



TRABAJO FINAL DE GRADO

Empleo de modelos hidráulico-hidrológicos basados en el
esquema de Muskingum para predicción de caudales en
tiempo real. Aplicación al río Ésera (Huesca)

ANEJOS

Presentado por

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Anejo 1: Estaciones de aforo y pluviómetros

Descripción y localización de las estaciones de aforo y los pluviómetros cuyos datos hemos usado en nuestro modelo.

1.1 Estaciones de Aforo

En nuestro modelo hemos utilizado datos de caudales medidos en dos estaciones de aforo, la de Campos y la de Graus.

1.1.1 Campos

Datos Fijos						
Descripción:	Río Esera en Campo	Coordenadas UTM ETRS89	Huso	X	Y	Z
			30	778708,7	4702497,2	675
Comunidad autónoma:	ARAGÓN	Municipio:	CAMPO			
Provincia:	HUESCA	Río:	Esera			

Información de Caudales de Referencia		
Caudal que limita el régimen ordinario del extraordinario		
Descripción	Caudal m³/s	Comentario
Máxima crecida ordinaria	288,5	Asociada a periodo de retorno de 3.5 años
Caudales de crecida con periodo de retorno de:		
Periodo	Caudal m³/s	Comentario
2 años	222	Caudales en régimen natural
5 años	355	
10 años	476	
25 años	700	
100 años	1.123	
500 años	1.725	

Niveles y caudales máximos registrados en el periodo SAIH (valores máximos instantáneos) 1997 - actualidad								
Según niveles			Comentario	Según caudales				
Fecha	Nivel m	Caudal m³/s		Fecha	Nivel m	Caudal m³/s		
18/06/2013	2,83	465	Las secciones de las estaciones de aforo y las condiciones del flujo pueden cambiar con el paso del tiempo, de manera que un mismo nivel puede traducirse en caudales diferentes según el momento. Las posibles incongruencias que puedan observarse entre estas dos tablas se deben a que las secciones de las estaciones de aforo y las condiciones del flujo pueden cambiar con el paso del tiempo, ya sea por procesos naturales o antrópicos. La consecuencia de esto es el cambio de las curvas de gasto que relacionan nivel y caudal, de manera que un mismo nivel puede traducirse en caudales diferentes según el momento.	18/06/2013	2,83	465		
06/11/1997	2,56	440		06/11/1997	2,56	440		
18/12/1997	2,52	426		18/12/1997	2,52	426		
10/06/2010	2,19	275		10/06/2010	2,19	275		
20/10/2012	2,18	272		20/10/2012	2,18	272		

TABLA 1: DATOS GENERALES ESTACIÓN DE AFORO DE CAMPOS

ANEJO 1: ESTACIONES DE AFORO Y PLUVIÓMETROS

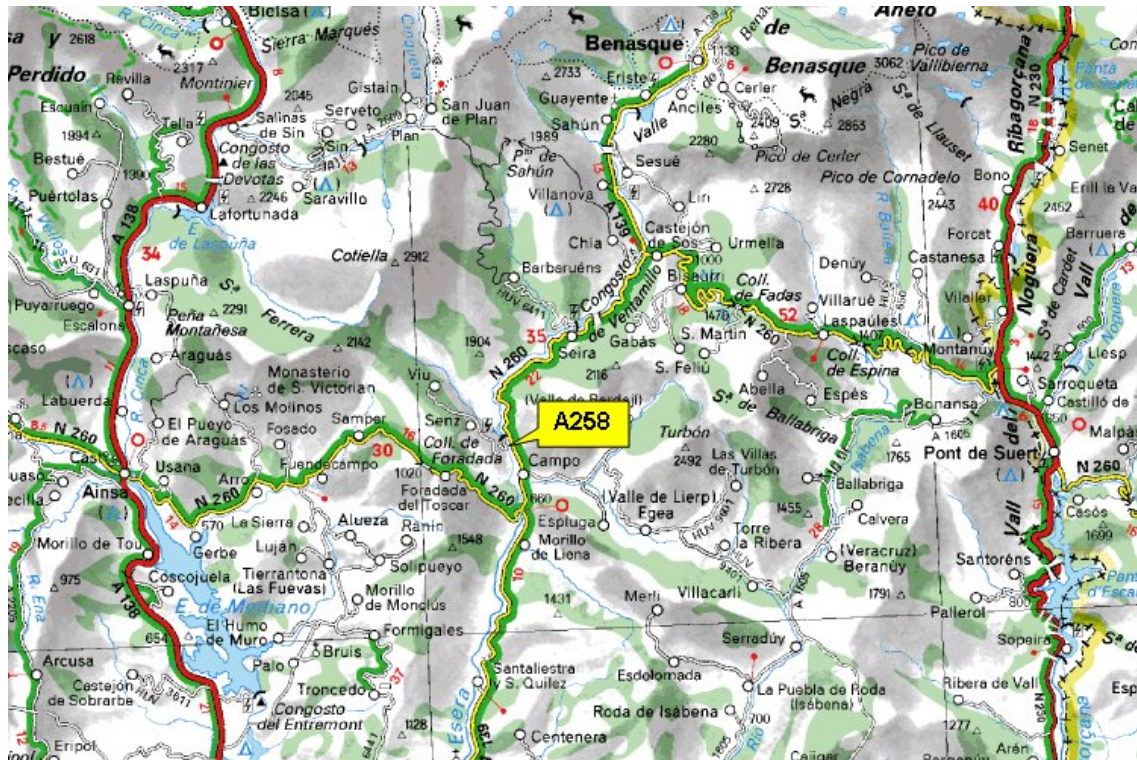


ILUSTRACIÓN 1: LOCALIZACIÓN DE LA ESTACIÓN DE AFORO DE CAMPOS

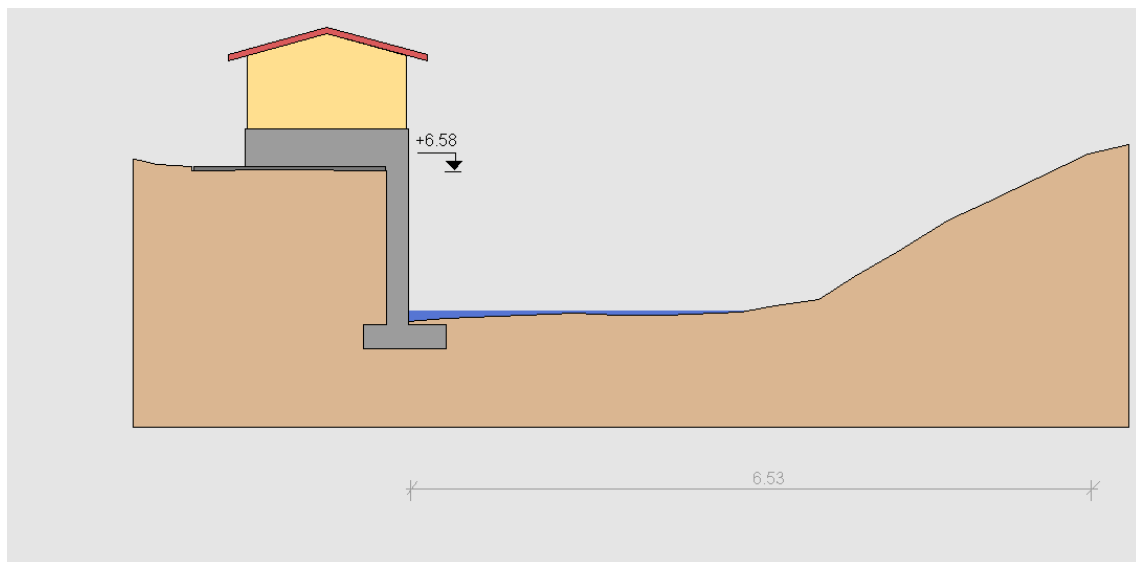


ILUSTRACIÓN 2: PERFIL TRANSVERSAL DE LA ESTACIÓN DE AFORO DE CAMPOS

ANEJO 1: ESTACIONES DE AFORO Y PLUVIÓMETROS



ILUSTRACIÓN 3: FOTOS DE LA ESTACIÓN DE AFORO DE CAMPOS

1.1.2 Graus

Datos Fijos						
Descripción:	Río Esera en Graus	Coordenadas UTM ETRS89	Huso	X	Y	Z
			30	776182,5	4677949,3	455
Comunidad autónoma:	ARAGÓN	Municipio:	GRAUS			
Provincia:	HUESCA	Río:	Esera			

Información de Caudales de Referencia						
Caudal que limita el régimen ordinario del extraordinario						
Descripción			Caudal m³/s	Comentario		
Máxima crecida ordinaria			337	Asociada a periodo de retorno de 3.5 años		
Caudales de crecida con periodo de retorno de:						
Periodo			Caudal m³/s	Comentario		
2 años			257	Caudales en régimen natural		
5 años			417			
10 años			559			
25 años			814			
100 años			1.324			
500 años			1.982			
Niveles y caudales máximos registrados en el periodo SAIH (valores máximos instantáneos) 1997 - actualidad						
Según niveles			Comentario	Según caudales		
Fecha	Nivel m	Caudal m³/s		Fecha	Nivel m	Caudal m³/s
18/12/1997	4,32	575	Las secciones de las estaciones de aforo y las condiciones del flujo pueden cambiar con el paso del tiempo,de manera que un mismo nivel puede traducirse en caudales diferentes según el momento. Las posibles incongruencias que puedan observarse entre estas dos tablas se deben a que las secciones de las estaciones de aforo y las condiciones del flujo pueden cambiar con el paso del tiempo, ya sea por procesos naturales o antrópicos. La consecuencia de esto es el cambio de las curvas de gasto que relacionan nivel y caudal, de manera que un mismo nivel puede traducirse en caudales diferentes según el momento.	18/12/1997	4,32	575
18/06/2013	3,93	477		18/06/2013	3,93	477
06/11/1997	3,04	270		11/09/2006	2,97	276
11/09/2006	2,97	276		06/11/1997	3,04	270
31/10/2003	2,80	244		31/10/2003	2,80	244

TABLA 2: DATOS GENERALES ESTACIÓN DE AFORO DE GRAUS

ANEJO 1: ESTACIONES DE AFORO Y PLUVIÓMETROS

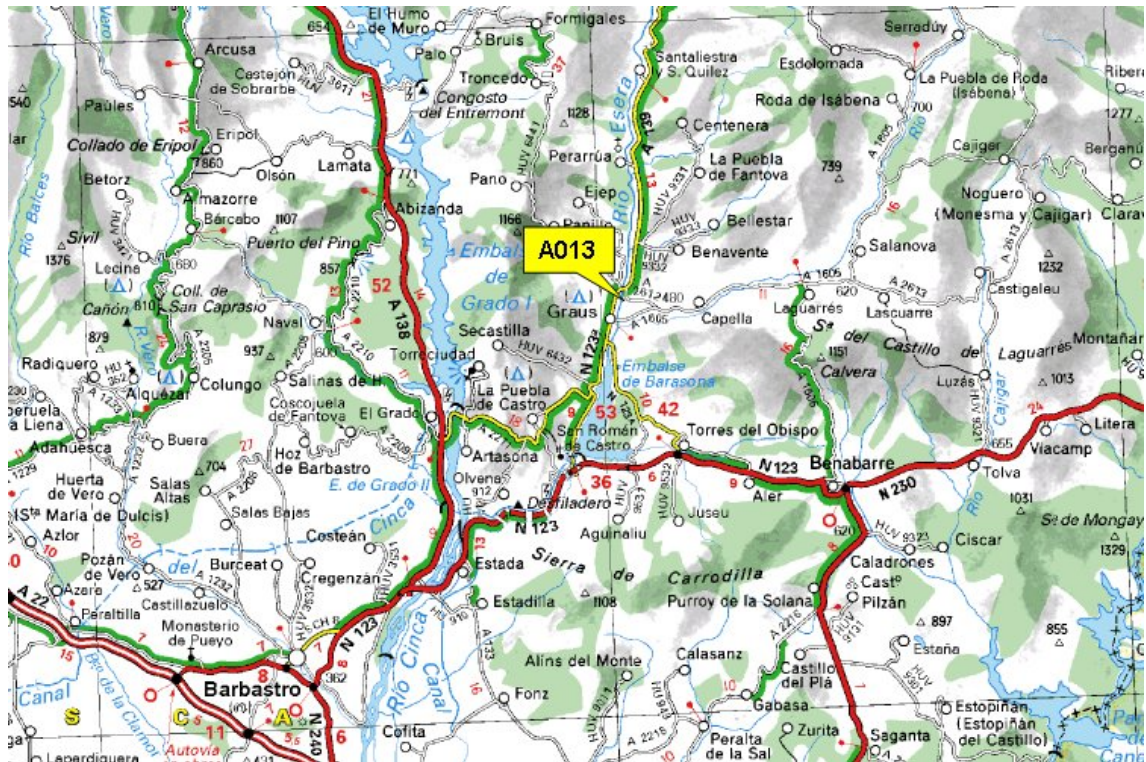


ILUSTRACIÓN 4: LOCALIZACIÓN DE LA ESTACIÓN DE AFORO DE GRAUS

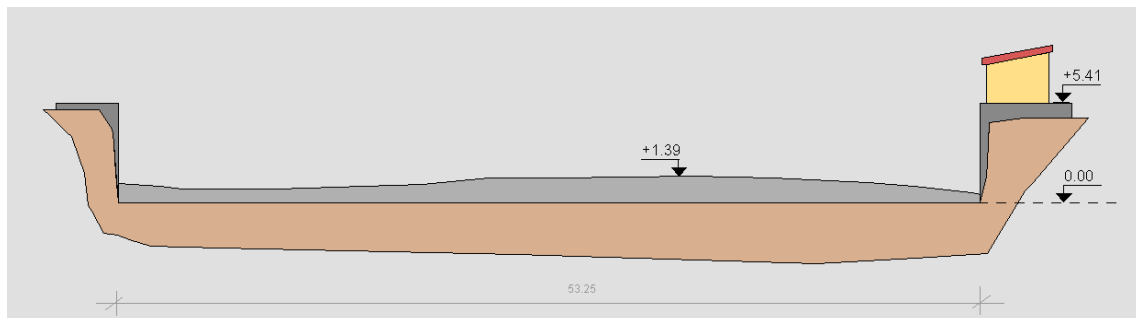


ILUSTRACIÓN 5: PERFIL TRANSVERSAL DE LA ESTACIÓN DE AFORO DE CAMPOS



ILUSTRACIÓN 6: FOTO DE LA ESTACIÓN DE AFORO DE CAMPO

1.2 Pluviómetros

En nuestro modelo hemos utilizado los datos de precipitaciones registradas por los pluviómetros de Eriste, Las Paules, Capella y Campo.

Alguno de ellos situado en instalaciones independientes, y otros incluidos dentro de una estación de aforo.

Anejo 2: Datos Históricos de eventos de crecida en el Río Ésera

Estos son los datos de caudales dados en tiempo real por las estaciones de aforo localizadas en la población de Campos situada aguas arriba, y la población de Graus situada aguas abajo del tramo de estudio. Los datos de caudal vienen dados en m³/s.

Episodio 3. 16-04-2000			Episodio 6. 04-03-2001		
Fecha	CAMPOS	GRAUS	Fecha	CAMPOS	GRAUS
16/04/2000 0:00	28.6	11.66	04/03/2001 0:00	90.9	123.47
16/04/2000 0:15	27.75	11.66	04/03/2001 0:15	89.25	118.16
16/04/2000 0:30	27.75	11.66	04/03/2001 0:30	87.6	112.85
16/04/2000 0:45	27.75	11.66	04/03/2001 0:45	87.6	111.08
16/04/2000 1:00	27.75	11.66	04/03/2001 1:00	85.95	107.54
16/04/2000 1:15	27.75	11.66	04/03/2001 1:15	85.95	105.77
16/04/2000 1:30	26.9	11.66	04/03/2001 1:30	85.95	104
16/04/2000 1:45	22.8	11.66	04/03/2001 1:45	84.3	102.35
16/04/2000 2:00	16.5	11.66	04/03/2001 2:00	87.6	100.7
16/04/2000 2:15	10.5	11.66	04/03/2001 2:15	87.6	100.7
16/04/2000 2:30	9.6	11.66	04/03/2001 2:30	76.88	99.05
16/04/2000 2:45	11.1	11.66	04/03/2001 2:45	79.63	97.4
16/04/2000 3:00	14.1	11.66	04/03/2001 3:00	79.63	95.75
16/04/2000 3:15	14.1	11.66	04/03/2001 3:15	79.63	94.1
16/04/2000 3:30	11.1	11.66	04/03/2001 3:30	81	94.1
16/04/2000 3:45	9.6	15.44	04/03/2001 3:45	81	92.45
16/04/2000 4:00	9.6	17.98	04/03/2001 4:00	81	92.45
16/04/2000 4:15	9.6	19.26	04/03/2001 4:15	79.63	90.8
16/04/2000 4:30	9.6	24.38	04/03/2001 4:30	78.25	90.8
16/04/2000 4:45	9.6	25.02	04/03/2001 4:45	76.88	92.45
16/04/2000 5:00	9.6	25.66	04/03/2001 5:00	75.5	89.15
16/04/2000 5:15	9.6	25.66	04/03/2001 5:15	74.13	84.2
16/04/2000 5:30	9.6	25.66	04/03/2001 5:30	71.38	84.2
16/04/2000 5:45	9.6	25.02	04/03/2001 5:45	70	84.2
16/04/2000 6:00	9.6	24.38	04/03/2001 6:00	67.25	84.2
16/04/2000 6:15	9.6	23.1	04/03/2001 6:15	63.13	84.2
16/04/2000 6:30	10.05	21.82	04/03/2001 6:30	60.38	84.2
16/04/2000 6:45	10.05	20.54	04/03/2001 6:45	56.25	84.2
16/04/2000 7:00	10.05	18.62	04/03/2001 7:00	53.5	84.2
16/04/2000 7:15	10.05	17.34	04/03/2001 7:15	51.12	82.55
16/04/2000 7:30	10.5	16.28	04/03/2001 7:30	49.93	80.9
16/04/2000 7:45	11.7	15.86	04/03/2001 7:45	48.74	79.25
16/04/2000 8:00	12.9	15.86	04/03/2001 8:00	47.55	77.6
16/04/2000 8:15	12.9	16.28	04/03/2001 8:15	47.55	75.95
16/04/2000 8:30	10.5	15.86	04/03/2001 8:30	47.55	74.3

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

16/04/2000 8:45	10.05	15.44	04/03/2001 8:45	46.36	71
16/04/2000 9:00	11.1	15.44	04/03/2001 9:00	46.36	68.4
16/04/2000 9:15	14.7	15.44	04/03/2001 9:15	46.36	65.8
16/04/2000 9:30	16.5	15.02	04/03/2001 9:30	45.17	64.5
16/04/2000 9:45	16.5	14.6	04/03/2001 9:45	45.17	61.9
16/04/2000 10:00	15.9	14.6	04/03/2001 10:00	43.98	59.3
16/04/2000 10:15	16.5	14.6	04/03/2001 10:15	43.98	58
16/04/2000 10:30	20	14.6	04/03/2001 10:30	43.98	56.7
16/04/2000 10:45	22.8	14.6	04/03/2001 10:45	43.98	55.4
16/04/2000 11:00	24.35	15.02	04/03/2001 11:00	45.17	54.1
16/04/2000 11:15	25.2	15.02	04/03/2001 11:15	45.17	54.1
16/04/2000 11:30	26.05	15.44	04/03/2001 11:30	45.17	54.1
16/04/2000 11:45	26.9	15.86	04/03/2001 11:45	46.36	52.8
16/04/2000 12:00	28.6	16.28	04/03/2001 12:00	48.74	52.8
16/04/2000 12:15	29.45	16.28	04/03/2001 12:15	49.93	52.8
16/04/2000 12:30	30.3	16.7	04/03/2001 12:30	52.31	54.1
16/04/2000 12:45	31.15	17.34	04/03/2001 12:45	54.88	54.1
16/04/2000 13:00	32	17.98	04/03/2001 13:00	57.63	54.1
16/04/2000 13:15	32.96	18.62	04/03/2001 13:15	59	54.1
16/04/2000 13:30	33.92	18.62	04/03/2001 13:30	60.38	55.4
16/04/2000 13:45	34.88	18.62	04/03/2001 13:45	63.13	55.4
16/04/2000 14:00	34.88	19.26	04/03/2001 14:00	64.5	56.7
16/04/2000 14:15	35.84	19.26	04/03/2001 14:15	65.88	58
16/04/2000 14:30	36.8	19.9	04/03/2001 14:30	67.25	59.3
16/04/2000 14:45	37.76	21.18	04/03/2001 14:45	71.38	60.6
16/04/2000 15:00	38.72	22.46	04/03/2001 15:00	79.63	61.9
16/04/2000 15:15	40.64	25.02	04/03/2001 15:15	89.25	64.5
16/04/2000 15:30	42.79	26.94	04/03/2001 15:30	95.85	68.4
16/04/2000 15:45	45.17	28.86	04/03/2001 15:45	99.15	71
16/04/2000 16:00	48.74	30.35	04/03/2001 16:00	102.45	75.95
16/04/2000 16:15	53.5	32.88	04/03/2001 16:15	102.45	80.9
16/04/2000 16:30	59	35.42	04/03/2001 16:30	107.4	87.5
16/04/2000 16:45	64.5	38.8	04/03/2001 16:45	109.05	92.45
16/04/2000 17:00	70	43.87	04/03/2001 17:00	114	97.4
16/04/2000 17:15	78.25	52.04	04/03/2001 17:15	119.85	102.35
16/04/2000 17:30	76.88	60.5	04/03/2001 17:30	121.8	109.31
16/04/2000 17:45	75.5	66.34	04/03/2001 17:45	125.7	118.16
16/04/2000 18:00	79.63	73.15	04/03/2001 18:00	133.5	125.24
16/04/2000 18:15	102.45	83.36	04/03/2001 18:15	133.5	130.55
16/04/2000 18:30	82.65	98.7	04/03/2001 18:30	137.4	135.86
16/04/2000 18:45	81	110.85	04/03/2001 18:45	137.4	137.63
16/04/2000 19:00	95.85	123.2	04/03/2001 19:00	141.3	139.4
16/04/2000 19:15	95.85	131.5	04/03/2001 19:15	141.3	142.94
16/04/2000 19:30	97.5	131.5	04/03/2001 19:30	141.3	144.71
16/04/2000 19:45	102.45	128.18	04/03/2001 19:45	141.3	148.25
16/04/2000 20:00	90.9	123.2	04/03/2001 20:00	141.3	153.56

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

16/04/2000 20:15	87.6	116.56	04/03/2001 20:15	139.35	155.33
16/04/2000 20:30	89.25	116.56	04/03/2001 20:30	143.25	157.1
16/04/2000 20:45	87.6	114.9	04/03/2001 20:45	145.2	158.87
16/04/2000 21:00	78.25	108.15	04/03/2001 21:00	143.25	160.64
16/04/2000 21:15	75.5	102.75	04/03/2001 21:15	139.35	160.64
16/04/2000 21:30	75.5	102.75	04/03/2001 21:30	137.4	162.41
16/04/2000 21:45	74.13	101.4	04/03/2001 21:45	139.35	162.41
16/04/2000 22:00	78.25	100.05	04/03/2001 22:00	137.4	162.41
16/04/2000 22:15	75.5	100.05	04/03/2001 22:15	133.5	160.64
16/04/2000 22:30	68.63	96	04/03/2001 22:30	133.5	160.64
16/04/2000 22:45	64.5	90.6	04/03/2001 22:45	131.55	158.87
16/04/2000 23:00	54.88	89.25	04/03/2001 23:00	133.5	158.87
16/04/2000 23:15	64.5	87.9	04/03/2001 23:15	129.6	158.87
16/04/2000 23:30	70	85.63	04/03/2001 23:30	125.7	155.33
16/04/2000 23:45	72.75	81.09	04/03/2001 23:45	123.75	153.56
17/04/2000 0:00	74.13	79.96	05/03/2001 0:00	121.8	151.79
17/04/2000 0:15	75.5	77.69	05/03/2001 0:15	117.9	150.02
17/04/2000 0:30	75.5	77.69	05/03/2001 0:30	117.9	150.02
17/04/2000 0:45	74.13	77.69	05/03/2001 0:45	115.95	148.25
17/04/2000 1:00	72.75	75.42	05/03/2001 1:00	114	144.71
17/04/2000 1:15	74.13	73.15	05/03/2001 1:15	114	144.71
17/04/2000 1:30	75.5	69.74	05/03/2001 1:30	110.7	142.94
17/04/2000 1:45	67.25	66.34	05/03/2001 1:45	109.05	139.4
17/04/2000 2:00	65.88	66.34	05/03/2001 2:00	107.4	137.63
17/04/2000 2:15	64.5	69.74	05/03/2001 2:15	107.4	134.09
17/04/2000 2:30	63.13	72.01	05/03/2001 2:30	107.4	132.32
17/04/2000 2:45	61.75	73.15	05/03/2001 2:45	105.75	130.55
17/04/2000 3:00	60.38	73.15	05/03/2001 3:00	102.45	128.78
17/04/2000 3:15	57.63	73.15	05/03/2001 3:15	100.8	127.01
17/04/2000 3:30	56.25	73.15	05/03/2001 3:30	100.8	127.01
17/04/2000 3:45	54.88	72.01	05/03/2001 3:45	99.15	123.47
17/04/2000 4:00	53.5	72.01	05/03/2001 4:00	97.5	121.7
17/04/2000 4:15	51.12	72.01	05/03/2001 4:15	95.85	119.93
17/04/2000 4:30	49.93	68.61	05/03/2001 4:30	94.2	118.16
17/04/2000 4:45	47.55	66.34	05/03/2001 4:45	94.2	116.39
17/04/2000 5:00	46.36	65.2	05/03/2001 5:00	92.55	116.39
17/04/2000 5:15	45.17	64.26	05/03/2001 5:15	92.55	112.85
17/04/2000 5:30	43.98	64.26	05/03/2001 5:30	92.55	111.08
17/04/2000 5:45	43.98	63.32	05/03/2001 5:45	90.9	109.31
17/04/2000 6:00	42.79	62.38	05/03/2001 6:00	89.25	107.54
17/04/2000 6:15	41.6	60.5	05/03/2001 6:15	89.25	105.77
17/04/2000 6:30	41.6	60.5	05/03/2001 6:30	87.6	104
17/04/2000 6:45	40.64	59.56	05/03/2001 6:45	87.6	104
17/04/2000 7:00	40.64	58.62	05/03/2001 7:00	87.6	102.35
17/04/2000 7:15	39.68	56.74	05/03/2001 7:15	87.6	102.35
17/04/2000 7:30	39.68	55.8	05/03/2001 7:30	85.95	100.7

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

17/04/2000 7:45	38.72	54.86	05/03/2001 7:45	85.95	99.05
17/04/2000 8:00	38.72	53.92	05/03/2001 8:00	84.3	99.05
17/04/2000 8:15	38.72	52.98	05/03/2001 8:15	84.3	97.4
17/04/2000 8:30	37.76	52.98	05/03/2001 8:30	82.65	95.75
17/04/2000 8:45	37.76	52.04	05/03/2001 8:45	82.65	95.75
17/04/2000 9:00	36.8	51.1	05/03/2001 9:00	81	94.1
17/04/2000 9:15	35.84	50.16	05/03/2001 9:15	79.63	94.1
17/04/2000 9:30	34.88	50.16	05/03/2001 9:30	79.63	92.45
17/04/2000 9:45	39.68	49.22	05/03/2001 9:45	78.25	92.45
17/04/2000 10:00	42.79	49.22	05/03/2001 10:00	84.3	92.45
17/04/2000 10:15	41.6	48.28	05/03/2001 10:15	81	90.8
17/04/2000 10:30	41.6	47.34	05/03/2001 10:30	72.75	89.15
17/04/2000 10:45	43.98	47.34	05/03/2001 10:45	75.5	89.15
17/04/2000 11:00	45.17	47.34	05/03/2001 11:00	75.5	87.5
17/04/2000 11:15	46.36	46.4	05/03/2001 11:15	75.5	87.5
17/04/2000 11:30	47.55	46.4	05/03/2001 11:30	75.5	85.85
17/04/2000 11:45	47.55	45.56	05/03/2001 11:45	75.5	85.85
17/04/2000 12:00	47.55	45.56	05/03/2001 12:00	75.5	84.2
17/04/2000 12:15	47.55	44.71	05/03/2001 12:15	74.13	84.2
17/04/2000 12:30	46.36	44.71	05/03/2001 12:30	74.13	84.2
17/04/2000 12:45	46.36	43.87	05/03/2001 12:45	74.13	85.85
17/04/2000 13:00	46.36	43.87	05/03/2001 13:00	72.75	84.2
17/04/2000 13:15	46.36	46.4	05/03/2001 13:15	72.75	79.25
17/04/2000 13:30	45.17	47.34	05/03/2001 13:30	72.75	79.25
17/04/2000 13:45	45.17	47.34	05/03/2001 13:45	71.38	79.25
17/04/2000 14:00	45.17	48.28	05/03/2001 14:00	70	79.25
17/04/2000 14:15	45.17	49.22	05/03/2001 14:15	67.25	79.25
17/04/2000 14:30	45.17	50.16	05/03/2001 14:30	67.25	79.25
17/04/2000 14:45	45.17	50.16	05/03/2001 14:45	65.88	77.6
17/04/2000 15:00	43.98	50.16	05/03/2001 15:00	65.88	77.6
17/04/2000 15:15	43.98	50.16	05/03/2001 15:15	64.5	77.6
17/04/2000 15:30	43.98	50.16	05/03/2001 15:30	64.5	77.6
17/04/2000 15:45	43.98	50.16	05/03/2001 15:45	64.5	75.95
17/04/2000 16:00	43.98	49.22	05/03/2001 16:00	64.5	75.95
17/04/2000 16:15	42.79	49.22	05/03/2001 16:15	63.13	75.95
17/04/2000 16:30	42.79	49.22	05/03/2001 16:30	64.5	75.95
17/04/2000 16:45	42.79	49.22	05/03/2001 16:45	64.5	75.95
17/04/2000 17:00	42.79	49.22	05/03/2001 17:00	63.13	74.3
17/04/2000 17:15	42.79	48.28	05/03/2001 17:15	63.13	74.3
17/04/2000 17:30	42.79	48.28	05/03/2001 17:30	63.13	74.3
17/04/2000 17:45	42.79	47.34	05/03/2001 17:45	61.75	74.3
17/04/2000 18:00	42.79	47.34	05/03/2001 18:00	61.75	72.65
17/04/2000 18:15	42.79	47.34	05/03/2001 18:15	63.13	72.65
17/04/2000 18:30	41.6	47.34	05/03/2001 18:30	61.75	72.65
17/04/2000 18:45	41.6	47.34	05/03/2001 18:45	63.13	71
17/04/2000 19:00	41.6	46.4	05/03/2001 19:00	63.13	71

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

17/04/2000 19:15	41.6	46.4	05/03/2001 19:15	63.13	71
17/04/2000 19:30	41.6	46.4	05/03/2001 19:30	61.75	71
17/04/2000 19:45	41.6	46.4	05/03/2001 19:45	63.13	71
17/04/2000 20:00	41.6	46.4	05/03/2001 20:00	61.75	71
17/04/2000 20:15	41.6	45.56	05/03/2001 20:15	61.75	69.7
17/04/2000 20:30	41.6	45.56	05/03/2001 20:30	61.75	69.7
17/04/2000 20:45	41.6	45.56	05/03/2001 20:45	63.13	69.7
17/04/2000 21:00	41.6	45.56	05/03/2001 21:00	61.75	69.7
17/04/2000 21:15	41.6	45.56	05/03/2001 21:15	60.38	69.7
17/04/2000 21:30	41.6	45.56	05/03/2001 21:30	61.75	69.7
17/04/2000 21:45	41.6	44.71	05/03/2001 21:45	61.75	68.4
17/04/2000 22:00	41.6	44.71	05/03/2001 22:00	63.13	68.4
17/04/2000 22:15	40.64	44.71	05/03/2001 22:15	61.75	68.4
17/04/2000 22:30	40.64	44.71	05/03/2001 22:30	60.38	68.4
17/04/2000 22:45	40.64	44.71	05/03/2001 22:45	61.75	67.1
17/04/2000 23:00	40.64	44.71	05/03/2001 23:00	61.75	68.4
17/04/2000 23:15	40.64	43.87	05/03/2001 23:15	61.75	67.1
17/04/2000 23:30	40.64	43.87	05/03/2001 23:30	61.75	67.1
17/04/2000 23:45	40.64	43.87	05/03/2001 23:45	60.38	67.1
18/04/2000 0:00	40.64	43.87	06/03/2001 0:00	60.38	67.1
18/04/2000 0:15	40.64	43.87	06/03/2001 0:15	61.75	67.1
18/04/2000 0:30	40.64	43.87	06/03/2001 0:30	60.38	65.8
18/04/2000 0:45	40.64	43.87	06/03/2001 0:45	61.75	65.8
18/04/2000 1:00	40.64	43.87	06/03/2001 1:00	60.38	65.8
18/04/2000 1:15	40.64	43.87	06/03/2001 1:15	60.38	65.8
18/04/2000 1:30	39.68	43.02	06/03/2001 1:30	60.38	65.8
18/04/2000 1:45	39.68	43.02	06/03/2001 1:45	60.38	64.5
18/04/2000 2:00	38.72	43.02	06/03/2001 2:00	60.38	64.5
18/04/2000 2:15	37.76	43.02	06/03/2001 2:15	60.38	64.5
18/04/2000 2:30	35.84	43.02	06/03/2001 2:30	59	64.5
18/04/2000 2:45	33.92	43.02	06/03/2001 2:45	60.38	64.5
18/04/2000 3:00	31.15	43.02	06/03/2001 3:00	60.38	64.5
18/04/2000 3:15	28.6	43.02	06/03/2001 3:15	59	64.5
18/04/2000 3:30	26.9	42.18	06/03/2001 3:30	59	63.2
18/04/2000 3:45	23.5	42.18	06/03/2001 3:45	59	63.2
18/04/2000 4:00	15.9	42.18	06/03/2001 4:00	57.63	63.2
18/04/2000 4:15	11.7	42.18	06/03/2001 4:15	57.63	61.9
18/04/2000 4:30	15.3	42.18	06/03/2001 4:30	56.25	63.2
18/04/2000 4:45	20.7	42.18	06/03/2001 4:45	56.25	61.9
18/04/2000 5:00	21.4	42.18	06/03/2001 5:00	57.63	61.9
18/04/2000 5:15	19.3	42.18	06/03/2001 5:15	56.25	61.9
18/04/2000 5:30	15.3	41.33	06/03/2001 5:30	56.25	61.9
18/04/2000 5:45	13.5	40.49	06/03/2001 5:45	54.88	61.9
18/04/2000 6:00	15.9	38.8	06/03/2001 6:00	56.25	60.6
18/04/2000 6:15	19.3	37.95	06/03/2001 6:15	56.25	60.6
18/04/2000 6:30	19.3	36.26	06/03/2001 6:30	54.88	60.6

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

18/04/2000 6:45	17.2	34.57	06/03/2001 6:45	54.88	59.3
18/04/2000 7:00	14.7	33.73	06/03/2001 7:00	54.88	59.3
18/04/2000 7:15	14.7	32.04	06/03/2001 7:15	54.88	59.3
18/04/2000 7:30	16.5	30.35	06/03/2001 7:30	54.88	59.3
18/04/2000 7:45	18.6	28.86	06/03/2001 7:45	53.5	58
18/04/2000 8:00	17.9	27.58	06/03/2001 8:00	53.5	56.7
18/04/2000 8:15	15.9	25.66	06/03/2001 8:15	53.5	58
18/04/2000 8:30	14.7	24.38	06/03/2001 8:30	53.5	56.7
18/04/2000 8:45	15.3	23.1	06/03/2001 8:45	53.5	56.7
18/04/2000 9:00	17.2	23.1	06/03/2001 9:00	53.5	56.7
18/04/2000 9:15	17.9	18.62	06/03/2001 9:15	53.5	56.7
18/04/2000 9:30	17.9	14.18	06/03/2001 9:30	53.5	55.4
18/04/2000 9:45	20.7	24.38	06/03/2001 9:45	52.31	55.4
18/04/2000 10:00	27.75	32.04	06/03/2001 10:00	54.88	55.4
18/04/2000 10:15	30.3	26.3	06/03/2001 10:15	63.13	55.4
18/04/2000 10:30	30.3	23.1	06/03/2001 10:30	53.5	55.4
18/04/2000 10:45	30.3	22.46	06/03/2001 10:45	51.12	55.4
18/04/2000 11:00	30.3	23.1	06/03/2001 11:00	53.5	54.1
18/04/2000 11:15	31.15	23.1	06/03/2001 11:15	53.5	54.1
18/04/2000 11:30	31.15	22.46	06/03/2001 11:30	54.88	54.1
18/04/2000 11:45	30.3	21.82	06/03/2001 11:45	54.88	54.1
18/04/2000 12:00	30.3	21.82	06/03/2001 12:00	54.88	54.1
18/04/2000 12:15	31.15	21.82	06/03/2001 12:15	54.88	54.1
18/04/2000 12:30	32	22.46	06/03/2001 12:30	54.88	54.1
18/04/2000 12:45	23.5	22.46	06/03/2001 12:45	54.88	54.1
18/04/2000 13:00	32	21.82	06/03/2001 13:00	56.25	52.8
18/04/2000 13:15	33.92	21.18	06/03/2001 13:15	56.25	55.4
18/04/2000 13:30	32	21.18	06/03/2001 13:30	57.63	55.4
18/04/2000 13:45	35.84	21.82	06/03/2001 13:45	57.63	52.8
18/04/2000 14:00	39.68	23.74	06/03/2001 14:00	57.63	51.5
18/04/2000 14:15	38.72	28.22	06/03/2001 14:15	57.63	51.5
18/04/2000 14:30	37.76	31.19	06/03/2001 14:30	57.63	52.8
18/04/2000 14:45	37.76	32.04	06/03/2001 14:45	59	52.8
18/04/2000 15:00	38.72	32.04	06/03/2001 15:00	57.63	52.8
18/04/2000 15:15	38.72	32.04	06/03/2001 15:15	59	52.8
18/04/2000 15:30	38.72	32.04	06/03/2001 15:30	57.63	52.8
18/04/2000 15:45	38.72	32.04	06/03/2001 15:45	57.63	52.8
18/04/2000 16:00	39.68	32.04	06/03/2001 16:00	57.63	52.8
18/04/2000 16:15	39.68	32.88	06/03/2001 16:15	57.63	52.8
18/04/2000 16:30	39.68	32.04	06/03/2001 16:30	59	52.8
18/04/2000 16:45	39.68	31.19	06/03/2001 16:45	59	52.8
18/04/2000 17:00	39.68	32.88	06/03/2001 17:00	59	52.8
18/04/2000 17:15	39.68	34.57	06/03/2001 17:15	59	52.8
18/04/2000 17:30	39.68	37.11	06/03/2001 17:30	59	52.8
18/04/2000 17:45	39.68	38.8	06/03/2001 17:45	59	52.8
18/04/2000 18:00	40.64	38.8	06/03/2001 18:00	59	52.8

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

18/04/2000 18:15	40.64	38.8	06/03/2001 18:15	59	52.8
18/04/2000 18:30	40.64	38.8	06/03/2001 18:30	59	52.8
18/04/2000 18:45	40.64	39.64	06/03/2001 18:45	59	52.8
18/04/2000 19:00	40.64	39.64	06/03/2001 19:00	59	52.8
18/04/2000 19:15	42.79	40.49	06/03/2001 19:15	59	52.8
18/04/2000 19:30	43.98	40.49	06/03/2001 19:30	59	52.8
18/04/2000 19:45	45.17	40.49	06/03/2001 19:45	59	52.8
18/04/2000 20:00	46.36	41.33	06/03/2001 20:00	59	52.8
18/04/2000 20:15	46.36	41.33	06/03/2001 20:15	59	52.8
18/04/2000 20:30	46.36	42.18	06/03/2001 20:30	59	52.8
18/04/2000 20:45	46.36	42.18	06/03/2001 20:45	59	52.8
18/04/2000 21:00	45.17	42.18	06/03/2001 21:00	59	52.8
18/04/2000 21:15	43.98	42.18	06/03/2001 21:15	60.38	51.5
18/04/2000 21:30	43.98	42.18	06/03/2001 21:30	59	51.5
18/04/2000 21:45	42.79	42.18	06/03/2001 21:45	59	51.5
18/04/2000 22:00	42.79	43.02	06/03/2001 22:00	59	51.5
18/04/2000 22:15	41.6	43.02	06/03/2001 22:15	59	51.5
18/04/2000 22:30	41.6	43.87	06/03/2001 22:30	59	51.5
18/04/2000 22:45	41.6	44.71	06/03/2001 22:45	59	51.5
18/04/2000 23:00	41.6	45.56	06/03/2001 23:00	59	51.5
18/04/2000 23:15	40.64	46.4	06/03/2001 23:15	59	51.5
18/04/2000 23:30	41.6	46.4	06/03/2001 23:30	59	51.5
18/04/2000 23:45	40.64	46.4	06/03/2001 23:45	59	51.5

TABLA 3: CAUDALES EN LAS ESTACIONES DE AFORO DE GRAUS Y CAMPOS EN EPISODIOS DE CRECIDAS EN LOS AÑOS 2000 Y 2001

Epsiodio 27. 19-01-2013			Epsiodio 28. 18-06-2013		
Fecha	CAMPOS	GRAUS	Fecha	CAMPOS	GRAUS
19/01/2013 0:00	8.18	4.2	18/06/2013 0:00	88.15	73.12
19/01/2013 0:15	8.18	4.2	18/06/2013 0:15	88.15	73.12
19/01/2013 0:30	8.6	4.2	18/06/2013 0:30	88.15	73.12
19/01/2013 0:45	9.02	4.2	18/06/2013 0:45	88.15	73.12
19/01/2013 1:00	9.86	4.2	18/06/2013 1:00	88.15	73.12
19/01/2013 1:15	10.7	4.2	18/06/2013 1:15	88.15	73.12
19/01/2013 1:30	11.18	4.2	18/06/2013 1:30	88.15	73.12
19/01/2013 1:45	12.14	4.2	18/06/2013 1:45	88.15	73.12
19/01/2013 2:00	12.62	4.98	18/06/2013 2:00	88.15	73.12
19/01/2013 2:15	13.58	7.32	18/06/2013 2:15	88.15	73.12
19/01/2013 2:30	14.06	16.3	18/06/2013 2:30	88.15	73.12
19/01/2013 2:45	14.54	17.27	18/06/2013 2:45	88.15	73.12
19/01/2013 3:00	15.02	20.18	18/06/2013 3:00	88.15	73.12
19/01/2013 3:15	15.5	22.12	18/06/2013 3:15	89.48	74.37
19/01/2013 3:30	17.15	22.12	18/06/2013 3:30	98.79	74.37
19/01/2013 3:45	26	23.09	18/06/2013 3:45	116.08	74.37

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

19/01/2013 4:00	22	23.09	18/06/2013 4:00	125.39	74.37
19/01/2013 4:15	20.45	24.06	18/06/2013 4:15	125.39	74.37
19/01/2013 4:30	19.9	24.06	18/06/2013 4:30	122.73	74.37
19/01/2013 4:45	19.9	25.03	18/06/2013 4:45	118.74	74.37
19/01/2013 5:00	18.8	25.03	18/06/2013 5:00	116.08	75.63
19/01/2013 5:15	17.15	26	18/06/2013 5:15	114.75	75.63
19/01/2013 5:30	17.15	26	18/06/2013 5:30	118.74	75.63
19/01/2013 5:45	19.35	27.94	18/06/2013 5:45	122.73	75.63
19/01/2013 6:00	20.45	28.91	18/06/2013 6:00	118.74	76.88
19/01/2013 6:15	20.45	29.88	18/06/2013 6:15	116.08	87.48
19/01/2013 6:30	20.45	29.88	18/06/2013 6:30	116.08	111.36
19/01/2013 6:45	21	30.85	18/06/2013 6:45	116.08	120.75
19/01/2013 7:00	22	31.82	18/06/2013 7:00	113.42	119.18
19/01/2013 7:15	22	33.76	18/06/2013 7:15	116.08	116.06
19/01/2013 7:30	23	40.8	18/06/2013 7:30	129.38	112.93
19/01/2013 7:45	24	42.84	18/06/2013 7:45	141.1	111.36
19/01/2013 8:00	25	41.82	18/06/2013 8:00	166.69	112.93
19/01/2013 8:15	26	42.84	18/06/2013 8:15	207.21	119.18
19/01/2013 8:30	27	42.84	18/06/2013 8:30	200.81	119.18
19/01/2013 8:45	27	42.84	18/06/2013 8:45	205.07	117.62
19/01/2013 9:00	28	41.82	18/06/2013 9:00	205.07	117.62
19/01/2013 9:15	29	43.86	18/06/2013 9:15	213.6	117.62
19/01/2013 9:30	30	48.08	18/06/2013 9:30	217.87	116.06
19/01/2013 9:45	31	50.26	18/06/2013 9:45	217.87	116.06
19/01/2013 10:00	32.3	53.53	18/06/2013 10:00	213.6	127
19/01/2013 10:15	33.6	55.71	18/06/2013 10:15	222.9	145.77
19/01/2013 10:30	34.9	56.8	18/06/2013 10:30	234.5	170.8
19/01/2013 10:45	36.2	58.06	18/06/2013 10:45	246.1	189.86
19/01/2013 11:00	37.5	58.06	18/06/2013 11:00	257.7	195.44
19/01/2013 11:15	38.8	59.31	18/06/2013 11:15	269.3	197.3
19/01/2013 11:30	40.1	60.57	18/06/2013 11:30	309.9	201.02
19/01/2013 11:45	41.4	61.82	18/06/2013 11:45	344.7	206.6
19/01/2013 12:00	44	63.08	18/06/2013 12:00	350.5	212.18
19/01/2013 12:15	45.3	64.33	18/06/2013 12:15	344.7	217.76
19/01/2013 12:30	47.9	66.84	18/06/2013 12:30	350.5	221.48
19/01/2013 12:45	49.2	66.84	18/06/2013 12:45	382.4	223.34
19/01/2013 13:00	50.5	69.35	18/06/2013 13:00	399.8	228.92
19/01/2013 13:15	54.4	70.61	18/06/2013 13:15	396.9	236.36
19/01/2013 13:30	58.55	71.86	18/06/2013 13:30	394	245.66
19/01/2013 13:45	55.7	74.37	18/06/2013 13:45	382.4	262.4
19/01/2013 14:00	55.7	76.88	18/06/2013 14:00	370.8	281
19/01/2013 14:15	60.1	79.39	18/06/2013 14:15	362.1	297.88
19/01/2013 14:30	61.65	84.69	18/06/2013 14:30	379.5	308.43
19/01/2013 14:45	64.75	88.88	18/06/2013 14:45	394	312.65
19/01/2013 15:00	66.3	94.46	18/06/2013 15:00	399.8	321.09
19/01/2013 15:15	67.85	100.04	18/06/2013 15:15	408.5	333.75

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

19/01/2013 15:30	70.95	105.62	18/06/2013 15:30	417.2	348.52
19/01/2013 15:45	81.8	111.36	18/06/2013 15:45	417.2	356.96
19/01/2013 16:00	78.7	119.18	18/06/2013 16:00	414.3	373.84
19/01/2013 16:15	75.6	122.31	18/06/2013 16:15	417.2	386.5
19/01/2013 16:30	75.6	125.44	18/06/2013 16:30	428.8	384.39
19/01/2013 16:45	75.6	131.7	18/06/2013 16:45	449.1	382.28
19/01/2013 17:00	83.35	136.39	18/06/2013 17:00	460.7	388.61
19/01/2013 17:15	83.35	139.52	18/06/2013 17:15	446.2	399.16
19/01/2013 17:30	84.9	141.08	18/06/2013 17:30	428.8	403.38
19/01/2013 17:45	91.7	142.64	18/06/2013 17:45	420.1	416.04
19/01/2013 18:00	97.25	144.21	18/06/2013 18:00	405.6	420.26
19/01/2013 18:15	95.4	150.46	18/06/2013 18:15	408.5	424.48
19/01/2013 18:30	97.25	152.03	18/06/2013 18:30	408.5	430.81
19/01/2013 18:45	88	150.46	18/06/2013 18:45	414.3	445.58
19/01/2013 19:00	91.7	150.46	18/06/2013 19:00	405.6	464.57
19/01/2013 19:15	89.85	150.46	18/06/2013 19:15	402.7	477.23
19/01/2013 19:30	89.85	150.46	18/06/2013 19:30	391.1	475.12
19/01/2013 19:45	86.45	150.46	18/06/2013 19:45	385.3	466.68
19/01/2013 20:00	80.25	152.03	18/06/2013 20:00	379.5	458.24
19/01/2013 20:15	78.7	153.59	18/06/2013 20:15	367.9	454.02
19/01/2013 20:30	80.25	153.59	18/06/2013 20:30	350.5	454.02
19/01/2013 20:45	80.25	153.59	18/06/2013 20:45	341.8	458.24
19/01/2013 21:00	75.6	150.46	18/06/2013 21:00	333.1	454.02
19/01/2013 21:15	74.05	147.34	18/06/2013 21:15	321.5	449.8
19/01/2013 21:30	72.5	145.77	18/06/2013 21:30	315.7	443.47
19/01/2013 21:45	72.5	145.77	18/06/2013 21:45	309.9	435.03
19/01/2013 22:00	67.85	145.77	18/06/2013 22:00	304.1	430.81
19/01/2013 22:15	66.3	142.64	18/06/2013 22:15	301.2	424.48
19/01/2013 22:30	64.75	137.95	18/06/2013 22:30	298.3	416.04
19/01/2013 22:45	64.75	136.39	18/06/2013 22:45	304.1	407.6
19/01/2013 23:00	63.2	134.82	18/06/2013 23:00	309.9	394.94
19/01/2013 23:15	63.2	133.26	18/06/2013 23:15	315.7	386.5
19/01/2013 23:30	61.65	130.13	18/06/2013 23:30	295.4	380.17
19/01/2013 23:45	60.1	125.44	18/06/2013 23:45	278	375.95
20/01/2013 0:00	58.55	125.44	19/06/2013 0:00	263.5	367.51
20/01/2013 0:15	57	123.88	19/06/2013 0:15	251.9	365.4
20/01/2013 0:30	57	122.31	19/06/2013 0:30	240.3	361.18
20/01/2013 0:45	55.7	122.31	19/06/2013 0:45	228.7	363.29
20/01/2013 1:00	54.4	122.31	19/06/2013 1:00	220	367.51
20/01/2013 1:15	55.7	122.31	19/06/2013 1:15	213.6	371.73
20/01/2013 1:30	53.1	122.31	19/06/2013 1:30	213.6	371.73
20/01/2013 1:45	51.8	122.31	19/06/2013 1:45	207.21	361.18
20/01/2013 2:00	50.5	120.75	19/06/2013 2:00	196.54	348.52
20/01/2013 2:15	49.2	120.75	19/06/2013 2:15	185.88	335.86
20/01/2013 2:30	49.2	117.62	19/06/2013 2:30	179.48	323.2
20/01/2013 2:45	47.9	116.06	19/06/2013 2:45	175.22	312.65

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

20/01/2013 3:00	47.9	112.93	19/06/2013 3:00	170.95	304.21
20/01/2013 3:15	49.2	111.36	19/06/2013 3:15	175.22	297.88
20/01/2013 3:30	50.5	108.41	19/06/2013 3:30	179.48	291.55
20/01/2013 3:45	50.5	107.01	19/06/2013 3:45	181.62	283.11
20/01/2013 4:00	49.2	107.01	19/06/2013 4:00	181.62	273.56
20/01/2013 4:15	49.2	104.22	19/06/2013 4:15	173.09	266.12
20/01/2013 4:30	49.2	101.43	19/06/2013 4:30	164.56	262.4
20/01/2013 4:45	47.9	100.04	19/06/2013 4:45	158.16	254.96
20/01/2013 5:00	47.9	97.25	19/06/2013 5:00	153.89	251.24
20/01/2013 5:15	47.9	95.85	19/06/2013 5:15	153.89	249.38
20/01/2013 5:30	46.6	95.85	19/06/2013 5:30	156.03	251.24
20/01/2013 5:45	41.4	94.46	19/06/2013 5:45	156.03	253.1
20/01/2013 6:00	33.6	94.46	19/06/2013 6:00	156.03	251.24
20/01/2013 6:15	33.6	93.06	19/06/2013 6:15	158.16	249.38
20/01/2013 6:30	33.6	93.06	19/06/2013 6:30	158.16	243.8
20/01/2013 6:45	33.6	91.67	19/06/2013 6:45	158.16	238.22
20/01/2013 7:00	33.6	90.27	19/06/2013 7:00	158.16	230.78
20/01/2013 7:15	33.6	88.88	19/06/2013 7:15	158.16	228.92
20/01/2013 7:30	33.6	87.48	19/06/2013 7:30	158.16	228.92
20/01/2013 7:45	32.3	86.09	19/06/2013 7:45	156.03	228.92
20/01/2013 8:00	32.3	84.69	19/06/2013 8:00	153.89	227.06
20/01/2013 8:15	32.3	83.3	19/06/2013 8:15	147.5	225.2
20/01/2013 8:30	24	80.65	19/06/2013 8:30	141.1	223.34
20/01/2013 8:45	9.02	75.63	19/06/2013 8:45	136.83	223.34
20/01/2013 9:00	16.6	71.86	19/06/2013 9:00	130.71	221.48
20/01/2013 9:15	27	69.35	19/06/2013 9:15	129.38	223.34
20/01/2013 9:30	27	68.1	19/06/2013 9:30	126.72	219.62
20/01/2013 9:45	28	68.1	19/06/2013 9:45	126.72	219.62
20/01/2013 10:00	27	68.1	19/06/2013 10:00	126.72	217.76
20/01/2013 10:15	27	68.1	19/06/2013 10:15	126.72	215.9
20/01/2013 10:30	26	66.84	19/06/2013 10:30	125.39	212.18
20/01/2013 10:45	25	66.84	19/06/2013 10:45	125.39	206.6
20/01/2013 11:00	25	74.37	19/06/2013 11:00	122.73	201.02
20/01/2013 11:15	25	65.59	19/06/2013 11:15	124.06	193.58
20/01/2013 11:30	24	63.08	19/06/2013 11:30	125.39	193.58
20/01/2013 11:45	24	59.31	19/06/2013 11:45	125.39	191.72
20/01/2013 12:00	24	53.53	19/06/2013 12:00	125.39	189.86
20/01/2013 12:15	24	48.08	19/06/2013 12:15	125.39	189.86
20/01/2013 12:30	24	45.9	19/06/2013 12:30	125.39	188
20/01/2013 12:45	26	54.62	19/06/2013 12:45	124.06	188
20/01/2013 13:00	27	56.8	19/06/2013 13:00	124.06	184.87
20/01/2013 13:15	29	56.8	19/06/2013 13:15	124.06	184.87
20/01/2013 13:30	29	55.71	19/06/2013 13:30	124.06	184.87
20/01/2013 13:45	30	55.71	19/06/2013 13:45	122.73	186.44
20/01/2013 14:00	30	54.62	19/06/2013 14:00	122.73	186.44
20/01/2013 14:15	30	54.62	19/06/2013 14:15	121.4	184.87

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

20/01/2013 14:30	30	53.53	19/06/2013 14:30	121.4	184.87
20/01/2013 14:45	29	53.53	19/06/2013 14:45	121.4	184.87
20/01/2013 15:00	28	51.35	19/06/2013 15:00	120.07	184.87
20/01/2013 15:15	28	50.26	19/06/2013 15:15	118.74	183.31
20/01/2013 15:30	27	50.26	19/06/2013 15:30	118.74	183.31
20/01/2013 15:45	25	50.26	19/06/2013 15:45	117.41	183.31
20/01/2013 16:00	24	50.26	19/06/2013 16:00	118.74	181.74
20/01/2013 16:15	22	53.53	19/06/2013 16:15	117.41	180.18
20/01/2013 16:30	21	54.62	19/06/2013 16:30	116.08	180.18
20/01/2013 16:45	21	55.71	19/06/2013 16:45	116.08	178.62
20/01/2013 17:00	21	55.71	19/06/2013 17:00	114.75	178.62
20/01/2013 17:15	21	55.71	19/06/2013 17:15	114.75	178.62
20/01/2013 17:30	19.9	55.71	19/06/2013 17:30	113.42	177.05
20/01/2013 17:45	17.7	55.71	19/06/2013 17:45	113.42	177.05
20/01/2013 18:00	16.6	54.62	19/06/2013 18:00	113.42	175.49
20/01/2013 18:15	17.15	54.62	19/06/2013 18:15	110.76	173.92
20/01/2013 18:30	19.35	53.53	19/06/2013 18:30	109.43	173.92
20/01/2013 18:45	20.45	51.35	19/06/2013 18:45	104.11	173.92
20/01/2013 19:00	21	51.35	19/06/2013 19:00	97.46	173.92
20/01/2013 19:15	19.9	50.26	19/06/2013 19:15	86.82	173.92
20/01/2013 19:30	17.7	48.08	19/06/2013 19:30	81.5	170.8
20/01/2013 19:45	16.6	48.08	19/06/2013 19:45	81.5	170.8
20/01/2013 20:00	16.6	45.9	19/06/2013 20:00	81.5	169.23
20/01/2013 20:15	18.25	45.9	19/06/2013 20:15	81.5	170.8
20/01/2013 20:30	19.35	45.9	19/06/2013 20:30	81.5	169.23
20/01/2013 20:45	19.9	44.88	19/06/2013 20:45	81.5	166.1
20/01/2013 21:00	18.8	44.88	19/06/2013 21:00	80.52	162.98
20/01/2013 21:15	17.15	42.84	19/06/2013 21:15	80.52	156.72
20/01/2013 21:30	16.6	41.82	19/06/2013 21:30	80.52	150.46
20/01/2013 21:45	16.6	41.82	19/06/2013 21:45	79.53	142.64
20/01/2013 22:00	18.25	40.8	19/06/2013 22:00	78.55	139.52
20/01/2013 22:15	18.8	41.82	19/06/2013 22:15	79.53	137.95
20/01/2013 22:30	18.8	42.84	19/06/2013 22:30	79.53	136.39
20/01/2013 22:45	18.8	42.84	19/06/2013 22:45	78.55	136.39
20/01/2013 23:00	19.9	41.82	19/06/2013 23:00	76.58	136.39
20/01/2013 23:15	22	41.82	19/06/2013 23:15	81.5	134.82
20/01/2013 23:30	23	40.8	19/06/2013 23:30	81.5	134.82
20/01/2013 23:45	24	37.74	19/06/2013 23:45	80.52	134.82
21/01/2013 0:00	24	37.74	20/06/2013 0:00	80.52	136.39
21/01/2013 0:15	25	40.8	20/06/2013 0:15	81.5	134.82
21/01/2013 0:30	25	40.8	20/06/2013 0:30	81.5	134.82
21/01/2013 0:45	25	40.8	20/06/2013 0:45	81.5	134.82
21/01/2013 1:00	24	39.78	20/06/2013 1:00	80.52	134.82
21/01/2013 1:15	23	37.74	20/06/2013 1:15	79.53	133.26
21/01/2013 1:30	22	37.74	20/06/2013 1:30	78.55	133.26
21/01/2013 1:45	21	36.72	20/06/2013 1:45	77.56	136.39

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

21/01/2013 2:00	21	37.74	20/06/2013 2:00	77.56	136.39
21/01/2013 2:15	21	39.78	20/06/2013 2:15	76.58	136.39
21/01/2013 2:30	18.8	39.78	20/06/2013 2:30	75.59	136.39
21/01/2013 2:45	14.06	40.8	20/06/2013 2:45	75.59	134.82
21/01/2013 3:00	11.18	41.82	20/06/2013 3:00	73.62	134.82
21/01/2013 3:15	13.1	43.86	20/06/2013 3:15	72.64	134.82
21/01/2013 3:30	17.15	43.86	20/06/2013 3:30	71.65	134.82
21/01/2013 3:45	19.35	43.86	20/06/2013 3:45	70.67	133.26
21/01/2013 4:00	18.25	43.86	20/06/2013 4:00	70.67	131.7
21/01/2013 4:15	15.02	43.86	20/06/2013 4:15	70.67	131.7
21/01/2013 4:30	11.66	43.86	20/06/2013 4:30	68.7	130.13
21/01/2013 4:45	11.66	43.86	20/06/2013 4:45	68.7	130.13
21/01/2013 5:00	15.5	42.84	20/06/2013 5:00	68.7	130.13
21/01/2013 5:15	18.25	41.82	20/06/2013 5:15	68.7	130.13
21/01/2013 5:30	18.25	41.82	20/06/2013 5:30	68.7	130.13
21/01/2013 5:45	16.05	41.82	20/06/2013 5:45	68.7	130.13
21/01/2013 6:00	12.62	41.82	20/06/2013 6:00	67.71	130.13
21/01/2013 6:15	10.7	40.8	20/06/2013 6:15	67.71	127
21/01/2013 6:30	13.58	36.72	20/06/2013 6:30	68.7	130.13
21/01/2013 6:45	17.15	34.73	20/06/2013 6:45	67.71	127
21/01/2013 7:00	18.8	32.79	20/06/2013 7:00	67.71	127
21/01/2013 7:15	16.6	31.82	20/06/2013 7:15	67.71	127
21/01/2013 7:30	13.58	30.85	20/06/2013 7:30	67.71	127
21/01/2013 7:45	10.7	33.76	20/06/2013 7:45	65.74	127
21/01/2013 8:00	11.66	35.7	20/06/2013 8:00	67.71	127
21/01/2013 8:15	15.5	34.73	20/06/2013 8:15	67.71	127
21/01/2013 8:30	17.7	32.79	20/06/2013 8:30	67.71	125.44
21/01/2013 8:45	17.15	30.85	20/06/2013 8:45	66.73	127
21/01/2013 9:00	14.54	29.88	20/06/2013 9:00	66.73	125.44
21/01/2013 9:15	11.66	30.85	20/06/2013 9:15	67.71	125.44
21/01/2013 9:30	15.5	33.76	20/06/2013 9:30	66.73	125.44
21/01/2013 9:45	21	33.76	20/06/2013 9:45	67.71	125.44
21/01/2013 10:00	21	32.79	20/06/2013 10:00	66.73	125.44
21/01/2013 10:15	22	30.85	20/06/2013 10:15	66.73	125.44
21/01/2013 10:30	21	29.88	20/06/2013 10:30	65.74	125.44
21/01/2013 10:45	21	29.88	20/06/2013 10:45	64.76	125.44
21/01/2013 11:00	21	29.88	20/06/2013 11:00	63.77	125.44
21/01/2013 11:15	21	32.79	20/06/2013 11:15	62.79	123.88
21/01/2013 11:30	21	32.79	20/06/2013 11:30	62.79	123.88
21/01/2013 11:45	21	30.85	20/06/2013 11:45	61.8	123.88
21/01/2013 12:00	20.45	29.88	20/06/2013 12:00	61.8	123.88
21/01/2013 12:15	17.7	28.91	20/06/2013 12:15	61.8	123.88
21/01/2013 12:30	13.1	28.91	20/06/2013 12:30	61.8	122.31
21/01/2013 12:45	10.28	29.88	20/06/2013 12:45	61.8	125.44
21/01/2013 13:00	12.62	31.82	20/06/2013 13:00	61.8	123.88
21/01/2013 13:15	17.7	30.85	20/06/2013 13:15	61.8	119.18

ANEJO 2: DATOS HISTÓRICOS DE EVENTOS DE CRECIDA EN EL RÍO ÉSERA

21/01/2013 13:30	18.25	30.85	20/06/2013 13:30	61.8	117.62
21/01/2013 13:45	16.05	31.82	20/06/2013 13:45	61.8	116.06
21/01/2013 14:00	12.62	36.72	20/06/2013 14:00	61.8	116.06
21/01/2013 14:15	14.06	37.74	20/06/2013 14:15	61.8	116.06
21/01/2013 14:30	19.35	37.74	20/06/2013 14:30	60.95	116.06
21/01/2013 14:45	22	37.74	20/06/2013 14:45	61.8	116.06
21/01/2013 15:00	22	37.74	20/06/2013 15:00	60.95	116.06
21/01/2013 15:15	22	37.74	20/06/2013 15:15	61.8	114.49
21/01/2013 15:30	23	37.74	20/06/2013 15:30	61.8	116.06
21/01/2013 15:45	23	36.72	20/06/2013 15:45	61.8	114.49
21/01/2013 16:00	24	35.7	20/06/2013 16:00	61.8	116.06
21/01/2013 16:15	24	34.73	20/06/2013 16:15	60.95	114.49
21/01/2013 16:30	24	32.79	20/06/2013 16:30	61.8	114.49
21/01/2013 16:45	24	30.85	20/06/2013 16:45	61.8	114.49
21/01/2013 17:00	24	28.91	20/06/2013 17:00	61.8	114.49
21/01/2013 17:15	24	28.91	20/06/2013 17:15	61.8	114.49
21/01/2013 17:30	23	27.94	20/06/2013 17:30	61.8	114.49
21/01/2013 17:45	23	29.88	20/06/2013 17:45	61.8	114.49
21/01/2013 18:00	23	30.85	20/06/2013 18:00	61.8	114.49
21/01/2013 18:15	23	29.88	20/06/2013 18:15	61.8	114.49
21/01/2013 18:30	23	29.88	20/06/2013 18:30	60.95	114.49
21/01/2013 18:45	23	32.79	20/06/2013 18:45	60.95	114.49
21/01/2013 19:00	23	37.74	20/06/2013 19:00	60.95	112.93
21/01/2013 19:15	22	37.74	20/06/2013 19:15	60.95	112.93
21/01/2013 19:30	22	39.78	20/06/2013 19:30	60.95	112.93
21/01/2013 19:45	22	39.78	20/06/2013 19:45	60.95	112.93
21/01/2013 20:00	22	39.78	20/06/2013 20:00	60.95	112.93
21/01/2013 20:15	22	39.78	20/06/2013 20:15	60.95	112.93
21/01/2013 20:30	22	39.78	20/06/2013 20:30	60.95	112.93
21/01/2013 20:45	22	39.78	20/06/2013 20:45	60.11	112.93
21/01/2013 21:00	22	39.78	20/06/2013 21:00	60.11	112.93
21/01/2013 21:15	22	39.78	20/06/2013 21:15	57.57	112.93
21/01/2013 21:30	22	39.78	20/06/2013 21:30	54.18	111.36
21/01/2013 21:45	22	37.74	20/06/2013 21:45	52.49	111.36
21/01/2013 22:00	22	37.74	20/06/2013 22:00	51.64	111.36
21/01/2013 22:15	22	37.74	20/06/2013 22:15	50.79	111.36
21/01/2013 22:30	21	37.74	20/06/2013 22:30	50.79	111.36
21/01/2013 22:45	22	37.74	20/06/2013 22:45	49.95	111.36
21/01/2013 23:00	22	37.74	20/06/2013 23:00	49.95	111.36
21/01/2013 23:15	21	37.74	20/06/2013 23:15	49.95	111.36
21/01/2013 23:30	21	37.74	20/06/2013 23:30	49.95	109.8
21/01/2013 23:45	21	37.74	20/06/2013 23:45	49.95	107.01

TABLA 4: CAUDALES EN LAS ESTACIONES DE AFORO DE GRAUS Y CAMPOS EN DOS EPISODIOS DE CRECIDAS EN EL AÑO 2013

ANEJO 3: DATOS PLUVIOMÉTRICOS

Anejo 3: Datos Pluviométricos

EVENTO 1					EVENTO 2				
	PLUVIO_ERISTI	PLUVIO_LASPAULE	PLUVIO_CAPELL	PLUVIO_CAMPO		PLUVIO_ERISTE	PLUVIO_LASPA	PLUVIO_CAPELLA	PLUVIO_CAMPO
TOTAL	0.8	64.8	27.9	39.6	TOTAL	36.4	33.4	26.2	0.6
16/04/2000 0:00	0	0	0.6	0.2	03/03/2001 10:00	0.2	0	0	0
16/04/2000 0:15	0	0	1.3	0.4	03/03/2001 10:15	0	0	0	0
16/04/2000 0:30	0	0	0.9	0.4	03/03/2001 10:30	0	0	0	0
16/04/2000 0:45	0	0.2	0.7	0.6	03/03/2001 10:45	0	0	0	0
16/04/2000 1:00	0	0	0.6	0.6	03/03/2001 11:00	0	0	0	0
16/04/2000 1:15	0	0	0.4	0.6	03/03/2001 11:15	0	0	0	0
16/04/2000 1:30	0	0	0.8	0.8	03/03/2001 11:30	0	0	0	0
16/04/2000 1:45	0	0	0.3	0.6	03/03/2001 11:45	0	0	0	0
16/04/2000 2:00	0	0	0.5	0.6	03/03/2001 12:00	0	0	0	0
16/04/2000 2:15	0	0.2	0.7	0.8	03/03/2001 12:15	0.2	0	0	0
16/04/2000 2:30	0	0	0.3	0.6	03/03/2001 12:30	0.2	0	0	0
16/04/2000 2:45	0	0	0.2	0.2	03/03/2001 12:45	0	0	0	0
16/04/2000 3:00	0	0	0	0.4	03/03/2001 13:00	0.2	0	0	0
16/04/2000 3:15	0	0.2	0	0.2	03/03/2001 13:15	0	0	0	0
16/04/2000 3:30	0	0	0.1	0	03/03/2001 13:30	0.2	0.2	0	0
16/04/2000 3:45	0	0	0.1	0	03/03/2001 13:45	0.2	0.4	0	0
16/04/2000 4:00	0	0	0	0	03/03/2001 14:00	0.2	0.4	0	0
16/04/2000 4:15	0	0	0.1	0	03/03/2001 14:15	0	0.2	0	0
16/04/2000 4:30	0	0.2	0	0	03/03/2001 14:30	0.4	0	0	0
16/04/2000 4:45	0	0	0	0	03/03/2001 14:45	0	0.2	0	0
16/04/2000 5:00	0	0.2	0.2	0.2	03/03/2001 15:00	0	0	0	0
16/04/2000 5:15	0	0.6	0.7	0.4	03/03/2001 15:15	0.2	0	0	0
16/04/2000 5:30	0	0.4	0.6	0.8	03/03/2001 15:30	0.2	0	0	0
16/04/2000 5:45	0	0.4	0.6	0.4	03/03/2001 15:45	0.4	0.4	0	0
16/04/2000 6:00	0	0.2	0.6	0.6	03/03/2001 16:00	0.2	0.4	0	0
16/04/2000 6:15	0	0.2	0.3	0.6	03/03/2001 16:15	0.6	0.2	0	0
16/04/2000 6:30	0	0.4	0.2	0.6	03/03/2001 16:30	0.6	0.2	0	0
16/04/2000 6:45	0	1.2	0.1	0.2	03/03/2001 16:45	1	0	0	0
16/04/2000 7:00	0	1.2	0.1	0.4	03/03/2001 17:00	0.8	0.2	0	0
16/04/2000 7:15	0	0.8	0	0	03/03/2001 17:15	1	0.2	0.6	0
16/04/2000 7:30	0	1.2	0.1	0.4	03/03/2001 17:30	2.2	0.8	3.9	0
16/04/2000 7:45	0	1	0.1	0.8	03/03/2001 17:45	0.4	1.6	0.3	0
16/04/2000 8:00	0	1.6	0.1	0.4	03/03/2001 18:00	0	1.2	0.2	0
16/04/2000 8:15	0	1.2	0	0	03/03/2001 18:15	0.2	0.4	0	0
16/04/2000 8:30	0	1.4	0	0.2	03/03/2001 18:30	0.8	1.4	0.2	0
16/04/2000 8:45	0	1.2	0.1	0.2	03/03/2001 18:45	1	1.6	3.6	0
16/04/2000 9:00	0	1	0	0.2	03/03/2001 19:00	0.4	1	2	0
16/04/2000 9:15	0	0.6	0	0	03/03/2001 19:15	0.2	0.6	0.5	0
16/04/2000 9:30	0	1.2	0.1	0	03/03/2001 19:30	0	0.2	0.1	0
16/04/2000 9:45	0	1	0	0	03/03/2001 19:45	0	0	0	0
16/04/2000 10:00	0	0.6	0	0	03/03/2001 20:00	0	0	0	0
16/04/2000 10:15	0	0.8	0	0	03/03/2001 20:15	0	0	0	0
16/04/2000 10:30	0	1	0	0	03/03/2001 20:30	0	0	0	0
16/04/2000 10:45	0	0.8	0	0	03/03/2001 20:45	0	0	0	0
16/04/2000 11:00	0	0.8	0	0	03/03/2001 21:00	0	0	0	0
16/04/2000 11:15	0	0.8	0	0	03/03/2001 21:15	0	0	0.1	0
16/04/2000 11:30	0	0.4	0	0	03/03/2001 21:30	0	0	0	0
16/04/2000 11:45	0	1	0	0	03/03/2001 21:45	0	0	0	0
16/04/2000 12:00	0	1.2	0.1	0.2	03/03/2001 22:00	0	0	0	0
16/04/2000 12:15	0	1	0.3	0	03/03/2001 22:15	0	0	0	0
16/04/2000 12:30	0	1.2	0.2	0.2	03/03/2001 22:30	0.2	0	0	0
16/04/2000 12:45	0	1.8	0.2	0.4	03/03/2001 22:45	0	0	0	0
16/04/2000 13:00	0	1.4	0.2	0.4	03/03/2001 23:00	0	0.2	0	0
16/04/2000 13:15	0	1.4	0.2	0.4	03/03/2001 23:15	0	0	0	0
16/04/2000 13:30	0	1.2	0.6	0.2	03/03/2001 23:30	0.2	0	0	0
16/04/2000 13:45	0	1	0.5	0.8	03/03/2001 23:45	0	0	0	0
16/04/2000 14:00	0	0.8	0.5	0.4	04/03/2001 0:00	0	0	0	0
16/04/2000 14:15	0	1.2	0.1	0.6	04/03/2001 0:15	0	0	0	0
16/04/2000 14:30	0	0.6	0.2	2.6	04/03/2001 0:30	0	0	0	0
16/04/2000 14:45	0	1	0	0.8	04/03/2001 0:45	0	0	0	0
16/04/2000 15:00	0.2	1.8	0.1	0.6	04/03/2001 1:00	0	0	0	0
16/04/2000 15:15	0	2.8	1.6	1	04/03/2001 1:15	0	0	0	0
16/04/2000 15:30	0	1	0.4	2	04/03/2001 1:30	0	0	0	0
16/04/2000 15:45	0	1.6	0.1	1	04/03/2001 1:45	0	0	0	0
16/04/2000 16:00	0	3	0	0.8	04/03/2001 2:00	0.2	0	0	0
16/04/2000 16:15	0	1.8	0	0.8	04/03/2001 2:15	0	0	0.1	0
16/04/2000 16:30	0	2	0.1	0.8	04/03/2001 2:30	0	0.2	0	0
16/04/2000 16:45	0	3.8	4	1	04/03/2001 2:45	0	0.4	0	0
16/04/2000 17:00	0	2.8	1.8	0.4	04/03/2001 3:00	0.2	0.4	0	0
16/04/2000 17:15	0	0.6	0.1	0.6	04/03/2001 3:15	0	0.4	0	0
16/04/2000 17:30	0	0.6	0.1	0.2	04/03/2001 3:30	0	0	0	0
16/04/2000 17:45	0	0.6	0	0	04/03/2001 3:45	0	0	0	0
16/04/2000 18:00	0	0.2	0	0	04/03/2001 4:00	0	0	0	0
16/04/2000 18:15	0	0	0	0	04/03/2001 4:15	0	0	0	0

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16/04/2000 18:30	0	0.2	0	0	04/03/2001 4:30	0	0	0	0
16/04/2000 18:45	0	0	0	0	04/03/2001 4:45	0.2	0.2	0	0
16/04/2000 19:00	0	0	0.1	0	04/03/2001 5:00	0.4	0.2	0	0
16/04/2000 19:15	0	0	0	0	04/03/2001 5:15	0.2	0.2	0	0
16/04/2000 19:30	0	0	0	0	04/03/2001 5:30	0.2	0	0	0
16/04/2000 19:45	0	0	0	0	04/03/2001 5:45	0	0	0	0.2
16/04/2000 20:00	0	0	0	0	04/03/2001 6:00	0	0	0	0
16/04/2000 20:15	0	0	0	0	04/03/2001 6:15	0	0	0	0
16/04/2000 20:30	0	0	0	0	04/03/2001 6:30	0.2	0	0	0
16/04/2000 20:45	0	0	0	0	04/03/2001 6:45	0.2	0	0	0
16/04/2000 21:00	0	0	0	0	04/03/2001 7:00	0	0	0	0
16/04/2000 21:15	0	0	0	0	04/03/2001 7:15	0	0	0.1	0
16/04/2000 21:30	0	0	0	0	04/03/2001 7:30	0	0	0	0
16/04/2000 21:45	0	0	0	0	04/03/2001 7:45	0	0.2	0	0
16/04/2000 22:00	0	0	0	0	04/03/2001 8:00	0.2	0.2	0	0
16/04/2000 22:15	0	0	0	0	04/03/2001 8:15	0.2	0	0	0
16/04/2000 22:30	0	0	0	0	04/03/2001 8:30	0	0	0	0
16/04/2000 22:45	0	0	0	0	04/03/2001 8:45	0.2	0.2	0	0
16/04/2000 23:00	0	0	0	0	04/03/2001 9:00	0.2	0.4	0	0
16/04/2000 23:15	0	0	0	0	04/03/2001 9:15	0.2	0.4	0.5	0
16/04/2000 23:30	0	0	0	0	04/03/2001 9:30	0.4	0.2	0.2	0
16/04/2000 23:45	0	0	0	0	04/03/2001 9:45	0.4	0.2	0.3	0
17/04/2000 0:00	0	0	0	0	04/03/2001 10:00	0.4	0.4	0.1	0
17/04/2000 0:15	0	0	0	0	04/03/2001 10:15	0.4	0.2	0.1	0
17/04/2000 0:30	0	0	0	0	04/03/2001 10:30	0.2	0.2	0	0
17/04/2000 0:45	0	0	0	0	04/03/2001 10:45	0.4	0	0	0
17/04/2000 1:00	0	0	0	0	04/03/2001 11:00	0.2	0.2	0.2	0
17/04/2000 1:15	0	0	0	0	04/03/2001 11:15	0.6	0.2	0.2	0
17/04/2000 1:30	0	0	0	0	04/03/2001 11:30	0.6	0.2	0.1	0
17/04/2000 1:45	0	0	0	0	04/03/2001 11:45	0.4	0.2	0	0
17/04/2000 2:00	0	0	0	0	04/03/2001 12:00	0.6	0.4	0.1	0
17/04/2000 2:15	0	0	0	0	04/03/2001 12:15	0.6	0.4	0.6	0
17/04/2000 2:30	0	0	0.1	0	04/03/2001 12:30	0.6	0.4	0.5	0
17/04/2000 2:45	0	0	0	0	04/03/2001 12:45	0.6	0.6	0.3	0
17/04/2000 3:00	0	0	0	0	04/03/2001 13:00	0.8	0.4	0.7	0
17/04/2000 3:15	0	0	0	0	04/03/2001 13:15	0.6	0.4	0.6	0
17/04/2000 3:30	0	0	0	0	04/03/2001 13:30	0.4	0.6	0.7	0
17/04/2000 3:45	0	0	0	0	04/03/2001 13:45	0.8	0.4	0.8	0
17/04/2000 4:00	0	0	0	0	04/03/2001 14:00	0.6	0.8	0.6	0
17/04/2000 4:15	0	0	0	0	04/03/2001 14:15	0.6	0.8	0.6	0
17/04/2000 4:30	0	0	0	0	04/03/2001 14:30	0.6	0.8	0.7	0
17/04/2000 4:45	0	0	0	0	04/03/2001 14:45	0.4	0.6	0.6	0
17/04/2000 5:00	0	0	0	0	04/03/2001 15:00	0.6	0.6	0.5	0
17/04/2000 5:15	0	0	0	0	04/03/2001 15:15	0.8	0.4	0.6	0
17/04/2000 5:30	0	0	0	0	04/03/2001 15:30	0.6	0.4	0.5	0
17/04/2000 5:45	0	0	0	0	04/03/2001 15:45	0.6	0.4	0.5	0
17/04/2000 6:00	0	0	0	0	04/03/2001 16:00	0.6	0.6	0.4	0
17/04/2000 6:15	0	0	0	0	04/03/2001 16:15	0.2	0.6	0.4	0
17/04/2000 6:30	0	0	0	0	04/03/2001 16:30	0.4	0.4	0.4	0
17/04/2000 6:45	0	0	0	0	04/03/2001 16:45	0.2	0.4	0.4	0
17/04/2000 7:00	0	0	0	0	04/03/2001 17:00	0.4	0.6	0.9	0
17/04/2000 7:15	0	0	0	0	04/03/2001 17:15	0.6	0.4	0.3	0
17/04/2000 7:30	0	0	0	0	04/03/2001 17:30	0.6	0.4	0.3	0
17/04/2000 7:45	0	0	0	0	04/03/2001 17:45	0.4	0.4	0.2	0
17/04/2000 8:00	0	0	0	0	04/03/2001 18:00	0.4	0.6	0.1	0
17/04/2000 8:15	0	0	0	0	04/03/2001 18:15	0.4	0.6	0.1	0
17/04/2000 8:30	0	0	0	0	04/03/2001 18:30	0.4	0.4	0	0
17/04/2000 8:45	0	0	0	0	04/03/2001 18:45	0.2	0.2	0	0
17/04/2000 9:00	0	0	0	0	04/03/2001 19:00	0	0.2	0	0
17/04/2000 9:15	0	0	0	0	04/03/2001 19:15	0.2	0.4	0.1	0
17/04/2000 9:30	0	0	0	0	04/03/2001 19:30	0.2	0.4	0	0
17/04/2000 9:45	0.2	0	0	0	04/03/2001 19:45	0.8	0.2	0	0
17/04/2000 10:00	0	0	0	0	04/03/2001 20:00	0.2	0	0	0
17/04/2000 10:15	0	0	0	0	04/03/2001 20:15	0	0	0	0
17/04/2000 10:30	0	0	0	0	04/03/2001 20:30	0	0.2	0	0
17/04/2000 10:45	0	0	0	0	04/03/2001 20:45	0	0	0	0
17/04/2000 11:00	0	0	0	0	04/03/2001 21:00	0	0	0	0
17/04/2000 11:15	0	0	0	0	04/03/2001 21:15	0.2	0	0	0
17/04/2000 11:30	0	0	0	0	04/03/2001 21:30	0	0	0	0
17/04/2000 11:45	0	0	0	0	04/03/2001 21:45	0	0	0	0
17/04/2000 12:00	0	0	0	0	04/03/2001 22:00	0	0	0	0
17/04/2000 12:15	0	0	0	0	04/03/2001 22:15	0.2	0	0	0
17/04/2000 12:30	0	0	0	0	04/03/2001 22:30	0	0	0	0
17/04/2000 12:45	0	0	0	0	04/03/2001 22:45	0.2	0	0	0
17/04/2000 13:00	0	0	0	0	04/03/2001 23:00	0	0	0	0

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17/04/2000 13:15	0	0	0	0	04/03/2001 23:15	0	0	0	0
17/04/2000 13:30	0	0	0	0	04/03/2001 23:30	0	0	0	0
17/04/2000 13:45	0	0	0	0	04/03/2001 23:45	0	0	0	0
17/04/2000 14:00	0	0	0	0	05/03/2001 0:00	0	0	0.1	0
17/04/2000 14:15	0	0	0	0	05/03/2001 0:15	0	0	0	0
17/04/2000 14:30	0	0	0	0	05/03/2001 0:30	0	0	0	0
17/04/2000 14:45	0	0	0	0	05/03/2001 0:45	0	0	0	0
17/04/2000 15:00	0	0	0	0	05/03/2001 1:00	0	0	0	0
17/04/2000 15:15	0	0	0	0	05/03/2001 1:15	0	0	0	0
17/04/2000 15:30	0	0	0	0	05/03/2001 1:30	0	0	0	0
17/04/2000 15:45	0	0	0	0	05/03/2001 1:45	0	0	0	0
17/04/2000 16:00	0	0	0	0	05/03/2001 2:00	0	0	0	0
17/04/2000 16:15	0	0	0	0	05/03/2001 2:15	0	0	0	0.2
17/04/2000 16:30	0	0	0	0	05/03/2001 2:30	0	0	0	0
17/04/2000 16:45	0	0	0	0	05/03/2001 2:45	0	0	0	0
17/04/2000 17:00	0	0	0	0	05/03/2001 3:00	0	0	0	0
17/04/2000 17:15	0	0	0	0	05/03/2001 3:15	0	0	0	0
17/04/2000 17:30	0	0	0	0	05/03/2001 3:30	0	0	0	0
17/04/2000 17:45	0	0	0	0	05/03/2001 3:45	0	0	0	0
17/04/2000 18:00	0	0	0	0	05/03/2001 4:00	0	0	0	0
17/04/2000 18:15	0	0	0	0	05/03/2001 4:15	0	0	0	0
17/04/2000 18:30	0	0	0	0	05/03/2001 4:30	0	0	0	0
17/04/2000 18:45	0	0	0	0	05/03/2001 4:45	0	0	0	0
17/04/2000 19:00	0	0	0	0	05/03/2001 5:00	0.2	0	0	0
17/04/2000 19:15	0	0	0	0	05/03/2001 5:15	0	0	0	0
17/04/2000 19:30	0	0	0	0	05/03/2001 5:30	0	0	0	0
17/04/2000 19:45	0	0	0	0	05/03/2001 5:45	0	0	0	0
17/04/2000 20:00	0	0	0	0	05/03/2001 6:00	0	0	0	0
17/04/2000 20:15	0	0	0	0	05/03/2001 6:15	0	0	0	0
17/04/2000 20:30	0	0	0	0	05/03/2001 6:30	0	0	0	0
17/04/2000 20:45	0	0	0	0	05/03/2001 6:45	0.2	0	0	0
17/04/2000 21:00	0	0	0	0	05/03/2001 7:00	0.2	0.2	0	0
17/04/2000 21:15	0	0	0	0	05/03/2001 7:15	0	0.2	0	0
17/04/2000 21:30	0	0	0	0	05/03/2001 7:30	0	0	0	0
17/04/2000 21:45	0	0	0	0	05/03/2001 7:45	0	0	0.1	0
17/04/2000 22:00	0	0	0	0	05/03/2001 8:00	0	0	0	0
17/04/2000 22:15	0	0	0	0	05/03/2001 8:15	0	0	0	0
17/04/2000 22:30	0	0	0	0	05/03/2001 8:30	0	0	0	0
17/04/2000 22:45	0	0	0	0	05/03/2001 8:45	0	0	0	0
17/04/2000 23:00	0	0	0	0	05/03/2001 9:00	0	0	0	0
17/04/2000 23:15	0	0	0	0	05/03/2001 9:15	0	0	0	0
17/04/2000 23:30	0	0	0	0	05/03/2001 9:30	0	0	0	0
17/04/2000 23:45	0	0	0	0	05/03/2001 9:45	0	0	0	0
18/04/2000 0:00	0	0	0	0	05/03/2001 10:00	0	0	0	0
18/04/2000 0:15	0	0	0	0	05/03/2001 10:15	0	0	0	0
18/04/2000 0:30	0	0	0	0	05/03/2001 10:30	0	0	0	0
18/04/2000 0:45	0	0	0	0	05/03/2001 10:45	0	0	0	0
18/04/2000 1:00	0	0	0	0	05/03/2001 11:00	0	0	0	0
18/04/2000 1:15	0	0	0	0	05/03/2001 11:15	0	0	0	0
18/04/2000 1:30	0	0	0	0	05/03/2001 11:30	0	0	0	0
18/04/2000 1:45	0	0	0	0	05/03/2001 11:45	0	0	0	0
18/04/2000 2:00	0	0	0	0	05/03/2001 12:00	0	0	0	0
18/04/2000 2:15	0	0	0	0	05/03/2001 12:15	0	0	0	0
18/04/2000 2:30	0	0	0	0	05/03/2001 12:30	0	0	0	0
18/04/2000 2:45	0	0	0	0	05/03/2001 12:45	0	0	0	0
18/04/2000 3:00	0.2	0	0	0	05/03/2001 13:00	0	0	0	0
18/04/2000 3:15	0	0	0	0	05/03/2001 13:15	0	0	0	0
18/04/2000 3:30	0	0	0	0	05/03/2001 13:30	0	0	0	0
18/04/2000 3:45	0	0	0	0	05/03/2001 13:45	0	0	0	0
18/04/2000 4:00	0	0	0	0	05/03/2001 14:00	0	0	0	0
18/04/2000 4:15	0	0	0	0	05/03/2001 14:15	0	0	0	0
18/04/2000 4:30	0	0	0	0	05/03/2001 14:30	0	0	0	0
18/04/2000 4:45	0	0	0	0	05/03/2001 14:45	0	0	0	0
18/04/2000 5:00	0	0	0	0	05/03/2001 15:00	0	0	0	0
18/04/2000 5:15	0	0	0	0	05/03/2001 15:15	0	0	0	0
18/04/2000 5:30	0	0	0	0	05/03/2001 15:30	0	0	0	0
18/04/2000 5:45	0	0	0	0	05/03/2001 15:45	0	0	0	0
18/04/2000 6:00	0	0	0	0	05/03/2001 16:00	0	0	0	0
18/04/2000 6:15	0	0	0	0	05/03/2001 16:15	0	0	0	0
18/04/2000 6:30	0	0	0	0	05/03/2001 16:30	0	0	0	0
18/04/2000 6:45	0	0	0	0	05/03/2001 16:45	0	0	0	0
18/04/2000 7:00	0	0	0	0	05/03/2001 17:00	0	0	0	0
18/04/2000 7:15	0	0	0	0	05/03/2001 17:15	0	0	0	0
18/04/2000 7:30	0	0	0	0	05/03/2001 17:30	0	0	0	0
18/04/2000 7:45	0	0	0	0	05/03/2001 17:45	0	0	0	0

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18/04/2000 8:00	0	0	0	0	05/03/2001 18:00	0	0	0	0
18/04/2000 8:15	0	0	0	0	05/03/2001 18:15	0	0	0	0
18/04/2000 8:30	0	0	0	0	05/03/2001 18:30	0	0	0	0
18/04/2000 8:45	0	0	0	0	05/03/2001 18:45	0	0	0	0
18/04/2000 9:00	0	0	0	0	05/03/2001 19:00	0	0	0	0
18/04/2000 9:15	0	0	0	0	05/03/2001 19:15	0	0	0	0
18/04/2000 9:30	0	0	0	0	05/03/2001 19:30	0	0	0	0.2
18/04/2000 9:45	0	0	0	0	05/03/2001 19:45	0	0	0	0
18/04/2000 10:00	0	0	0	0	05/03/2001 20:00	0	0	0	0
18/04/2000 10:15	0	0	0	0	05/03/2001 20:15	0	0	0	0
18/04/2000 10:30	0	0	0	0	05/03/2001 20:30	0	0	0	0
18/04/2000 10:45	0	0	0	0	05/03/2001 20:45	0	0	0	0
18/04/2000 11:00	0	0	0	0	05/03/2001 21:00	0	0	0	0
18/04/2000 11:15	0	0	0	0	05/03/2001 21:15	0	0	0	0
18/04/2000 11:30	0	0	0	0	05/03/2001 21:30	0	0	0	0
18/04/2000 11:45	0	0	0	0	05/03/2001 21:45	0	0	0	0
18/04/2000 12:00	0	0	0	0	05/03/2001 22:00	0	0	0	0
18/04/2000 12:15	0	0	0	0	05/03/2001 22:15	0	0	0	0
18/04/2000 12:30	0	0	0	0	05/03/2001 22:30	0	0	0	0
18/04/2000 12:45	0	0	0	0	05/03/2001 22:45	0	0	0	0
18/04/2000 13:00	0	0	0	0	05/03/2001 23:00	0	0	0	0
18/04/2000 13:15	0	0	0	0	05/03/2001 23:15	0	0	0	0
18/04/2000 13:30	0	0	0	0	05/03/2001 23:30	0	0	0	0
18/04/2000 13:45	0	0	0	0	05/03/2001 23:45	0	0	0	0
18/04/2000 14:00	0	0	0	0	06/03/2001 0:00	0	0	0	0
18/04/2000 14:15	0	0	0	0	06/03/2001 0:15	0	0	0	0
18/04/2000 14:30	0	0	0	0	06/03/2001 0:30	0	0	0	0
18/04/2000 14:45	0	0	0	0	06/03/2001 0:45	0	0	0	0
18/04/2000 15:00	0	0	0	0	06/03/2001 1:00	0	0	0	0
18/04/2000 15:15	0	0	0	0	06/03/2001 1:15	0	0	0	0
18/04/2000 15:30	0	0	0	0	06/03/2001 1:30	0	0	0	0
18/04/2000 15:45	0	0	0	0	06/03/2001 1:45	0	0	0	0
18/04/2000 16:00	0	0	0	0.8	06/03/2001 2:00	0	0	0	0
18/04/2000 16:15	0	0.2	0.1	1.2	06/03/2001 2:15	0	0	0	0
18/04/2000 16:30	0	0.4	0.1	0.6	06/03/2001 2:30	0	0	0	0
18/04/2000 16:45	0	0.2	0.2	1	06/03/2001 2:45	0	0	0	0
18/04/2000 17:00	0	0.4	0.5	1.8	06/03/2001 3:00	0	0	0	0
18/04/2000 17:15	0	0.6	0.1	1.6	06/03/2001 3:15	0	0.2	0	0
18/04/2000 17:30	0	0.4	0	0.8	06/03/2001 3:30	0	0	0	0
18/04/2000 17:45	0	0.2	0.1	0.6	06/03/2001 3:45	0	0	0	0
18/04/2000 18:00	0	0.4	0.1	0.8	06/03/2001 4:00	0	0	0	0
18/04/2000 18:15	0	0.4	0.3	0.4	06/03/2001 4:15	0	0	0	0
18/04/2000 18:30	0	0.8	1.3	0	06/03/2001 4:30	0	0	0	0
18/04/2000 18:45	0	0	0.9	0.4	06/03/2001 4:45	0	0	0	0
18/04/2000 19:00	0	0.2	0.7	0	06/03/2001 5:00	0	0	0.1	0
18/04/2000 19:15	0	0	0.2	0	06/03/2001 5:15	0	0	0	0
18/04/2000 19:30	0	0	0.1	0	06/03/2001 5:30	0	0	0	0
18/04/2000 19:45	0	0	0	0	06/03/2001 5:45	0	0	0	0
18/04/2000 20:00	0	0	0.1	0	06/03/2001 6:00	0	0	0	0
18/04/2000 20:15	0	0	0	0	06/03/2001 6:15	0	0	0	0
18/04/2000 20:30	0	0	0	0	06/03/2001 6:30	0	0	0	0
18/04/2000 20:45	0	0	0	0	06/03/2001 6:45	0	0	0	0
18/04/2000 21:00	0	0	0	0	06/03/2001 7:00	0	0	0	0
18/04/2000 21:15	0	0	0	0	06/03/2001 7:15	0	0	0	0
18/04/2000 21:30	0	0	0	0	06/03/2001 7:30	0	0	0	0
18/04/2000 21:45	0	0	0	0	06/03/2001 7:45	0	0	0	0
18/04/2000 22:00	0.2	0	0	0	06/03/2001 8:00	0	0	0	0
18/04/2000 22:15	0	0	0	0	06/03/2001 8:15	0	0	0	0
18/04/2000 22:30	0	0	0	0	06/03/2001 8:30	0	0	0	0
18/04/2000 22:45	0	0	0	0	06/03/2001 8:45	0	0	0	0
18/04/2000 23:00	0	0	0	0	06/03/2001 9:00	0	0	0	0
18/04/2000 23:15	0	0	0	0	06/03/2001 9:15	0	0	0	0
18/04/2000 23:30	0	0	0	0	06/03/2001 9:30	0	0	0	0
18/04/2000 23:45	0	0	0	0	06/03/2001 9:45	0	0	0	0
19/04/2000 0:00	0	0	0	0	06/03/2001 10:00	0	0	0	0
19/04/2000 0:15	0	0	0	0	06/03/2001 10:15	0	0	0	0
19/04/2000 0:30	0	0	0	0	06/03/2001 10:30	0	0	0	0
19/04/2000 0:45	0	0	0	0	06/03/2001 10:45	0	0	0	0

TABLA 5: PRECIPITACIONES RECOGIDAS EN LOS CUATRO PLUVIÓMETROS MÁS CERCANOS A NUESTRA CUENCA PARA LOS EVENTOS DE CRECIDA DE ABRIL DE 2000 Y MARZO DE 2001

ANEJO 3: DATOS PLUVIOMÉTRICOS

EVENTO 3					EVENTO 4				
	PLUVIO_ERISTE	PLUVIO_LASPAULE	PLUVIO_CAPELLA	PLUVIO_CAMPO		PLUVIO_ERISTE	PLUVIO_LASPA	PLUVIO_CAPELLA	PLUVIO_CAMPO
TOTAL	75.2	83.4	31.8	95.8	TOTAL	67.4	73	6.8	20.6
18/01/2013 15:00	0	0	0.2	0	17/06/2013 21:00	0.4	0	0	0.8
18/01/2013 15:15	0	0	0.2	0	17/06/2013 21:15	0.2	0	0	0.8
18/01/2013 15:30	0	0	0.2	0	17/06/2013 21:30	0	0	0	0.6
18/01/2013 15:45	0	0.2	0.4	0	17/06/2013 21:45	0.2	0	0	0.8
18/01/2013 16:00	0	0.2	0	0	17/06/2013 22:00	0	0.2	0	0.6
18/01/2013 16:15	0	0.2	0.4	0	17/06/2013 22:15	0	0.6	0	0.6
18/01/2013 16:30	0	0.4	0.4	0	17/06/2013 22:30	0	0	0	0.4
18/01/2013 16:45	0	0.6	0.2	0	17/06/2013 22:45	0	0.2	0	0.6
18/01/2013 17:00	0.2	0.8	0.2	0.6	17/06/2013 23:00	0	0	0	0.2
18/01/2013 17:15	0.2	0.6	0.4	0.2	17/06/2013 23:15	1.2	0	0	0.4
18/01/2013 17:30	0.2	0.4	0.2	0.4	17/06/2013 23:30	0.4	0	0	0
18/01/2013 17:45	0.2	0.4	0.2	0.4	17/06/2013 23:45	0.2	0	0	0
18/01/2013 18:00	0.4	0.4	0.4	0.4	18/06/2013 0:00	0	0	0	0
18/01/2013 18:15	0.4	0.4	0.4	0.4	18/06/2013 0:15	0	0.4	0	0
18/01/2013 18:30	0.2	0.8	0	0.6	18/06/2013 0:30	0	0.2	0.2	0
18/01/2013 18:45	0	1	0.2	0.6	18/06/2013 0:45	0	0.2	0	0
18/01/2013 19:00	0.2	0.6	0.2	0.6	18/06/2013 1:00	0	0.8	0	0
18/01/2013 19:15	0	1	0	0.8	18/06/2013 1:15	0	0.6	0	0
18/01/2013 19:30	0.2	0.8	0	0.8	18/06/2013 1:30	0.2	2	0	0
18/01/2013 19:45	0.2	0.8	0.2	0.8	18/06/2013 1:45	0	2.4	0	0
18/01/2013 20:00	0.4	0.6	0	1.2	18/06/2013 2:00	0.4	1.8	0	0
18/01/2013 20:15	0.2	0.6	0.2	1	18/06/2013 2:15	0.4	2.2	0	0.2
18/01/2013 20:30	0.4	0.6	0	1.2	18/06/2013 2:30	0.4	1.6	0	0
18/01/2013 20:45	0.4	0.6	0	1.2	18/06/2013 2:45	1	1.4	0	0
18/01/2013 21:00	0.4	0.4	0	1.2	18/06/2013 3:00	0.4	1.2	0	0
18/01/2013 21:15	0.2	0.4	0	1.4	18/06/2013 3:15	1	0.8	0	0
18/01/2013 21:30	0.4	0.6	0	1.2	18/06/2013 3:30	0.2	0.6	0	0
18/01/2013 21:45	0.2	0.6	0	1.4	18/06/2013 3:45	1.4	1.2	0	0
18/01/2013 22:00	0.2	0.2	0	1.2	18/06/2013 4:00	1.2	3.2	0	0.2
18/01/2013 22:15	0.2	0.4	0	1.2	18/06/2013 4:15	0.6	2.8	0	0
18/01/2013 22:30	0.2	0.4	0	0.8	18/06/2013 4:30	0.8	1.4	0	0
18/01/2013 22:45	0.2	0.4	0	0.8	18/06/2013 4:45	0.6	1.2	0.2	0
18/01/2013 23:00	0.4	0.2	0	1.4	18/06/2013 5:00	0.8	1.4	0	0
18/01/2013 23:15	0.2	0.6	0	1	18/06/2013 5:15	1.4	1.6	0	0
18/01/2013 23:30	0.2	0.2	0	0.4	18/06/2013 5:30	1.2	1.2	0	0
18/01/2013 23:45	0.2	0.6	0	1	18/06/2013 5:45	1.4	0.8	0	0
19/01/2013 0:00	0.4	0.2	0	0.4	18/06/2013 6:00	1.2	1.2	0	0
19/01/2013 0:15	0.2	0.6	0	1	18/06/2013 6:15	1.8	2	0	0
19/01/2013 0:30	0.4	0.2	0	1.2	18/06/2013 6:30	1.2	1.2	0	0.2
19/01/2013 0:45	0	0	0	0.8	18/06/2013 6:45	1.4	0.8	0	0
19/01/2013 1:00	0.2	0.2	0.2	0.6	18/06/2013 7:00	0.4	1.4	0	0
19/01/2013 1:15	0.2	0.2	0	0.6	18/06/2013 7:15	1.2	1.4	0	0
19/01/2013 1:30	0.4	0	0.2	1.4	18/06/2013 7:30	0.8	0.8	0	0
19/01/2013 1:45	0.2	0.2	0.2	0.6	18/06/2013 7:45	0.8	0.4	0	0
19/01/2013 2:00	0	0	0.2	0.4	18/06/2013 8:00	1.2	1.4	0	0
19/01/2013 2:15	0.2	0.2	0.2	0.8	18/06/2013 8:15	1	1.2	0	0
19/01/2013 2:30	0	0	0.2	0.6	18/06/2013 8:30	1	0.8	0	0
19/01/2013 2:45	0.2	0.4	0.2	0.6	18/06/2013 8:45	0.4	1	0	0
19/01/2013 3:00	0.2	0.4	0.2	0.4	18/06/2013 9:00	0.6	1	0.2	0
19/01/2013 3:15	0	0.4	0.6	0.6	18/06/2013 9:15	0.8	0.4	0	0
19/01/2013 3:30	0.2	0.4	0.4	0.4	18/06/2013 9:30	0.6	0.4	0	0
19/01/2013 3:45	0	0.4	0.2	0.4	18/06/2013 9:45	0.4	1	0	0
19/01/2013 4:00	0.6	1	0.2	0.6	18/06/2013 10:00	1	1.2	0	0
19/01/2013 4:15	0.8	1.4	0	0.6	18/06/2013 10:15	1.2	1.2	0	0.2
19/01/2013 4:30	1.2	0.6	0.2	0.8	18/06/2013 10:30	1	0.8	0	0
19/01/2013 4:45	1	0.4	0	1	18/06/2013 10:45	2	0.4	0	0
19/01/2013 5:00	0.4	0.6	0.2	1.2	18/06/2013 11:00	1	1	0	0
19/01/2013 5:15	0.6	0.8	0	1	18/06/2013 11:15	0.6	0.6	0	0
19/01/2013 5:30	0.4	1	0.2	1	18/06/2013 11:30	1	0.2	0	0
19/01/2013 5:45	0.6	1	0.2	0.8	18/06/2013 11:45	1	0.2	0	0
19/01/2013 6:00	0.6	0.6	0.4	1	18/06/2013 12:00	0.6	0.4	0	0.2
19/01/2013 6:15	0.6	0.4	0.4	0.8	18/06/2013 12:15	1.4	1	0	0
19/01/2013 6:30	0.4	0.8	0.2	1	18/06/2013 12:30	0.8	0.6	0	0
19/01/2013 6:45	0.6	0.4	0.4	1.6	18/06/2013 12:45	0.6	0.6	0	0.2
19/01/2013 7:00	0.4	0.4	0.2	1	18/06/2013 13:00	0.8	0.6	0	0
19/01/2013 7:15	0.6	0.6	0.2	0.6	18/06/2013 13:15	0.6	0.6	0	0.2
19/01/2013 7:30	0.4	0.6	0.4	0.6	18/06/2013 13:30	1	0.2	0	0
19/01/2013 7:45	1	0.6	0.2	0.8	18/06/2013 13:45	0.6	0.2	0	0.2
19/01/2013 8:00	0.6	0.4	0.4	0.4	18/06/2013 14:00	0.4	0	0.2	0.2
19/01/2013 8:15	0.6	0.6	0.6	0.4	18/06/2013 14:15	0.4	0	0	0
19/01/2013 8:30	0.4	0.6	0.6	0.8	18/06/2013 14:30	0.4	0	0	0.2
19/01/2013 8:45	0.6	0.8	0.6	0.6	18/06/2013 14:45	0.4	0	0	0.2
19/01/2013 9:00	0.6	0.8	0.4	1.2	18/06/2013 15:00	0	0	0	0
19/01/2013 9:15	1	0.6	0.4	0.6	18/06/2013 15:15	0.2	0	0.2	0.2

ANEJO 3: DATOS PLUVIOMÉTRICOS

19/01/2013 9:30	0.8	1	0	0.8	18/06/2013 15:30	0.2	0.4	0.2	0
19/01/2013 9:45	0.6	1	0.4	0.2	18/06/2013 15:45	0.6	0.6	0.6	0.2
19/01/2013 10:00	0.6	1	0	0.4	18/06/2013 16:00	0.4	0.8	0.4	0
19/01/2013 10:15	0.6	1.2	0.2	0.2	18/06/2013 16:15	0	0.2	0.4	0.2
19/01/2013 10:30	0.6	1.2	0.4	0.4	18/06/2013 16:30	0.6	0	0.2	0
19/01/2013 10:45	1	1.6	0	0.6	18/06/2013 16:45	1.6	0	0.2	0
19/01/2013 11:00	1.2	1.6	0.2	0.6	18/06/2013 17:00	2	0	0.2	0.2
19/01/2013 11:15	1	1.6	0	0.8	18/06/2013 17:15	1.6	0	0.2	0
19/01/2013 11:30	1	1.4	0	0.8	18/06/2013 17:30	1	0	0.2	0
19/01/2013 11:45	1	1.4	0	1.2	18/06/2013 17:45	0	0	0.2	0
19/01/2013 12:00	1.2	1	0	1	18/06/2013 18:00	0	0	0	0.2
19/01/2013 12:15	1.2	1.2	0.2	1	18/06/2013 18:15	0	0	0.2	0
19/01/2013 12:30	1.2	1.4	0.6	0.8	18/06/2013 18:30	0	2.6	0	0
19/01/2013 12:45	1.2	1.4	0.2	1	18/06/2013 18:45	0	0	0.2	0
19/01/2013 13:00	1.2	1.4	0.2	1.2	18/06/2013 19:00	0	0	0	0.2
19/01/2013 13:15	0.8	1.6	0.2	0.8	18/06/2013 19:15	0	0	0.2	0
19/01/2013 13:30	1	1.6	0	0.8	18/06/2013 19:30	0.2	0	0	0
19/01/2013 13:45	0.8	1	0.4	0.8	18/06/2013 19:45	2.2	0	0.2	0.2
19/01/2013 14:00	0.8	1.2	0.4	1	18/06/2013 20:00	0.2	0	0	0
19/01/2013 14:15	0.8	1.2	0.2	1	18/06/2013 20:15	0	0	0	0
19/01/2013 14:30	0.8	0.4	0.4	1.2	18/06/2013 20:30	0	0	0.2	0
19/01/2013 14:45	1	0.2	0.2	1	18/06/2013 20:45	0.2	0	0	0.2
19/01/2013 15:00	0.8	0.8	0.4	0.8	18/06/2013 21:00	0	0	0.2	0
19/01/2013 15:15	1	0.8	0.4	0	18/06/2013 21:15	0	0	0	0
19/01/2013 15:30	0.8	1	0.2	0.2	18/06/2013 21:30	0	0	0	0
19/01/2013 15:45	0.8	0.4	0.2	0.4	18/06/2013 21:45	0	3.2	0	0
19/01/2013 16:00	0.8	0.4	0.6	1.4	18/06/2013 22:00	0	0	0.2	0
19/01/2013 16:15	0.8	0.4	0.4	0.4	18/06/2013 22:15	0	0	0	0.2
19/01/2013 16:30	0.6	0.2	0.2	0.6	18/06/2013 22:30	0	2.2	0	0
19/01/2013 16:45	0.6	0	0.2	0.4	18/06/2013 22:45	0	0.6	0	0
19/01/2013 17:00	0.6	0.2	0.4	0.6	18/06/2013 23:00	0	0.8	0.2	0
19/01/2013 17:15	0.6	0	0.2	0.4	18/06/2013 23:15	2.4	1.8	0	0
19/01/2013 17:30	0.6	0.2	0	0.8	18/06/2013 23:30	0.2	0.2	0	0
19/01/2013 17:45	0.4	0	0.2	0.4	18/06/2013 23:45	0.2	0	0	0.2
19/01/2013 18:00	0.6	0.2	0.4	0.4	19/06/2013 0:00	0	0	0	0
19/01/2013 18:15	0.4	0.2	0.2	0.4	19/06/2013 0:15	1	0	0	0
19/01/2013 18:30	0.6	0	0.2	0.2	19/06/2013 0:30	0.8	0	0.2	0
19/01/2013 18:45	0.4	0.2	0.4	0.2	19/06/2013 0:45	0	0	0	0
19/01/2013 19:00	0.6	0	0.4	0.4	19/06/2013 1:00	0	0	0	0
19/01/2013 19:15	0.4	0.2	0.6	0.6	19/06/2013 1:15	0	0.2	0	0
19/01/2013 19:30	0.4	0	0.4	0.4	19/06/2013 1:30	0	0	0	0
19/01/2013 19:45	0.4	0	0.6	0.8	19/06/2013 1:45	0	0	0	0.2
19/01/2013 20:00	0.4	0	0.8	0.2	19/06/2013 2:00	1	0	0.2	0
19/01/2013 20:15	0.4	0.2	0.8	0.6	19/06/2013 2:15	0.8	0	0	0
19/01/2013 20:30	0.4	0.2	0.4	0	19/06/2013 2:30	0	0.2	0	0
19/01/2013 20:45	0.4	0	0.6	0.2	19/06/2013 2:45	0	0	0	0
19/01/2013 21:00	0.4	0	0.6	0	19/06/2013 3:00	0	0	0	0
19/01/2013 21:15	0.2	0	0.4	0.2	19/06/2013 3:15	0	0	0	0
19/01/2013 21:30	0.4	0	0.2	0.6	19/06/2013 3:30	0	0	0	0
19/01/2013 21:45	0.4	0	0	0.6	19/06/2013 3:45	0.4	0	0	0
19/01/2013 22:00	0.2	0	0.4	1	19/06/2013 4:00	0.4	0	0	0
19/01/2013 22:15	0.4	0	0.4	1	19/06/2013 4:15	0.2	0	0	0
19/01/2013 22:30	0.2	0	0.6	1.2	19/06/2013 4:30	0	0	0.2	0
19/01/2013 22:45	0.4	0.2	0.2	1	19/06/2013 4:45	0	0	0	0.2
19/01/2013 23:00	0	0	0.2	0.8	19/06/2013 5:00	0	0	0	0
19/01/2013 23:15	0.2	0	0.4	1	19/06/2013 5:15	0	0	0	0
19/01/2013 23:30	0	0.2	0.2	0.6	19/06/2013 5:30	0	0	0	0
19/01/2013 23:45	0.2	0	0.2	0.6	19/06/2013 5:45	0	0	0	0
20/01/2013 0:00	0.2	0.2	0.4	0.6	19/06/2013 6:00	0	0	0	0
20/01/2013 0:15	0	0	0.2	0.6	19/06/2013 6:15	0	0	0	0
20/01/2013 0:30	0.2	0	0	0.4	19/06/2013 6:30	0	0	0	0
20/01/2013 0:45	0.2	0.2	0	0.2	19/06/2013 6:45	0	0	0.2	0
20/01/2013 1:00	0	0	0	0.4	19/06/2013 7:00	0	0	0	0
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20/01/2013 1:45	0.2	0	0	0	19/06/2013 7:45	0	0	0	0
20/01/2013 2:00	0	0	0	0	19/06/2013 8:00	0	0	0	0
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20/01/2013 2:45	0	0	0	0.4	19/06/2013 8:45	0	0	0	0
20/01/2013 3:00	0.2	0	0	0.4	19/06/2013 9:00	0	0	0	0
20/01/2013 3:15	0.2	0.2	0	0.2	19/06/2013 9:15	0	0	0	0.2
20/01/2013 3:30	0	0	0	0.2	19/06/2013 9:30	0	0	0	0
20/01/2013 3:45	0.2	0	0	0.2	19/06/2013 9:45	0	0	0	0
20/01/2013 4:00	0	0.2	0	0.2	19/06/2013 10:00	0	0	0.2	0

ANEJO 3: DATOS PLUVIOMÉTRICOS

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20/01/2013 4:45	0.2	0	0	0	19/06/2013 10:45	0	0	0	0
20/01/2013 5:00	0	0	0	0	19/06/2013 11:00	0	0	0	0
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20/01/2013 10:00	0.2	0	0	0	19/06/2013 16:00	0	0	0	0.2
20/01/2013 10:15	0	0.2	0	0	19/06/2013 16:15	0	0	0	0.2
20/01/2013 10:30	0.2	0	0	0	19/06/2013 16:30	0	0	0	0.2
20/01/2013 10:45	0	0.2	0	0	19/06/2013 16:45	0	0	0	0.4
20/01/2013 11:00	0	0.4	0	0	19/06/2013 17:00	0	0	0	0.4
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20/01/2013 13:45	0.6	0.8	0	0	19/06/2013 19:45	0	0	0	0.2
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20/01/2013 14:15	0.8	0.4	0	0	19/06/2013 20:15	0	0	0	0.2
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20/01/2013 14:45	0.6	0.4	0	0	19/06/2013 20:45	0	0	0	0
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20/01/2013 18:30	0	0	0	0	20/06/2013 0:30	0	0	0	0.2
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20/01/2013 19:00	0	0	0	0	20/06/2013 1:00	0	0	0	0
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ANEJO 3: DATOS PLUVIOMÉTRICOS

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21/01/2013 1:00	0	0	0	0	20/06/2013 7:00	0	0	0	0.2
21/01/2013 1:15	0	0	0	0	20/06/2013 7:15	0	0	0	0
21/01/2013 1:30	0	0	0	0	20/06/2013 7:30	0	0	0	0
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21/01/2013 2:00	0	0	0	0	20/06/2013 8:00	0.2	0	0	0
21/01/2013 2:15	0	0	0	0	20/06/2013 8:15	0.2	0	0	0
21/01/2013 2:30	0	0	0	0	20/06/2013 8:30	0	0	0	0
21/01/2013 2:45	0	0	0	0	20/06/2013 8:45	0	0	0	0
21/01/2013 3:00	0	0	0	0	20/06/2013 9:00	0	0	0	0
21/01/2013 3:15	0.2	0	0	0	20/06/2013 9:15	0	0	0	0
21/01/2013 3:30	0	0	0	0	20/06/2013 9:30	0	0	0	0
21/01/2013 3:45	0	0	0	0	20/06/2013 9:45	0	0	0	0
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21/01/2013 4:30	0	0	0	0	20/06/2013 10:30	0	0	0	0
21/01/2013 4:45	0	0	0	0	20/06/2013 10:45	0	0	0	0
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21/01/2013 6:00	0	0	0	0	20/06/2013 12:00	0	0	0	0.2
21/01/2013 6:15	0	0	0	0	20/06/2013 12:15	0	0	0	0
21/01/2013 6:30	0	0	0	0	20/06/2013 12:30	0	0	0	0
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21/01/2013 9:30	0	0	0	0	20/06/2013 15:30	0	0	0	0
21/01/2013 9:45	0	0	0	0	20/06/2013 15:45	0	0	0	0
21/01/2013 10:00	0	0.2	0	0	20/06/2013 16:00	0	0	0	0
21/01/2013 10:15	0	0.4	0	0	20/06/2013 16:15	0	0	0	0
21/01/2013 10:30	0	0	0	0	20/06/2013 16:30	0	0	0	0
21/01/2013 10:45	0	0	0	0	20/06/2013 16:45	0	0	0	0
21/01/2013 11:00	0	0.2	0	0	20/06/2013 17:00	0	0	0	0
21/01/2013 11:15	0	0.4	0	0	20/06/2013 17:15	0	0	0	0
21/01/2013 11:30	0	0.6	0	0	20/06/2013 17:30	0	0	0	0
21/01/2013 11:45	0	0	0	0	20/06/2013 17:45	0	0	0	0
21/01/2013 12:00	0	0	0	0	20/06/2013 18:00	0	0	0	0
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21/01/2013 14:00	0	0	0	0	20/06/2013 20:00	0	0	0	0
21/01/2013 14:15	0	0	0	0.6	20/06/2013 20:15	0	0	0	0
21/01/2013 14:30	0	0	0	0	20/06/2013 20:30	0	0	0	0
21/01/2013 14:45	0	0	0	0	20/06/2013 20:45	0	0	0	0
21/01/2013 15:00	0	0	0	0	20/06/2013 21:00	0	0	0	0
21/01/2013 15:15	0	0	0	0	20/06/2013 21:15	0	0	0	0
21/01/2013 15:30	0	0	0	0	20/06/2013 21:30	0	0	0	0.2
21/01/2013 15:45	0	0	0	0	20/06/2013 21:45	0	0	0	0

TABLA 6: PRECIPITACIONES RECOGIDAS EN LOS CUATRO PLUVIÓMETROS MÁS CERCANOS A NUESTRA CUENCA PARA LOS EVENTOS DE CRECIDA DE ENERO Y JUNIO DEL 2013

Anejo 4: Resultados de la hoja de cálculo del modelo empleado para el primer tramo del evento de crecidas del 06-2013

4.1 Datos iniciales

Datos Iniciales							Aproximaciones
intervalo de tiempo	15	minutos	T0	Ancho superior del cauce	40	metros	Cauce rectangular y anchura constante
	0.25	horas	b	Ancho fondo del cauce	0.0	metros	
Longitud de cada tramo del cauce (Longitud cte)	1000	metros	S0	Pendiente longitudinal media del canal	0.00609	m/m	Pendiente constante en todo el cauce
m	1.67		n	Numero de manning	0.0217		Rugosidad cte en todo cauce
e	1		ks=Ds	rugosidad de la partícula	0.02	m	
desnivel total de todo el cauce	195	metros					
Peso específico de las partículas	2.65	ton/m3					
Longitud del cauce total	32000	metros					
Numero de tramos a dividir	32	tramos					

TABLA 7: DATOS INICIALES EMPLEADOS PARA CALCULAR EL HIDROGRAMA DE SALIDA UTILIZANDO EL MODELO M-C

4.2 Cálculo de factores de peso asociados a cada pluviómetro para obtener el parámetro de aporte lateral

Cálculo parámetro de aporte lateral					
sistema de ecuaciones					
Eventos estudio	Alfas empíricas	P.Eriste	P.Lapaules	P.capella	P.Campo
Evento 1	0.0035	0.2	60.8	24	29.8
Evento 2	0.003	37.4	34	26.2	0.8
Evento 3	0.02	75.2	83.4	31.8	95.8
Evento 4	0.0015	14.8	19.6	14.6	16
Matriz Inversa		-0.014	0.021	0.010	-0.037
		0.024	0.021	0.008	-0.095
		-0.011	-0.018	-0.025	0.175
		-0.006	-0.029	0.004	0.054
Evento nuevo	Pluviómetros	Parámetros	Precipitaciones totales	Alfa	
	P.Eriste	1.64E-04	0.2	3.50E-03	
	P.Lapaules	1.69E-04	60.8		
	P.capella	-3.41E-04	24		
	P.Campo	4.57E-05	29.8		

TABLA 8: CÁLCULO DEL PARÁMETRO DE APOORTE LATERAL

4.3 Cálculos de los caudales de salida del tramo 1

Proceso iterativo de cálculo de los caudales de salida del tramo 1 a lo largo de todo el evento de crecida mediante el modelo de Muskingum-Cunge con aportación lateral mediante la incorporación de un tercer parámetro Alfa.

Hemos decidido introducir únicamente los cálculos del primer tramo de uno de los eventos de crecida por ahorrar espacio. El resto del modelo se encuentra en la hoja de cálculo adjunta a los documentos en formato digital.

ANEJO 4: RESULTADOS DE LA HOJA DE CÁLCULO DEL MODELO EMPLEADO PARA EL PRIMER TRAMO DEL EVENTO DE CRECIDAS DEL 06-2013

			Aforo de Campos (Entrada tramo 1)		Aforo en graus (solo necesitamos primer valor)	Parámetros de referencia Supuesto canal rectangular				Parámetros del modelo M-C con aportación lateral					Salida tramo	1	
	Tiempo inicial	Tiempo final	Hidrograma de entrada en t1 (Observado) Qe1	Hidrograma de entrada en t2 (Observado) Qe2	Hidrograma de salida (Observado) Qs1	Caudal de referencia	Fórmula	Ancho Superior T0 (cauce rectangular)	Calado	Velocidad media (para Q0)	Alfa					Hidrograma de salida en t1 (Calculado) Qs1c	Hidrograma de salida en t2 (Calculado) Qs2c
Pasos	t1	t2	I1 (m³/s)	I2 (m³/s)	Q (m³/s)	Q0 (m³/s)			Y	V0 (m/s)	K (h)	X	C0	C1	C2	Q1 (m³/s)	Q2 (m³/s)
1	18/06/2013 0:00	18/06/2013 0:15	88.15	88.15	73.12	88.0	0.00	40.0	0.756	2.9	0.06	0.463	0.633	0.974	-0.6	87.7	88.6
2	18/06/2013 0:15	18/06/2013 0:30	88.15	88.15	73.12	88.3	0.00	40.0	0.758	2.9	0.06	0.463	0.634	0.974	-0.6	88.6	88.1
3	18/06/2013 0:30	18/06/2013 0:45	88.15	88.15	73.12	88.1	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.1	88.4
4	18/06/2013 0:45	18/06/2013 1:00	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.634	0.974	-0.6	88.4	88.2
5	18/06/2013 1:00	18/06/2013 1:15	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.2	88.3
6	18/06/2013 1:15	18/06/2013 1:30	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
7	18/06/2013 1:30	18/06/2013 1:45	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
8	18/06/2013 1:45	18/06/2013 2:00	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
9	18/06/2013 2:00	18/06/2013 2:15	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
10	18/06/2013 2:15	18/06/2013 2:30	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
11	18/06/2013 2:30	18/06/2013 2:45	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
12	18/06/2013 2:45	18/06/2013 3:00	88.15	88.15	73.12	88.2	0.00	40.0	0.757	2.9	0.06	0.463	0.633	0.974	-0.6	88.3	88.3
13	18/06/2013 3:00	18/06/2013 3:15	88.15	89.48	73.12	88.6	0.00	40.0	0.759	2.9	0.06	0.463	0.634	0.974	-0.6	88.3	89.1
14	18/06/2013 3:15	18/06/2013 3:30	89.48	98.79	74.37	92.5	0.00	40.0	0.779	3.0	0.06	0.462	0.639	0.974	-0.6	89.1	95.9
15	18/06/2013 3:30	18/06/2013 3:45	98.79	116.08	74.37	103.6	0.00	40.0	0.835	3.1	0.05	0.459	0.652	0.973	-0.6	95.9	112.1
16	18/06/2013 3:45	18/06/2013 4:00	116.08	125.39	74.37	117.9	0.00	40.0	0.904	3.3	0.05	0.456	0.667	0.972	-0.6	112.1	125.1
17	18/06/2013 4:00	18/06/2013 4:15	125.39	125.39	74.37	125.3	0.00	40.0	0.938	3.3	0.05	0.454	0.673	0.971	-0.6	125.1	125.9
18	18/06/2013 4:15	18/06/2013 4:30	125.39	122.73	74.37	124.7	0.00	40.0	0.935	3.3	0.05	0.454	0.673	0.971	-0.6	125.9	123.6
19	18/06/2013 4:30	18/06/2013 4:45	122.73	118.74	74.37	121.7	0.00	40.0	0.921	3.3	0.05	0.455	0.670	0.971	-0.6	123.6	119.8
20	18/06/2013 4:45	18/06/2013 5:00	118.74	116.08	74.37	118.2	0.00	40.0	0.905	3.3	0.05	0.455	0.667	0.972	-0.6	119.8	116.6
21	18/06/2013 5:00	18/06/2013 5:15	116.08	114.75	75.63	115.8	0.00	40.0	0.894	3.2	0.05	0.456	0.665	0.972	-0.6	116.6	115.2
22	18/06/2013 5:15	18/06/2013 5:30	114.75	118.74	75.63	116.2	0.00	40.0	0.896	3.2	0.05	0.456	0.665	0.972	-0.6	115.2	117.4
23	18/06/2013 5:30	18/06/2013 5:45	118.74	122.73	75.63	119.6	0.00	40.0	0.912	3.3	0.05	0.455	0.668	0.972	-0.6	117.4	122.5
24	18/06/2013 5:45	18/06/2013 6:00	122.73	118.74	75.63	121.3	0.00	40.0	0.920	3.3	0.05	0.455	0.670	0.971	-0.6	122.5	120.5
25	18/06/2013 6:00	18/06/2013 6:15	118.74	116.08	75.63	118.4	0.00	40.0	0.906	3.3	0.05	0.455	0.667	0.972	-0.6	120.5	116.1
26	18/06/2013 6:15	18/06/2013 6:30	116.08	116.08	87.45	116.1	0.00	40.0	0.895	3.2	0.05	0.455	0.665	0.972	-0.6	116.1	116.3
27	18/06/2013 6:30	18/06/2013 6:45	116.08	116.08	111.36	116.2	0.00	40.0	0.896	3.2	0.05	0.456	0.665	0.972	-0.6	116.3	116.2
28	18/06/2013 6:45	18/06/2013 7:00	116.08	113.42	120.75	115.2	0.00	40.0	0.891	3.2	0.05	0.456	0.664	0.972	-0.6	116.2	114.5
29	18/06/2013 7:00	18/06/2013 7:15	113.42	116.08	119.18	114.7	0.00	40.0	0.889	3.2	0.05	0.456	0.664	0.972	-0.6	114.5	114.8
30	18/06/2013 7:15	18/06/2013 7:30	116.08	129.38	116.06	120.1	0.00	40.0	0.914	3.3	0.05	0.455	0.669	0.972	-0.6	114.8	126.1
31	18/06/2013 7:30	18/06/2013 7:45	129.38	141.1	112.93	132.2	0.00	40.0	0.969	3.4	0.05	0.452	0.679	0.971	-0.6	126.1	139.8
32	18/06/2013 7:45	18/06/2013 8:00	141.1	166.69	111.36	149.2	0.00	40.0	1.044	3.6	0.05	0.449	0.692	0.970	-0.7	139.8	160.0
33	18/06/2013 8:00	18/06/2013 8:15	166.69	207.21	112.93	178.0	0.00	40.0	1.163	3.8	0.04	0.443	0.709	0.968	-0.7	160.0	200.4
34	18/06/2013 8:15	18/06/2013 8:30	207.21	200.81	119.18	202.8	0.00	40.0	1.260	4.0	0.04	0.438	0.722	0.967	-0.7	200.4	207.8
35	18/06/2013 8:30	18/06/2013 8:45	200.81	205.07	119.18	204.6	0.00	40.0	1.267	4.0	0.04	0.438	0.723	0.967	-0.7	207.8	199.6
36	18/06/2013 8:45	18/06/2013 9:00	205.07	205.07	117.62	203.2	0.00	40.0	1.262	4.0	0.04	0.438	0.722	0.967	-0.7	199.6	209.4
37	18/06/2013 9:00	18/06/2013 9:15	205.07	213.6	117.62	209.3	0.00	40.0	1.285	4.1	0.04	0.437	0.725	0.966	-0.7	209.4	208.8
38	18/06/2013 9:15	18/06/2013 9:30	213.6	217.87	117.62	213.4	0.00	40.0	1.300	4.1	0.04	0.436	0.727	0.966	-0.7	208.8	220.5
39	18/06/2013 9:30	18/06/2013 9:45	217.87	217.87	116.06	218.8	0.00	40.0	1.320	4.1	0.04	0.435	0.729	0.966	-0.7	220.5	216.6
40	18/06/2013 9:45	18/06/2013 10:00	217.87	213.6	116.06	216.0	0.00	40.0	1.310	4.1	0.04	0.436	0.728	0.966	-0.7	216.6	216.2
41	18/06/2013 10:00	18/06/2013 10:15	213.6	222.9	127	217.6	0.00	40.0	1.316	4.1	0.04	0.435	0.728	0.966	-0.7	216.2	219.1
42	18/06/2013 10:15	18/06/2013 10:30	222.9	234.5	145.77	234.5	0.00	40.0	1.345	4.2	0.04	0.434	0.732	0.966	-0.7	219.1	234.6
43	18/06/2013 10:30	18/06/2013 10:45	234.5	246.1	170.8	239.2	0.00	40.0	1.392	4.3	0.04	0.431	0.737	0.965	-0.7	234.6	243.6
44	18/06/2013 10:45	18/06/2013 11:00	246.1	257.7	189.86	249.1	0.00	40.0	1.430	4.4	0.04	0.430	0.740	0.965	-0.7	243.6	257.1
45	18/06/2013 11:00	18/06/2013 11:15	257.7	269.3	195.44	261.4	0.00	40.0	1.473	4.4	0.04	0.427	0.745	0.964	-0.7	257.1	267.4
46	18/06/2013 11:15	18/06/2013 11:30	269.3	309.9	197.3	282.2	0.00	40.0	1.544	4.6	0.04	0.424	0.751	0.963	-0.7	267.4	301.8
47	18/06/2013 11:30	18/06/2013 11:45	309.9	344.7	201.02	318.8	0.00	40.0	1.665	4.8	0.03	0.418	0.761	0.962	-0.7	301.8	343.0
48	18/06/2013 11:45	18/06/2013 12:00	344.7	350.5	206.6	346.1	0.00	40.0	1.752	4.9	0.03	0.414	0.768	0.961	-0.7	343.0	351.3
49	18/06/2013 12:00	18/06/2013 12:15	350.5	344.7	212.18	348.8	0.00	40.0	1.761	5.0	0.03	0.413	0.769	0.961	-0.7	351.3	346.4
50	18/06/2013 12:15	18/06/2013 12:30	344.7	350.5	217.76	347.2	0.00	40.0	1.756	4.9	0.03	0.414	0.768	0.961	-0.7	346.4	348.8
51	18/06/2013 12:30	18/06/2013 12:45	350.5	382.4	221.48	360.6	0.00	40.0	1.797	5.0	0.03	0.412	0.771	0.961	-0.7	348.8	377.2
52	18/06/2013 12:45	18/06/2013 13:00	382.4	399.8	223.34	386.5	0.00	40.0	1.876	5.1	0.03	0.408	0.777	0.960	-0.7	377.2	400.7
53	18/06/2013 13:00	18/06/2013 13:15	399.8	396.9	228.92	399.1	0.00	40.0	1.914	5.2	0.03	0.406	0.779	0.960	-0.7	400.7	397.9
54	18/06/2013 13:15	18/06/2013 13:30	396.9	394	236.36	396.3	0.00	40.0	1.906	5.2	0.03	0.406	0.779	0.960	-0.7	397.9	394.9
55	18/06/2013 13:30	18/06/2013 13:45	394	382.4	245.66	390.4	0.00	40.0	1.888	5.2	0.03	0.407	0.777	0.960	-0.7	394.9	385.3
56	18/06/2013 13:45	18/06/2013 14:00	382.4	370.8	262.4	379.5	0.00	40.0	1.855	5.1	0.03	0.409	0.775	0.960	-0.7	385.3	372.3
57	18/06/2013 14:00	18/06/2013 14:15	370.8	362.1	281	368.4	0.00	40.0	1.821	5.1	0.03	0.410	0.773	0.961	-0.7	372.3	364.0
58	18/06/2013 14:15	18/06/2013 14:30	362.1	379.5	297.88	365.5	0.00	40.0	1.822	5.1	0.03	0.410	0.773	0.961	-0.7	364.0	375.1
59	18/06/2013 14:30	18/06/2013 14:45	379.5	394	308.43	382.9	0.00	40.0	1.866	5.1	0.03	0.408	0.776	0.960	-0.7	375.1	395.0
60	18/06/2013 14:45	18/06/2013 15:00	394	399.8	312.65	396.3	0.00	40									

ANEJO 4: RESULTADOS DE LA HOJA DE CÁLCULO DEL MODELO EMPLEADO PARA EL PRIMER TRAMO DEL EVENTO DE CRECIDAS DEL 06-2013

64	18/06/2013 15:45	18/06/2013 16:00	417.2	414.3	356.96	416.8	0.00	40.0	1.967	5.3	0.03	0.403	0.782	0.959	-0.7	418.8	414.8
65	18/06/2013 16:00	18/06/2013 16:15	414.3	417.2	373.84	415.4	0.00	40.0	1.963	5.3	0.03	0.403	0.782	0.959	-0.7	414.8	417.3
66	18/06/2013 16:15	18/06/2013 16:30	417.2	428.8	386.5	421.1	0.00	40.0	1.979	5.3	0.03	0.403	0.783	0.959	-0.7	417.3	427.3
67	18/06/2013 16:30	18/06/2013 16:45	428.8	449.1	384.39	435.1	0.00	40.0	2.020	5.4	0.03	0.401	0.786	0.959	-0.7	427.3	447.0
68	18/06/2013 16:45	18/06/2013 17:00	449.1	460.7	382.28	452.3	0.00	40.0	2.069	5.5	0.03	0.398	0.788	0.958	-0.7	447.0	461.0
69	18/06/2013 17:00	18/06/2013 17:15	460.7	446.2	389.61	456.0	0.00	40.0	2.080	5.5	0.03	0.398	0.789	0.958	-0.7	461.0	450.2
70	18/06/2013 17:15	18/06/2013 17:30	446.2	428.8	399.16	441.7	0.00	40.0	2.039	5.4	0.03	0.400	0.787	0.958	-0.7	450.2	430.7
71	18/06/2013 17:30	18/06/2013 17:45	428.8	420.1	403.38	426.5	0.00	40.0	1.995	5.3	0.03	0.402	0.784	0.959	-0.7	430.7	421.7
72	18/06/2013 17:45	18/06/2013 18:00	420.1	405.6	416.04	415.8	0.00	40.0	1.964	5.3	0.03	0.403	0.782	0.959	-0.7	421.7	408.7
73	18/06/2013 18:00	18/06/2013 18:15	405.6	408.5	420.26	407.6	0.00	40.0	1.940	5.3	0.03	0.405	0.781	0.959	-0.7	408.7	406.7
74	18/06/2013 18:15	18/06/2013 18:30	408.5	408.5	424.48	407.9	0.00	40.0	1.940	5.3	0.03	0.404	0.781	0.959	-0.7	406.7	410.9
75	18/06/2013 18:30	18/06/2013 18:45	408.5	414.3	430.81	411.2	0.00	40.0	1.950	5.3	0.03	0.404	0.781	0.959	-0.7	410.9	412.3
76	18/06/2013 18:45	18/06/2013 19:00	414.3	405.6	445.58	410.7	0.00	40.0	1.949	5.3	0.03	0.404	0.781	0.959	-0.7	412.3	410.1
77	18/06/2013 19:00	18/06/2013 19:15	405.6	402.7	464.57	406.1	0.00	40.0	1.935	5.2	0.03	0.405	0.780	0.959	-0.7	410.1	401.1
78	18/06/2013 19:15	18/06/2013 19:30	402.7	391.1	477.23	398.3	0.00	40.0	1.912	5.2	0.03	0.406	0.779	0.960	-0.7	401.1	395.9
79	18/06/2013 19:30	18/06/2013 19:45	391.1	385.3	475.12	390.8	0.00	40.0	1.889	5.2	0.03	0.407	0.777	0.960	-0.7	395.9	384.1
80	18/06/2013 19:45	18/06/2013 20:00	385.3	379.5	466.68	383.0	0.00	40.0	1.866	5.1	0.03	0.408	0.776	0.960	-0.7	384.1	382.7
81	18/06/2013 20:00	18/06/2013 20:15	379.5	367.9	458.24	376.7	0.00	40.0	1.847	5.1	0.03	0.409	0.775	0.960	-0.7	382.7	369.2
82	18/06/2013 20:15	18/06/2013 20:30	367.9	350.5	454.02	362.5	0.00	40.0	1.803	5.0	0.03	0.411	0.772	0.961	-0.7	369.2	354.5
83	18/06/2013 20:30	18/06/2013 20:45	350.5	341.8	454.02	348.9	0.00	40.0	1.761	5.0	0.03	0.413	0.769	0.961	-0.7	354.5	341.8
84	18/06/2013 20:45	18/06/2013 21:00	341.8	333.1	458.24	338.9	0.00	40.0	1.730	4.9	0.03	0.415	0.766	0.961	-0.7	341.8	336.0
85	18/06/2013 21:00	18/06/2013 21:15	333.1	321.5	454.02	330.2	0.00	40.0	1.702	4.9	0.03	0.416	0.764	0.962	-0.7	336.0	323.0
86	18/06/2013 21:15	18/06/2013 21:30	321.5	315.7	449.8	320.1	0.00	40.0	1.669	4.8	0.03	0.418	0.762	0.962	-0.7	323.0	316.8
87	18/06/2013 21:30	18/06/2013 21:45	315.7	309.9	443.47	314.1	0.00	40.0	1.650	4.8	0.04	0.419	0.760	0.962	-0.7	316.8	311.3
88	18/06/2013 21:45	18/06/2013 22:00	309.9	304.1	435.03	308.4	0.00	40.0	1.632	4.7	0.04	0.420	0.759	0.962	-0.7	311.3	305.3
89	18/06/2013 22:00	18/06/2013 22:15	304.1	301.2	430.81	303.5	0.00	40.0	1.615	4.7	0.04	0.420	0.757	0.963	-0.7	305.3	301.8
90	18/06/2013 22:15	18/06/2013 22:30	301.2	298.3	424.48	300.4	0.00	40.0	1.605	4.7	0.04	0.421	0.757	0.963	-0.7	301.8	299.6
91	18/06/2013 22:30	18/06/2013 22:45	298.3	304.1	416.04	300.6	0.00	40.0	1.606	4.7	0.04	0.421	0.757	0.963	-0.7	299.6	302.7
92	18/06/2013 22:45	18/06/2013 23:00	304.1	309.9	407.6	305.6	0.00	40.0	1.622	4.7	0.04	0.420	0.758	0.963	-0.7	302.7	310.3
93	18/06/2013 23:00	18/06/2013 23:15	309.9	315.7	394.94	312.0	0.00	40.0	1.643	4.7	0.04	0.419	0.760	0.962	-0.7	310.3	314.8
94	18/06/2013 23:15	18/06/2013 23:30	315.7	295.4	386.5	308.6	0.00	40.0	1.632	4.7	0.04	0.420	0.759	0.962	-0.7	314.8	301.7
95	18/06/2013 23:30	18/06/2013 23:45	295.4	278	380.17	291.7	0.00	40.0	1.576	4.6	0.04	0.422	0.754	0.963	-0.7	301.7	278.5
96	18/06/2013 23:45	19/06/2013 0:00	278	263.5	375.95	273.3	0.00	40.0	1.514	4.5	0.04	0.425	0.749	0.964	-0.7	278.5	267.5
97	19/06/2013 0:00	19/06/2013 0:15	263.5	251.9	367.51	261.0	0.00	40.0	1.472	4.4	0.04	0.428	0.745	0.964	-0.7	267.5	252.7
98	19/06/2013 0:15	19/06/2013 0:30	251.9	240.3	365.4	248.3	0.00	40.0	1.427	4.3	0.04	0.430	0.740	0.965	-0.7	252.7	243.4
99	19/06/2013 0:30	19/06/2013 0:45	240.3	228.7	361.18	237.5	0.00	40.0	1.388	4.3	0.04	0.432	0.736	0.965	-0.7	243.4	230.2
100	19/06/2013 0:45	19/06/2013 1:00	228.7	220	363.29	226.3	0.00	40.0	1.348	4.2	0.04	0.434	0.732	0.966	-0.7	230.2	221.9
101	19/06/2013 1:00	19/06/2013 1:15	220	213.6	367.51	218.5	0.00	40.0	1.319	4.1	0.04	0.435	0.729	0.966	-0.7	221.9	214.6
102	19/06/2013 1:15	19/06/2013 1:30	213.6	207.21	371.73	213.9	0.00	40.0	1.302	4.1	0.04	0.436	0.727	0.966	-0.7	214.6	213.4
103	19/06/2013 1:30	19/06/2013 1:45	213.6	196.54	371.73	211.4	0.00	40.0	1.293	4.1	0.04	0.436	0.726	0.966	-0.7	213.4	209.6
104	19/06/2013 1:45	19/06/2013 2:00	207.21	185.88	361.18	204.5	0.00	40.0	1.266	4.0	0.04	0.438	0.723	0.967	-0.7	209.6	198.4
105	19/06/2013 2:00	19/06/2013 2:15	196.54	179.48	348.52	193.6	0.00	40.0	1.224	4.0	0.04	0.440	0.717	0.967	-0.7	198.4	188.1
106	19/06/2013 2:15	19/06/2013 2:30	185.88	175.22	335.86	184.5	0.00	40.0	1.189	3.9	0.04	0.441	0.713	0.968	-0.7	188.1	180.3
107	19/06/2013 2:30	19/06/2013 2:45	179.48	170.95	323.2	178.3	0.00	40.0	1.164	3.8	0.04	0.443	0.709	0.968	-0.7	180.3	176.4
108	19/06/2013 2:45	19/06/2013 3:00	175.22	170.95	312.65	174.2	0.00	40.0	1.148	3.8	0.04	0.444	0.707	0.968	-0.7	176.4	171.9
109	19/06/2013 3:00	19/06/2013 3:15	170.95	175.22	304.21	172.7	0.00	40.0	1.141	3.8	0.04	0.444	0.706	0.968	-0.7	171.9	173.8
110	19/06/2013 3:15	19/06/2013 3:30	175.22	179.48	297.88	176.2	0.00	40.0	1.156	3.8	0.04	0.443	0.708	0.968	-0.7	173.8	179.6
111	19/06/2013 3:30	19/06/2013 3:45	179.48	181.62	291.55	180.2	0.00	40.0	1.172	3.8	0.04	0.442	0.710	0.968	-0.7	179.6	181.3
112	19/06/2013 3:45	19/06/2013 4:00	181.62	181.62	283.11	181.5	0.00	40.0	1.177	3.9	0.04	0.442	0.711	0.968	-0.7	181.3	182.3
113	19/06/2013 4:00	19/06/2013 4:15	181.62	173.09	273.56	179.0	0.00	40.0	1.167	3.8	0.04	0.443	0.710	0.968	-0.7	182.3	175.6
114	19/06/2013 4:15	19/06/2013 4:30	173.09	164.56	266.12	171.1	0.00	40.0	1.135	3.8	0.04	0.444	0.705	0.968	-0.7	175.6	165.8
115	19/06/2013 4:30	19/06/2013 4:45	164.56	158.16	262.4	162.9	0.00	40.0	1.101	3.7	0.05	0.446	0.700	0.969	-0.7	165.8	159.6
116	19/06/2013 4:45	19/06/2013 5:00	158.16	153.89	254.96	157.2	0.00	40.0	1.078	3.6	0.05	0.447	0.697	0.969	-0.7	159.6	154.6
117	19/06/2013 5:00	19/06/2013 5:15	153.89	156.03	251.24	154.1	0.00	40.0	1.065	3.6	0.05	0.448	0.695	0.969	-0.7	154.6	153.8
118	19/06/2013 5:15	19/06/2013 5:30	156.03	156.03	249.38	154.6	0.00	40.0	1.067	3.6	0.05	0.447	0.695	0.969	-0.7	153.8	155.8
119	19/06/2013 5:30	19/06/2013 5:45	156.03	156.03	251.24	156.0	0.00	40.0	1.072	3.6	0.05	0.447	0.696	0.969	-0.7	155.8	156.6
120	19/06/2013 5:45	19/06/2013 6:00	156.03	156.03	253.1	156.2	0.00	40.0	1.073	3.6	0.05	0.447	0.696	0.969	-0.7	156.6	156.1
121	19/06/2013 6:00	19/06/2013 6:15	156.03	158.16	251.24	156.8	0.00	40.0	1.076	3.6	0.05	0.447	0.697	0.969	-0.7	156.1	157.9
122	19/06/2013 6:15	19/06/2013 6:30	158.16	158.16	249.38	158.1	0.00	40.0	1.081	3.7	0.05	0.447	0.697	0.969	-0.7	157.9	158.7
123	19/06/2013 6:30	19/06/2013 6:45	158.16	158.16	243.8	158.4	0.00	40.0	1.082	3.7	0.05	0.447	0.698	0.969	-0.7	158.7	158.2
124	19/06/2013 6:45	19/06/2013 7:00	158.16	158.16	238.22	158.2	0.00	40.0	1.082	3.7	0.05	0.447	0.698	0.969	-0.7	158.2	158.5
125	19/06/2013 7:00	19/06/2013 7:15	158.16	158.16	230.78	158.3	0.00	40.0	1.082	3.7	0.05	0.447	0.698	0.969	-0.7	158.5	158.3

ANEJO 4: RESULTADOS DE LA HOJA DE CÁLCULO DEL MODELO EMPLEADO PARA EL PRIMER TRAMO DEL EVENTO DE CRECIDAS DEL 06-2013

139	19/06/2013 10:30	19/06/2013 10:45	125.39	125.39	212.18	125.7	0.00	40.0	0.940	3.3	0.05	0.454	0.674	0.971	-0.6	126.2	125.2
140	19/06/2013 10:45	19/06/2013 11:00	125.39	122.73	206.6	124.4	0.00	40.0	0.934	3.3	0.05	0.454	0.672	0.971	-0.6	125.2	124.1
141	19/06/2013 11:00	19/06/2013 11:15	122.73	124.06	201.02	123.6	0.00	40.0	0.930	3.3	0.05	0.454	0.672	0.971	-0.6	124.1	123.1
142	19/06/2013 11:15	19/06/2013 11:30	124.06	125.39	193.58	124.2	0.00	40.0	0.933	3.3	0.05	0.454	0.672	0.971	-0.6	123.1	125.9
143	19/06/2013 11:30	19/06/2013 11:45	125.39	125.39	193.58	125.6	0.00	40.0	0.939	3.3	0.05	0.454	0.673	0.971	-0.6	125.9	125.4
144	19/06/2013 11:45	19/06/2013 12:00	125.39	125.39	191.72	125.4	0.00	40.0	0.938	3.3	0.05	0.454	0.673	0.971	-0.6	125.4	125.7
145	19/06/2013 12:00	19/06/2013 12:15	125.39	125.39	189.86	125.5	0.00	40.0	0.939	3.3	0.05	0.454	0.673	0.971	-0.6	125.7	125.5
146	19/06/2013 12:15	19/06/2013 12:30	125.39	125.39	189.86	125.4	0.00	40.0	0.939	3.3	0.05	0.454	0.673	0.971	-0.6	125.5	125.6
147	19/06/2013 12:30	19/06/2013 12:45	125.39	124.06	188	125.0	0.00	40.0	0.937	3.3	0.05	0.454	0.673	0.971	-0.6	125.6	124.6
148	19/06/2013 12:45	19/06/2013 13:00	124.06	124.06	188	124.3	0.00	40.0	0.933	3.3	0.05	0.454	0.672	0.971	-0.6	124.6	124.0
149	19/06/2013 13:00	19/06/2013 13:15	124.06	124.06	184.87	124.0	0.00	40.0	0.932	3.3	0.05	0.454	0.672	0.971	-0.6	124.0	124.4
150	19/06/2013 13:15	19/06/2013 13:30	124.06	124.06	184.87	124.2	0.00	40.0	0.933	3.3	0.05	0.454	0.672	0.971	-0.6	124.4	124.1
151	19/06/2013 13:30	19/06/2013 13:45	124.06	122.73	184.87	123.6	0.00	40.0	0.930	3.3	0.05	0.454	0.672	0.971	-0.6	124.1	123.4
152	19/06/2013 13:45	19/06/2013 14:00	122.73	123.00	186.44	123.0	0.00	40.0	0.927	3.3	0.05	0.454	0.671	0.971	-0.6	123.4	122.6
153	19/06/2013 14:00	19/06/2013 14:15	122.73	121.4	186.44	122.2	0.00	40.0	0.924	3.3	0.05	0.455	0.671	0.971	-0.6	122.6	122.2
154	19/06/2013 14:15	19/06/2013 14:30	121.4	121.4	184.87	121.7	0.00	40.0	0.921	3.3	0.05	0.455	0.670	0.971	-0.6	122.2	121.2
155	19/06/2013 14:30	19/06/2013 14:45	121.4	121.4	184.87	121.3	0.00	40.0	0.920	3.3	0.05	0.455	0.670	0.971	-0.6	121.2	121.8
156	19/06/2013 14:45	19/06/2013 15:00	121.4	120.07	184.87	121.1	0.00	40.0	0.919	3.3	0.05	0.455	0.670	0.971	-0.6	121.8	120.5
157	19/06/2013 15:00	19/06/2013 15:15	120.07	118.74	184.87	119.8	0.00	40.0	0.913	3.3	0.05	0.455	0.668	0.972	-0.6	120.5	119.2
158	19/06/2013 15:15	19/06/2013 15:30	118.74	118.74	183.31	118.9	0.00	40.0	0.908	3.3	0.05	0.455	0.668	0.972	-0.6	119.2	118.7
159	19/06/2013 15:30	19/06/2013 15:45	118.74	117.41	183.31	118.3	0.00	40.0	0.906	3.3	0.05	0.455	0.667	0.972	-0.6	118.7	118.1
160	19/06/2013 15:45	19/06/2013 16:00	117.41	118.74	183.31	118.1	0.00	40.0	0.905	3.3	0.05	0.455	0.667	0.972	-0.6	118.1	118.1
161	19/06/2013 16:00	19/06/2013 16:15	118.74	117.41	181.74	118.1	0.00	40.0	0.905	3.3	0.05	0.455	0.667	0.972	-0.6	118.1	118.5
162	19/06/2013 16:15	19/06/2013 16:30	117.41	116.08	180.18	117.3	0.00	40.0	0.901	3.3	0.05	0.456	0.666	0.972	-0.6	118.5	116.1
163	19/06/2013 16:30	19/06/2013 16:45	116.08	116.08	180.18	116.1	0.00	40.0	0.895	3.2	0.05	0.456	0.665	0.972	-0.6	116.1	116.4
164	19/06/2013 16:45	19/06/2013 17:00	116.08	114.75	178.62	115.7	0.00	40.0	0.894	3.2	0.05	0.456	0.665	0.972	-0.6	116.4	115.3
165	19/06/2013 17:00	19/06/2013 17:15	114.75	114.75	178.62	114.9	0.00	40.0	0.890	3.2	0.05	0.456	0.664	0.972	-0.6	115.3	114.7
166	19/06/2013 17:15	19/06/2013 17:30	114.75	113.42	178.62	114.3	0.00	40.0	0.887	3.2	0.05	0.456	0.663	0.972	-0.6	114.7	114.2
167	19/06/2013 17:30	19/06/2013 17:45	113.42	113.42	177.05	113.7	0.00	40.0	0.884	3.2	0.05	0.456	0.663	0.972	-0.6	114.2	113.2
168	19/06/2013 17:45	19/06/2013 18:00	113.42	113.42	177.05	113.3	0.00	40.0	0.882	3.2	0.05	0.457	0.662	0.972	-0.6	113.2	113.8
169	19/06/2013 18:00	19/06/2013 18:15	113.42	110.76	175.49	112.7	0.00	40.0	0.879	3.2	0.05	0.457	0.662	0.972	-0.6	113.8	111.7
170	19/06/2013 18:15	19/06/2013 18:30	110.76	109.43	173.92	110.6	0.00	40.0	0.869	3.2	0.05	0.457	0.660	0.972	-0.6	111.7	109.6
171	19/06/2013 18:30	19/06/2013 18:45	109.43	104.11	173.92	107.7	0.00	40.0	0.855	3.1	0.05	0.458	0.657	0.972	-0.6	109.6	106.1
172	19/06/2013 18:45	19/06/2013 19:00	104.11	97.46	173.92	102.6	0.00	40.0	0.830	3.1	0.05	0.459	0.651	0.973	-0.6	106.1	98.8
173	19/06/2013 19:00	19/06/2013 19:15	97.46	86.82	173.92	94.4	0.00	40.0	0.789	3.0	0.06	0.461	0.641	0.974	-0.6	98.8	90.1
174	19/06/2013 19:15	19/06/2013 19:30	86.82	81.5	173.92	86.1	0.00	40.0	0.746	2.9	0.06	0.463	0.631	0.974	-0.6	90.1	81.7
175	19/06/2013 19:30	19/06/2013 19:45	81.5	81.5	170.8	81.6	0.00	40.0	0.722	2.8	0.06	0.464	0.624	0.975	-0.6	81.7	81.6
176	19/06/2013 19:45	19/06/2013 20:00	81.5	81.5	170.8	81.5	0.00	40.0	0.722	2.8	0.06	0.464	0.624	0.975	-0.6	81.6	81.7
177	19/06/2013 20:00	19/06/2013 20:15	81.5	169.23	170.8	81.6	0.00	40.0	0.722	2.8	0.06	0.464	0.624	0.975	-0.6	81.7	81.6
178	19/06/2013 20:15	19/06/2013 20:30	81.5	170.8	170.8	81.5	0.00	40.0	0.722	2.8	0.06	0.464	0.624	0.975	-0.6	81.6	81.6
179	19/06/2013 20:30	19/06/2013 20:45	81.5	169.23	170.8	81.5	0.00	40.0	0.722	2.8	0.06	0.464	0.624	0.975	-0.6	81.6	81.6
180	19/06/2013 20:45	19/06/2013 21:00	81.5	80.52	166.1	81.2	0.00	40.0	0.720	2.8	0.06	0.465	0.624	0.975	-0.6	81.6	81.0
181	19/06/2013 21:00	19/06/2013 21:15	80.52	80.52	162.98	80.7	0.00	40.0	0.717	2.8	0.06	0.465	0.623	0.975	-0.6	81.0	80.4
182	19/06/2013 21:15	19/06/2013 21:30	80.52	80.52	156.72	80.5	0.00	40.0	0.716	2.8	0.06	0.465	0.622	0.975	-0.6	80.4	80.8
183	19/06/2013 21:30	19/06/2013 21:45	80.52	79.53	150.46	80.3	0.00	40.0	0.715	2.8	0.06	0.465	0.622	0.975	-0.6	80.8	79.9
184	19/06/2013 21:45	19/06/2013 22:00	79.53	78.55	142.64	79.3	0.00	40.0	0.710	2.8	0.06	0.465	0.621	0.975	-0.6	79.9	78.9
185	19/06/2013 22:00	19/06/2013 22:15	78.55	79.53	139.52	79.0	0.00	40.0	0.708	2.8	0.06	0.465	0.620	0.975	-0.6	78.9	79.2
186	19/06/2013 22:15	19/06/2013 22:30	79.53	79.53	137.95	79.4	0.00	40.0	0.710	2.8	0.06	0.465	0.621	0.975	-0.6	79.2	79.9
187	19/06/2013 22:30	19/06/2013 22:45	79.53	78.55	136.39	79.3	0.00	40.0	0.710	2.8	0.06	0.465	0.621	0.975	-0.6	79.9	78.9
188	19/06/2013 22:45	19/06/2013 23:00	78.55	76.58	136.39	78.0	0.00	40.0	0.703	2.8	0.06	0.465	0.619	0.975	-0.6	78.9	77.3
189	19/06/2013 23:00	19/06/2013 23:15	76.58	81.5	136.39	78.5	0.00	40.0	0.705	2.8	0.06	0.465	0.619	0.975	-0.6	77.3	79.4
190	19/06/2013 23:15	19/06/2013 23:30	81.5	134.82	134.82	80.8	0.00	40.0	0.718	2.8	0.06	0.465	0.623	0.975	-0.6	79.4	83.0
191	19/06/2013 23:30	19/06/2013 23:45	81.5	80.52	134.82	81.7	0.00	40.0	0.723	2.8	0.06	0.464	0.624	0.975	-0.6	83.0	80.2
192	19/06/2013 23:45	20/06/2013 0:00	80.52	80.52	134.82	80.4	0.00	40.0	0.716	2.8	0.06	0.465	0.622	0.975	-0.6	80.2	80.9
193	20/06/2013 0:00	20/06/2013 0:15	80.52	81.5	136.39	81.0	0.00	40.0	0.719	2.8	0.06	0.465	0.623	0.975	-0.6	80.9	81.1
194	20/06/2013 0:15	20/06/2013 0:30	81.5	134.82	134.82	81.4	0.00	40.0	0.721	2.8	0.06	0.465	0.624	0.975	-0.6	81.1	81.9
195	20/06/2013 0:30	20/06/2013 0:45	81.5	81.5	134.82	81.6	0.00	40.0	0.722	2.8	0.06	0.464	0.624	0.975	-0.6	81.9	81.4
196	20/06/2013 0:45	20/06/2013 1:00	81.5	80.52	134.82	81.2	0.00	40.0	0.720	2.8	0.06	0.465	0.623	0.975	-0.6	81.4	81.1
197	20/06/2013 1:00	20/06/2013 1:15	80.52	79.53	134.82	80.4	0.00	40.0	0.716	2.8	0.06	0.465	0.622	0.975	-0.6	81.1	79.7
198	20/06/2013 1:15	20/06/2013 1:30	79.53	78.55	133.26	79.3	0.00	40.0	0.710	2.8	0.06	0.465	0.621	0.975	-0.6	79.7	79.0
199	20/06/2013 1:30	20/06/2013 1:45	78.55	77.56	133.26	78.4	0.00	40.0	0.705	2.8	0.06	0.465	0.619	0.975	-0.6	79.0	77.9
200	20/06/2013 1:45	20/06/2013 2:00	77.56	77.56	136.39	77.7	0.00	40.0	0.701	2.8	0.06	0.465	0.618	0.975	-0.6	77.9	77.6

ANEJO 4: RESULTADOS DE LA HOJA DE CÁLCULO DEL MODELO EMPLEADO PARA EL PRIMER TRAMO DEL EVENTO DE CRECIDAS DEL 06-2013

214	20/06/2013 5:15	20/06/2013 5:30	68.7	68.7	130.13	68.7	0.00	40.0	0.650	2.6	0.06	0.468	0.603	0.976	-0.6	68.7	68.9
215	20/06/2013 5:30	20/06/2013 5:45	68.7	68.7	130.13	68.8	0.00	40.0	0.651	2.6	0.06	0.468	0.603	0.976	-0.6	68.9	68.9
216	20/06/2013 5:45	20/06/2013 6:00	68.7	67.71	130.13	68.4	0.00	40.0	0.649	2.6	0.06	0.468	0.602	0.976	-0.6	68.3	68.3
217	20/06/2013 6:00	20/06/2013 6:15	67.71	67.71	130.13	67.9	0.00	40.0	0.646	2.6	0.06	0.468	0.601	0.976	-0.6	68.2	67.6
218	20/06/2013 6:15	20/06/2013 6:30	67.71	68.7	127	68.0	0.00	40.0	0.646	2.6	0.06	0.468	0.602	0.976	-0.6	67.6	68.5
219	20/06/2013 6:30	20/06/2013 6:45	68.7	67.71	130.13	68.3	0.00	40.0	0.648	2.6	0.06	0.468	0.602	0.976	-0.6	68.5	68.4
220	20/06/2013 6:45	20/06/2013 7:00	67.71	67.71	127	67.9	0.00	40.0	0.646	2.6	0.06	0.468	0.601	0.976	-0.6	68.4	67.5
221	20/06/2013 7:00	20/06/2013 7:15	67.71	67.71	127	67.6	0.00	40.0	0.644	2.6	0.06	0.468	0.601	0.976	-0.6	67.5	68.0
222	20/06/2013 7:15	20/06/2013 7:30	67.71	67.71	127	67.8	0.00	40.0	0.645	2.6	0.06	0.468	0.601	0.976	-0.6	68.0	67.7
223	20/06/2013 7:30	20/06/2013 7:45	67.71	65.74	127	67.1	0.00	40.0	0.641	2.6	0.06	0.468	0.600	0.976	-0.6	67.7	66.7
224	20/06/2013 7:45	20/06/2013 8:00	65.74	67.71	127	66.7	0.00	40.0	0.639	2.6	0.06	0.469	0.599	0.976	-0.6	66.7	66.5
225	20/06/2013 8:00	20/06/2013 8:15	67.71	67.71	127	67.3	0.00	40.0	0.642	2.6	0.06	0.468	0.600	0.976	-0.6	66.5	68.5
226	20/06/2013 8:15	20/06/2013 8:30	67.71	67.71	127	68.0	0.00	40.0	0.646	2.6	0.06	0.468	0.602	0.976	-0.6	68.5	67.4
227	20/06/2013 8:30	20/06/2013 8:45	67.71	66.73	125.44	67.3	0.00	40.0	0.642	2.6	0.06	0.468	0.600	0.976	-0.6	67.4	67.5
228	20/06/2013 8:45	20/06/2013 9:00	66.73	66.73	127	67.0	0.00	40.0	0.640	2.6	0.06	0.468	0.600	0.976	-0.6	67.5	66.5
229	20/06/2013 9:00	20/06/2013 9:15	66.73	67.71	125.44	67.0	0.00	40.0	0.640	2.6	0.06	0.468	0.600	0.976	-0.6	66.5	67.6
230	20/06/2013 9:15	20/06/2013 9:30	67.71	66.73	125.44	67.4	0.00	40.0	0.643	2.6	0.06	0.468	0.600	0.976	-0.6	67.6	67.3
231	20/06/2013 9:30	20/06/2013 9:45	66.73	67.71	125.44	67.3	0.00	40.0	0.642	2.6	0.06	0.468	0.600	0.976	-0.6	67.3	67.1
232	20/06/2013 9:45	20/06/2013 10:00	67.71	66.73	125.44	67.2	0.00	40.0	0.642	2.6	0.06	0.468	0.600	0.976	-0.6	67.1	67.6
233	20/06/2013 10:00	20/06/2013 10:15	66.73	66.73	125.44	67.0	0.00	40.0	0.641	2.6	0.06	0.468	0.600	0.976	-0.6	67.6	66.4
234	20/06/2013 10:15	20/06/2013 10:30	66.73	65.74	125.44	66.3	0.00	40.0	0.636	2.6	0.06	0.469	0.598	0.976	-0.6	66.4	66.5
235	20/06/2013 10:30	20/06/2013 10:45	65.74	64.76	125.44	65.7	0.00	40.0	0.633	2.6	0.06	0.469	0.597	0.976	-0.6	66.5	64.9
236	20/06/2013 10:45	20/06/2013 11:00	64.76	63.77	125.44	64.5	0.00	40.0	0.626	2.6	0.06	0.469	0.595	0.976	-0.6	64.9	64.3
237	20/06/2013 11:00	20/06/2013 11:15	63.77	62.79	125.44	63.6	0.00	40.0	0.621	2.6	0.07	0.469	0.593	0.977	-0.6	64.3	63.1
238	20/06/2013 11:15	20/06/2013 11:30	62.79	62.79	123.88	62.9	0.00	40.0	0.616	2.6	0.07	0.470	0.592	0.977	-0.6	63.1	62.8
239	20/06/2013 11:30	20/06/2013 11:45	62.79	61.8	123.88	62.5	0.00	40.0	0.614	2.5	0.07	0.470	0.591	0.977	-0.6	62.8	62.4
240	20/06/2013 11:45	20/06/2013 12:00	61.8	61.8	123.88	62.0	0.00	40.0	0.611	2.5	0.07	0.470	0.590	0.977	-0.6	62.4	61.6
241	20/06/2013 12:00	20/06/2013 12:15	61.8	61.8	123.88	61.7	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.6	62.9
242	20/06/2013 12:15	20/06/2013 12:30	61.8	61.8	123.88	61.9	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	62.0	61.8
243	20/06/2013 12:30	20/06/2013 12:45	61.8	61.8	122.31	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.8	61.9
244	20/06/2013 12:45	20/06/2013 13:00	61.8	61.8	125.44	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
245	20/06/2013 13:00	20/06/2013 13:15	61.8	61.8	123.88	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
246	20/06/2013 13:15	20/06/2013 13:30	61.8	61.8	119.18	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
247	20/06/2013 13:30	20/06/2013 13:45	61.8	61.8	117.62	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
248	20/06/2013 13:45	20/06/2013 14:00	61.8	61.8	116.06	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
249	20/06/2013 14:00	20/06/2013 14:15	61.8	61.8	116.06	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
250	20/06/2013 14:15	20/06/2013 14:30	61.8	60.95	116.06	61.5	0.00	40.0	0.608	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.4
251	20/06/2013 14:30	20/06/2013 14:45	60.95	61.8	116.06	61.4	0.00	40.0	0.607	2.5	0.07	0.470	0.588	0.977	-0.6	61.4	61.3
252	20/06/2013 14:45	20/06/2013 15:00	61.8	60.95	116.06	61.4	0.00	40.0	0.607	2.5	0.07	0.470	0.588	0.977	-0.6	61.3	61.7
253	20/06/2013 15:00	20/06/2013 15:15	60.95	61.8	116.06	61.5	0.00	40.0	0.608	2.5	0.07	0.470	0.589	0.977	-0.6	61.7	61.2
254	20/06/2013 15:15	20/06/2013 15:30	61.8	61.8	114.49	61.6	0.00	40.0	0.609	2.5	0.07	0.470	0.589	0.977	-0.6	61.2	62.3
255	20/06/2013 15:30	20/06/2013 15:45	61.8	61.8	116.06	62.0	0.00	40.0	0.611	2.5	0.07	0.470	0.590	0.977	-0.6	62.3	61.7
256	20/06/2013 15:45	20/06/2013 16:00	61.8	61.8	114.49	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.7	62.0
257	20/06/2013 16:00	20/06/2013 16:15	61.8	60.95	116.06	61.6	0.00	40.0	0.609	2.5	0.07	0.470	0.589	0.977	-0.6	62.0	61.3
258	20/06/2013 16:15	20/06/2013 16:30	60.95	61.8	114.49	61.4	0.00	40.0	0.607	2.5	0.07	0.470	0.588	0.977	-0.6	61.3	61.4
259	20/06/2013 16:30	20/06/2013 16:45	61.8	61.8	114.49	61.7	0.00	40.0	0.609	2.5	0.07	0.470	0.589	0.977	-0.6	61.4	62.2
260	20/06/2013 16:45	20/06/2013 17:00	61.8	61.8	114.49	61.9	0.00	40.0	0.611	2.5	0.07	0.470	0.590	0.977	-0.6	62.2	61.7
261	20/06/2013 17:00	20/06/2013 17:15	61.8	61.8	114.49	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.7	62.0
262	20/06/2013 17:15	20/06/2013 17:30	61.8	61.8	114.49	61.9	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	62.0	61.8
263	20/06/2013 17:30	20/06/2013 17:45	61.8	61.8	114.49	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.8	61.9
264	20/06/2013 17:45	20/06/2013 18:00	61.8	61.8	114.49	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
265	20/06/2013 18:00	20/06/2013 18:15	61.8	61.8	114.49	61.8	0.00	40.0	0.610	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.9
266	20/06/2013 18:15	20/06/2013 18:30	61.8	60.95	114.49	61.6	0.00	40.0	0.608	2.5	0.07	0.470	0.589	0.977	-0.6	61.9	61.4
267	20/06/2013 18:30	20/06/2013 18:45	60.95	61.8	114.49	61.1	0.00	40.0	0.606	2.5	0.07	0.470	0.588	0.977	-0.6	61.4	60.8
268	20/06/2013 18:45	20/06/2013 19:00	60.95	60.95	114.49	60.9	0.00	40.0	0.605	2.5	0.07	0.470	0.587	0.977	-0.6	60.8	61.2
269	20/06/2013 19:00	20/06/2013 19:15	60.95	60.95	112.93	61.0	0.00	40.0	0.605	2.5	0.07	0.470	0.588	0.977	-0.6	61.2	61.0
270	20/06/2013 19:15	20/06/2013 19:30	60.95	60.95	112.93	61.0	0.00	40.0	0.605	2.5	0.07	0.470	0.588	0.977	-0.6	61.0	61.1
271	20/06/2013 19:30	20/06/2013 19:45	60.95	60.95	112.93	61.0	0.00	40.0	0.605	2.5	0.07	0.470	0.588	0.977	-0.6	61.1	61.0
272	20/06/2013 19:45	20/06/2013 20:00	60.95	60.95	112.93	61.0	0.00	40.0	0.605	2.5	0.07	0.470	0.588	0.977	-0.6	61.0	61.1
273	20/06/2013 20:00	20/06/2013 20:15	60.95	60.95	112.93	61.0	0.00	40.0	0.605	2.5	0.07	0.470	0.588	0.977	-0.6	61.1	61.0
274	20/06/2013 20:15	20/06/2013 20:30	60.95	60.95	112.93	60.9	0.00	40.0	0.605	2.5	0.07	0.470	0.588	0.977	-0.6	61.0	61.0
275	20/06/2013 20:30	20/06/2013 20:45	60.95	60.11	112.93	60.7	0.00	40.0	0.603	2.5	0.07	0.470	0.587	0.977	-0.6	61.0	60.5
276	20/06/2013 20:45	20/06/2013 21:00	60.11	60.11	112.93	60.3	0.00	40.0	0.601	2.5	0.07	0.470	0.586	0.977	-0.6	60.5	60.0
277	20/06/2013 21:00	20/06/201															

4.4 Bondad del ajuste

Bondad de Ajuste: Eficiencia de Nash-Sutcliffe (E)				Coef de correlacion
E	Numerador	Denominador	Qmedio	r
0.873	24029	188484	37	0.930

Bondad de Ajuste: Eficiencia de Nash-Sutcliffe (E)				Coef de correlacion
E	Numerador	Denominador	Qmedio	r
0.961	11286	290963	78	0.983

Bondad de Ajuste: Eficiencia de Nash-Sutcliffe (E)				Coef de correlacion
E	Numerador	Denominador	Qmedio	r
0.952	22273	465879	50	0.980

Bondad de Ajuste: Eficiencia de Nash-Sutcliffe (E)				Coef de correlacion
E	Numerador	Denominador	Qmedio	r
0.713	989764	3449861	169	0.907

E	Ajuste
<0.2	Insuficiente
0.2-0.4	Satisfactorio
0.4-0.6	Bueno
0.6-0.8	Muy Bueno
>0.8	Excelente

TABLA 10: CÁLCULO DE LA BONDAD DEL AJUSTE DEL HIDROGRAMA DE SALIDA CALCULADO FRENTE AL OBSERVADO EN LA ESTACIÓN DE AFORO. PARA LOS EVENTOS: 1º ABRIL 20001. 2º MARZO 2001. 3º ENERO 2013. 4º JUNIO 2013

Anejo 5: Hidrogramas de los cuatro eventos de crecidas

Evento 1



ILUSTRACIÓN 7: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE ABRIL DEL AÑO 2000. SIN APORTACIÓN LATERAL



ILUSTRACIÓN 8: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE ABRIL DEL AÑO 2000. CON APORTACIÓN LATERAL

ANEJO 5: HIDROGRAMAS DE LOS CUATRO EVENTOS DE CRECIDAS

Evento 2

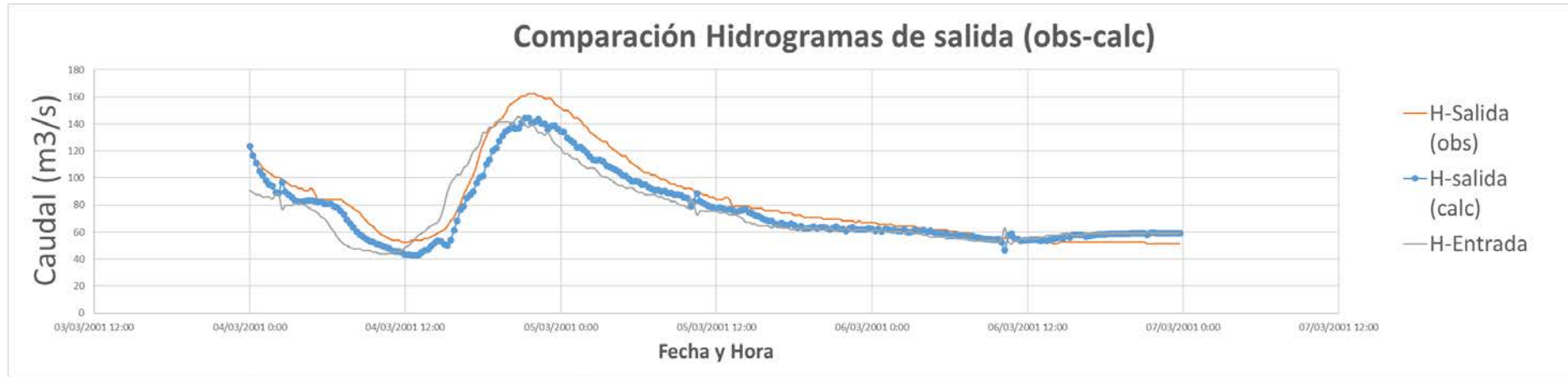


ILUSTRACIÓN 9: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE MARZO DEL AÑO 2001. SIN APORTACIÓN LATERAL

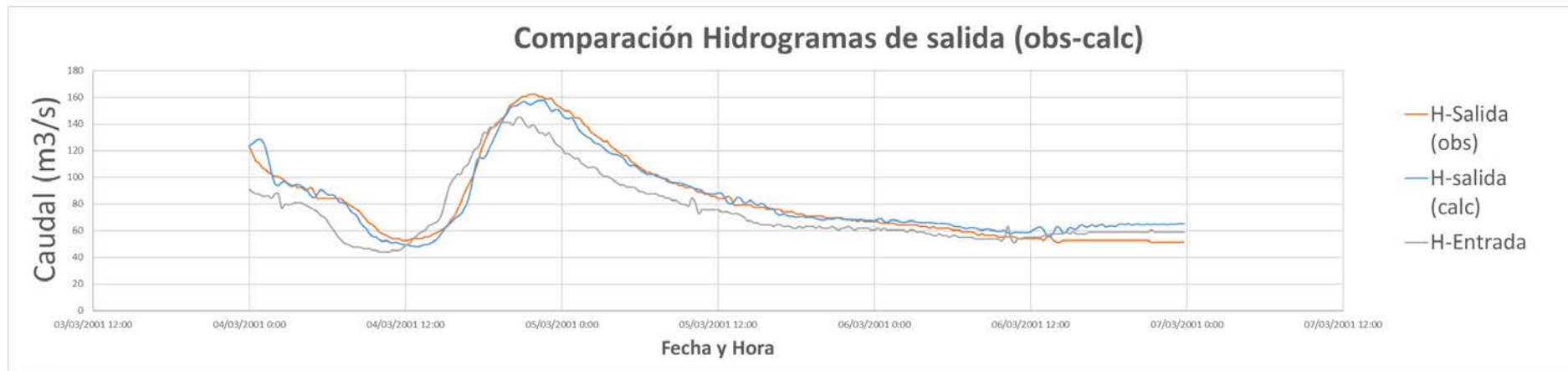


ILUSTRACIÓN 10: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE MARZO DEL AÑO 2001. CON APORTACIÓN LATERAL

ANEJO 5: HIDROGRAMAS DE LOS CUATRO EVENTOS DE CRECIDAS

Evento 3

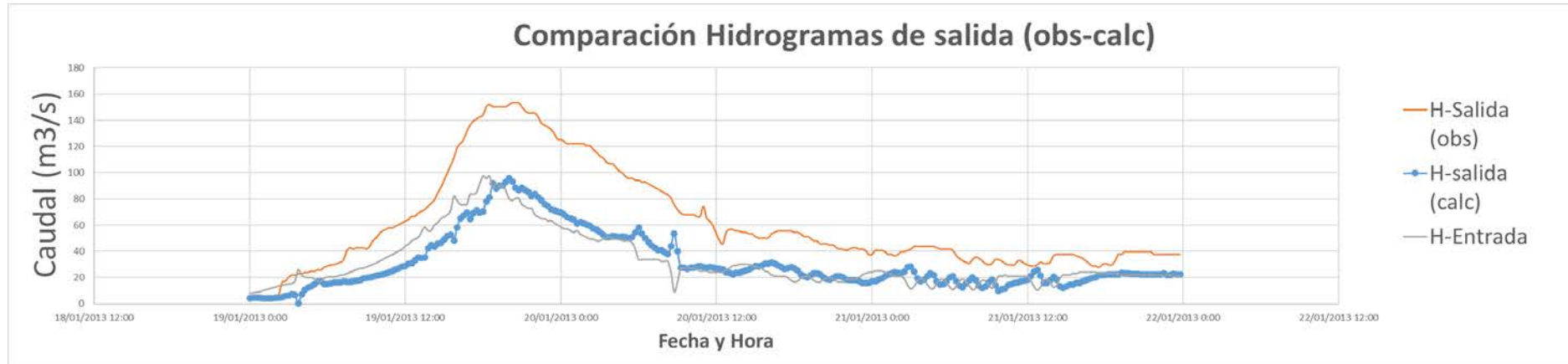


ILUSTRACIÓN 11: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE ENERO DEL AÑO 2013. SIN APORTACIÓN LATERAL



ILUSTRACIÓN 12: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE ENERO DEL AÑO 2013. CON APORTACIÓN LATERAL

ANEJO 5: HIDROGRAMAS DE LOS CUATRO EVENTOS DE CRECIDAS

Evento 4



ILUSTRACIÓN 13: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE JUNIO DEL AÑO 2013. SIN APORTACIÓN LATERAL

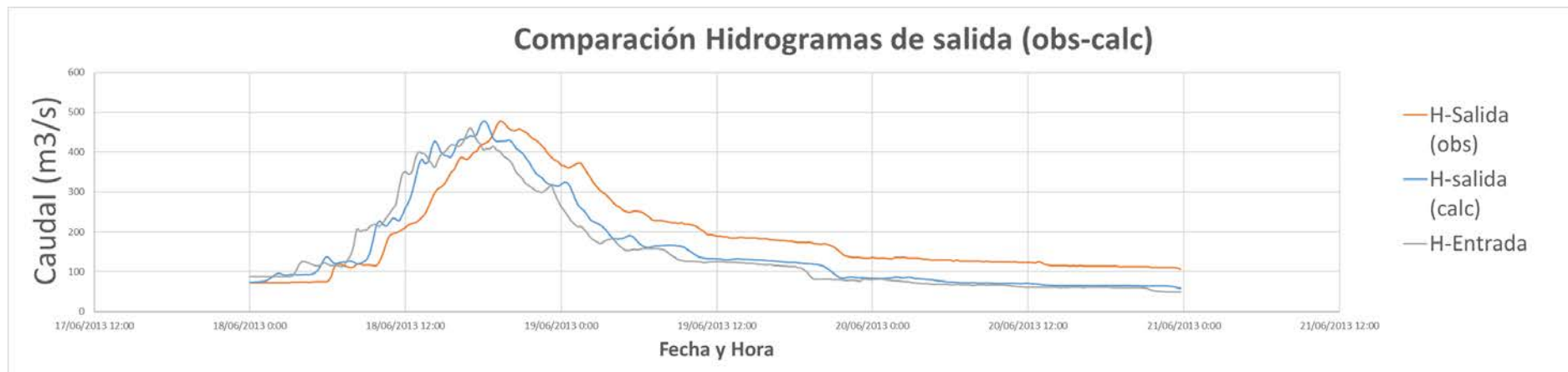


ILUSTRACIÓN 14: HIDROGRAMAS DEL EVENTO DE CRECIDAS DE JUNIO DEL AÑO 2013. CON APORTACIÓN LATERAL

Anejo 6: Formulación de resistencia al flujo para cauces de lecho móvil de Einstein-Barbarossa

Utilizado para obtener la curva de capacidad media de nuestro cauce. Los datos referidos a la granulometría y peso específico de las partículas obtenido durante el estudio de la caracterización física y morfológica del cauce principal.

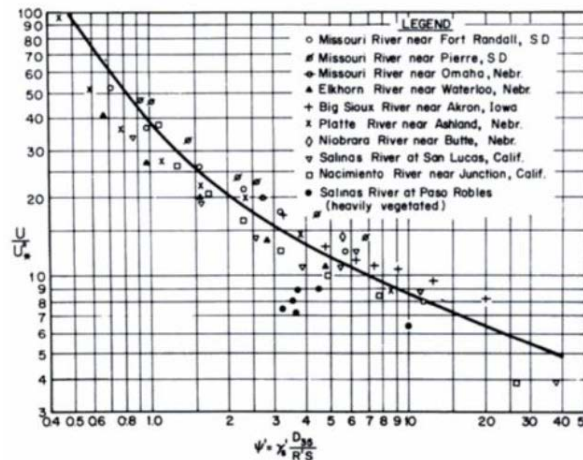
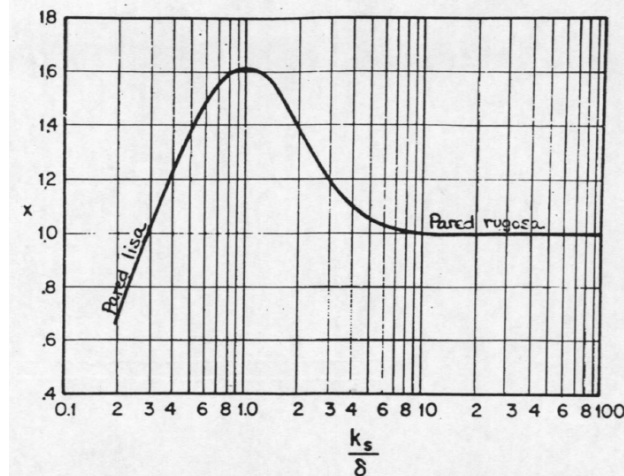
- La **velocidad de corte** se define como la siguiente magnitud:

$$U_* = \sqrt{g R_H I} = \sqrt{\frac{\tau}{\rho}}$$

R_H = radio hidráulico

τ = tensión de corte

I = pendiente de energía



$$\delta = \frac{11.6 \nu}{U_*}$$

$$\frac{U}{U_*} = 5.75 \log \left(12.27 \frac{R_H}{k_s} \chi \right)$$

$$\psi' = \frac{\gamma_s - \gamma}{\gamma} \frac{D_{35}}{I R_H}$$

DATOS INICIALES		
Q Caudal	15	m3/s
Pendiente	0.0061	m/m
B Anchura de cauce (Sección Rectangular)	40	m
ν Viscosidad cinemática	1.06E-06	m/s2
Peso específico de la partícula	25996.5	N/m3
Peso específico del agua	9810	N/m3
Peso específico sumergido	16186.5	N/m3
D35	0.01	metros
D65	0.04	metros

ANEJO 6: FORMULACIÓN DE RESISTENCIA AL FLUJO PARA CAUCES DE LECHO MÓVIL DE EINSTEIN-BARBAROSSA

Cálculo del Rh Método de Einstein y Barbarossa ($Q \rightarrow Rh$) (Necesito conocer velocidad media U para construir curva de capacidad)								
Proceso	Iteración 1	Iteración 2	Iteración 3	Iteración 4	Iteración 5	Iteración 6	Iteración 7	
Rh' Asumo un Rh' (metros)	0.1	0.4	0.5	0.8	1	1.1		6
U'* Velocidad de corte debida a la fricción del contorno	0.077	0.155	0.173	0.219	0.244	0.256		0.599
δ Espesor de la subcapa laminar	0.0002	0.0001	0.0001	0.0001	0.0001	0.0000		0.0000
Ks Rugosidad equivalente (asumo D65 en metros)	0.04	0.04	0.04	0.04	0.04	0.04		0.04
Eje X gráfica	251.52	503.04	562.42	711.41	795.38	834.20		1948.27
χ Lectura gráfica eje Y (χ)	1	1	1	1	1	1		1
U Velocidad media	0.660986684	1.857294551	2.172856589	3.005140381	3.496091811	3.72776501		11.24332951
ψ' Psi prima (eje X de la grafica)	27.07692308	6.769230769	5.415384615	3.384615385	2.707692308	2.461538462		0.451282051
U/U''* Lectura gráfica eje Y (U/U''*)	5.5	11	12	14	16	17.5		24
Rh'' calculo Rh''	0.0295	0.2668	0.3983	0.8872	1.9762	3.6032		48.6551
Rh Radio Hidráulico normal ($Rh = Rh' + Rh''$)	0.1295	0.6668	0.8983	1.6872	2.9762	4.7032		54.6551
h Calado (asumo igual a radio hidraulico)	0.1295	0.6668	0.8983	1.6872	2.9762	4.7032		54.6551
S Sección (m2)	5.18	26.67	35.93	67.49	119.05	188.13		2186.20
Q Caudal ($Q = U \cdot S$)	3.42	49.54	78.07	202.81	416.20	701.30		24580.22
Diferencia %	77.17	-230.27	-420.48	-1252.03	-2674.66	-4575.36		-163768.11

Caudal (Q) m3/s	Calado (h) m	Area m2
3.42	0.1295	5.2
49.54	0.6668	26.7
78.07	0.90	35.9
202.81	1.69	67.5
416.20	2.9762	119.0
701.30	4.70	188.1

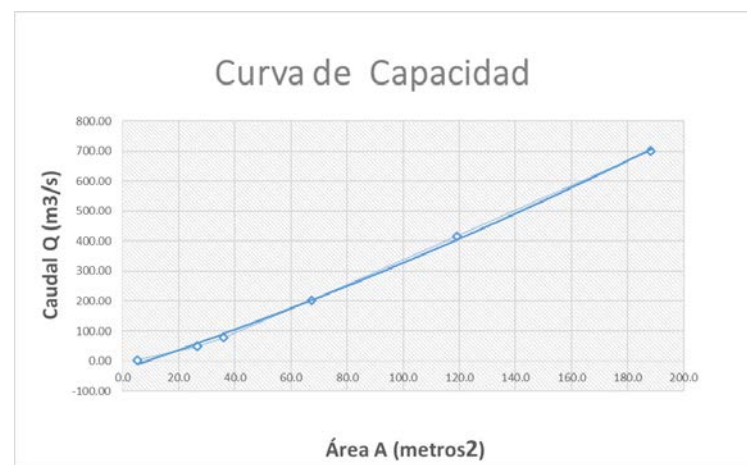


ILUSTRACIÓN 15: FORMULACIÓN, TABLAS Y CÁLCULO DE LA RESISTENCIA AL FLUJO PARA CAUCES DE LECHO MÓVIL DE EINSTEIN-BARBAROSSA