

3
4 y 5
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9

Reachs	L	Δ H	T C	T C	X	k
	(m)	(m)	(min)	(h)		
Sal-A	4266	10	125.23	2.09	0.20	1.04
A-B	3292	8	101.16	1.69	0.20	0.84
B-C	5275	7	183.59	3.06	0.20	1.53
C-D	1970	10	51.30	0.86	0.20	0.43
D-E	1802	7	53.10	0.88	0.20	0.44
E-F	1628	5	53.75	0.90	0.20	0.45

6.16

CUENCA	Área	Longitud del cauce	Pendiente Compensada	Tiempo de Concentración	Storage Co
	(km²)	(m)		(h)	(h)
CUENCA 1	12.79	7558	0.0024	3.772	2.263
CUENCA 2	8.69	7758	0.0119	3.09	1.854
CUENCA 3	50.17	22201	0.0056	7.529	4.517
CUENCA 4	17.9	8157	0.0061	2.879	1.727
CUENCA 5	17.81	9047	0.0019	4.798	2.879
CUENCA 6	7.43	6711	0.0083	2.086	1.252
CUENCA 7	9.88	6298	0.0082	2.092	1.255
CUENCA 8	17.59	12541	0.0103	4.026	2.416
CUENCA 9	13.44	8652	0.0073	2.767	1.660

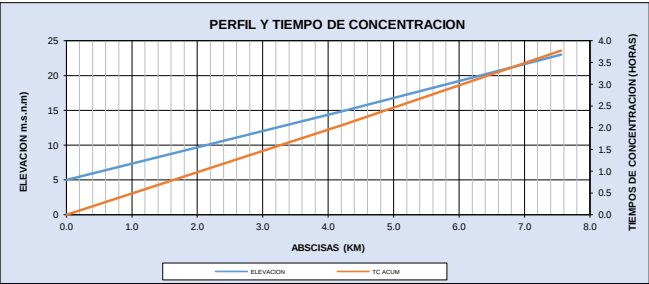
155.7

Cálculo del Tiempo de Concentración

Cuenca cuenca 1 Area 12.7900 Km2

DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
Km	m	m		horas	
0.0	5				0.000
4.27	15	10	77.635893	2.09	2.086
7.56	23	8	35.676273	1.69	3.772

0
4266
7558

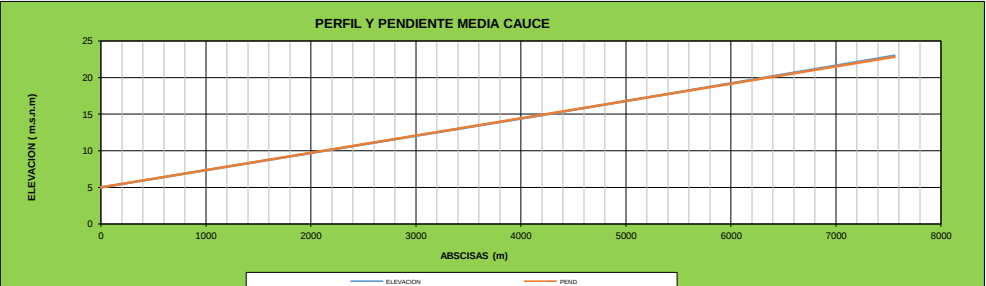


Cálculo de la Pendiente Media

Cuenca cuenca 1 Area 12.7900 Km2

DISTANCIA	ELEVACION	DESNIVEL			PEND.
(Km)	(m)	(m)			MEDIA
0.000	5.000			0	
4.266	15.000	10		4266	42660
7.558	23.000	8		7558	62548

105208.0	22.84016936		
0.000	5.000	m	0.0024
7558.00	22.840	d	17.840

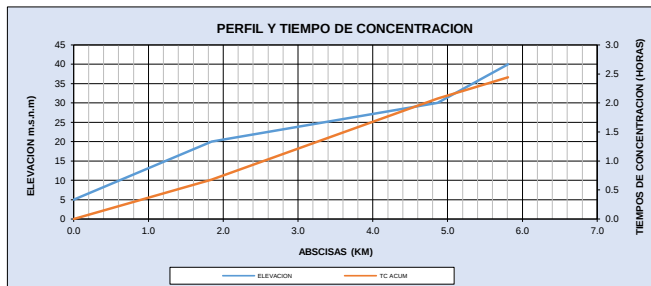




Cálculo del Tiempo de Concentración

Cuenca	cuenca 2	Area	8.6900 Km2
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	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	5				0.000
1847	1.85	20	15	6.3008724	0.68	0.679
4867	4.87	30	10	27.543608	1.40	2.079
5807	5.81	40	10	0.830584	0.36	2.442
7758	7.76	60	20	7.4262884	0.65	3.090

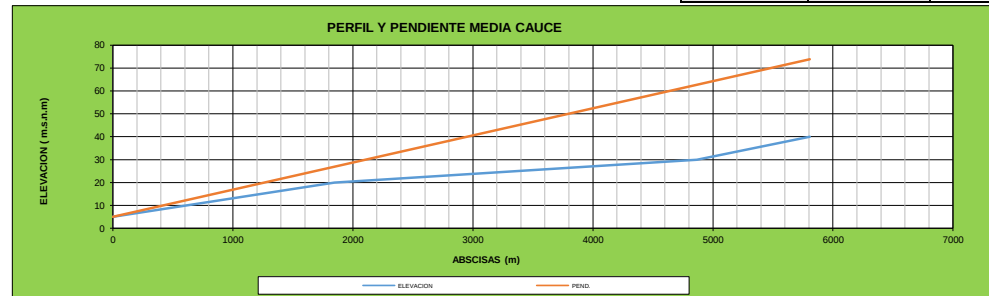


Cálculo de la Pendiente Media

Cuenca	cuenca 2	Area	8.6900	Km2
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DISTANCIA	ELEVACION	DESNIVEL		PEND.
(Km)	(m)	(m)		MEDIA
0.000	5.000		0	
1.847	20.000	15	1847	23087.5
4.867	30.000	10	4867	75500
5.807	40.000	10	5807	32900
7.758	60.000	20	7758	97550

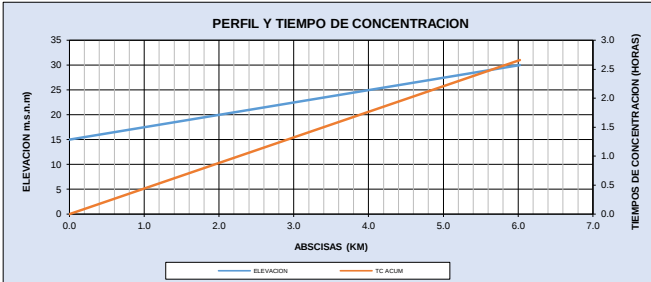
229037.5	73.88324436		
0.000	5.000	m	0.0119
5807.00	73.883	d	68.883



Cálculo del Tiempo de Concentración

Cuenca cuenca 3 Area 50.1700 Km2

	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	15				0.000
6024	6.02	30	15	218.60238	2.66	2.659
11488	11.49	60	30	163.12934	1.82	4.478
14904	14.90	80	20	39.861495	1.24	5.714
17522	17.52	120	40	17.943573	0.70	6.410
19970	19.97	160	40	14.670139	0.64	7.054
21282	21.28	220	60	2.2584033	0.27	7.322
21953	21.95	280	60	0.3021117	0.12	7.446
22201	22.20	340	60	0.015253	0.08	7.529

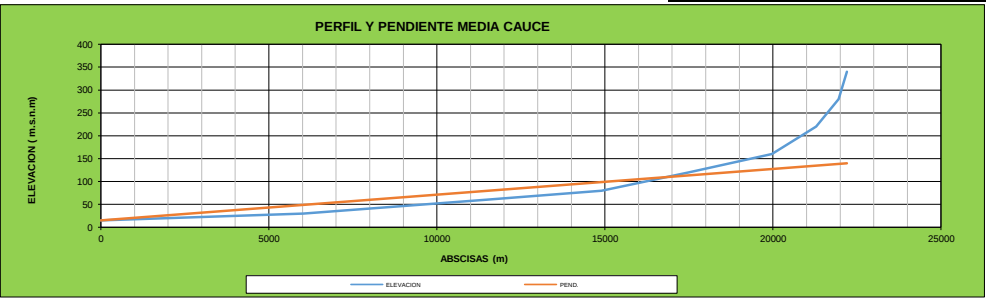


Cálculo de la Pendiente Media

Cuenca cuenca 3 Area 50.1700 Km2

DISTANCIA	ELEVACION	DESNIVEL			PEND.
(Km)	(m)	(m)			MEDIA
0.000	15.000			0	
6.024	30.000	15		6024	135540
11.488	60.000	30		11488	245880
14.904	80.000	20		14904	239120
17.522	120.000	40		17522	261800
19.970	160.000	40		19970	342720
21.282	220.000	60		21282	249280
21.953	280.000	60		21953	167750
22.201	340.000	60		22201	76880

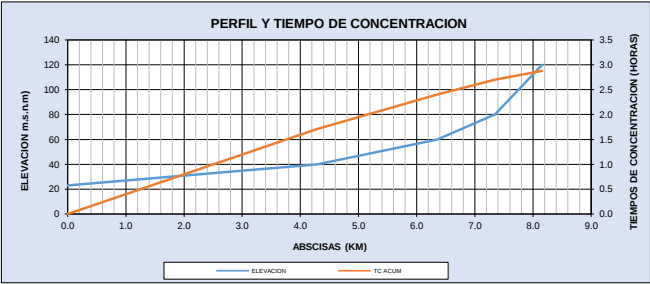
1718970.0	139.8551867		
0.000	15.000	m	0.0056
22201.00	139.855	d	124.855



Cálculo del Tiempo de Concentración

Cuenca cuenca 4 Area 17.9000 Km2

	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	23				0.000
4286	4.29	40	17	78.732946	1.71	1.710
6352	6.35	60	20	8.8184235	0.69	2.402
7347	7.35	80	20	0.9850749	0.30	2.699
8157	8.16	120	40	0.531441	0.18	2.879

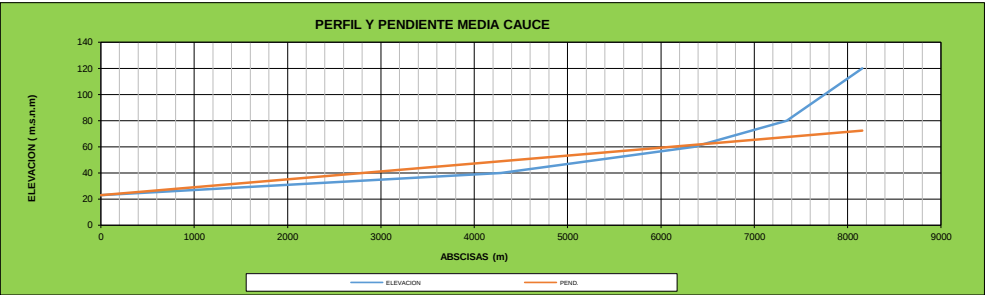


Cálculo de la Pendiente Media

Cuenca cuenca 4 Area 17.9000 Km2

DISTANCIA	ELEVACION	DESNIVEL			PEND.
(Km)	(m)	(m)			MEDIA
0.000	23.000			0	
4.286	40.000	17		4286	135009
6.352	60.000	20		6352	103300
7.347	80.000	20		7347	69650
8.157	120.000	40		8157	81000

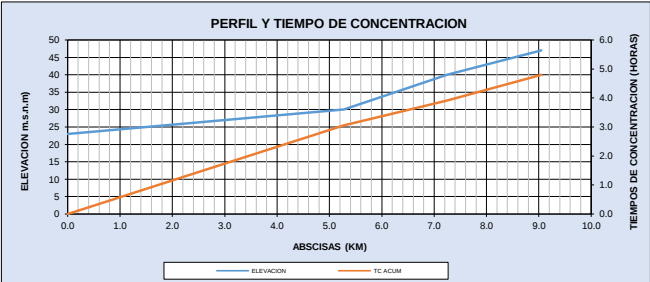
388959.0	72.36815006		
0.000	23.000	m	0.0061
8157.00	72.368	d	49.368



Cálculo del Tiempo de Concentración

Cuenca cuenca 5 Area 17.8100 Km2

	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	23				0.000
5275	5.28	30	7	146.78017	3.06	3.059
7245	7.25	40	10	7.645373	0.85	3.913
9047	9.05	47	7	5.8514616	0.88	4.798

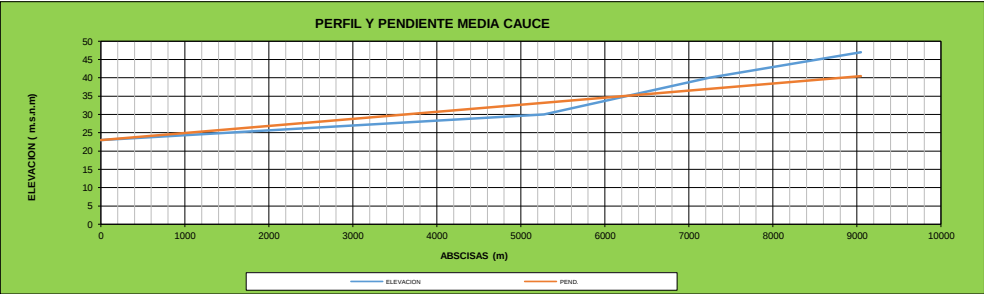


Cálculo de la Pendiente Media

Cuenca cuenca 5 Area 17.8100 Km2

DISTANCIA	ELEVACION	DESNIVEL			PEND.
(Km)	(m)	(m)			MEDIA
0.000	23.000			0	
5.275	30.000	7		5275	139787.5
7.245	40.000	10		7245	68950
9.047	47.000	7		9047	78387

287124.5	40.47396927		
0.000	23.000	m	0.0019
9047.00	40.474	d	17.474



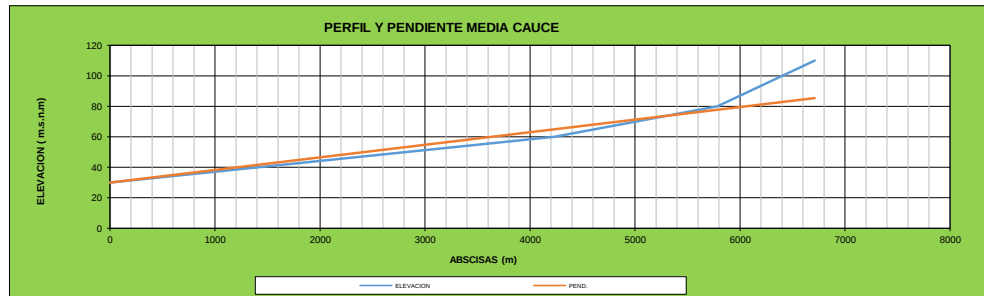
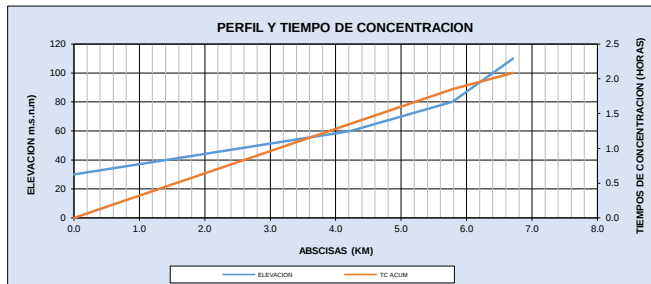
Cálculo del Tiempo de Concentración

Cuenca	cuenca 6	Area	7.4300 Km2
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	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	30				0.000
4232	4.23	30	30	75.794375	1.35	1.354
5784	5.78	80	20	3.7383086	0.50	1.851
6711	6.71	110	30	0.796598	0.23	2.086

Cálculo de la Pendiente Media

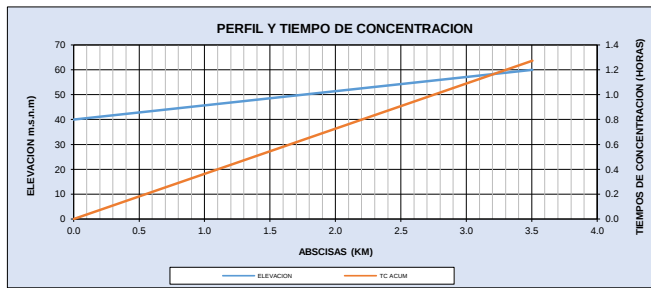
Cuenca	cuenca 6	Area	7.4300	Km2
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[illegible]

Cálculo del Tiempo de Concentración

Cuenca	cuenca 7	Area	9.8800 Km2
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	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	40				0.000
3505	3.51	60	20	43.059013	1.27	1.273
5310	5.31	80	20	5.8807351	0.59	1.865
5977	5.98	120	40	0.296741	0.14	2.008
6298	6.30	170	50	0.0330762	0.08	2.092

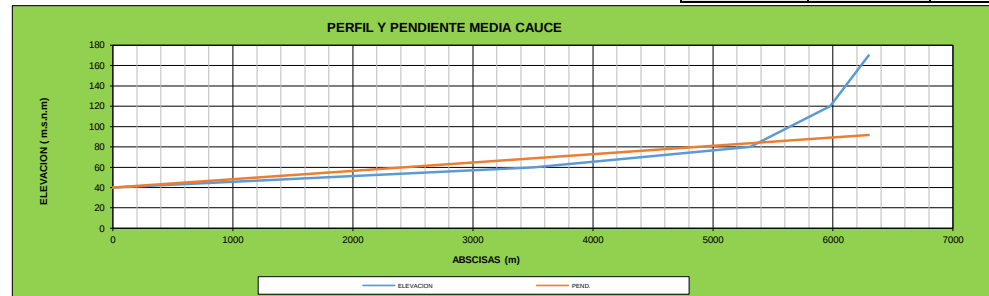


Cálculo de la Pendiente Media

Cuenca	cuenca 7	Area	9.8800	Km2
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DISTANCIA	ELEVACION	DESNIVEL		PEND.
(Km)	(m)	(m)		MEDIA
0.000	40.000		0	
3.505	60.000	20	3505	175250
5.310	80.000	20	5310	126350
5.977	120.000	40	5977	66700
6.298	170.000	50	6298	46545

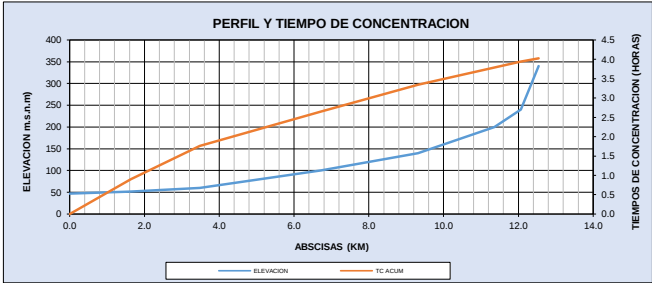
414845.0	91.73864719		
0.000	40.000	m	0.0082
6298.00	91.739	d	51.739



Cálculo del Tiempo de Concentración

Cuenca cuenca 8 Area 17.5900 Km2

	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	47				0.000
1628	1.63	52	5	4.3148252	0.90	0.896
3482	3.48	60	8	6.3727839	0.87	1.764
6722	6.72	100	40	34.012224	0.89	2.654
9314	9.31	140	40	17.414259	0.69	3.342
11361	11.36	200	60	8.5773578	0.45	3.791
12061	12.06	240	40	0.343	0.15	3.942
12541	12.54	340	100	0.110592	0.08	4.026

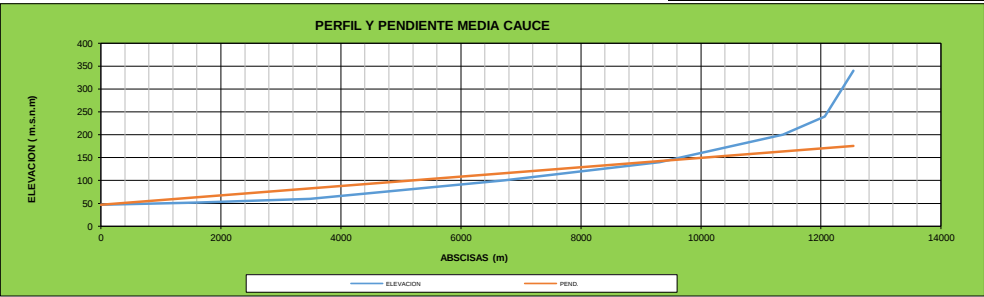


Cálculo de la Pendiente Media

Cuenca cuenca 8 Area 17.5900 Km2

DISTANCIA	ELEVACION	DESNIVEL			PEND.
(Km)	(m)	(m)			MEDIA
0.000	47.000			0	
1.628	52.000	5		1628	80586
3.482	60.000	8		3482	103824
6.722	100.000	40		6722	259200
9.314	140.000	40		9314	311040
11.361	200.000	60		11361	347990
12.061	240.000	40		12061	154000
12.541	340.000	100		12541	139200

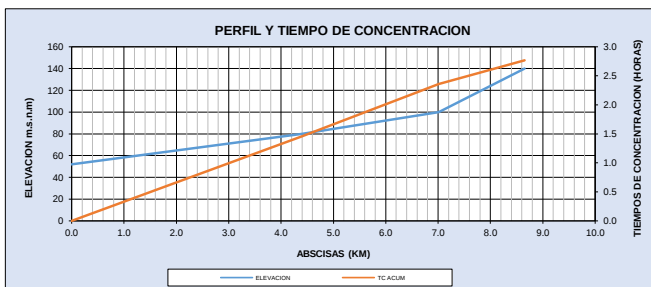
1395840.0	175.604258		
0.000	47.000	m	0.0103
12541.00	175.604	d	128.604



Cálculo del Tiempo de Concentración

Cuenca	cuenca 9	Area	13.4400 Km2
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	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	Km	m	m		horas	
0	0.0	52				0.000
4387	4.39	80	28	84.431189	1.45	1.450
7011	7.01	100	20	18.067227	0.91	2.361
8652	8.65	140	40	4.4190177	0.41	2.767

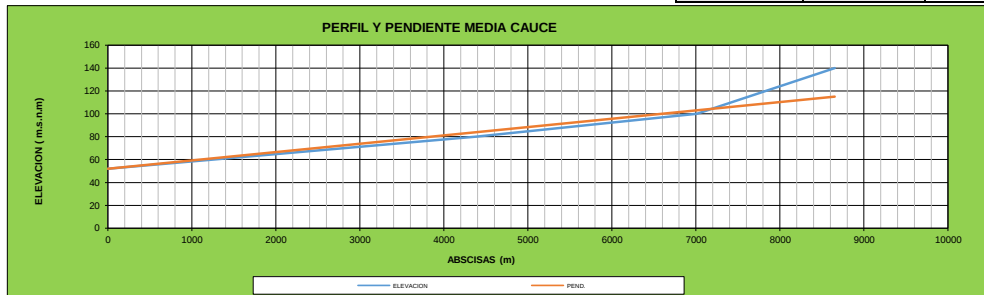


Cálculo de la Pendiente Media

Cuenca	cuenca 9	Area	13.4400	Km2
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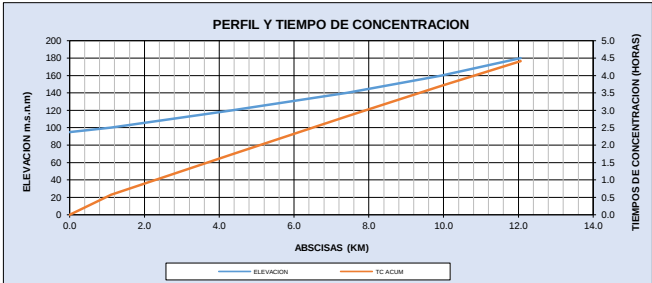
DISTANCIA	ELEVACION	DESNIVEL		PEND.
(Km)	(m)	(m)		MEDIA
0.000	52.000		0	
4.387	80.000	28	4387	289542
7.011	100.000	20	7011	236160
8.652	140.000	40	8652	196920

722622.0	115.0416089		
0.000	52.000	m	0.0073
8652.00	115.042	d	63.042



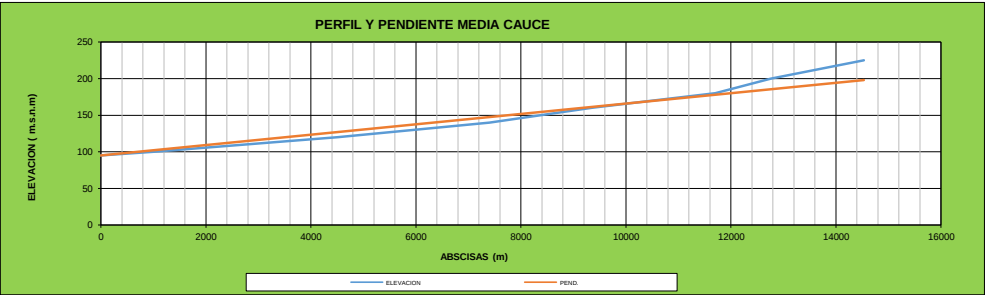
Cálculo del Tiempo de Concentración

Cuenca		EST CHILINTOMO GRANDE 10		Area		22.8700 Km2	
A	0	DISTANCIA	ELEVACION	DESNIVEL		Tc	TC ACUM
	1010	Km	m	m		horas	
	3502	0.0	95				0.000
	2890	1.01	100	5	1.030301	0.52	0.516
	1957	4.512	120	20	42.948542	1.27	1.788
	2342	7.402	140	20	24.137569	1.02	2.807
	1057	9.359	160	20	7.4950145	0.65	3.456
	1774	11.701	180	20	12.845786	0.80	4.256
		12.758	200	20	1.1809322	0.32	4.575
		14.53	225	25	5.5829128	0.53	5.107



Cálculo de la Pendiente Media

Cuenca		EST CHILINTOMO GRANDE 10		Area		22.8700 Km2	
		DISTANCIA	ELEVACION	DESNIVEL		PEND.	
		(Km)	(m)	(m)		MEDIA	
		0.000	95.000			0	
		1.010	100.000	5		1010	98475
		4.512	120.000	20		4512	385220
		7.402	140.000	20		7402	375700
		9.359	160.000	20		9359	293550
		11.701	180.000	20		11701	398140
		12.758	200.000	20		12758	200830
		14.532	225.000	25		14532	376975
		2128890.0	197.9933939				
		0.000	95.000	m		0.0071	
		14532.00	197.993	d		102.993	



11

A

111:

Cuenca

DISTANCIA	ELEVACION	DESNIVEL		PEND.
(Km)	(m)	(m)		MEDIA
0.000	95.000		0	
1.111	100.000	5	1111	108322.5
4.340	120.000	20	4340	355190
7.413	140.000	20	7413	399490
9.937	160.000	20	9937	378600
12.060	180.000	20	12060	360910

PERFIL Y PENDIENTE MEDIA CAUCE

ABSCISAS (m)

ELEVACION

PEND.

50.5 95.2 146.1 222.8 282.7 348

HIDROGRAMAS PARA DIFERENTES PERIODOS DE RETORNO CUENCA RÍO SAN MIGUEL							
Fecha	Hora	Tr 2 años	Tr 5 años	Tr 10 años	Tr 25 años	Tr 50 años	Tr 100 años
1-ene-00	0	0	0	0	0	0	0
1-ene-00	1	0	0	0	0	0	0
1-ene-00	2	0	0	0	0	0	0
1-ene-00	3	0	0	0	0	0	0
1-ene-00	4	0	0	0	0	0	0
1-ene-00	5	0	0	0	0	0	0
1-ene-00	6	0	0	0	0	0	0
1-ene-00	7	0	0	0	0	0	0
1-ene-00	8	0	0	0	0	0	0
1-ene-00	9	0	0	0	0	0	0
1-ene-00	10	0	0	0	0	0	0.1
1-ene-00	11	0	0	0	0.2	0.5	1.2
1-ene-00	12	0.7	2.9	4.9	8.4	11.7	15.9
1-ene-00	13	4.2	12.9	21.5	35.3	46.9	60.5
1-ene-00	14	12	30.4	49.8	80	104.6	132.4
1-ene-00	15	23.3	51.3	82.9	131.1	169.6	212.6
1-ene-00	16	35.3	71	113.2	176.5	226.8	282.3
1-ene-00	17	45.1	85.9	135.2	208.5	266.2	329.4
1-ene-00	18	50.4	94	146.1	222.8	282.7	348
1-ene-00	19	50.5	95.2	146	220.2	277.7	339.9
1-ene-00	20	46.3	90.8	137.1	204.4	256.2	311.9
1-ene-00	21	39.1	83	123.4	182	226.6	274.2
1-ene-00	22	31	74.2	108.8	158.7	196.5	236.5
1-ene-00	23	23.4	66	95.6	138	169.9	203.4
2-ene-00	24	17.2	58.7	84.2	120.4	147.5	175.8
2-ene-00	25	12.5	52.3	74.6	105.7	128.9	153.1
2-ene-00	26	9.1	46.4	65.7	92.5	112.3	133.1
2-ene-00	27	6.7	40.4	57.2	79.9	96.8	114.5
2-ene-00	28	5	34.3	48.6	67.6	81.7	96.5
2-ene-00	29	3.7	28.4	40.1	55.6	67.1	79.3
2-ene-00	30	2.8	22.7	32.1	44.4	53.5	63.2
2-ene-00	31	2.2	17.6	24.9	34.4	41.4	49
2-ene-00	32	1.6	13.3	18.8	26	31.3	37
2-ene-00	33	1.3	9.9	14	19.4	23.4	27.7
2-ene-00	34	1	7.4	10.4	14.4	17.4	20.6
2-ene-00	35	0.8	5.5	7.8	10.8	13.1	15.5
2-ene-00	36	0.6	4.1	5.9	8.2	9.9	11.7
2-ene-00	37	0.5	3.1	4.5	6.2	7.5	8.9
2-ene-00	38	0.4	2.4	3.4	4.8	5.8	6.8
2-ene-00	39	0.3	1.9	2.6	3.7	4.5	5.3
2-ene-00	40	0.2	1.4	2	2.8	3.4	4
2-ene-00	41	0.2	1	1.4	1.9	2.3	2.7
2-ene-00	42	0.1	0.7	1	1.4	1.7	1.9
2-ene-00	43	0	0.5	0.7	1	1.2	1.4
2-ene-00	44	0	0.4	0.5	0.7	0.9	1
2-ene-00	45	0	0.3	0.4	0.5	0.7	0.8
2-ene-00	46	0	0.2	0.3	0.4	0.5	0.6

2-ene-00	47	0	0.2	0.2	0.3	0.3	0.4
3-ene-00	48	0	0.1	0.2	0.2	0.2	0.3
3-ene-00	49	0	0.1	0.1	0.1	0.2	0.2
3-ene-00	50	0	0	0.1	0.1	0.1	0.1
3-ene-00	51	0	0	0	0.1	0.1	0.1
3-ene-00	52	0	0	0	0	0	0
3-ene-00	53	0	0	0	0	0	0
3-ene-00	54	0	0	0	0	0	0
3-ene-00	55	0	0	0	0	0	0
3-ene-00	56	0	0	0	0	0	0
3-ene-00	57	0	0	0	0	0	0
3-ene-00	58	0	0	0	0	0	0
3-ene-00	59	0	0	0	0	0	0
3-ene-00	60	0	0	0	0	0	0
3-ene-00	61	0	0	0	0	0	0
3-ene-00	62	0	0	0	0	0	0
3-ene-00	63	0	0	0	0	0	0
3-ene-00	64	0	0	0	0	0	0
3-ene-00	65	0	0	0	0	0	0
3-ene-00	66	0	0	0	0	0	0
3-ene-00	67	0	0	0	0	0	0
3-ene-00	68	0	0	0	0	0	0
3-ene-00	69	0	0	0	0	0	0
3-ene-00	70	0	0	0	0	0	0
3-ene-00	71	0	0	0	0	0	0

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