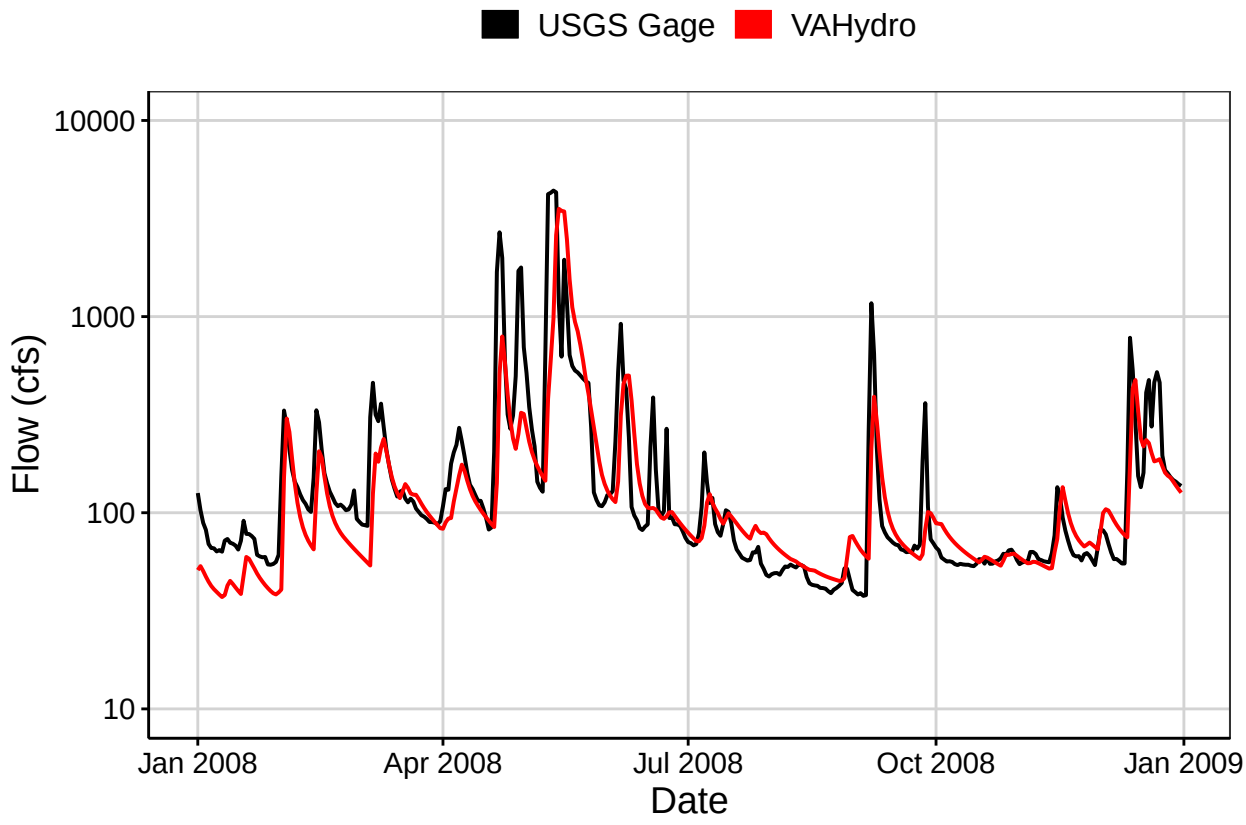


Fig. 3: Flow Exceedance

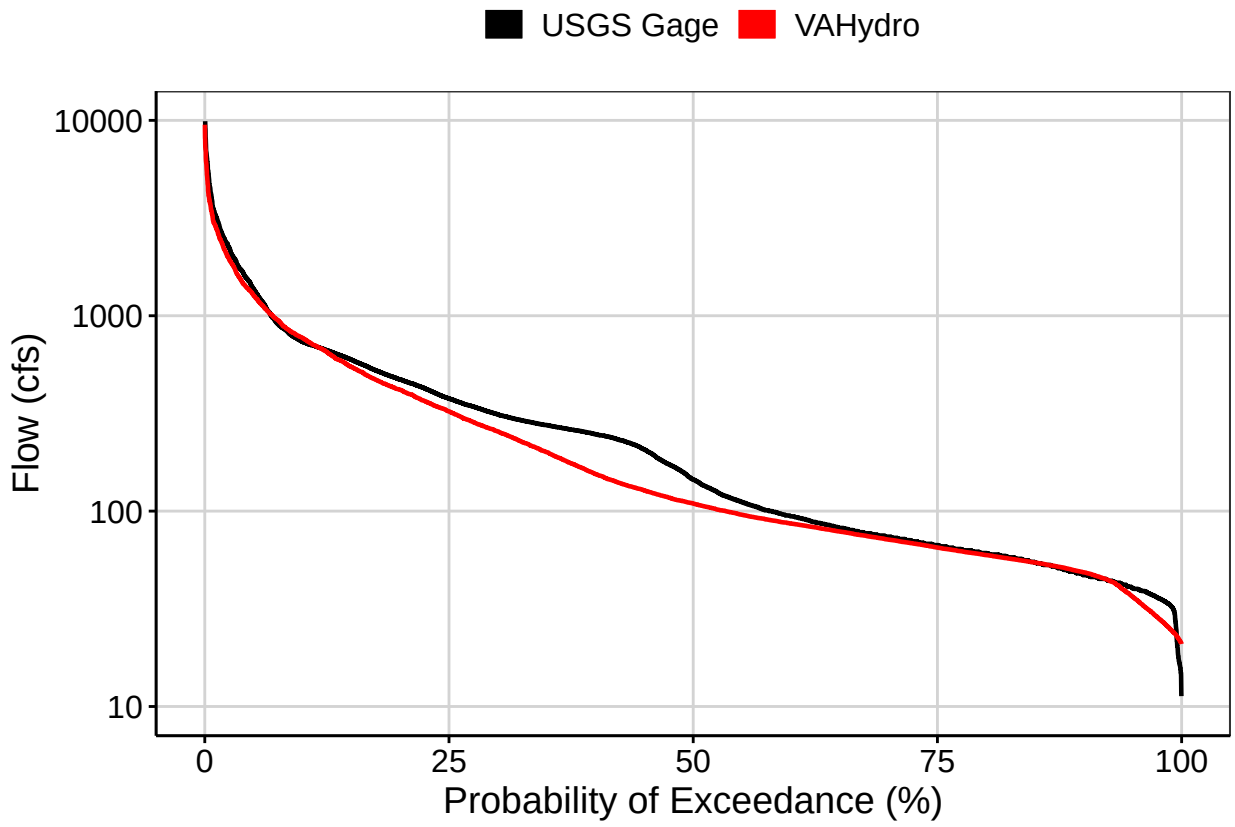


Fig. 4: Baseflow

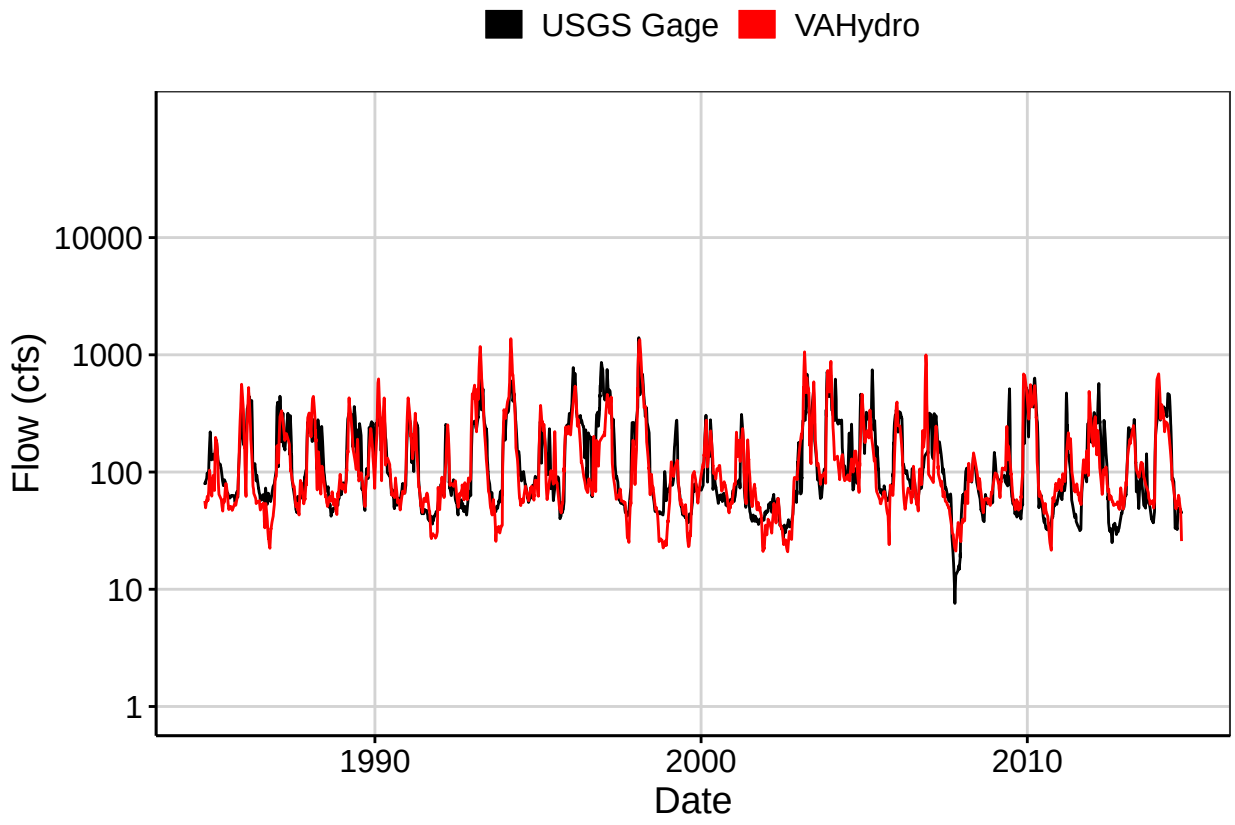


Fig. 5: Combined Baseflow

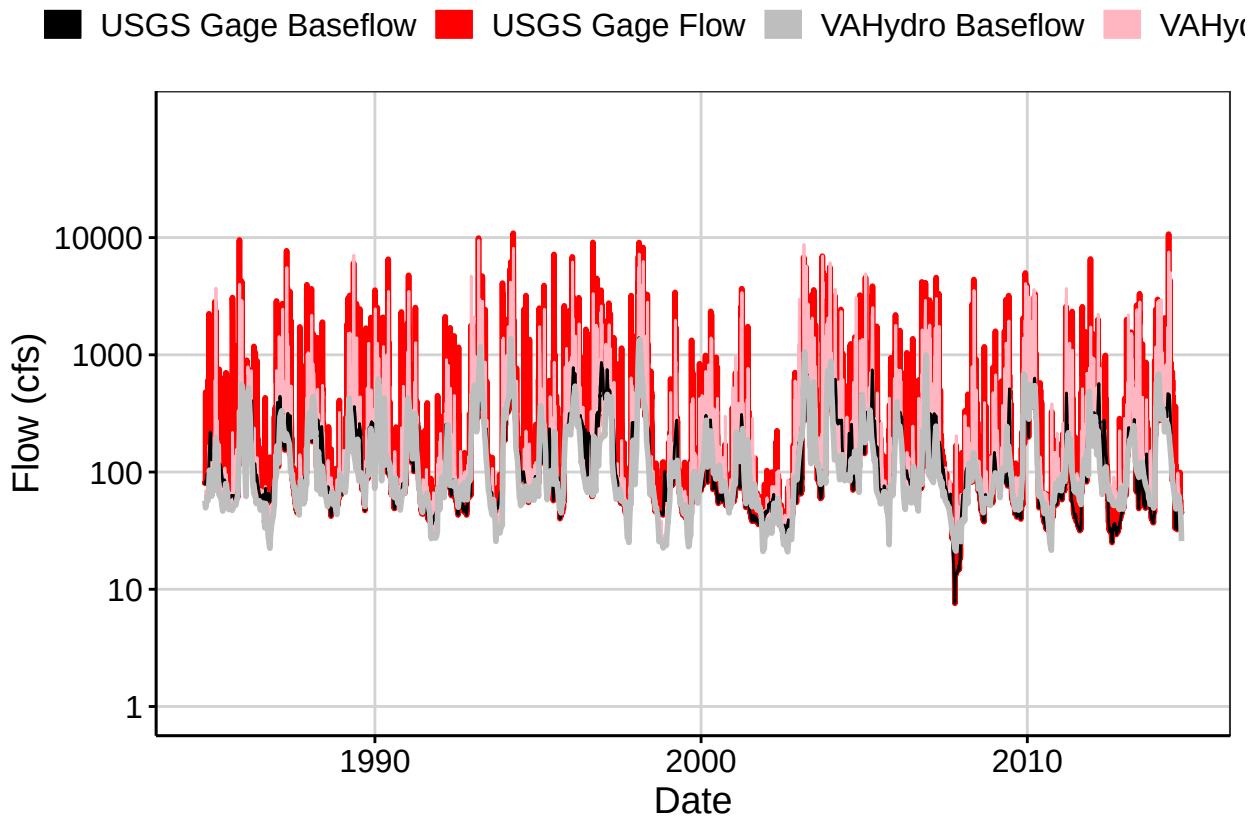


Fig. 6: Largest Difference Segment

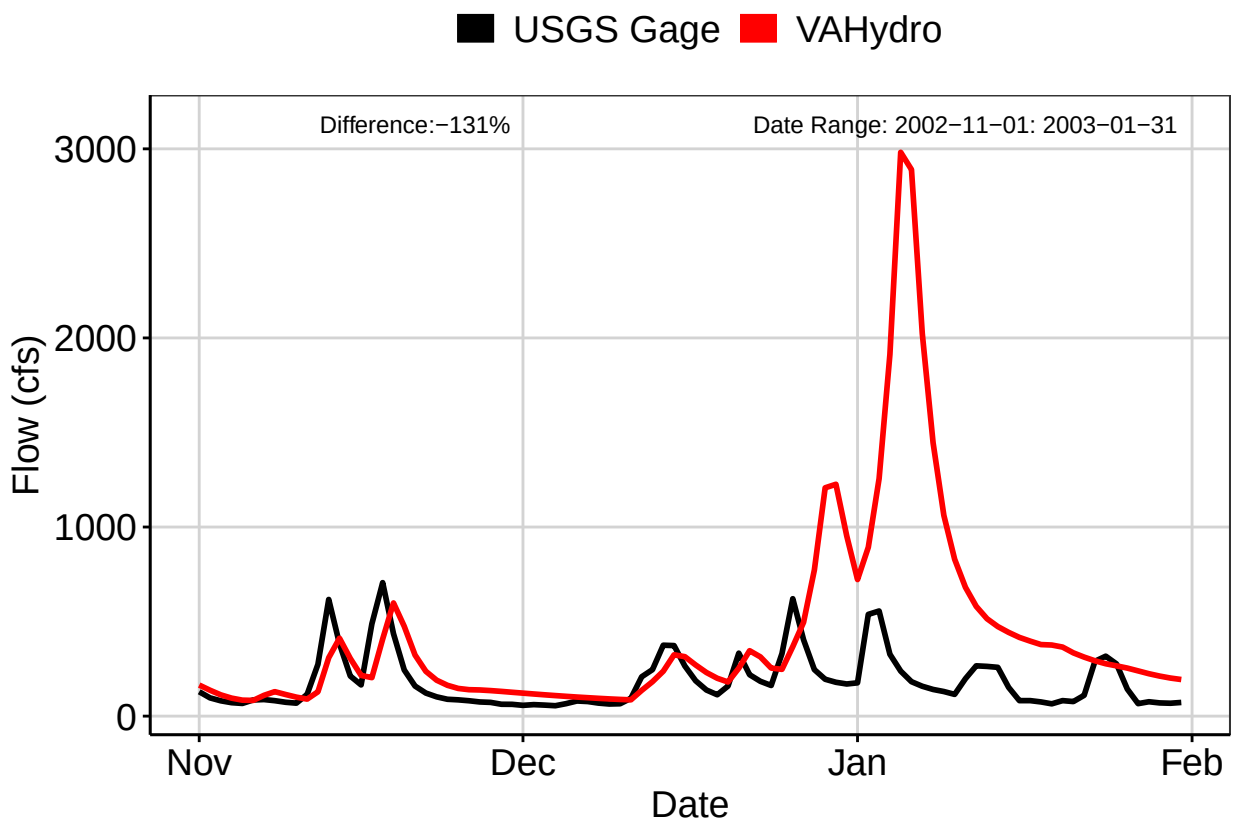


Fig. 7: Second Largest Difference Segment

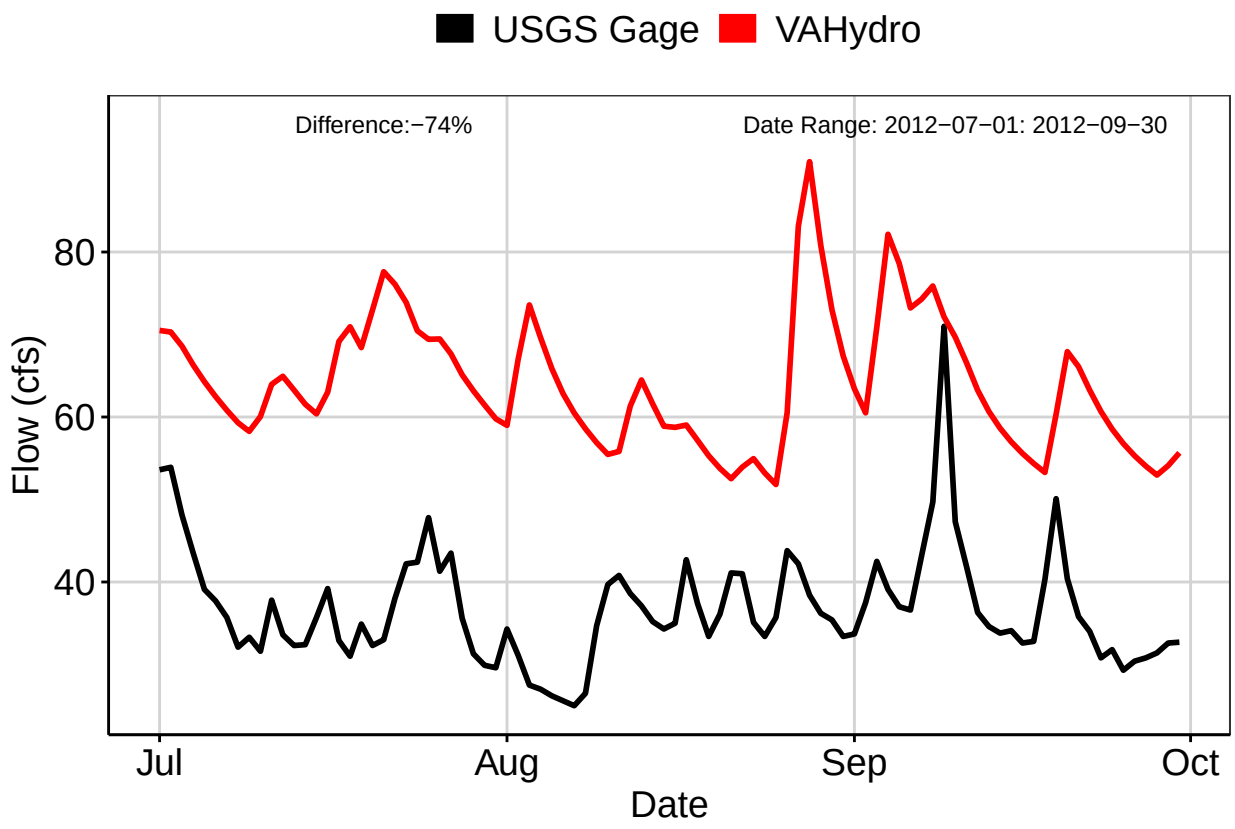


Fig. 8: Third Largest Difference Segment

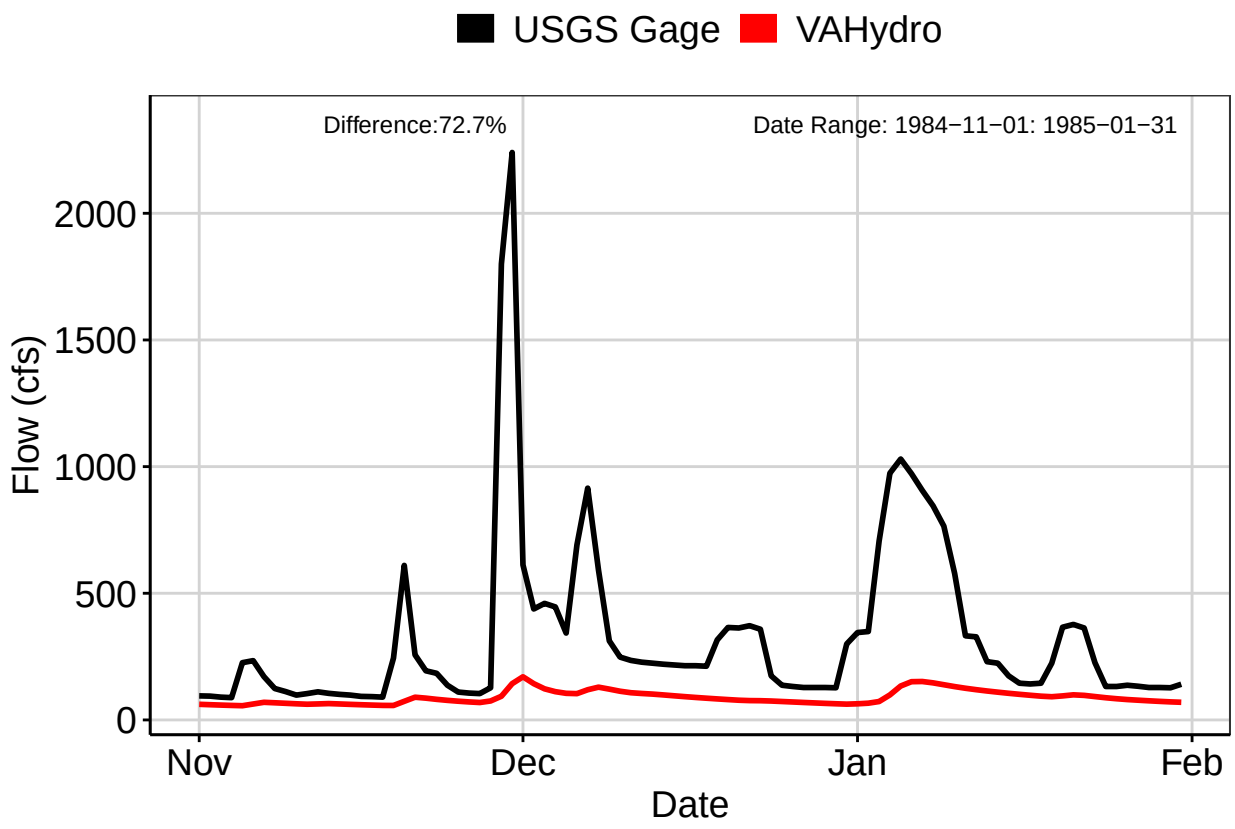


Fig. 9A: Residuals Plot

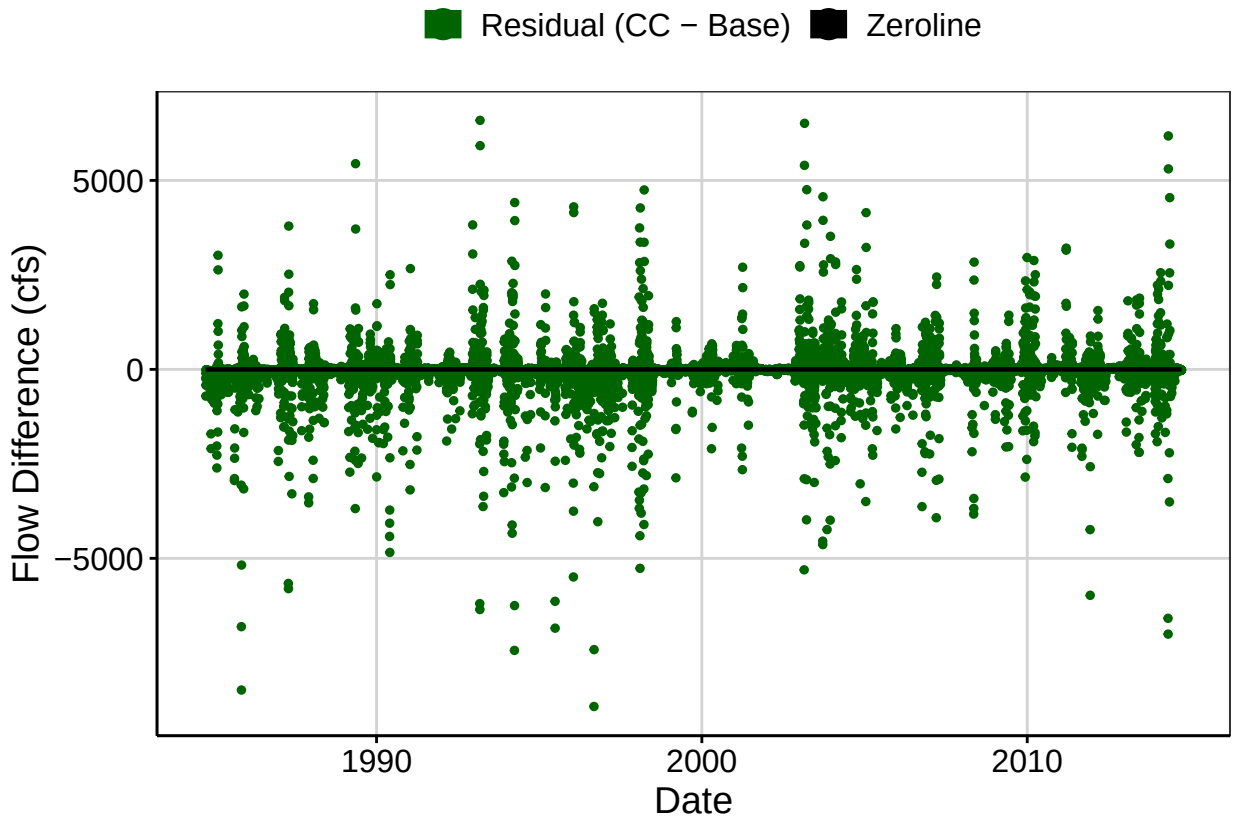


Fig. 9B: Area Weighted Residuals Plot