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LAMPIRAN

1.1 Pengambilan Titik *Outlet* (Bendung Pengarengan) Untuk Delineasi

1. *Tracking* Koordinat Menggunakan GPS

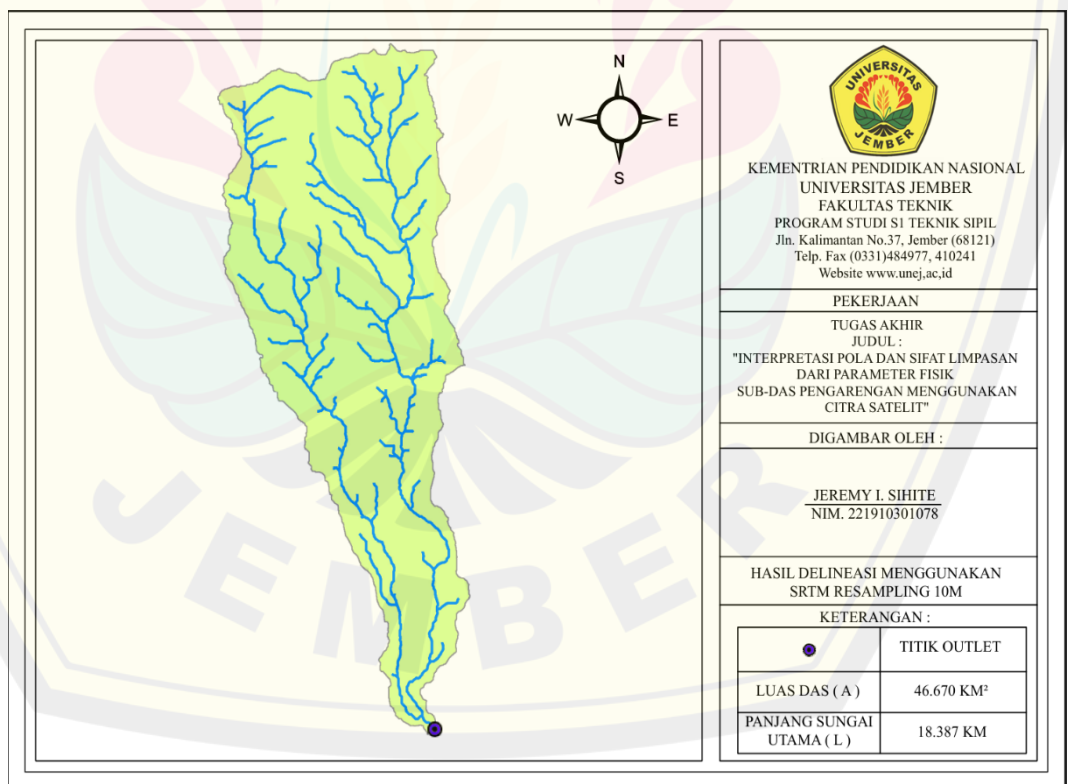


2. Overlay *Outlet* Menggunakan Google Earth

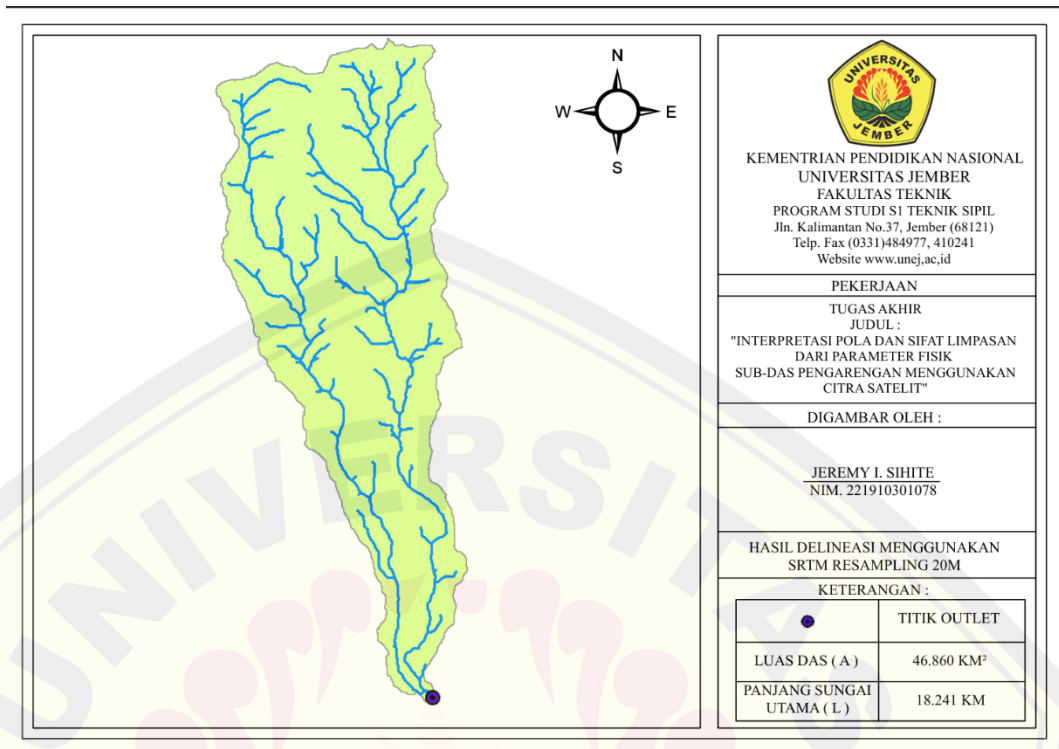


1.2 Delineasi Sub-DAS Pengarengan

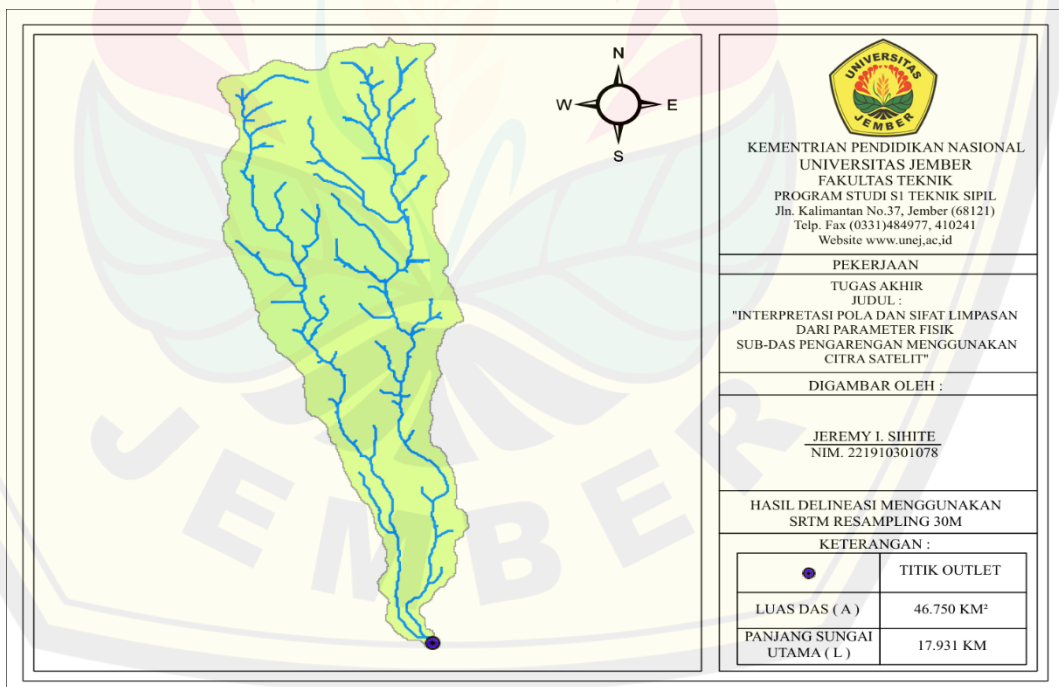
1. SRTM 10 Meter



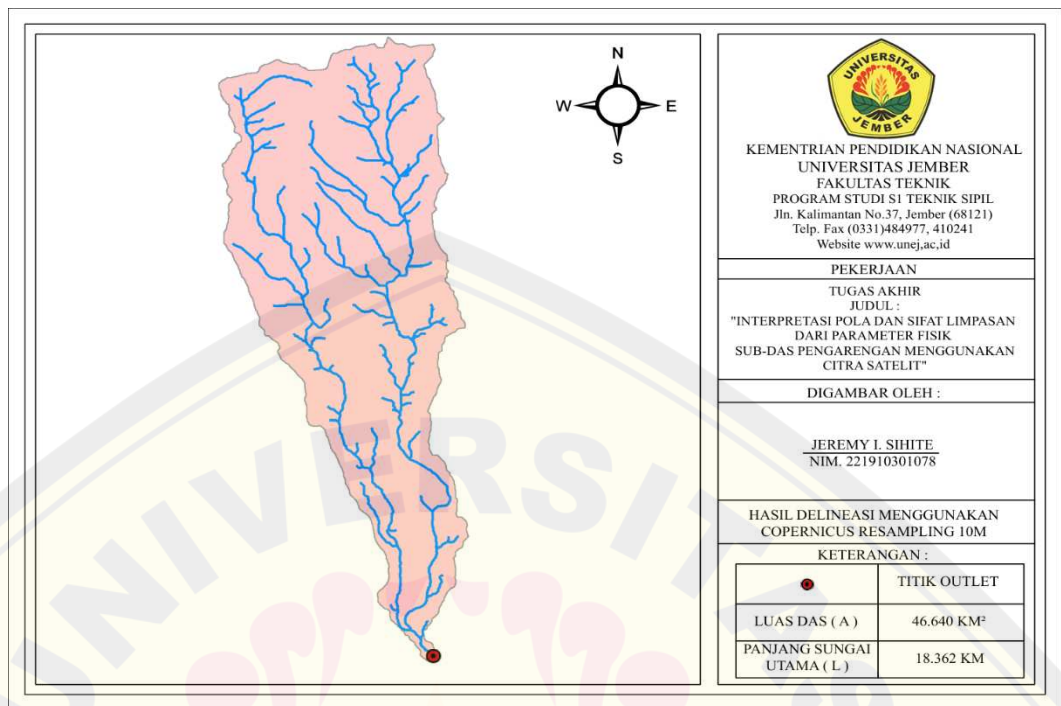
2. SRTM 20 Meter



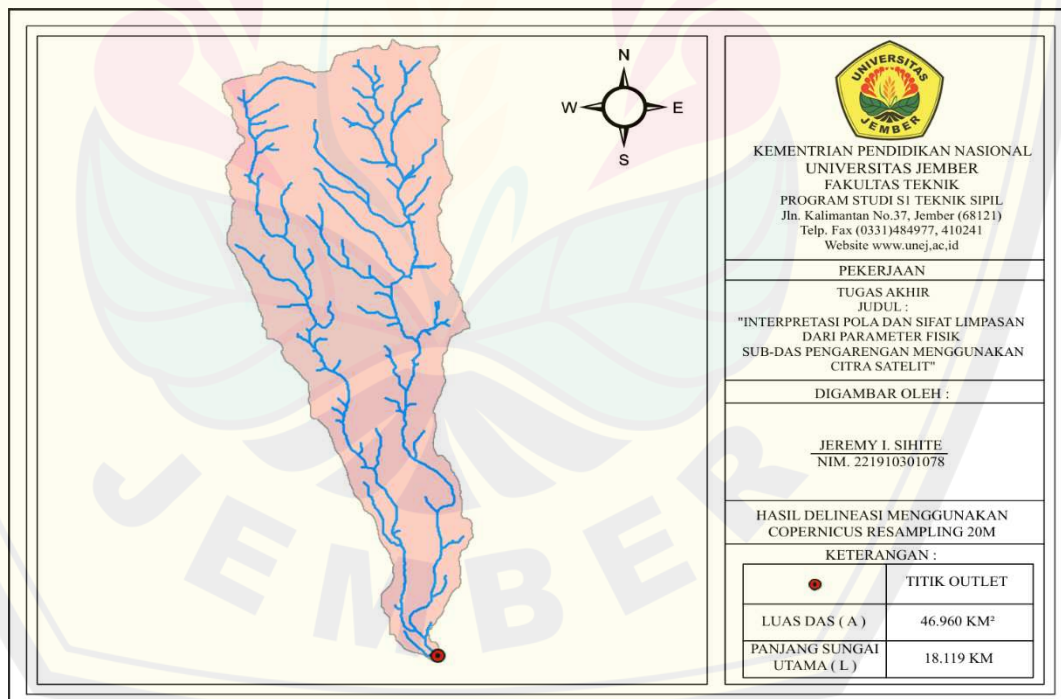
3. SRTM 30 Meter



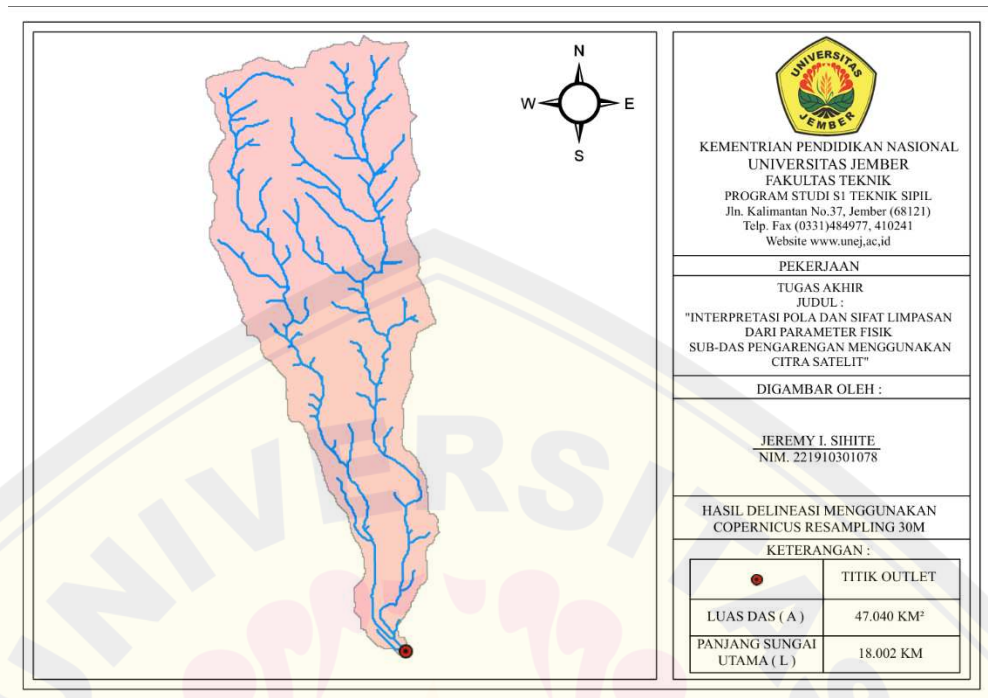
4. COPERNICUS 10 Meter



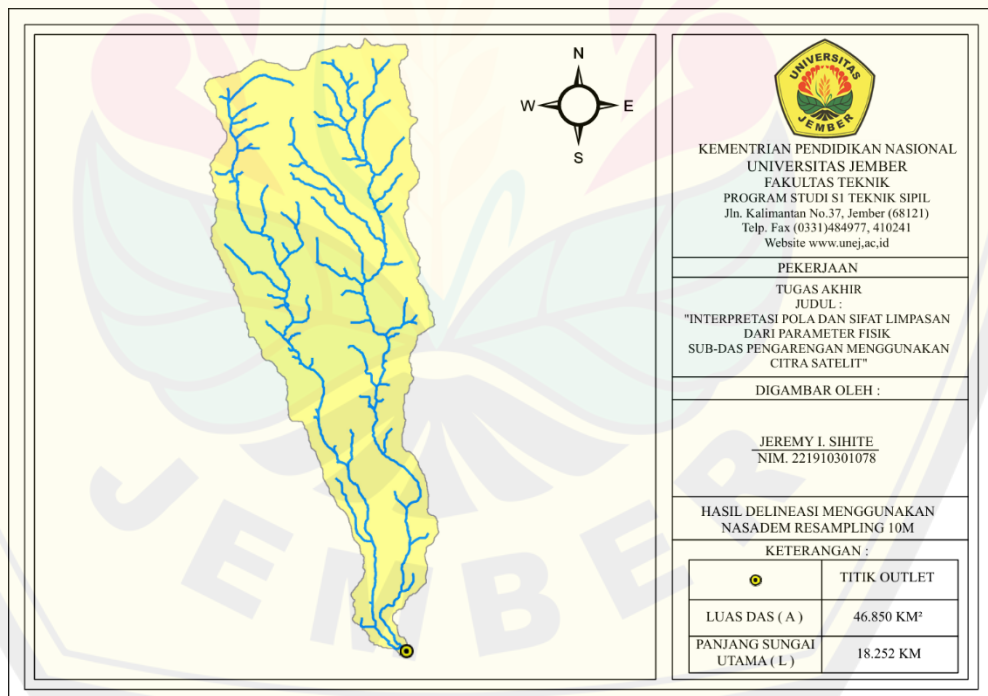
5. COPERNICUS 20 Meter



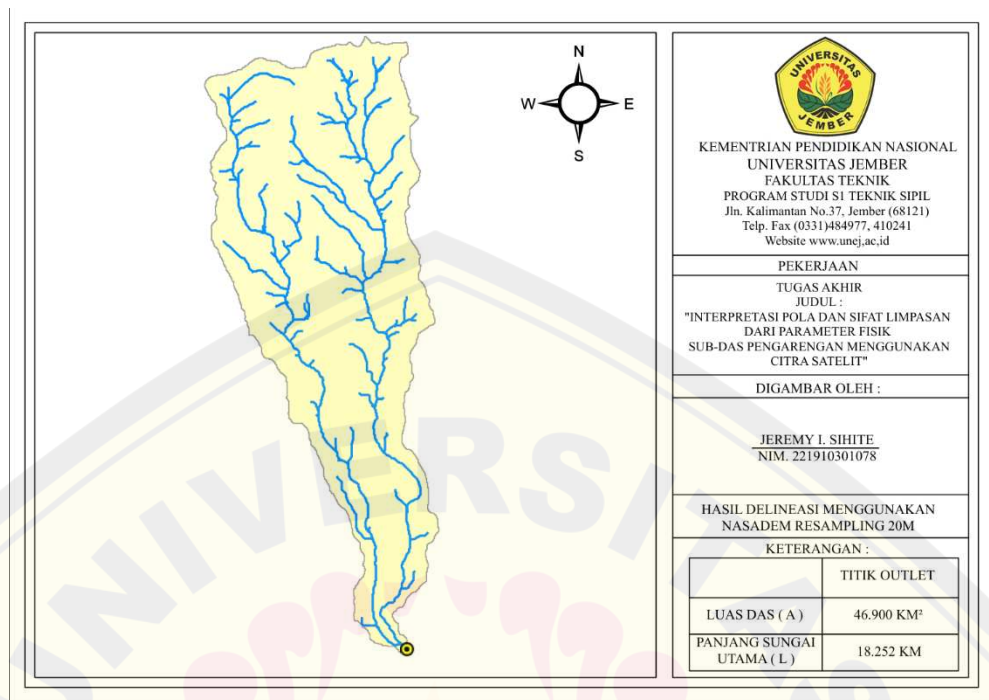
6. COPERNICUS 30 Meter



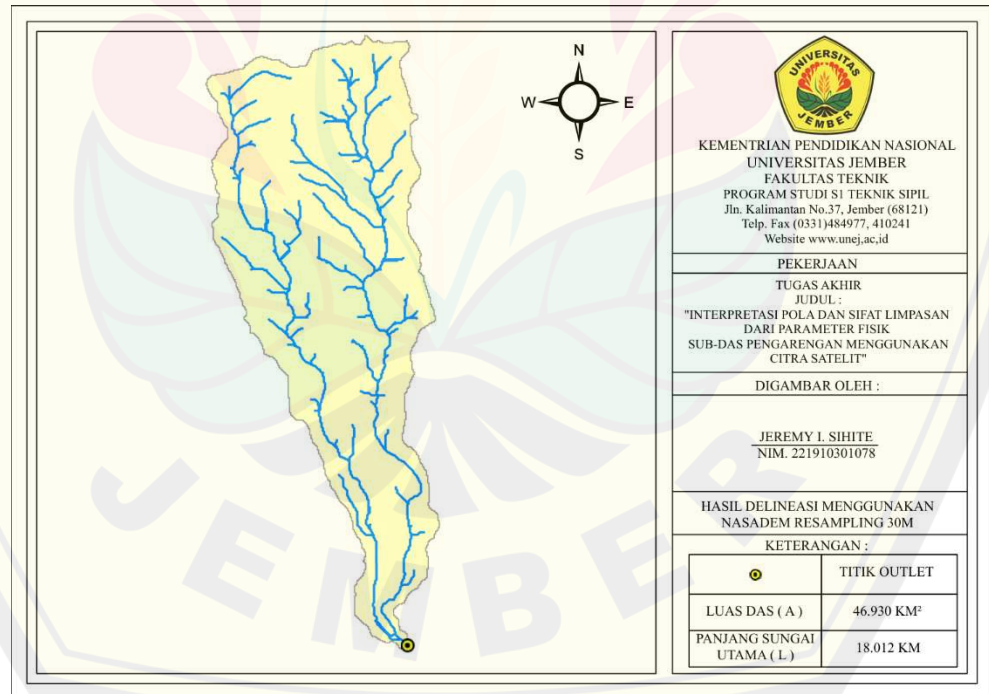
7. NASADEM 10 Meter



8. NASADEM 20 Meter



9. NASADEM 30 Meter



1.3 Tracking Batas Sub-DAS dan Alur Sungai Pengarengan

1. Batas Sub-DAS Pengarengan



2. Alur Sungai Pengarengan







1.4 Koordinat X,Y,dan Z Batas Sub-DAS dari Delineasi

SRTM RESOLUSI ASLI			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793671	9103829	427.8935
Batas Sub DAS Hilir Kiri 2	793444	9103975	427.2523
Batas Sub DAS Hilir Kanan 1	794340	9103921	391.0089
Batas Sub DAS Hilir Kanan 2	794135	9104132	412.6307

SRTM 10M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793701	9103829	425.6924
Batas Sub DAS Hilir Kiri 2	793453	9103975	435.9812
Batas Sub DAS Hilir Kanan 1	794341	9103921	392.0939
Batas Sub DAS Hilir Kanan 2	794131	9104132	414.0000

SRTM 20M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793691	9103830	426.4999
Batas Sub DAS Hilir Kiri 2	793451	9103975	437.2411
Batas Sub DAS Hilir Kanan 1	794341	9103921	391.5704
Batas Sub DAS Hilir Kanan 2	794131	9104132	413.7014

SRTM 30M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793691	9103830	426.7498
Batas Sub DAS Hilir Kiri 2	793481	9103974	434.8165
Batas Sub DAS Hilir Kanan 1	794341	9103921	390.5582
Batas Sub DAS Hilir Kanan 2	794131	9104132	413.2176

COPERNICUS RESOLUSI ASLI			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793691	9103820	425.9123
Batas Sub DAS Hilir Kiri 2	793462	9103975	433.9572
Batas Sub DAS Hilir Kanan 1	794338	9103921	392.0156
Batas Sub DAS Hilir Kanan 2	794121	9104132	413.1243

COPERNICUS 10M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793933	9103827	392.6396
Batas Sub DAS Hilir Kiri 2	793913	9103972	399.3403

COPERNICUS 10M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kanan 1	794325	9103924	393.4139
Batas Sub DAS Hilir Kanan 2	794123	9104132	413.1448

COPERNICUS 20M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793673	9103829	427.3004
Batas Sub DAS Hilir Kiri 2	793463	9103975	434.0212
Batas Sub DAS Hilir Kanan 1	794333	9103921	392.6258
Batas Sub DAS Hilir Kanan 2	794133	9104132	412.5243

COPERNICUS 30M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793663	9103829	429.8843
Batas Sub DAS Hilir Kiri 2	793463	9103975	433.9889
Batas Sub DAS Hilir Kanan 1	794323	9103921	391.1965
Batas Sub DAS Hilir Kanan 2	794143	9104132	410.7234

NASADEM RESOLUSI ASLI			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793668	9103829	426.5793
Batas Sub DAS Hilir Kiri 2	793432	9103975	435.2926
Batas Sub DAS Hilir Kanan 1	794338	9103921	389.3649
Batas Sub DAS Hilir Kanan 2	794143	9104132	411.5000

NASADEM 10M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793669	9103829	425.9053
Batas Sub DAS Hilir Kiri 2	793439	9103975	435.0000
Batas Sub DAS Hilir Kanan 1	794329	9103921	390.4936
Batas Sub DAS Hilir Kanan 2	794139	9104132	412.5000

NASADEM 20M			
Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793659	9103829	427.1619
Batas Sub DAS Hilir Kiri 2	793439	9103975	435.0000
Batas Sub DAS Hilir Kanan 1	794329	9103921	389.9936
Batas Sub DAS Hilir Kanan 2	794129	9104132	412.3986

NASADEM 30M			
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Titik	X	Y	Z
Batas Sub DAS Hilir Kiri 1	793669	9103829	425.8018
Batas Sub DAS Hilir Kiri 2	793449	9103975	434.7292
Batas Sub DAS Hilir Kanan 1	794329	9103921	389.4936
Batas Sub DAS Hilir Kanan 2	794135	9104132	411.5000



1.5 Uji Validasi RMSE Batas Sub-DAS Pengarengan

SRTM RESOLUSI ASLI												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793671	9103829	9103829	429	427.8935	-20.0000	0.0000	400.0000	0.0000	-1.1065	1.2243
Batas Sub DAS Hilir Kiri 2	793427	793444	9103976	9103975	437	427.2523	17.0000	-1.0000	289	1.0000	-9.7477	95.0177
Batas Sub DAS Hilir Kanan 1	794325	794340	9103921	9103921	395.0000	391.0089	15.0000	0.0000	225	0.0000	-3.9911	15.9289
Batas Sub DAS Hilir Kanan 2	794126	794135	9104132	9104132	423.0000	412.6307	9.0000	0.0000	81	0.0000	-10.3693	107.5224
RMSEX	=	15.7718103		RMSEZ	=	7.411026569						
RMSEY	=	0.5										
RMSER	=	15.77973384										

SRTM 10M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793701	9103829	9103829	429	425.6924	10.0000	0.0000	100.0000	0.0000	-3.3076	10.9405
Batas Sub DAS Hilir Kiri 2	793427	793453	9103976	9103975	437	435.9812	26.0000	-1.0000	676	1.0000	-1.0188	1.0379
Batas Sub DAS Hilir Kanan 1	794325	794341	9103921	9103921	395.0000	392.0939	16.0000	0.0000	256	0.0000	-2.9061	8.4454
Batas Sub DAS Hilir Kanan 2	794126	794131	9104132	9104132	423.0000	414.0000	5.0000	0.0000	25	0.0000	-9.0000	81.0000
RMSEX	=	16.25576821		RMSEZ	=	5.035468993						
RMSEY	=	0.5										
RMSER	=	16.26345597										

SRTM 20M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793691	9103829	9103830	429	426.4999	0.0000	1.0000	0.0000	1.0000	-2.5001	6.2504
Batas Sub DAS Hilir Kiri 2	793427	793451	9103976	9103975	437	437.2411	24.0000	-1.0000	576	1.0000	0.2411	0.0581
Batas Sub DAS Hilir Kanan 1	794325	794341	9103921	9103921	395.0000	391.5704	16.0000	0.0000	256	0.0000	-3.4296	11.7620
Batas Sub DAS Hilir Kanan 2	794126	794131	9104132	9104132	423.0000	413.7014	5.0000	0.0000	25	0.0000	-9.2986	86.4647

COPERNICUS ASLI												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793691	9103829	9103820	429	425.9123	0.0000	-9.0000	0.0000	81.0000	-3.0877	9.5340
Batas Sub DAS Hilir Kiri 2	793427	793462	9103976	9103975	437	433.9572	35.0000	-1.0000	1225	1.0000	-3.0428	9.2585
Batas Sub DAS Hilir Kanan 1	794325	794338	9103921	9103921	395.0000	392.0156	13.0000	0.0000	169	0.0000	-2.9844	8.9069
Batas Sub DAS Hilir Kanan 2	794126	794121	9104132	9104132	423.0000	413.1243	-5.0000	0.0000	25	0.0000	-9.8757	97.5303
RMSEX	=	18.8348082	RMSEZ	=	5.595301788							
RMSEY	=	4.527692569										
RMSE	=	19.37137063										

COPERNICUS 20M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793673	9103829	9103829	429	427.3004	-18.0000	0.0000	324.0000	0.0000	-1.6996	2.8886

Batas Sub DAS Hilir Kiri 2	793427	793463	9103976	9103975	437	434.0212	36.0000	-1.0000	1296	1.0000	-2.9788	8.8731
Batas Sub DAS Hilir Kanan 1	794325	794333	9103921	9103921	395.0000	392.6258	8.0000	0.0000	64	0.0000	-2.3742	5.6370
Batas Sub DAS Hilir Kanan 2	794126	794133	9104132	9104132	423.0000	412.5243	7.0000	0.0000	49	0.0000	-10.4757	109.7401
RMSEX	=	20.8146583	RMSEZ	=	5.637792278							
RMSEY	=	0.5										
RMSER	=	20.82066281										

COPERNICUS 30M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793663	9103829	9103829	429	429.8843	-28.0000	0.0000	784.0000	0.0000	0.8843	0.7821
Batas Sub DAS Hilir Kiri 2	793427	793463	9103976	9103975	437	433.9889	36.0000	-1.0000	1296	1.0000	-3.0111	9.0667
Batas Sub DAS Hilir Kanan 1	794325	794323	9103921	9103921	395.0000	391.1965	-2.0000	0.0000	4	0.0000	-3.8035	14.4663
Batas Sub DAS Hilir Kanan 2	794126	794143	9104132	9104132	423.0000	410.7234	17.0000	0.0000	289	0.0000	-12.2766	150.7153
RMSEX	=	24.35672392	RMSEZ	=	6.61495175							
RMSEY	=	0.5										
RMSER	=	24.36185543										

NASADEM ASLI												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793668	9103829	9103829	429	426.5793	-23.0000	0.0000	529.0000	0.0000	-2.4207	5.8596
Batas Sub DAS Hilir Kiri 2	793427	793432	9103976	9103975	437	435.2926	5.0000	-1.0000	25	1.0000	-1.7074	2.9152
Batas Sub DAS Hilir Kanan 1	794325	794338	9103921	9103921	395.0000	389.3649	13.0000	0.0000	169	0.0000	-5.6351	31.7548
Batas Sub DAS Hilir Kanan 2	794126	794143	9104132	9104132	423.0000	411.5000	17.0000	0.0000	289	0.0000	-11.5000	132.2500
RMSEX	=	15.90597372	RMSEZ	=	6.572282526							
RMSEY	=	0.5										
RMSER	=	15.91383046										

NASADEM ASLI												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793668	9103829	9103829	429	426.5793	-23.0000	0.0000	529.0000	0.0000	-2.4207	5.8596
Batas Sub DAS Hilir Kiri 2	793427	793432	9103976	9103975	437	435.2926	5.0000	-1.0000	25	1.0000	-1.7074	2.9152
Batas Sub DAS Hilir Kanan 1	794325	794338	9103921	9103921	395.0000	389.3649	13.0000	0.0000	169	0.0000	-5.6351	31.7548
Batas Sub DAS Hilir Kanan 2	794126	794143	9104132	9104132	423.0000	411.5000	17.0000	0.0000	289	0.0000	-11.5000	132.2500
RMSEX	=	15.90597372	RMSEZ	=	6.572282526							
RMSEY	=	0.5										
RMSEZ	=	15.91383046										

NASADEM 10M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793669	9103829	9103829	429	425.9053	-22.0000	0.0000	484.0000	0.0000	-3.0947	9.5772
Batas Sub DAS Hilir Kiri 2	793427	793439	9103976	9103975	437	435.0000	12.0000	-1.0000	144	1.0000	-2.0000	4.0000
Batas Sub DAS Hilir Kanan 1	794325	794329	9103921	9103921	395.0000	390.4936	4.0000	0.0000	16	0.0000	-4.5064	20.3080
Batas Sub DAS Hilir Kanan 2	794126	794139	9104132	9104132	423.0000	412.5000	13.0000	0.0000	169	0.0000	-10.5000	110.2501
RMSEX	=	14.25657743	RMSEZ	=	6.002816334							
RMSEY	=	0.5										
RMSEZ	=	14.26534262										

NASADEM 20M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793659	9103829	9103829	429	427.1619	-32.0000	0.0000	1024.0000	0.0000	-1.8381	3.3788
Batas Sub DAS Hilir Kiri 2	793427	793439	9103976	9103975	437	435.0000	12.0000	-1.0000	144	1.0000	-2.0000	4.0000
Batas Sub DAS Hilir Kanan 1	794325	794329	9103921	9103921	395.0000	389.9936	4.0000	0.0000	16	0.0000	-5.0064	25.0645
Batas Sub DAS Hilir Kanan 2	794126	794129	9104132	9104132	423.0000	412.3986	3.0000	0.0000	9	0.0000	-10.6014	112.3907
RMSEX	=	17.26991604	RMSEZ	=	6.017347499							
RMSEY	=	0.5										

RMSEY = 17.27715254

NASADEM 30M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
Batas Sub DAS Hilir Kiri 1	793691	793669	9103829	9103829	429.8843	425.8018	-22.0000	0.0000	484.0000	0.0000	-4.0826	16.6675
Batas Sub DAS Hilir Kiri 2	793427	793449	9103976	9103975	433.9889	434.7292	22.0000	-1.0000	484	1.0000	0.7403	0.5480
Batas Sub DAS Hilir Kanan 1	794325	794329	9103921	9103921	391.1965	389.4936	4.0000	0.0000	16	0.0000	-1.7030	2.9001
Batas Sub DAS Hilir Kanan 2	794126	794135	9104132	9104132	410.7234	411.5000	9.0000	0.0000	81	0.0000	0.7766	0.6031
RMSEX	=	16.31716887	RMSEZ	=	2.275893697							
RMSEY	=	0.5										
RMSEY	=	16.32482772										

1.6 Koordinat X,Y, dan Z Alur Sungai dari Delineasi

SRTM ASLI			
Titik	X	Y	Z
OUTLET	794355	9103721	370.4253
1	794274	9103763	374.4118
2	794195	9103832	377.8572
3	794117	9103879	382.6993
4	794057	9103977	390.0000
5	794037	9104072	394.7052
6	793969	9104151	405.0302
7	793937	9104244	404.9876
8	793853	9104308	412.7725
9	793810	9104392	423.0043
10	793752	9104451	429.9584
11	793717	9104562	429.4924
12	793748	9104655	433.9820

SRTM 10M			
Titik	X	Y	Z
OUTLET	794355	9103721	371
1	794248	9103763	375
2	794208	9103833	377.9691
3	794112	9103879	383.6326
4	794056	9103977	390.0000
5	794056	9104072	393.0000
6	793970	9104151	404.8307
7	793936	9104244	405.0000
8	793873	9104308	412.5125
9	793816	9104392	423.4009
10	793740	9104451	429.4872
11	793716	9104562	429.3852
12	793746	9104655	434.0035

SRTM 20M			
Titik	X	Y	Z
OUTLET	794355	9103721	370.6212
1	794268	9103763	374.2649
2	794201	9103832	377.5868
3	794112	9103879	382.8842
4	794054	9103977	390.2601
5	794051	9104072	393.5953
6	794004	9104151	404.1639
7	793931	9104244	404.4142
8	793863	9104308	412.8084
9	793819	9104392	423.2780

SRTM 20M			
Titik	X	Y	Z
10	793720	9104451	429.7823
11	793711	9104562	429.2938
12	793731	9104655	433.7532

SRTM 30M			
Titik	X	Y	Z
OUTLET	794336	9103725	372.0000014
1	794268	9103763	374.6567987
2	794209	9103832	377.5582239
3	794102	9103879	383.4830065
4	794064	9103977	391.2413061
5	794036	9104072	394.5668245
6	793980	9104151	404.0510443
7	793937	9104244	405.5148271
8	793873	9104308	412.3591297
9	793819	9104392	423.700012
10	793740	9104451	428.9252395
11	793736	9104562	432.465846
12	793736	9104655	434.0020609

COPERNICUS ASLI			
Titik	X	Y	Z
OUTLET	794355	9103721	365.0843
1	794271	9103763	369.8003
2	794171	9103832	375.5566
3	794124	9103879	379.7929
4	794054	9103977	386.3218
5	794045	9104072	392.7414
6	793976	9104151	402.2157
7	793924	9104244	401.7689
8	793850	9104308	409.7957
9	793797	9104392	414.7678
10	793738	9104451	424.8913
11	793704	9104562	434.2823
12	793720	9104655	434.7377

COPERNICUS 10M			
Titik	X	Y	Z
OUTLET	794348	9103719	365.1248
1	794274	9103763	369.7371
2	794185	9103832	376.1017
3	794119	9103879	379.5734
4	794058	9103977	386.8344

COPERNICUS 10M			
Titik	X	Y	Z
5	794048	9104072	392.9240
6	794009	9104150	401.5080
7	793928	9104244	400.9399
8	793838	9104309	411.0891
9	793798	9104392	417.6601
10	793736	9104451	425.0243
11	793695	9104562	434.5569
12	793718	9104655	434.6213

COPERNICUS 20M			
Titik	X	Y	Z
OUTLET	794343	9103724	365.5651557
1	794264	9103763	369.9366292
2	794175	9103832	376.2491667
3	794119	9103879	379.6777284
4	794043	9103977	386.5291896
5	794043	9104072	392.8068355
6	793987	9104151	401.8107521
7	793923	9104244	400.9989088
8	793849	9104308	410.8817852
9	793795	9104392	418.7539428
10	793736	9104451	426.0156712
11	793703	9104562	434.278455
12	793714	9104655	434.4802489

COPERNICUS 30M			
Titik	X	Y	Z
OUTLET	794338	9103709	365.4577962
1	794254	9103763	370.4034728
2	794185	9103832	376.2310087
3	794119	9103879	379.4886048
4	794050	9103977	387.6644991
5	794038	9104072	393.3439204
6	793986	9104151	401.5725518
7	793928	9104244	401.5552815
8	793859	9104308	409.1758989
9	793798	9104392	417.9054163
10	793737	9104451	426.4681387
11	793708	9104562	434.6720369
12	793708	9104655	434.0256555

NASADEM ASLI			
Titik	X	Y	Z
OUTLET	794355	9103721	368.0968703
1	794279	9103763	372.4330122
2	794200	9103832	375.1102113
3	794112	9103879	380.7295855
4	794055	9103977	389.0000014
5	794014	9104072	394.8747197
6	793983	9104151	403.9437855
7	793921	9104244	404.0150422
8	793857	9104308	411.2758134
9	793798	9104392	422.1567969
10	793756	9104451	428.0164313
11	793705	9104562	428.1397632
12	793736	9104655	433.7052536

NASADEM 10M			
Titik	X	Y	Z
OUTLET	794355	9103721	367.9995749
1	794262	9103763	372.350654
2	794203	9103832	375
3	794116	9103879	381.7829368
4	794044	9103977	389.0000003
5	794034	9104072	394.0000002
6	793964	9104151	404.9999936
7	793914	9104244	404.9999971
8	793867	9104308	410.9084786
9	793813	9104392	422.0941785
10	793764	9104451	427.9990462
11	793704	9104562	428.092257
12	793724	9104655	433.0000042

NASADEM 20M			
Titik	X	Y	Z
OUTLET	794355	9103721	368.4309023
1	794272	9103763	372.3437826
2	794203	9103832	375
3	794116	9103879	380.2879114
4	794058	9103977	389.9970092
5	794023	9104072	394.5609404
6	793964	9104151	405.434338
7	793919	9104244	404.4069468
8	793867	9104308	411.0364641
9	793803	9104392	422.2015542
10	793754	9104451	427.9295402

NASADEM 20M			
Titik	X	Y	Z
11	793699	9104562	428.5955321
12	793719	9104655	433.0000052

NASADEM 30M			
Titik	X	Y	Z
OUTLET	794355	9103721	368.2425662
1	794262	9103763	372.6350096
2	794203	9103832	375.118846
3	794126	9103879	381.0351115
4	794054	9103977	389.0000029
5	794014	9104072	394.7022271
6	793974	9104151	404.433265
7	793920	9104244	405.1258811
8	793877	9104308	410.5004569
9	793804	9104392	421.4668227
10	793744	9104451	427.8747379
11	793714	9104562	429.1142756
12	793744	9104655	434.8701221

1.7 Uji Validasi RMSE Alur Sungai Pengarengan

SRTM ASLI																		
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2						
OUTLET	794355	794355	9103721	9103721	380	370.4253	0.0000	0.0000	0.0000	0.0000	-9.5747	91.6756						
1	794259	794274	9103763	9103762.83	380	374.4118	15.0000	-0.1700	225	0.0289	-5.5882	31.2283						
2	794184	794195	9103832	9103839.79	389	377.8572	11.0000	7.7900	121	60.6841	-11.1428	124.1628						
3	794096	794117	9103879	9103878.73	402	382.6993	21.0000	-0.2700	441	0.0729	-19.3007	372.5174						
4	794078	794057	9103977	9103977.14	406	390.0000	-21.0000	0.1400	441	0.0196	-16.0000	256.0000						
5	794030	794037	9104072	9104071.96	414	394.7052	7.0000	-0.0400	49	0.0016	-19.2948	372.2892						
6	793964	793969	9104151	9104150.85	415	405.0302	5.0000	-0.1500	25	0.0225	-9.9698	99.3976						
7	793946	793937	9104244	9104244.13	409	404.9876	-9.0000	0.1300	81	0.0169	-4.0124	16.0993						
8	793869	793853	9104308	9104308.04	407	412.7725	-16.0000	0.0400	256	0.0016	5.7725	33.3216						
9	793810	793810	9104392	9104392	426	423.0043	0.0000	0.0000	0	0.0000	-2.9957	8.9745						
10	793723	793752	9104451	9104450.61	431	429.9584	29.0000	-0.3900	841	0.1521	-1.0416	1.0848						
11	793698	793717	9104562	9104561.92	435	429.4924	19.0000	-0.0800	361	0.0064	-5.5076	30.3335						
12	793734	793748	9104655	9104654.91	439	433.9820	14.0000	-0.0900	196	0.0081	-5.0180	25.1807						
RMSEX	=	15.28448182	RMSEZ		=	10.60575084												
RMSEY	=	2.166434504																
RMSEZ	=	15.43725439																

SRTM 10M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	371.0000	0.0000	0.0000	0.0000	0.0000	-9.0000	81.0000
1	794259	794248	9103763	9103763	381	375.0000	-11.0000	0.0000	121.0000	0.0000	-6.0000	36.0000
2	794184	794208	9103832	9103833	389	377.9691	24.0000	1.0000	576.0000	1.0000	-11.0309	121.6811
3	794096	794112	9103879	9103879	402	383.6326	16.0000	0.0000	256.0000	0.0000	-18.3674	337.3616

SRTM 10M												
4	794078	794056	9103977	9103977	406	390.0000	-22.0000	0.0000	484.0000	0.0000	-16.0000	255.9999
5	794030	794056	9104072	9104072	414	393.0000	26.0000	0.0000	676.0000	0.0000	-21.0000	440.9998
6	793964	793970	9104150	9104151	415	404.8307	6.0000	1.0000	36.0000	1.0000	-10.1693	103.4141
7	793946	793936	9104244	9104244	409	405.0000	-10.0000	0.0000	100.0000	0.0000	-4.0000	16.0000
8	793869	793873	9104308	9104308	407	412.5125	4.0000	0.0000	16.0000	0.0000	5.5125	30.3877
9	793810	793816	9104392	9104392	426	423.4009	6.0000	0.0000	36.0000	0.0000	-2.5991	6.7551
10	793723	793740	9104451	9104451	431	429.4872	17.0000	0.0000	289.0000	0.0000	-1.5128	2.2886
11	793698	793716	9104562	9104562	435	429.3852	18.0000	0.0000	324.0000	0.0000	-5.6148	31.5257
12	793734	793746	9104655	9104655	439	434.0035	12.0000	0.0000	144.0000	0.0000	-4.9965	24.9654
RMSEX	=	15.33723473	RMSEZ	=	10.70003278							
RMSEY	=	0.39223227										
RMSER	=	15.34224936										

SRTM 20M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	370.6212	0.0000	0.0000	0.0000	0.0000	-9.3788	87.9614
1	794259	794268	9103763	9103763	381	374.2649	9.0000	0.0000	81.0000	0.0000	-6.7351	45.3614
2	794184	794201	9103832	9103832	389	377.5868	17.0000	0.0000	289.0000	0.0000	-11.4132	130.2620
3	794096	794112	9103879	9103879	402	382.8842	16.0000	0.0000	256.0000	0.0000	-19.1158	365.4138
4	794078	794054	9103977	9103977	406	390.2601	-24.0000	0.0000	576.0000	0.0000	-15.7399	247.7430
5	794030	794051	9104072	9104072	414	393.5953	21.0000	0.0000	441.0000	0.0000	-20.4047	416.3513
6	793964	794004	9104150	9104151	415	404.1639	40.0000	1.0000	1600.0000	1.0000	-10.8361	117.4203
7	793946	793931	9104244	9104244	409	404.4142	-15.0000	0.0000	225.0000	0.0000	-4.5858	21.0292
8	793869	793863	9104308	9104308	407	412.8084	-6.0000	0.0000	36.0000	0.0000	5.8084	33.7374
9	793810	793819	9104392	9104392	426	423.2780	9.0000	0.0000	81.0000	0.0000	-2.7220	7.4091
10	793723	793720	9104451	9104451	431	429.7823	-3.0000	0.0000	9.0000	0.0000	-1.2177	1.4828
11	793698	793711	9104562	9104562	435	429.2938	13.0000	0.0000	169.0000	0.0000	-5.7062	32.5603

SRTM 30M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794336	9103721	9103725	380	372.0000	-19.0000	4.0000	361.0000	16.0000	-8.0000	64.0000
1	794259	794268	9103763	9103763	381	374.6568	9.0000	0.0000	81.0000	0.0000	-6.3432	40.2362
2	794184	794209	9103832	9103832	389	377.5582	25.0000	0.0000	625.0000	0.0000	-11.4418	130.9142
3	794096	794102	9103879	9103879	402	383.4830	6.0000	0.0000	36.0000	0.0000	-18.5170	342.8790
4	794078	794064	9103977	9103977	406	391.2413	-14.0000	0.0000	196.0000	0.0000	-14.7587	217.8190
5	794030	794036	9104072	9104072	414	394.5668	6.0000	0.0000	36.0000	0.0000	-19.4332	377.6483
6	793964	793980	9104150	9104151	415	404.0510	16.0000	1.0000	256.0000	1.0000	-10.9490	119.8796
7	793946	793937	9104244	9104244	409	405.5148	-9.0000	0.0000	81.0000	0.0000	-3.4852	12.1464
8	793869	793873	9104308	9104308	407	412.3591	4.0000	0.0000	16.0000	0.0000	5.3591	28.7203
9	793810	793819	9104392	9104392	426	423.7000	9.0000	0.0000	81.0000	0.0000	-2.3000	5.2899
10	793723	793740	9104451	9104451	431	428.9252	17.0000	0.0000	289.0000	0.0000	-2.0748	4.3046
11	793698	793736	9104562	9104562	435	432.4658	38.0000	0.0000	1444.0000	0.0000	-2.5342	6.4219
12	793734	793736	9104655	9104655	439	434.0021	2.0000	0.0000	4.0000	0.0000	-4.9979	24.9794
RMSEX	=	16.42231128	RMSEZ	=	10.2853109							
RMSEY	=	1.14354375										
RMSER	=	16.46207763										

COPERNICUS ASLI												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	365.0843	0.0000	0.0000	0.0000	0.0000	-14.9157	222.4779
1	794259	794271	9103763	9103763	380	369.8003	12.0000	0.0000	144.0000	0.0000	-10.1997	104.0349
2	794184	794171	9103832	9103832	389	375.5566	-13.0000	0.0000	169.0000	0.0000	-13.4434	180.7243
3	794096	794124	9103879	9103879	402	379.7929	28.0000	0.0000	784.0000	0.0000	-22.2071	493.1536
4	794078	794054	9103977	9103977	406	386.3218	-24.0000	0.0000	576.0000	0.0000	-19.6782	387.2333
5	794030	794045	9104072	9104072	414	392.7414	15.0000	0.0000	225.0000	0.0000	-21.2586	451.9300
6	793964	793976	9104150	9104151	415	402.2157	12.0000	1.0000	144.0000	1.0000	-12.7843	163.4385
7	793946	793924	9104244	9104244	409	401.7689	-22.0000	0.0000	484.0000	0.0000	-7.2311	52.2895
8	793869	793850	9104308	9104308	407	409.7957	-19.0000	0.0000	361.0000	0.0000	2.7957	7.8159
9	793810	793797	9104392	9104392	426	414.7678	-13.0000	0.0000	169.0000	0.0000	-11.2322	126.1628
10	793723	793738	9104451	9104451	431	424.8913	15.0000	0.0000	225.0000	0.0000	-6.1087	37.3159
11	793698	793704	9104562	9104562	435	434.2823	6.0000	0.0000	36.0000	0.0000	-0.7177	0.5151
12	793734	793720	9104655	9104655	439	434.7377	-14.0000	0.0000	196.0000	0.0000	-4.2623	18.1674
RMSEX	=	16.43869731			RMSEZ	=	13.14200258					
RMSEY	=	0.277350098										
RMSER	=	16.44103684										

COPERNICUS 10M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794348	9103721	9103719	380	365.1248	-7.0000	-2.0000	49.0000	4.0000	-14.8752	221.2711
1	794259	794274	9103763	9103763	380	369.7371	15.0000	0.0000	225.0000	0.0000	-10.2629	105.3274
2	794184	794185	9103832	9103832	389	376.1017	1.0000	0.0000	1.0000	0.0000	-12.8983	166.3661
3	794096	794119	9103879	9103879	402	379.5734	23.0000	0.0000	529.0000	0.0000	-22.4266	502.9526
4	794078	794058	9103977	9103977	406	386.8344	-20.0000	0.0000	400.0000	0.0000	-19.1656	367.3204
5	794030	794048	9104072	9104072	414	392.9240	18.0000	0.0000	324.0000	0.0000	-21.0760	444.1987
6	793964	794009	9104150	9104150	415	401.5080	45.0000	0.0000	2025.0000	0.0000	-13.4920	182.0337

COPERNICUS 20M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794343	9103721	9103724	380	365.5652	-12.0000	3.0000	144.0000	9.0000	-14.4348	208.3647
1	794259	794264	9103763	9103763	380	369.9366	5.0000	0.0000	25.0000	0.0000	-10.0634	101.2714
2	794184	794175	9103832	9103832	389	376.2492	-9.0000	0.0000	81.0000	0.0000	-12.7508	162.5837
3	794096	794119	9103879	9103879	402	379.6777	23.0000	0.0000	529.0000	0.0000	-22.3223	498.2838
4	794078	794043	9103977	9103977	406	386.5292	-35.0000	0.0000	1225.0000	0.0000	-19.4708	379.1125
5	794030	794043	9104072	9104072	414	392.8068	13.0000	0.0000	169.0000	0.0000	-21.1932	449.1502
6	793964	793987	9104150	9104151	415	401.8108	23.0000	1.0000	529.0000	1.0000	-13.1892	173.9563
7	793946	793923	9104244	9104244	409	400.9989	-23.0000	0.0000	529.0000	0.0000	-8.0011	64.0175
8	793869	793849	9104308	9104308	407	410.8818	-20.0000	0.0000	400.0000	0.0000	3.8818	15.0683
9	793810	793795	9104392	9104392	426	418.7539	-15.0000	0.0000	225.0000	0.0000	-7.2461	52.5053
10	793723	793736	9104451	9104451	431	426.0157	13.0000	0.0000	169.0000	0.0000	-4.9843	24.8435
11	793698	793703	9104562	9104562	435	434.2785	5.0000	0.0000	25.0000	0.0000	-0.7215	0.5206
12	793734	793714	9104655	9104655	439	434.4802	-20.0000	0.0000	400.0000	0.0000	-4.5198	20.4281
RMSEX	=	18.50155919	RMSEZ	=	12.86051211							
RMSEY	=	0.877058019										

COPERNICUS 20M		
RMSE	=	18.52233579

COPERNICUS 30M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794338	9103721	9103709	380	365.4578	-17.0000	-12.0000	289.0000	144.0000	-14.5422	211.4757
1	794259	794254	9103763	9103763	380	370.4035	-5.0000	0.0000	25.0000	0.0000	-9.5965	92.0933
2	794184	794185	9103832	9103832	389	376.2310	1.0000	0.0000	1.0000	0.0000	-12.7690	163.0471
3	794096	794119	9103879	9103879	402	379.4886	23.0000	0.0000	529.0000	0.0000	-22.5114	506.7629
4	794078	794050	9103977	9103977	406	387.6645	-28.0000	0.0000	784.0000	0.0000	-18.3355	336.1906
5	794030	794038	9104072	9104072	414	393.3439	8.0000	0.0000	64.0000	0.0000	-20.6561	426.6736
6	793964	793986	9104150	9104151	415	401.5726	22.0000	1.0000	484.0000	1.0000	-13.4274	180.2964
7	793946	793928	9104244	9104244	409	401.5553	-18.0000	0.0000	324.0000	0.0000	-7.4447	55.4238
8	793869	793859	9104308	9104308	407	409.1759	-10.0000	0.0000	100.0000	0.0000	2.1759	4.7345
9	793810	793798	9104392	9104392	426	417.9054	-12.0000	0.0000	144.0000	0.0000	-8.0946	65.5223
10	793723	793737	9104451	9104451	431	426.4681	14.0000	0.0000	196.0000	0.0000	-4.5319	20.5378
11	793698	793708	9104562	9104562	435	434.6720	10.0000	0.0000	100.0000	0.0000	-0.3280	0.1076
12	793734	793708	9104655	9104655	439	434.0257	-26.0000	0.0000	676.0000	0.0000	-4.9743	24.7441
RMSEX	=	16.90698536	RMSEZ		=	12.67222811						
RMSEY	=	3.339737438										
RMSE	=	17.23368794										

NASADEM ASLI												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	368.0969	0.0000	0.0000	0.0000	0.0000	-11.9031	141.6845
1	794259	794279	9103763	9103763	380	372.4330	20.0000	0.0000	400.0000	0.0000	-7.5670	57.2593
2	794184	794200	9103832	9103832	389	375.1102	16.0000	0.0000	256.0000	0.0000	-13.8898	192.9262

NASADEM ASLI												
3	794096	794112	9103879	9103879	402	380.7296	16.0000	0.0000	256.0000	0.0000	-21.2704	452.4305
4	794078	794055	9103977	9103977	406	389.0000	-23.0000	0.0000	529.0000	0.0000	-17.0000	289.0000
5	794030	794014	9104072	9104072	414	394.8747	-16.0000	0.0000	256.0000	0.0000	-19.1253	365.7763
6	793964	793983	9104150	9104151	415	403.9438	19.0000	1.0000	361.0000	1.0000	-11.0562	122.2399
7	793946	793921	9104244	9104244	409	404.0150	-25.0000	0.0000	625.0000	0.0000	-4.9850	24.8498
8	793869	793857	9104308	9104308	407	411.2758	-12.0000	0.0000	144.0000	0.0000	4.2758	18.2826
9	793810	793798	9104392	9104392	426	422.1568	-12.0000	0.0000	144.0000	0.0000	-3.8432	14.7702
10	793723	793756	9104451	9104451	431	428.0164	33.0000	0.0000	1089.0000	0.0000	-2.9836	8.9017
11	793698	793705	9104562	9104562	435	428.1398	7.0000	0.0000	49.0000	0.0000	-6.8602	47.0628
12	793734	793736	9104655	9104655	439	433.7053	2.0000	0.0000	4.0000	0.0000	-5.2947	28.0343
RMSEX = 17.7872037 RMSEZ = 11.64612253 RMSEY = 0.277350098 RMSER = 17.78936588												

NASADEM 10M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	367.9996	0.0000	0.0000	0.0000	0.0000	-12.0004	144.0102
1	794259	794262	9103763	9103763	380	372.3507	3.0000	0.0000	9.0000	0.0000	-7.6493	58.5125
2	794184	794203	9103832	9103832	389	375.0000	19.0000	0.0000	361.0000	0.0000	-14.0000	196.0000
3	794096	794116	9103879	9103879	402	381.7829	20.0000	0.0000	400.0000	0.0000	-20.2171	408.7296
4	794078	794044	9103977	9103977	406	389.0000	-34.0000	0.0000	1156.0000	0.0000	-17.0000	288.9999
5	794030	794034	9104072	9104072	414	394.0000	4.0000	0.0000	16.0000	0.0000	-20.0000	400.0000
6	793964	793964	9104150	9104151	415	405.0000	0.0000	1.0000	0.0000	1.0000	-10.0000	100.0001
7	793946	793914	9104244	9104244	409	405.0000	-32.0000	0.0000	1024.0000	0.0000	-4.0000	16.0000
8	793869	793867	9104308	9104308	407	410.9085	-2.0000	0.0000	4.0000	0.0000	3.9085	15.2762
9	793810	793813	9104392	9104392	426	422.0942	3.0000	0.0000	9.0000	0.0000	-3.9058	15.2554
10	793723	793764	9104451	9104451	431	427.9990	41.0000	0.0000	1681.0000	0.0000	-3.0010	9.0057

NASADEM 10M												
11	793698	793704	9104562	9104562	435	428.0923	6.0000	0.0000	36.0000	0.0000	-6.9077	47.7169
12	793734	793724	9104655	9104655	439	433.0000	-10.0000	0.0000	100.0000	0.0000	-6.0000	35.9999
RMSEX	=	19.20737038	RMSEZ		=	11.55424204						
RMSEY	=	0.277350098										
RMSER	=	19.20937271										

NASADEM 20M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	368.4309	0.0000	0.0000	0.0000	0.0000	-11.5691	133.8440
1	794259	794272	9103763	9103763	380	372.3438	13.0000	0.0000	169.0000	0.0000	-7.6562	58.6177
2	794184	794203	9103832	9103832	389	375.0000	19.0000	0.0000	361.0000	0.0000	-14.0000	196.0000
3	794096	794116	9103879	9103879	402	380.2879	20.0000	0.0000	400.0000	0.0000	-21.7121	471.4148
4	794078	794058	9103977	9103977	406	389.9970	-20.0000	0.0000	400.0000	0.0000	-16.0030	256.0957
5	794030	794023	9104072	9104072	414	394.5609	-7.0000	0.0000	49.0000	0.0000	-19.4391	377.8770
6	793964	793964	9104150	9104151	415	405.4343	0.0000	1.0000	0.0000	1.0000	-9.5657	91.5019
7	793946	793919	9104244	9104244	409	404.4069	-27.0000	0.0000	729.0000	0.0000	-4.5931	21.0961
8	793869	793867	9104308	9104308	407	411.0365	-2.0000	0.0000	4.0000	0.0000	4.0365	16.2930
9	793810	793803	9104392	9104392	426	422.2016	-7.0000	0.0000	49.0000	0.0000	-3.7984	14.4282
10	793723	793754	9104451	9104451	431	427.9295	31.0000	0.0000	961.0000	0.0000	-3.0705	9.4277
11	793698	793699	9104562	9104562	435	428.5955	1.0000	0.0000	1.0000	0.0000	-6.4045	41.0172
12	793734	793719	9104655	9104655	439	433.0000	-15.0000	0.0000	225.0000	0.0000	-6.0000	35.9999
RMSEX	=	16.04800491	RMSEZ	=	11.51458393							
RMSEY	=	0.277350098										
RMSER	=	16.05040138										

NASADEM 30M												
No. Titik	X (GPS)	X (WMS)	Y (GPS)	Y (WMS)	Z (GPS)	Z (WMS)	ΔX	ΔY	ΔX^2	ΔY^2	ΔZ	ΔZ^2
OUTLET	794355	794355	9103721	9103721	380	368.2426	0.0000	0.0000	0.0000	0.0000	-11.7574	138.2373
1	794259	794262	9103763	9103763	380	372.6350	3.0000	0.0000	9.0000	0.0000	-7.3650	54.2431
2	794184	794203	9103832	9103832	389	375.1188	19.0000	0.0000	361.0000	0.0000	-13.8812	192.6864
3	794096	794126	9103879	9103879	402	381.0351	30.0000	0.0000	900.0000	0.0000	-20.9649	439.5266
4	794078	794054	9103977	9103977	406	389.0000	-24.0000	0.0000	576.0000	0.0000	-17.0000	288.9999
5	794030	794014	9104072	9104072	414	394.7022	-16.0000	0.0000	256.0000	0.0000	-19.2978	372.4040
6	793964	793974	9104150	9104151	415	404.4333	10.0000	1.0000	100.0000	1.0000	-10.5667	111.6559
7	793946	793920	9104244	9104244	409	405.1259	-26.0000	0.0000	676.0000	0.0000	-3.8741	15.0088
8	793869	793877	9104308	9104308	407	410.5005	8.0000	0.0000	64.0000	0.0000	3.5005	12.2532
9	793810	793804	9104392	9104392	426	421.4668	-6.0000	0.0000	36.0000	0.0000	-4.5332	20.5497
10	793723	793744	9104451	9104451	431	427.8747	21.0000	0.0000	441.0000	0.0000	-3.1253	9.7673
11	793698	793714	9104562	9104562	435	429.1143	16.0000	0.0000	256.0000	0.0000	-5.8857	34.6418
12	793734	793744	9104655	9104655	439	434.8701	10.0000	0.0000	100.0000	0.0000	-4.1299	17.0559
RMSEX	=	17.04067532	RMSEZ = 11.45905672									
RMSEY	=	0.277350098										
RMSEZ	=	17.04293221										

1.8 Parameter Fisik Sub-DAS Pengarengan

1. SRTM

PARAMETER FISIK DAS SRTM						
SRTM Resolusi Asli						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.770	km ²	Hulu	2366
2	Beda elevasi hulu dan hilir	ΔH	1995.580	m	Hilir	370.42
3	Panjang alur sungai utama	L	18.123	km		
4	kemiringan sungai utama	S	0.110	m/m		
SRTM Resolusi 10 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.670	km ²	Hulu	2340
2	Beda elevasi hulu dan hilir	ΔH	1969.360	m/m	Hilir	371
3	Panjang alur sungai utama	L	18.387	km		
4	kemiringan sungai utama	S	0.107	m/m		
Resolusi 20 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.860	km ²	Hulu	2343
2	Beda elevasi hulu dan hilir	ΔH	1972.380	m	Hilir	370.62
3	Panjang alur sungai utama	L	18.241	km		
4	kemiringan sungai utama	S	0.109	m/m		
SRTM Resolusi 30 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.750	km ²	Hulu	2325
2	Beda elevasi hulu dan hilir	ΔH	1953.000	m	Hilir	372
3	Panjang alur sungai utama	L	17.931	km		
4	kemiringan sungai utama	S	0.109	m/m		

2. COPERNICUS

PARAMETER FISIK DAS COPERNICUS						
Resolusi Asli						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	47.010	km ²	Hulu	2304
2	Beda elevasi hulu dan hilir	ΔH	1938.920	m	Hilir	365.08
3	Panjang alur sungai utama	L	18.017	km		
4	kemiringan sungai utama	S	0.109	m/m		
Resolusi 10 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.640	km ²	Hulu	2289.54
2	Beda elevasi hulu dan hilir	ΔH	1924.420	m	Hilir	365.12
3	Panjang alur sungai utama	L	18.362	km		
4	kemiringan sungai utama	S	0.107	m/m		
Resolusi 20 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.960	km ²	Hulu	2299.63
2	Beda elevasi hulu dan hilir	ΔH	1934.070	m	Hilir	365.56
3	Panjang alur sungai utama	L	18.119	km		
4	kemiringan sungai utama	S	0.108	m/m		
Resolusi 30 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	47.040	km ²	Hulu	2289.54
2	Beda elevasi hulu dan hilir	ΔH	1924.090	m	Hilir	365.45
3	Panjang alur sungai utama	L	18.002	km		
4	kemiringan sungai utama	S	0.110	m/m		

3. NASADEM

PARAMETER FISIK DAS NASADEM						
Resolusi Asli						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.850	km ²	Hulu	2326
2	Beda elevasi hulu dan hilir	ΔH	1957.910	m	Hilir	368.09
3	Panjang alur sungai utama	L	17.861	km		
4	kemiringan sungai utama	S	0.110	m/m		
Resolusi 10 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.850	km ²	Hulu	2320
2	Beda elevasi hulu dan hilir	ΔH	1952.010	m	Hilir	367.99
3	Panjang alur sungai utama	L	18.450	km		
4	kemiringan sungai utama	S	0.107	m/m		
NASADEM Resolusi 20 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.900	km ²	Hulu	2323
2	Beda elevasi hulu dan hilir	ΔH	1954.570	m	Hilir	368.43
3	Panjang alur sungai utama	L	18.252	km		
4	kemiringan sungai utama	S	0.109	m/m		
Resolusi 30 meter						
NO	KETERANGAN	NOTASI		SATUAN		
1	Luas	A	46.930	km ²	Hulu	2315
2	Beda elevasi hulu dan hilir	ΔH	1946.760	m	Hilir	368.24
3	Panjang alur sungai utama	L	18.012	km		
4	kemiringan sungai utama	S	0.109	m/m		

1.9 Simulasi HSS Nakayasu

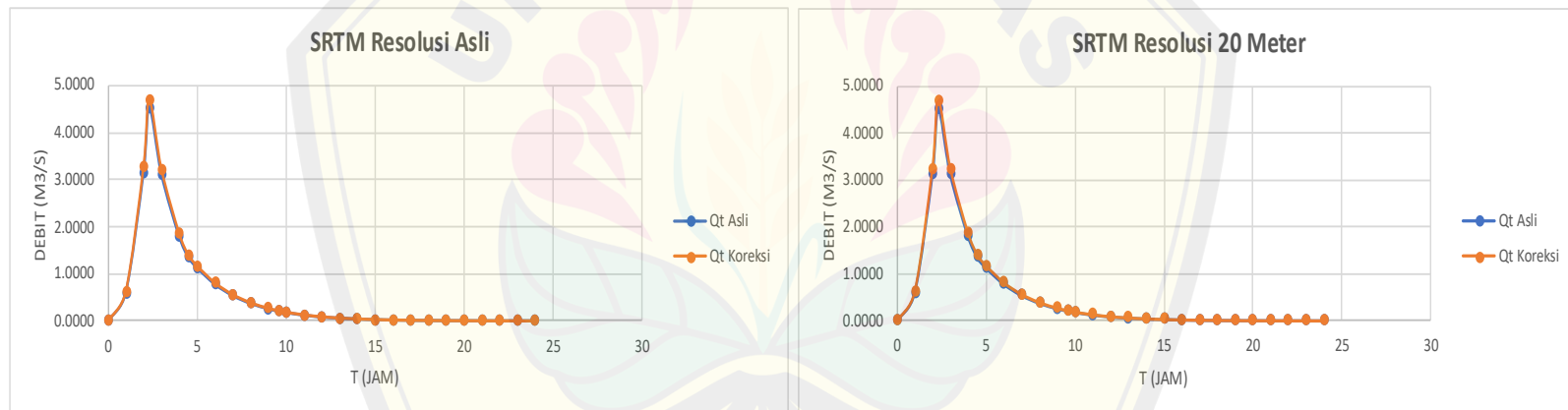
1. SRTM

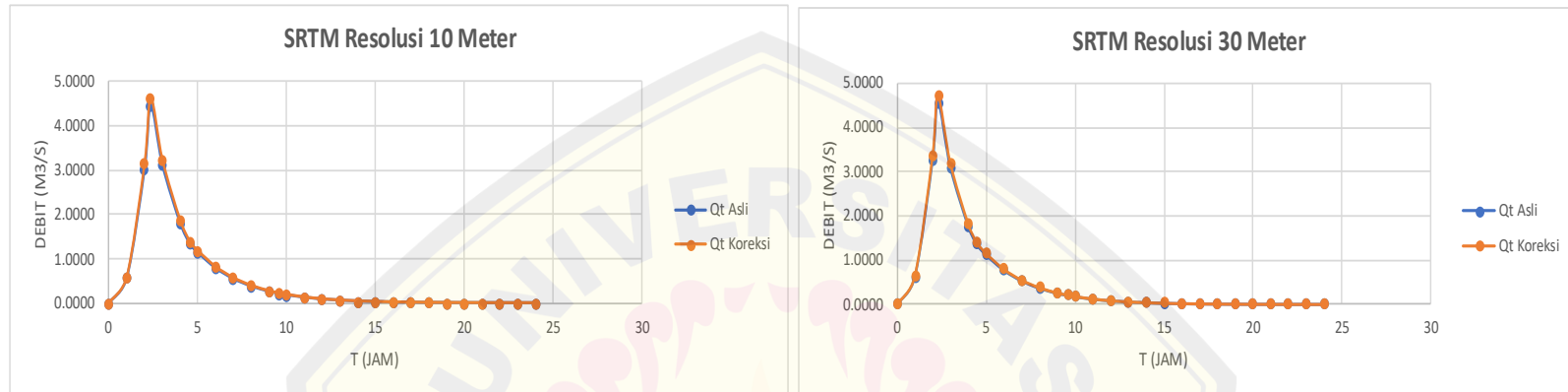
RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
A	46.7700	km2	A	46.6700	km2	A	46.8600	km2	A	46.7500	km2
L	18.1230	km	L	18.3870	km	L	18.2410	km	L	17.9310	km
Ro	1.0000	mm	Ro	1.0000	mm	Ro	1.0000	mm	Ro	1.0000	mm
Tg	1.4511	Jam	Tg	1.4664	Jam	Tg	1.4580	Jam	Tg	1.4400	Jam
α	1.5000		α	1.5000		α	1.5000		α	1.5000	
Tr	1.0884	Jam	Tr	1.0998	Jam	Tr	1.0935	Jam	Tr	1.0800	Jam
Tp	2.3218	Jam	Tp	2.3463	Jam	Tp	2.3328	Jam	Tp	2.3040	Jam
T _{0,3}	2.1767	Jam	T _{0,3}	2.1997	Jam	T _{0,3}	2.1870	Jam	T _{0,3}	2.1600	Jam
T _{0,3} *0,5	1.0884	Jam	T _{0,3} *0,5	1.0998	Jam	T _{0,3} *0,5	1.0935	Jam	T _{0,3} *0,5	1.0800	Jam
T _{0,3} *1,5	3.2651	Jam	T _{0,3} *1,5	3.2995	Jam	T _{0,3} *1,5	3.2805	Jam	T _{0,3} *1,5	3.2400	Jam
T _{0,3} *2	4.3534	Jam	T _{0,3} *2	4.3993	Jam	T _{0,3} *2	4.3739	Jam	T _{0,3} *2	4.3200	Jam
T _{0,3} *2,5	5.4418	Jam	T _{0,3} *2,5	5.4992	Jam	T _{0,3} *2,5	5.4674	Jam	T _{0,3} *2,5	5.4000	Jam
(Tp+T _{0,3})	4.4985	Jam	(Tp+T _{0,3})	4.5460	Jam	(Tp+T _{0,3})	4.5197	Jam	(Tp+T _{0,3})	4.4640	Jam
(Tp+T _{0,3} +T _{0,3} *1,5)	7.7636	Jam	(Tp+T _{0,3} +T _{0,3} *1,5)	7.8455	Jam	(Tp+T _{0,3} +T _{0,3} *1,5)	7.8002	Jam	(Tp+T _{0,3} +T _{0,3} *1,5)	7.7040	Jam
Qp	4.5216	m ³ /s	Qp	4.4648	m ³ /s	Qp	4.5090	m ³ /s	Qp	4.5546	m ³ /s
(Tp+T _{0,3})	4.4985	jam	(Tp+T _{0,3})	4.5460	jam	(Tp+T _{0,3})	4.5197	jam	(Tp+T _{0,3})	4.4640	jam

RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)
0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000
1	0.5988	0.6206	1	0.5766	0.5998	1	0.5905	0.6130	1	0.6145	0.6348
2	3.1607	3.2754	2	3.0433	3.1659	2	3.1165	3.2353	2	3.2432	3.3507

RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ / s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ / s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ / s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ / s)
2.3218	4.5216	4.6858	2.3463	4.4648	4.6446	2.3328	4.5090	4.6810	2.3040	4.5546	4.7056
3	3.1073	3.2201	3	3.1219	3.2476	3	3.1229	3.2419	3	3.0901	3.1925
4	1.7872	1.8520	4	1.8060	1.8787	4	1.8008	1.8695	4	1.7697	1.8283
4.4985	1.3565	1.4057	4.5460	1.3394	1.3934	4.5197	1.3527	1.4043	4.4640	1.3664	1.4117
5	1.1275	1.1684	5	1.1349	1.1807	5	1.1341	1.1773	5	1.1196	1.1567
6	0.7798	0.8081	6	0.7880	0.8197	6	0.7857	0.8157	6	0.7721	0.7977
7	0.5393	0.5589	7	0.5471	0.5691	7	0.5443	0.5651	7	0.5325	0.5501
8	0.3730	0.3865	8	0.3798	0.3951	8	0.3771	0.3915	8	0.3672	0.3794
9	0.2579	0.2673	9	0.2637	0.2743	9	0.2613	0.2712	9	0.2532	0.2616
9.5775	0.2085	0.2160	9.5775	0.2136	0.2222	9.5775	0.2114	0.2194	9.5775	0.2043	0.2111
10	0.1784	0.1849	10	0.1831	0.1904	10	0.1810	0.1879	10	0.1746	0.1804
11	0.1234	0.1279	11	0.1271	0.1322	11	0.1254	0.1302	11	0.1204	0.1244
12	0.0853	0.0884	12	0.0882	0.0918	12	0.0869	0.0902	12	0.0831	0.0858
13	0.0590	0.0612	13	0.0613	0.0637	13	0.0602	0.0625	13	0.0573	0.0592
14	0.0408	0.0423	14	0.0425	0.0442	14	0.0417	0.0433	14	0.0395	0.0408
15	0.0282	0.0293	15	0.0295	0.0307	15	0.0289	0.0300	15	0.0272	0.0281
16	0.0195	0.0202	16	0.0205	0.0213	16	0.0200	0.0208	16	0.0188	0.0194
17	0.0135	0.0140	17	0.0142	0.0148	17	0.0139	0.0144	17	0.0130	0.0134
18	0.0093	0.0097	18	0.0099	0.0103	18	0.0096	0.0100	18	0.0089	0.0092
19	0.0065	0.0067	19	0.0069	0.0071	19	0.0067	0.0069	19	0.0062	0.0064
20	0.0045	0.0046	20	0.0048	0.0050	20	0.0046	0.0048	20	0.0042	0.0044
21	0.0031	0.0032	21	0.0033	0.0034	21	0.0032	0.0033	21	0.0029	0.0030
22	0.0021	0.0022	22	0.0023	0.0024	22	0.0022	0.0023	22	0.0020	0.0021
23	0.0015	0.0015	23	0.0016	0.0017	23	0.0015	0.0016	23	0.0014	0.0014
24	0.0010	0.0011	24	0.0011	0.0012	24	0.0011	0.0011	24	0.0010	0.0010

RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)
Jumlah Qt (m ³ /s)	12.5365	12.9917	Jumlah Qt (m ³ /s)	12.4620	12.9639	Jumlah Qt (m ³ /s)	12.5386	13.0167	Jumlah Qt (m ³ /s)	12.5694	12.9861
VLL(m ³)	45131.56	46770	VLL(m ³)	44863.3063	46670	VLL(m ³)	45138.9360	46860.0000	VLL(m ³)	45249.80	46750.00
TLL(mm)	0.9650	1.00	TLL(mm)	0.9613	1.00	TLL(mm)	0.9633	1.00	TLL(mm)	0.9679	1.00
Faktor Koreksi (1/TLL)	1.0363		Faktor Koreksi (1/TLL)	1.0403		Faktor Koreksi (1/TLL)	1.0381		Faktor Koreksi (1/TLL)	1.0332	





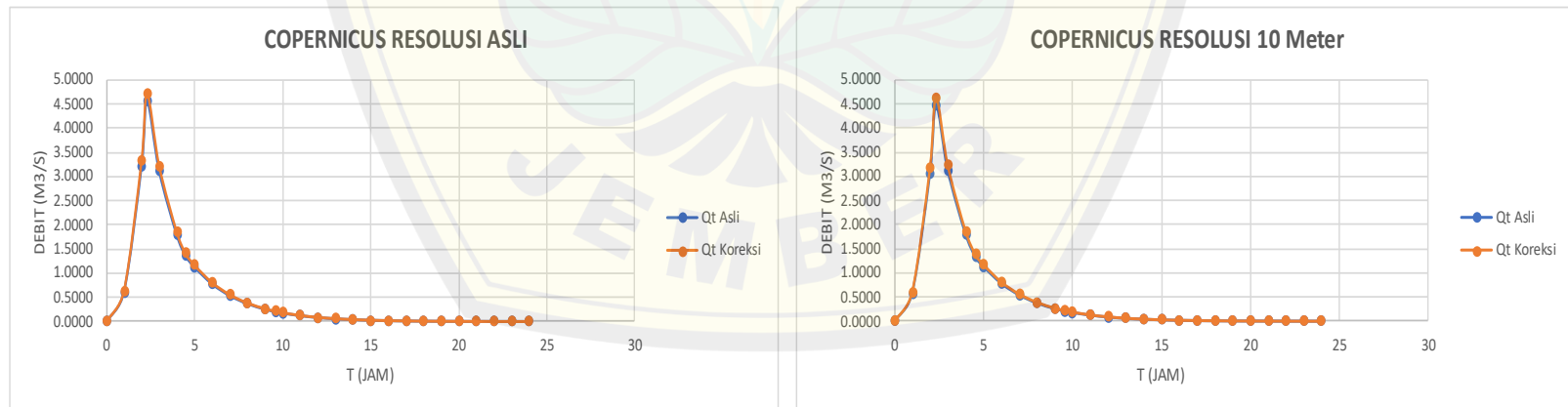
2. COPERNICUS

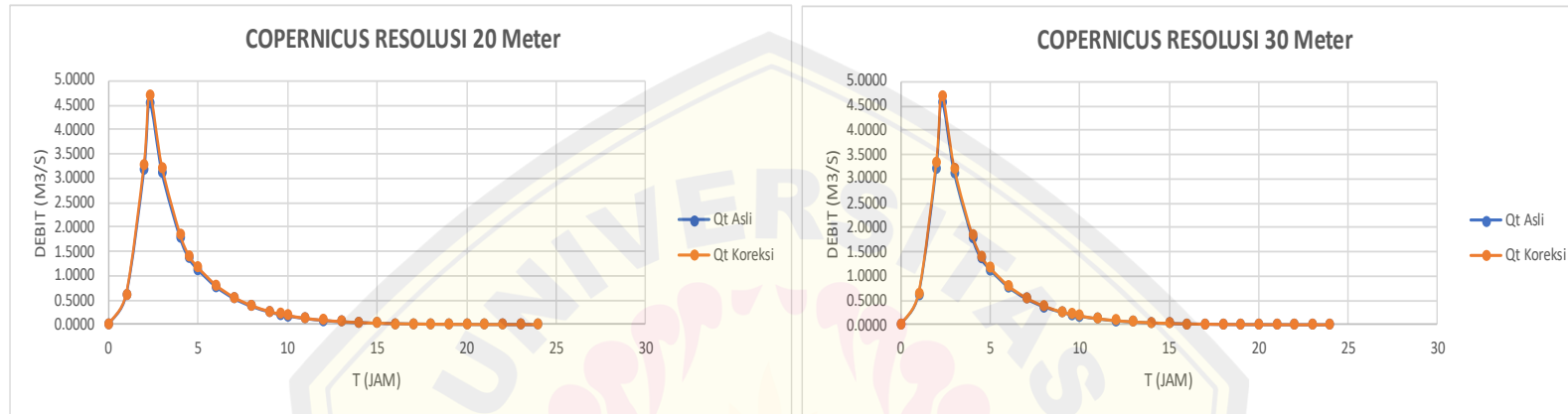
RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
A	47.0100	km2	A	46.6400	km2	A	46.9600	km2	A	47.0400	km2
L	18.0170	km	L	18.3620	km	L	18.1190	km	L	18.0020	km
Ro	1.0000	mm	Ro	1.0000	mm	Ro	1.0000	mm	Ro	1.0000	mm
Tg	1.4450	Jam	Tg	1.4650	Jam	Tg	1.4509	Jam	Tg	1.4441	Jam
α	1.5000		α	1.5000		α	1.5000		α	1.5000	
Tr	1.0837	Jam	Tr	1.0987	Jam	Tr	1.0882	Jam	Tr	1.0831	Jam
Tp	2.3120	Jam	Tp	2.3440	Jam	Tp	2.3214	Jam	Tp	2.3106	Jam
T _{0,3}	2.1675	Jam	T _{0,3}	2.1975	Jam	T _{0,3}	2.1764	Jam	T _{0,3}	2.1662	Jam
T _{0,3} *0,5	1.0837	Jam	T _{0,3} *0,5	1.0987	Jam	T _{0,3} *0,5	1.0882	Jam	T _{0,3} *0,5	1.0831	Jam
T _{0,3} *1,5	3.2512	Jam	T _{0,3} *1,5	3.2962	Jam	T _{0,3} *1,5	3.2645	Jam	T _{0,3} *1,5	3.2493	Jam
T _{0,3} *2	4.3350	Jam	T _{0,3} *2	4.3950	Jam	T _{0,3} *2	4.3527	Jam	T _{0,3} *2	4.3323	Jam
T _{0,3} *2,5	5.4187	Jam	T _{0,3} *2,5	5.4937	Jam	T _{0,3} *2,5	5.4409	Jam	T _{0,3} *2,5	5.4154	Jam

(Tp+T _{0,3})	4.4795	Jam	(Tp+T _{0,3})	4.5415	Jam	(Tp+T _{0,3})	4.4978	Jam	(Tp+T _{0,3})	4.4768	Jam
(Tp+T _{0,3} +T _{0,3} *1,5)	7.7307	Jam	(Tp+T _{0,3} +T _{0,3} *1,5)	7.8377	Jam	(Tp+T _{0,3} +T _{0,3} *1,5)	7.7623	Jam	(Tp+T _{0,3} +T _{0,3} *1,5)	7.7260	Jam
Qp	4.5641	m ³ /s	Qp	4.4664	m ³ /s	Qp	4.5407	m ³ /s	Qp	4.5698	m ³ /s
(Tp+T _{0,3})	4.4795	jam	(Tp+T _{0,3})	4.5415	jam	(Tp+T _{0,3})	4.4978	jam	(Tp+T _{0,3})	4.4768	jam

RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)
0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000
1	0.6107	0.6318	1	0.5782	0.6013	1	0.6016	0.6234	1	0.6123	0.6333
2	3.2231	3.3346	2	3.0516	3.1734	2	3.1752	3.2903	2	3.2317	3.3427
2.3120	4.5641	4.7220	2.3440	4.4664	4.6446	2.3214	4.5407	4.7053	2.3106	4.5698	4.7268
3	3.1145	3.2222	3	3.1179	3.2423	3	3.1196	3.2326	3	3.1152	3.2222
4	1.7871	1.8489	4	1.8027	1.8746	4	1.7941	1.8591	4	1.7869	1.8483
4.4795	1.3692	1.4166	4.5415	1.3399	1.3934	4.4978	1.3622	1.4116	4.4768	1.3709	1.4180
5	1.1292	1.1682	5	1.1333	1.1785	5	1.1319	1.1729	5	1.1293	1.1681
6	0.7797	0.8067	6	0.7865	0.8179	6	0.7828	0.8111	6	0.7796	0.8064
7	0.5384	0.5570	7	0.5459	0.5677	7	0.5413	0.5610	7	0.5382	0.5567
8	0.3718	0.3846	8	0.3788	0.3940	8	0.3744	0.3879	8	0.3716	0.3843
9	0.2567	0.2656	9	0.2629	0.2734	9	0.2589	0.2683	9	0.2565	0.2653
9.5775	0.2073	0.2145	9.5775	0.2129	0.2214	9.5775	0.2092	0.2168	9.5775	0.2071	0.2142
10	0.1773	0.1834	10	0.1825	0.1898	10	0.1790	0.1855	10	0.1771	0.1832
11	0.1224	0.1266	11	0.1266	0.1317	11	0.1238	0.1283	11	0.1223	0.1265
12	0.0845	0.0874	12	0.0879	0.0914	12	0.0856	0.0887	12	0.0844	0.0873
13	0.0584	0.0604	13	0.0610	0.0634	13	0.0592	0.0614	13	0.0583	0.0603
14	0.0403	0.0417	14	0.0423	0.0440	14	0.0410	0.0424	14	0.0402	0.0416
15	0.0278	0.0288	15	0.0294	0.0306	15	0.0283	0.0293	15	0.0278	0.0287
16	0.0192	0.0199	16	0.0204	0.0212	16	0.0196	0.0203	16	0.0192	0.0198

RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)
17	0.0133	0.0137	17	0.0142	0.0147	17	0.0135	0.0140	17	0.0132	0.0137
18	0.0092	0.0095	18	0.0098	0.0102	18	0.0094	0.0097	18	0.0091	0.0095
19	0.0063	0.0065	19	0.0068	0.0071	19	0.0065	0.0067	19	0.0063	0.0065
20	0.0044	0.0045	20	0.0047	0.0049	20	0.0045	0.0046	20	0.0044	0.0045
21	0.0030	0.0031	21	0.0033	0.0034	21	0.0031	0.0032	21	0.0030	0.0031
22	0.0021	0.0022	22	0.0023	0.0024	22	0.0021	0.0022	22	0.0021	0.0021
23	0.0014	0.0015	23	0.0016	0.0016	23	0.0015	0.0015	23	0.0014	0.0015
24	0.0010	0.0010	24	0.0011	0.0011	24	0.0010	0.0011	24	0.0010	0.0010
Jumlah Qt (m ³ /s)	12.6217	13.0583	Jumlah Qt (m ³ /s)	12.4583	12.9556	Jumlah Qt (m ³ /s)	12.5882	13.0444	Jumlah Qt (m ³ /s)	12.6328	13.0667
VLL(m ³)	45438.1671	47010.0000	VLL(m ³)	44849.9061	46640.00	VLL(m ³)	45317.6695	46960.0000	VLL(m ³)	45478.0521	47040.0000
TLL(mm)	0.9666	1.00	TLL(mm)	0.9616	1.00	TLL(mm)	0.9650	1.00	TLL(mm)	0.9668	1.00
Faktor Koreksi (1/TLL)	1.0346		Faktor Koreksi (1/TLL)	1.0399		Faktor Koreksi (1/TLL)	1.0362		Faktor Koreksi (1/TLL)	1.0343	





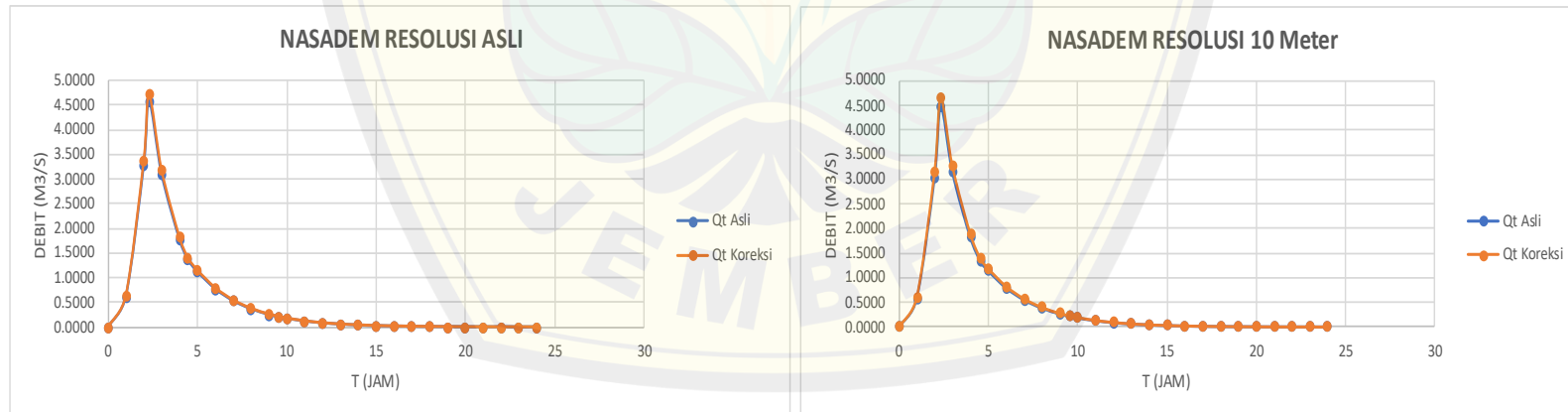
3. NASADEM

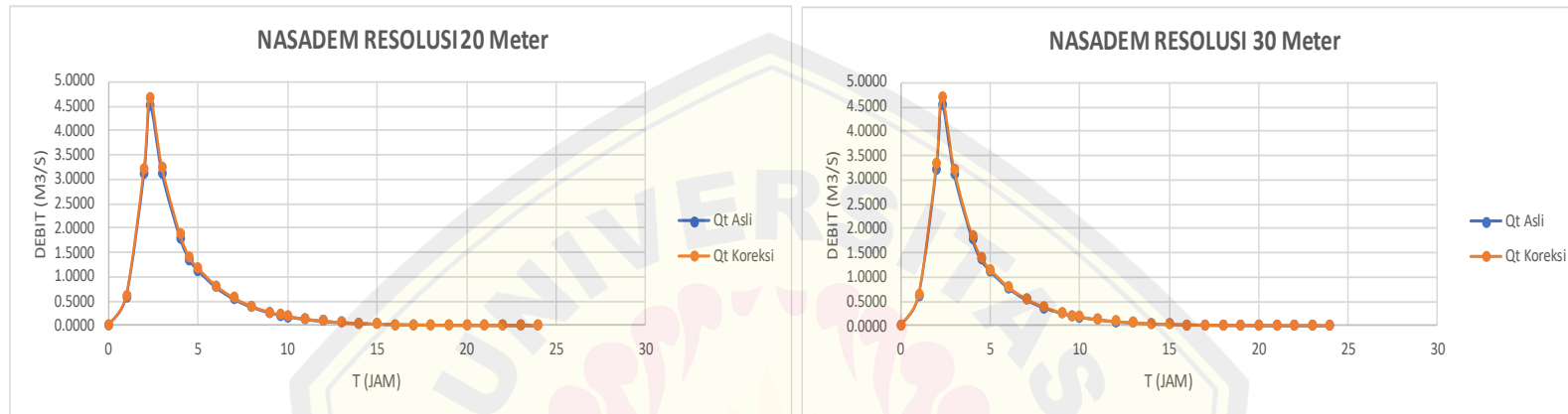
RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
A	46.8500	km2	A	46.8500	km2	A	46.9000	km2	A	46.9300	km2
L	17.8610	km	L	18.4500	km	L	18.2520	km	L	18.0120	km
Ro	1.0000	mm	Ro	1.0000	mm	Ro	1.0000	mm	Ro	1.0000	mm
Tg	1.4359	Jam	Tg	1.4701	Jam	Tg	1.4586	Jam	Tg	1.4447	Jam
α	1.5000		α	1.5000		α	1.5000		α	1.5000	
Tr	1.0770	Jam	Tr	1.1026	Jam	Tr	1.0940	Jam	Tr	1.0835	Jam
Tp	2.2975	Jam	Tp	2.3522	Jam	Tp	2.3338	Jam	Tp	2.3115	Jam
T _{0,3}	2.1539	Jam	T _{0,3}	2.2052	Jam	T _{0,3}	2.1879	Jam	T _{0,3}	2.1670	Jam
T _{0,3} *0,5	1.0770	Jam	T _{0,3} *0,5	1.1026	Jam	T _{0,3} *0,5	1.0940	Jam	T _{0,3} *0,5	1.0835	Jam
T _{0,3} *1,5	3.2309	Jam	T _{0,3} *1,5	3.3077	Jam	T _{0,3} *1,5	3.2819	Jam	T _{0,3} *1,5	3.2506	Jam
T _{0,3} *2	4.3078	Jam	T _{0,3} *2	4.4103	Jam	T _{0,3} *2	4.3758	Jam	T _{0,3} *2	4.3341	Jam
T _{0,3} *2,5	5.3848	Jam	T _{0,3} *2,5	5.5129	Jam	T _{0,3} *2,5	5.4698	Jam	T _{0,3} *2,5	5.4176	Jam
(Tp+T _{0,3})	4.4514	Jam	(Tp+T _{0,3})	4.5573	Jam	(Tp+T _{0,3})	4.5217	Jam	(Tp+T _{0,3})	4.4786	Jam

(Tp+T0,3+T0,3*1,5)	7.6823	Jam	(Tp+T0,3+T0,3*1,5)	7.8650	Jam	(Tp+T0,3+T0,3*1,5)	7.8036	Jam	(Tp+T0,3+T0,3*1,5)	7.7291	Jam
Qp	4.5773	m ³ /s	Qp	4.4709	m ³ /s	Qp	4.5109	m ³ /s	Qp	4.5573	m ³ /s
(Tp+T0,3)	4.4514	jam	(Tp+T0,3)	4.5573	jam	(Tp+T0,3)	4.5217	jam	(Tp+T0,3)	4.4786	jam

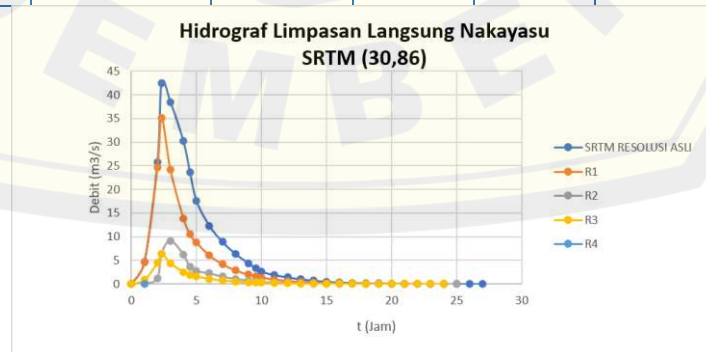
RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)
0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000
1	0.6217	0.6416	1	0.5740	0.5976	1	0.5901	0.6127	1	0.6100	0.6311
2	3.2814	3.3863	2	3.0293	3.1540	2	3.1145	3.2338	2	3.2198	3.3309
2.2975	4.5773	4.7235	2.3522	4.4709	4.6549	2.3338	4.5109	4.6837	2.3115	4.5573	4.7146
3	3.0908	3.1895	3	3.1389	3.2681	3	3.1264	3.2462	3	3.1087	3.2160
4	1.7673	1.8238	4	1.8183	1.8931	4	1.8033	1.8723	4	1.7836	1.8452
4.4514	1.3732	1.4171	4.5573	1.3413	1.3965	4.5217	1.3533	1.4051	4.4786	1.3672	1.4144
5	1.1193	1.1551	5	1.1417	1.1886	5	1.1355	1.1790	5	1.1271	1.1660
6	0.7711	0.7957	6	0.7933	0.8260	6	0.7868	0.8169	6	0.7782	0.8051
7	0.5312	0.5482	7	0.5513	0.5740	7	0.5452	0.5661	7	0.5373	0.5559
8	0.3660	0.3776	8	0.3831	0.3989	8	0.3778	0.3922	8	0.3710	0.3838
9	0.2521	0.2602	9	0.2662	0.2772	9	0.2618	0.2718	9	0.2562	0.2650
9.5775	0.2033	0.2098	9.5775	0.2157	0.2246	9.5775	0.2118	0.2199	9.5775	0.2068	0.2140
10	0.1737	0.1792	10	0.1850	0.1926	10	0.1814	0.1883	10	0.1769	0.1830
11	0.1196	0.1235	11	0.1285	0.1338	11	0.1257	0.1305	11	0.1221	0.1263
12	0.0824	0.0851	12	0.0893	0.0930	12	0.0871	0.0904	12	0.0843	0.0872
13	0.0568	0.0586	13	0.0621	0.0646	13	0.0603	0.0627	13	0.0582	0.0602
14	0.0391	0.0404	14	0.0431	0.0449	14	0.0418	0.0434	14	0.0402	0.0416
15	0.0269	0.0278	15	0.0300	0.0312	15	0.0290	0.0301	15	0.0278	0.0287
16	0.0186	0.0192	16	0.0208	0.0217	16	0.0201	0.0208	16	0.0192	0.0198
17	0.0128	0.0132	17	0.0145	0.0151	17	0.0139	0.0144	17	0.0132	0.0137

RESOLUSI ASLI			RESOLUSI 10M			RESOLUSI 20M			RESOLUSI 30M		
T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)	T (Jam)	Qt (m ³ /s)	Qt Koreksi(m ³ /s)
18	0.0088	0.0091	18	0.0101	0.0105	18	0.0096	0.0100	18	0.0091	0.0095
19	0.0061	0.0063	19	0.0070	0.0073	19	0.0067	0.0069	19	0.0063	0.0065
20	0.0042	0.0043	20	0.0049	0.0051	20	0.0046	0.0048	20	0.0044	0.0045
21	0.0029	0.0030	21	0.0034	0.0035	21	0.0032	0.0033	21	0.0030	0.0031
22	0.0020	0.0020	22	0.0023	0.0024	22	0.0022	0.0023	22	0.0021	0.0021
23	0.0014	0.0014	23	0.0016	0.0017	23	0.0015	0.0016	23	0.0014	0.0015
24	0.0009	0.0010	24	0.0011	0.0012	24	0.0011	0.0011	24	0.0010	0.0010
Jumlah Qt (m ³ /s)	12.6110	13.0139	Jumlah Qt (m ³ /s)	12.4994	13.0139	Jumlah Qt (m ³ /s)	12.5473	13.0278	Jumlah Qt (m ³ /s)	12.6012	13.0361
VLL(m ³)	45399.5715	46850.00	VLL(m ³)	44997.9777	46850.00	VLL(m ³)	45170.2515	46900.00	VLL(m ³)	45364.4555	46930.00
TLL(mm)	0.9690	1.00	TLL(mm)	0.9605	1.00	TLL(mm)	0.9631	1.00	TLL(mm)	0.9666	1.00
Faktor Koreksi (1/TLL)	1.0319		Faktor Koreksi (1/TLL)	1.0412		Faktor Koreksi (1/TLL)	1.0383		Faktor Koreksi (1/TLL)	1.0345	

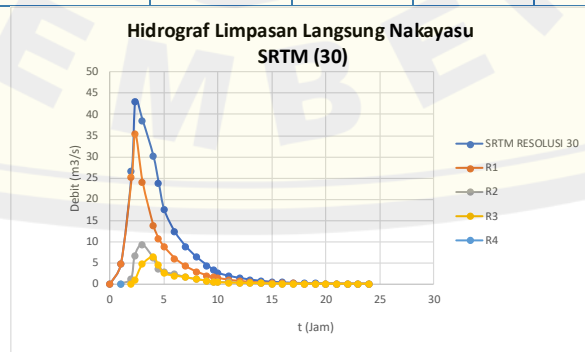




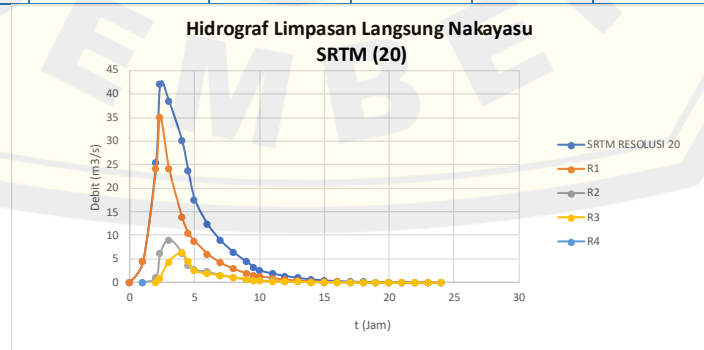
Hidrograf Limpasan Nakayasu						
SRTM RESOLUSI ASLI						
t	Q	Hujan Jam-jam an				Q
		R ₁	R ₂	R ₃	R ₄	
(jam)	m ³ /dt/mm	7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,5988	4,6590	0,0000			4,6590
2	3,1607	24,5901	1,2110	0,0000		25,8011
2,321814	4,5216	35,1783	6,3915	0,8495	0,0000	42,4192
3	3,1073	24,1748	9,1436	4,4835	0,6763	38,4781
4	1,7872	13,9042	6,2835	6,4140	3,5693	30,1711
4,498515	1,3565	10,5535	3,6140	4,4078	5,1062	23,6814
5	1,1275	8,7717	2,7431	2,5351	3,5090	17,5590
6	0,7798	6,0665	2,2800	1,9242	2,0182	12,2889
7	0,5393	4,1956	1,5768	1,5993	1,5319	8,9036
8	0,3730	2,9017	1,0905	1,1061	1,2732	6,3716
9	0,2579	2,0068	0,7542	0,7650	0,8806	4,4066
9,5775	0,2085	1,6219	0,5216	0,5291	0,6090	3,2816
10	0,1784	1,3879	0,4216	0,3659	0,4212	2,5966
11	0,1234	0,9599	0,3608	0,2957	0,2913	1,9077
12	0,0853	0,6639	0,2495	0,2531	0,2354	1,4018
13	0,0590	0,4591	0,1726	0,1750	0,2015	1,0082
14	0,0408	0,3175	0,1193	0,1210	0,1393	0,6972
15	0,0282	0,2196	0,0825	0,0837	0,0964	0,4822
16	0,0195	0,1519	0,0571	0,0579	0,0666	0,3335
17	0,0135	0,1050	0,0395	0,0400	0,0461	0,2306
18	0,0093	0,0726	0,0273	0,0277	0,0319	0,1595
19	0,0065	0,0502	0,0189	0,0192	0,0220	0,1103
20	0,0045	0,0347	0,0131	0,0132	0,0152	0,0763
21	0,0031	0,0240	0,0090	0,0092	0,0105	0,0528
22	0,0021	0,0166	0,0062	0,0063	0,0073	0,0365
23	0,0015	0,0115	0,0043	0,0044	0,0050	0,0252
24	0,0010	0,0079	0,0030	0,0030	0,0035	0,0175
25	0,0007		0,0021	0,0021	0,0024	0,0066
26	0,0005			0,0007	0,0017	0,0024
27	0,0003				0,0004	0,0004



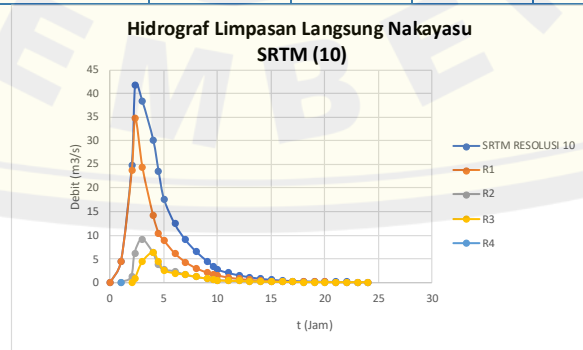
Hidrograf Limpasan Nakayasu						
SRTM RESOLUSI 30						
t	Q	Hujan Jam-jam an				Q
(jam)	m ³ /dt/mm	R ₁	R ₂	R ₃	R ₄	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,6145	4,7805	0,0000			4,7805
2	3,2432	25,2319	1,2426	0,0000		26,4744
2,303997	4,5546	35,4351	6,5583	0,8716	0,0000	42,8651
3	3,0901	24,0409	9,2103	4,6005	0,6939	38,5456
4	1,7697	13,7682	6,2487	6,4608	3,6624	30,1402
4,463994	1,3664	10,6305	3,5786	4,3833	5,1435	23,7360
5	1,1196	8,7107	2,7631	2,5103	3,4896	17,4737
6	0,7721	6,0072	2,2641	1,9383	1,9985	12,2080
7	0,5325	4,1427	1,5614	1,5882	1,5430	8,8354
8	0,3672	2,8570	1,0768	1,0953	1,2644	6,2934
9	0,2532	1,9703	0,7426	0,7553	0,8720	4,3401
9,5775	0,2043	1,5897	0,5121	0,5209	0,6013	3,2241
10	0,1746	1,3588	0,4132	0,3592	0,4147	2,5459
11	0,1204	0,9370	0,3532	0,2899	0,2860	1,8660
12	0,0831	0,6462	0,2436	0,2477	0,2308	1,3683
13	0,0573	0,4456	0,1680	0,1708	0,1972	0,9817
14	0,0395	0,3073	0,1158	0,1178	0,1360	0,6770
15	0,0272	0,2119	0,0799	0,0813	0,0938	0,4669
16	0,0188	0,1462	0,0551	0,0560	0,0647	0,3220
17	0,0130	0,1008	0,0380	0,0386	0,0446	0,2220
18	0,0089	0,0695	0,0262	0,0267	0,0308	0,1531
19	0,0062	0,0479	0,0181	0,0184	0,0212	0,1056
20	0,0042	0,0331	0,0125	0,0127	0,0146	0,0728
21	0,0029	0,0228	0,0086	0,0087	0,0101	0,0502
22	0,0020	0,0157	0,0059	0,0060	0,0070	0,0346
23	0,0014	0,0108	0,0041	0,0042	0,0048	0,0239
24	0,0010	0,0075	0,0028	0,0029	0,0033	0,0165
25	0,0007		0,0019	0,0020	0,0023	0,0062
26	0,0005			0,0006	0,0016	0,0022
27	0,0003				0,0004	0,0004



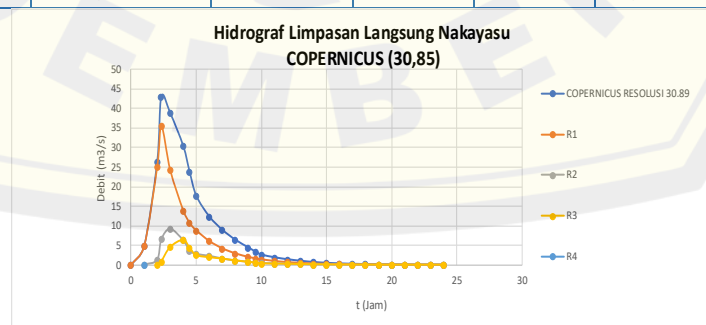
Hidrograf Limpasan Nakayasu						
SRTM RESOLUSI 20						
t	Q	Hujan Jam-jam an				Q
		R ₁	R ₂	R ₃	R ₄	
(jam)	m ³ /dt/mm	7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,5905	4,5938	0,0000			4,5938
2	3,1165	24,2464	1,1940	0,0000		25,4404
2,332765	4,5090	35,0805	6,3022	0,8376	0,0000	42,2202
3	3,1229	24,2962	9,1182	4,4208	0,6668	38,5019
4	1,8008	14,0103	6,3151	6,3962	3,5194	30,2410
4,519732	1,3527	10,5241	3,6416	4,4299	5,0920	23,6876
5	1,1341	8,8234	2,7354	2,5545	3,5266	17,6400
6	0,7857	6,1128	2,2934	1,9189	2,0336	12,3587
7	0,5443	4,2350	1,5889	1,6088	1,5276	8,9602
8	0,3771	2,9340	1,1008	1,1145	1,2807	6,4300
9	0,2613	2,0327	0,7626	0,7722	0,8873	4,4547
9,5775	0,2114	1,6444	0,5283	0,5350	0,6147	3,3224
10	0,1810	1,4082	0,4274	0,3706	0,4259	2,6321
11	0,1254	0,9756	0,3660	0,2998	0,2950	1,9365
12	0,0869	0,6759	0,2536	0,2568	0,2387	1,4249
13	0,0602	0,4683	0,1757	0,1779	0,2044	1,0262
14	0,0417	0,3244	0,1217	0,1232	0,1416	0,7110
15	0,0289	0,2248	0,0843	0,0854	0,0981	0,4926
16	0,0200	0,1557	0,0584	0,0592	0,0680	0,3413
17	0,0139	0,1079	0,0405	0,0410	0,0471	0,2364
18	0,0096	0,0747	0,0280	0,0284	0,0326	0,1638
19	0,0067	0,0518	0,0194	0,0197	0,0226	0,1135
20	0,0046	0,0359	0,0135	0,0136	0,0157	0,0786
21	0,0032	0,0249	0,0093	0,0094	0,0108	0,0545
22	0,0022	0,0172	0,0065	0,0065	0,0075	0,0377
23	0,0015	0,0119	0,0045	0,0045	0,0052	0,0261
24	0,0011	0,0083	0,0031	0,0031	0,0036	0,0181
25	0,0007		0,0021	0,0022	0,0025	0,0068
26	0,0005			0,0007	0,0017	0,0025
27	0,0004				0,0004	0,0004



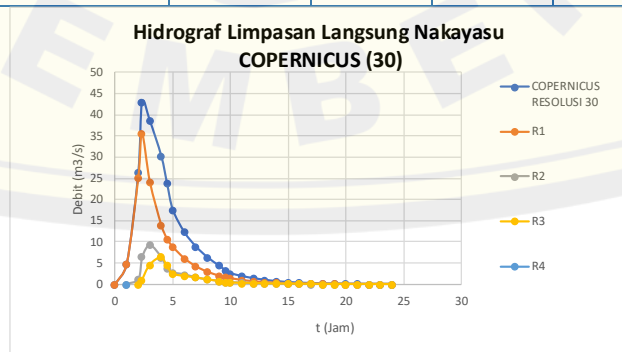
Hidrograf Limpasan Nakayasu						
SRTM RESOLUSI 10m						
t	Q	Hujan Jam-jam an				Q
		R ₁	R ₂	R ₃	R ₄	
(jam)	m ³ /dt/mm	7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,5766	4,4860	0,0000			4,4860
2	3,0433	23,6773	1,1660	0,0000		24,8433
2,346314	4,4648	34,7365	6,1542	0,8179	0,0000	41,7087
3	3,1219	24,2884	9,0287	4,3170	0,6512	38,2854
4	1,8060	14,0505	6,3131	6,3335	3,4368	30,1338
4,545983	1,3394	10,4210	3,6520	4,4285	5,0421	23,5435
5	1,1349	8,8300	2,7086	2,5618	3,5255	17,6259
6	0,7880	6,1304	2,2951	1,9000	2,0395	12,3649
7	0,5471	4,2561	1,5934	1,6100	1,5126	8,9721
8	0,3798	2,9549	1,1063	1,1177	1,2817	6,4606
9	0,2637	2,0515	0,7680	0,7760	0,8898	4,4854
9,5775	0,2136	1,6617	0,5332	0,5388	0,6178	3,3515
10	0,1831	1,4243	0,4319	0,3740	0,4289	2,6592
11	0,1271	0,9888	0,3702	0,3030	0,2978	1,9598
12	0,0882	0,6865	0,2570	0,2597	0,2412	1,4444
13	0,0613	0,4766	0,1784	0,1803	0,2067	1,0421
14	0,0425	0,3309	0,1239	0,1252	0,1435	0,7235
15	0,0295	0,2297	0,0860	0,0869	0,0996	0,5023
16	0,0205	0,1595	0,0597	0,0603	0,0692	0,3487
17	0,0142	0,1107	0,0415	0,0419	0,0480	0,2421
18	0,0099	0,0769	0,0288	0,0291	0,0333	0,1681
19	0,0069	0,0534	0,0200	0,0202	0,0232	0,1167
20	0,0048	0,0371	0,0139	0,0140	0,0161	0,0810
21	0,0033	0,0257	0,0096	0,0097	0,0112	0,0563
22	0,0023	0,0179	0,0067	0,0068	0,0077	0,0391
23	0,0016	0,0124	0,0046	0,0047	0,0054	0,0271
24	0,0011	0,0086	0,0032	0,0033	0,0037	0,0188
25	0,0008		0,0022	0,0023	0,0026	0,0071
26	0,0005			0,0008	0,0018	0,0026
27	0,0004				0,0004	0,0004



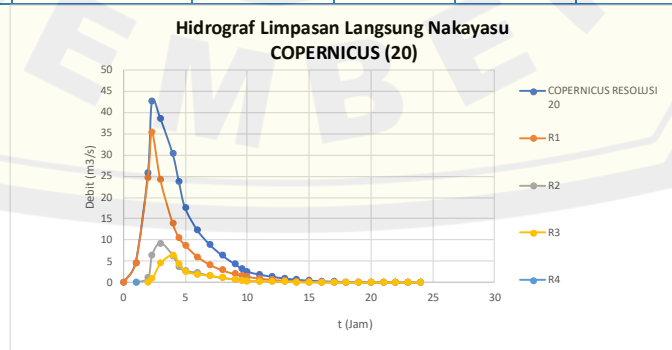
Hidrograf Limpasan Nakayasu						
COPERNICUS RESOLUSI ASLI						
t	Q	Hujan Jam-jam an				Q
		R ₁	R ₂	R ₃	R ₄	
(jam)	m ³ /dt/mm	7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0,0000				0
1	0,6107	4,7509	0,0000			4,7509
2	3,2231	25,0757	1,2349	0,0000		26,3105
2,311978	4,5641	35,5092	6,5177	0,8662	0,0000	42,8931
3	3,1145	24,2306	9,2296	4,5720	0,6896	38,7218
4	1,7871	13,9035	6,2980	6,4743	3,6398	30,3157
4,479457	1,3692	10,6528	3,6138	4,4179	5,1542	23,8387
5	1,1292	8,7851	2,7689	2,5350	3,5171	17,6061
6	0,7797	6,0662	2,2834	1,9423	2,0181	12,3101
7	0,5384	4,1888	1,5767	1,6018	1,5463	8,9136
8	0,3718	2,8925	1,0888	1,1061	1,2752	6,3625
9	0,2567	1,9973	0,7518	0,7637	0,8805	4,3934
9,5775	0,2073	1,6128	0,5191	0,5274	0,6080	3,2673
10	0,1773	1,3792	0,4192	0,3642	0,4198	2,5824
11	0,1224	0,9523	0,3585	0,2941	0,2899	1,8948
12	0,0845	0,6576	0,2475	0,2515	0,2341	1,3907
13	0,0584	0,4541	0,1709	0,1736	0,2002	0,9988
14	0,0403	0,3136	0,1180	0,1199	0,1382	0,6897
15	0,0278	0,2165	0,0815	0,0828	0,0955	0,4763
16	0,0192	0,1495	0,0563	0,0572	0,0659	0,3289
17	0,0133	0,1032	0,0389	0,0395	0,0455	0,2271
18	0,0092	0,0713	0,0268	0,0273	0,0314	0,1568
19	0,0063	0,0492	0,0185	0,0188	0,0217	0,1083
20	0,0044	0,0340	0,0128	0,0130	0,0150	0,0748
21	0,0030	0,0235	0,0088	0,0090	0,0103	0,0516
22	0,0021	0,0162	0,0061	0,0062	0,0071	0,0357
23	0,0014	0,0112	0,0042	0,0043	0,0049	0,0246
24	0,0010	0,0077	0,0029	0,0030	0,0034	0,0170
25	0,0007		0,0020	0,0020	0,0024	0,0064
26	0,0005			0,0007	0,0016	0,0023
27	0,0003				0,0004	0,0004



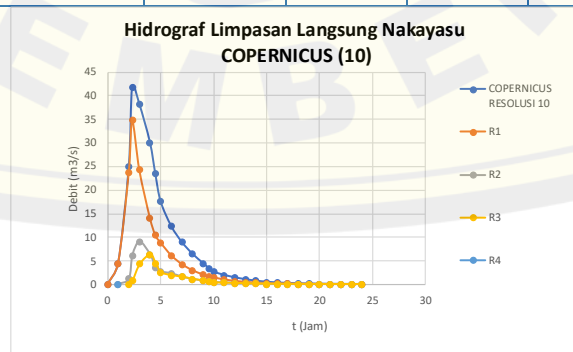
Hidrograf Limpasan Nakayasu						
COPERNICUS 30M						
t	Q	Hujan Jam-jam an				Q
(jam)	m ³ /dt/mm	R ₁	R ₂	R ₃	R ₄	
		7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,6123	4,7637	0,0000			4,7637
2	3,2317	25,1431	1,2382	0,0000		26,3813
2,310586	4,5698	35,5533	6,5352	0,8686	0,0000	42,9571
3	3,1152	24,2363	9,2410	4,5843	0,6915	38,7531
4	1,7869	13,9022	6,2995	6,4824	3,6496	30,3336
4,47676	1,3709	10,6660	3,6135	4,4190	5,1606	23,8590
5	1,1293	8,7862	2,7723	2,5348	3,5179	17,6112
6	0,7796	6,0657	2,2837	1,9447	2,0179	12,3120
7	0,5382	4,1875	1,5766	1,6020	1,5482	8,9142
8	0,3716	2,8909	1,0884	1,1059	1,2753	6,3606
9	0,2565	1,9958	0,7514	0,7635	0,8804	4,3911
9,5775	0,2071	1,6113	0,5187	0,5271	0,6078	3,2650
10	0,1771	1,3778	0,4188	0,3639	0,4196	2,5801
11	0,1223	0,9512	0,3581	0,2938	0,2897	1,8928
12	0,0844	0,6567	0,2472	0,2512	0,2339	1,3890
13	0,0583	0,4533	0,1707	0,1734	0,2000	0,9974
14	0,0402	0,3130	0,1178	0,1197	0,1381	0,6886
15	0,0278	0,2161	0,0813	0,0827	0,0953	0,4754
16	0,0192	0,1492	0,0562	0,0571	0,0658	0,3282
17	0,0132	0,1030	0,0388	0,0394	0,0454	0,2266
18	0,0091	0,0711	0,0268	0,0272	0,0314	0,1564
19	0,0063	0,0491	0,0185	0,0188	0,0217	0,1080
20	0,0044	0,0339	0,0128	0,0130	0,0149	0,0745
21	0,0030	0,0234	0,0088	0,0089	0,0103	0,0515
22	0,0021	0,0161	0,0061	0,0062	0,0071	0,0355
23	0,0014	0,0111	0,0042	0,0043	0,0049	0,0245
24	0,0010	0,0077	0,0029	0,0029	0,0034	0,0169
25	0,0007		0,0020	0,0020	0,0023	0,0064
26	0,0005			0,0007	0,0016	0,0023
27	0,0003				0,0004	0,0004



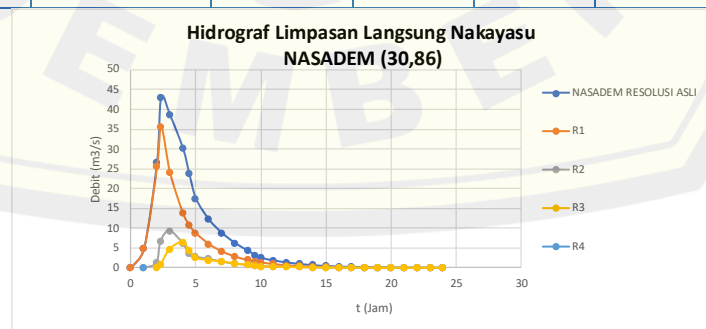
Hidrograf Limpasan Nakayasu						
COPERNICUS 20M						
t	Q	Hujan Jam-jam an				Q
		R ₁	R ₂	R ₃	R ₄	
(jam)	m ³ /dt/mm	7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0,0000				0
1	0,6016	4,6804	0,0000			4,6804
2	3,1752	24,7034	1,2165	0,0000		25,9200
2,321443	4,5407	35,3268	6,4209	0,8534	0,0000	42,6011
3	3,1196	24,2705	9,1822	4,5041	0,6794	38,6362
4	1,7941	13,9580	6,3084	6,4411	3,5857	30,2932
4,497796	1,3622	10,5980	3,6280	4,4252	5,1277	23,7790
5	1,1319	8,8062	2,7547	2,5449	3,5229	17,6287
6	0,7828	6,0900	2,2889	1,9323	2,0260	12,3373
7	0,5413	4,2116	1,5829	1,6056	1,5383	8,9385
8	0,3744	2,9126	1,0947	1,1104	1,2782	6,3959
9	0,2589	2,0142	0,7570	0,7679	0,8840	4,4231
9,5775	0,2092	1,6278	0,5235	0,5310	0,6113	3,2937
10	0,1790	1,3930	0,4231	0,3673	0,4228	2,6061
11	0,1238	0,9633	0,3621	0,2968	0,2924	1,9145
12	0,0856	0,6662	0,2504	0,2540	0,2363	1,4068
13	0,0592	0,4607	0,1732	0,1756	0,2022	1,0117
14	0,0410	0,3186	0,1197	0,1215	0,1398	0,6997
15	0,0283	0,2203	0,0828	0,0840	0,0967	0,4839
16	0,0196	0,1524	0,0573	0,0581	0,0669	0,3346
17	0,0135	0,1054	0,0396	0,0402	0,0462	0,2314
18	0,0094	0,0729	0,0274	0,0278	0,0320	0,1600
19	0,0065	0,0504	0,0189	0,0192	0,0221	0,1107
20	0,0045	0,0349	0,0131	0,0133	0,0153	0,0765
21	0,0031	0,0241	0,0091	0,0092	0,0106	0,0529
22	0,0021	0,0167	0,0063	0,0064	0,0073	0,0366
23	0,0015	0,0115	0,0043	0,0044	0,0051	0,0253
24	0,0010	0,0080	0,0030	0,0030	0,0035	0,0175
25	0,0007		0,0021	0,0021	0,0024	0,0066
26	0,0005			0,0007	0,0017	0,0024
27	0,0003				0,0004	0,0004



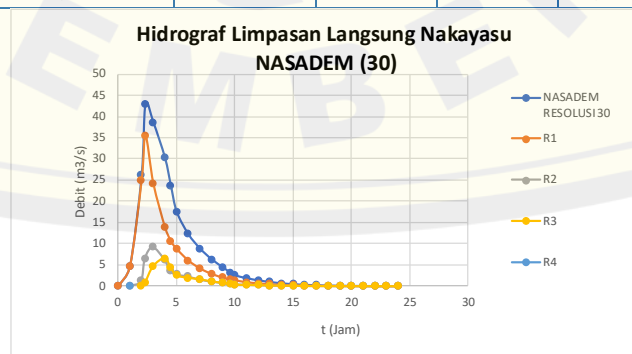
Hidrograf Limpasan Nakayasu						
COPERNICUS 10M						
t	Q	Hujan Jam-jam an				Q
(jam)	m ³ /dt/mm	R ₁	R ₂	R ₃	R ₄	
		7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,5782	4,4982	0,0000			4,4982
2	3,0516	23,7418	1,1692	0,0000		24,9110
2,343994	4,4664	34,7485	6,1710	0,8202	0,0000	41,7397
3	3,1179	24,2574	9,0319	4,3288	0,6529	38,2710
4	1,8027	14,0249	6,3050	6,3356	3,4462	30,1118
4,541488	1,3399	10,4246	3,6454	4,4228	5,0438	23,5366
5	1,1333	8,8171	2,7096	2,5571	3,5210	17,6048
6	0,7865	6,1192	2,2917	1,9007	2,0357	12,3474
7	0,5459	4,2469	1,5905	1,6076	1,5131	8,9581
8	0,3788	2,9474	1,1038	1,1157	1,2798	6,4468
9	0,2629	2,0455	0,7661	0,7743	0,8882	4,4742
9,5775	0,2129	1,6565	0,5317	0,5374	0,6164	3,3420
10	0,1825	1,4196	0,4306	0,3730	0,4278	2,6510
11	0,1266	0,9853	0,3690	0,3020	0,2969	1,9532
12	0,0879	0,6838	0,2561	0,2588	0,2404	1,4392
13	0,0610	0,4746	0,1777	0,1796	0,2061	1,0380
14	0,0423	0,3294	0,1233	0,1247	0,1430	0,7204
15	0,0294	0,2286	0,0856	0,0865	0,0993	0,5000
16	0,0204	0,1586	0,0594	0,0601	0,0689	0,3470
17	0,0142	0,1101	0,0412	0,0417	0,0478	0,2408
18	0,0098	0,0764	0,0286	0,0289	0,0332	0,1671
19	0,0068	0,0530	0,0199	0,0201	0,0230	0,1160
20	0,0047	0,0368	0,0138	0,0139	0,0160	0,0805
21	0,0033	0,0255	0,0096	0,0097	0,0111	0,0559
22	0,0023	0,0177	0,0066	0,0067	0,0077	0,0388
23	0,0016	0,0123	0,0046	0,0047	0,0053	0,0269
24	0,0011	0,0085	0,0032	0,0032	0,0037	0,0187
25	0,0008		0,0022	0,0022	0,0026	0,0070
26	0,0005			0,0007	0,0018	0,0025
27	0,0004				0,0004	0,0004



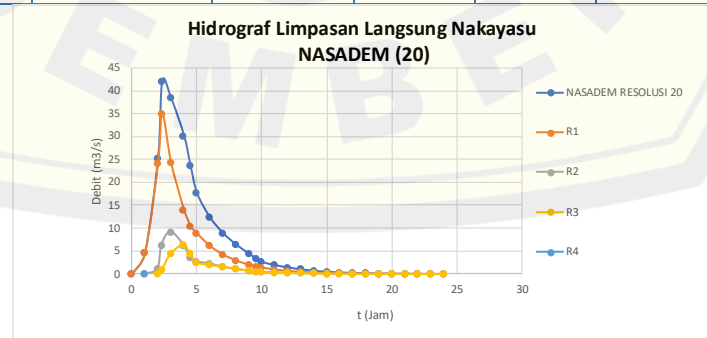
Hidrograf Limpasan Nakayasu						
NASADEM RESOLUSI ASLI						
t	Q	Hujan Jam-jam an				Q
		R ₁	R ₂	R ₃	R ₄	
(jam)	m ³ /dt/mm	7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0,0000				0
1	0,6217	4,8370	0,0000			4,8370
2	3,2814	25,5298	1,2572	0,0000		26,7870
2,297501	4,5773	35,6113	6,6357	0,8819	0,0000	43,1290
3	3,0908	24,0464	9,2561	4,6548	0,7021	38,6595
4	1,7673	13,7497	6,2502	6,4930	3,7057	30,1985
4,451408	1,3732	10,6834	3,5738	4,3844	5,1690	23,8106
5	1,1193	8,7082	2,7768	2,5070	3,4904	17,4823
6	0,7711	5,9991	2,2634	1,9479	1,9958	12,2062
7	0,5312	4,1328	1,5593	1,5877	1,5507	8,8306
8	0,3660	2,8471	1,0742	1,0938	1,2640	6,2792
9	0,2521	1,9614	0,7400	0,7535	0,8708	4,3258
9,5775	0,2033	1,5816	0,5098	0,5191	0,5999	3,2105
10	0,1737	1,3512	0,4111	0,3576	0,4133	2,5332
11	0,1196	0,9309	0,3512	0,2884	0,2847	1,8552
12	0,0824	0,6413	0,2420	0,2464	0,2296	1,3592
13	0,0568	0,4418	0,1667	0,1697	0,1961	0,9743
14	0,0391	0,3044	0,1148	0,1169	0,1351	0,6712
15	0,0269	0,2097	0,0791	0,0806	0,0931	0,4624
16	0,0186	0,1444	0,0545	0,0555	0,0641	0,3186
17	0,0128	0,0995	0,0375	0,0382	0,0442	0,2195
18	0,0088	0,0686	0,0259	0,0263	0,0304	0,1512
19	0,0061	0,0472	0,0178	0,0181	0,0210	0,1042
20	0,0042	0,0325	0,0123	0,0125	0,0144	0,0718
21	0,0029	0,0224	0,0085	0,0086	0,0100	0,0494
22	0,0020	0,0154	0,0058	0,0059	0,0069	0,0341
23	0,0014	0,0106	0,0040	0,0041	0,0047	0,0235
24	0,0009	0,0073	0,0028	0,0028	0,0033	0,0162
25	0,0007		0,0019	0,0019	0,0022	0,0061
26	0,0005			0,0007	0,0015	0,0022
27	0,0003				0,0004	0,0004



Hidrograf Limpasan Nakayasu						
NASADEM 30M						
t	Q	Hujan Jam-jam an				Q
(jam)	m ³ /dt/mm	R ₁	R ₂	R ₃	R ₄	
		7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,6100	4,7461	0,0000			4,7461
2	3,2198	25,0501	1,2336	0,0000		26,2837
2,311514	4,5573	35,4559	6,5110	0,8653	0,0000	42,8323
3	3,1087	24,1861	9,2157	4,5673	0,6889	38,6581
4	1,7836	13,8765	6,2865	6,4646	3,6361	30,2636
4,478558	1,3672	10,6368	3,6068	4,4098	5,1465	23,7999
5	1,1271	8,7686	2,7647	2,5301	3,5106	17,5741
6	0,7782	6,0544	2,2792	1,9394	2,0142	12,2872
7	0,5373	4,1804	1,5737	1,5988	1,5439	8,8968
8	0,3710	2,8864	1,0866	1,1039	1,2728	6,3497
9	0,2562	1,9930	0,7502	0,7622	0,8788	4,3842
9,5775	0,2068	1,6092	0,5180	0,5263	0,6068	3,2603
10	0,1769	1,3761	0,4183	0,3634	0,4190	2,5767
11	0,1221	0,9501	0,3577	0,2934	0,2893	1,8905
12	0,0843	0,6560	0,2470	0,2509	0,2336	1,3875
13	0,0582	0,4530	0,1705	0,1732	0,1997	0,9965
14	0,0402	0,3128	0,1177	0,1196	0,1379	0,6880
15	0,0278	0,2160	0,0813	0,0826	0,0952	0,4751
16	0,0192	0,1491	0,0561	0,0570	0,0657	0,3280
17	0,0132	0,1030	0,0388	0,0394	0,0454	0,2265
18	0,0091	0,0711	0,0268	0,0272	0,0313	0,1564
19	0,0063	0,0491	0,0185	0,0188	0,0216	0,1080
20	0,0044	0,0339	0,0128	0,0130	0,0149	0,0746
21	0,0030	0,0234	0,0088	0,0089	0,0103	0,0515
22	0,0021	0,0162	0,0061	0,0062	0,0071	0,0355
23	0,0014	0,0112	0,0042	0,0043	0,0049	0,0245
24	0,0010	0,0077	0,0029	0,0029	0,0034	0,0169
25	0,0007		0,0020	0,0020	0,0023	0,0064
26	0,0005			0,0007	0,0016	0,0023
27	0,0003				0,0004	0,0004



Hidrograf Limpasan Nakayasu						
NASADEM 20M						
t	Q	Hujan Jam-jam an				Q
(jam)	m ³ /dt/mm	R ₁	R ₂	R ₃	R ₄	
		7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,5901	4,5909	0,0000			4,5909
2	3,1145	24,2310	1,1933	0,0000		25,4243
2,333786	4,5109	35,0951	6,2982	0,8371	0,0000	42,2303
3	3,1264	24,3238	9,1220	4,4180	0,6664	38,5302
4	1,8033	14,0297	6,3223	6,3988	3,5172	30,2680
4,52171	1,3533	10,5285	3,6466	4,4349	5,0941	23,7042
5	1,1355	8,8342	2,7366	2,5580	3,5306	17,6594
6	0,7868	6,1213	2,2962	1,9197	2,0364	12,3735
7	0,5452	4,2415	1,5911	1,6107	1,5282	8,9715
8	0,3778	2,9390	1,1025	1,1161	1,2823	6,4398
9	0,2618	2,0365	0,7639	0,7733	0,8885	4,4622
9,5775	0,2118	1,6477	0,5293	0,5359	0,6157	3,3285
10	0,1814	1,4111	0,4283	0,3713	0,4266	2,6372
11	0,1257	0,9778	0,3668	0,3004	0,2956	1,9405
12	0,0871	0,6775	0,2541	0,2573	0,2392	1,4281
13	0,0603	0,4694	0,1761	0,1783	0,2048	1,0286
14	0,0418	0,3253	0,1220	0,1235	0,1419	0,7128
15	0,0290	0,2254	0,0845	0,0856	0,0983	0,4939
16	0,0201	0,1562	0,0586	0,0593	0,0681	0,3422
17	0,0139	0,1082	0,0406	0,0411	0,0472	0,2371
18	0,0096	0,0750	0,0281	0,0285	0,0327	0,1643
19	0,0067	0,0520	0,0195	0,0197	0,0227	0,1138
20	0,0046	0,0360	0,0135	0,0137	0,0157	0,0789
21	0,0032	0,0249	0,0094	0,0095	0,0109	0,0547
22	0,0022	0,0173	0,0065	0,0066	0,0075	0,0379
23	0,0015	0,0120	0,0045	0,0045	0,0052	0,0262
24	0,0011	0,0083	0,0031	0,0032	0,0036	0,0182
25	0,0007		0,0022	0,0022	0,0025	0,0068
26	0,0005			0,0007	0,0017	0,0024
27	0,0003				0,0004	0,0004



Hidrograf Limpasan Nakayasu						
NASADEM 10M						
t	Q	Hujan Jam-jam an				Q
(jam)	m ³ /dt/mm	R ₁	R ₂	R ₃	R ₄	
		7,7800	2,0222	1,4185	1,1293	
		mm	mm	mm	mm	m ³ /dt/mm
0	0,0000	0				0
1	0,5740	4,4654	0,0000			4,4654
2	3,0293	23,5683	1,1606	0,0000		24,7290
2,35216	4,4709	34,7838	6,1259	0,8142	0,0000	41,7239
3	3,1389	24,4210	9,0410	4,2972	0,6482	38,4074
4	1,8183	14,1464	6,3475	6,3421	3,4210	30,2570
4,55731	1,3413	10,4351	3,6769	4,4526	5,0489	23,6137
5	1,1417	8,8822	2,7123	2,5793	3,5447	17,7185
6	0,7933	6,1722	2,3087	1,9026	2,0534	12,4369
7	0,5513	4,2891	1,6043	1,6195	1,5147	9,0275
8	0,3831	2,9805	1,1148	1,1254	1,2893	6,5099
9	0,2662	2,0711	0,7747	0,7820	0,8959	4,5237
9,5775	0,2157	1,6785	0,5383	0,5434	0,6226	3,3828
10	0,1850	1,4392	0,4363	0,3776	0,4326	2,6857
11	0,1285	1,0001	0,3741	0,3060	0,3006	1,9809
12	0,0893	0,6950	0,2600	0,2624	0,2436	1,4610
13	0,0621	0,4829	0,1806	0,1823	0,2089	1,0548
14	0,0431	0,3356	0,1255	0,1267	0,1452	0,7330
15	0,0300	0,2332	0,0872	0,0881	0,1009	0,5094
16	0,0208	0,1621	0,0606	0,0612	0,0701	0,3540
17	0,0145	0,1126	0,0421	0,0425	0,0487	0,2460
18	0,0101	0,0783	0,0293	0,0295	0,0339	0,1709
19	0,0070	0,0544	0,0203	0,0205	0,0235	0,1188
20	0,0049	0,0378	0,0141	0,0143	0,0163	0,0825
21	0,0034	0,0263	0,0098	0,0099	0,0114	0,0574
22	0,0023	0,0182	0,0068	0,0069	0,0079	0,0399
23	0,0016	0,0127	0,0047	0,0048	0,0055	0,0277
24	0,0011	0,0088	0,0033	0,0033	0,0038	0,0192
25	0,0007		0,0023	0,0023	0,0026	0,0073
26	0,0005			0,0007	0,0018	0,0025
27	0,0003				0,0004	0,0004

