

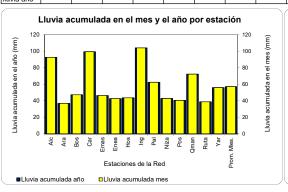
OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

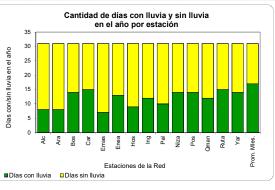


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

ENERO DE 2011

Estaciones	Alcáz	zares	Aran	juez	Bosqu No	ies del erte	El Ca	ırmen	Em	ıas	En	ea		ital de das	Ingeo	minas	La P	alma	N	iza	Posgr	rados	Queb Maniz Tesc		Ruta	a 30	Yaru	mos	Prom Mania	
Propietario	1	1	1	ı		1		1	2	2		l		1		1	1	1		1	3	3	4	1	3	1				
Día	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
S 1	0.0	242.0	0.0	101.0	0.0	175.6	0.0	256.8	0.0	167.2	0.0	67.8	0.0	151.0	0.0	294.4	0.0	219.0	0.0	127.6	0.0	161.8	0.0		0.0	136.8	0.0	191.5	0.0	169.9
D 2	0.0	234.2	1.6	98.6	1.0	168.4	0.3	252.2	0.0	162.0	0.0	64.3	0.6	149.6	0.0	289.6	0.0	215.0	2.0	127.0	3.1	162.8	0.0	Entró en	1.6	136.2	1.5	190.5	0.9	166.7
L 3	6.8	239.6	6.2	100.8	0.6	168.8	7.9	258.3	1.2	162.4	1.8	61.5	2.2	151.4	9.7	296.7	11.8	223.8	1.6	128.0	1.8	164.3	3.0	funciona	3.6	138.2	1.0	191.5	3.9	169.0
Ma 4	61.4	293.6	19.2	113.6	30.6	190.4	66.8	315.8	33.6	188.2	21.8	76.5	29.2	172.2	76.0	363.7	33.6	248.8	19.4	139.0	18.5	174.0	28.2		19.8	151.4	30.2	211.6	33.8	194.4
Mi 5	4.4	298.0	5.6	119.2	7.8	198.0	6.6	322.4	4.4	192.6	5.1	81.5	8.2	180.4	4.3	368.1	3.0	251.8	9.4	148.4	9.4	183.4	18.8		8.4	159.8	10.2	221.7	6.8	201.2
J 6	0.0	283.2	0.0	114.2	0.4	179.2	0.0	303.1	0.0	175.4	0.8	79.5	0.0	169.4	0.3	348.5	0.0	213.8	0.4	142.6	0.0	173.0	0.6	diciembr e de	0.2	152.8	0.3	209.1	0.3	187.7
V 7	0.0	259.8	0.0	93.4	1.4	156.0	0.3	275.4	0.0	146.8	0.5	71.4	0.4	135.0	0.3	324.1	0.6	188.2	0.4	126.6	0.5	133.6	1.2	2010	0.4	116.4	0.8	152.2	0.5	161.0
S 8	0.0	201.2	0.0	81.8	1.0	114.6	0.3	202.0	0.0	125.0	0.8	64.0	0.0	103.4	0.0	239.8	0.2	181.0	0.4	95.2	0.3	110.5	1.4		0.2	98.0	0.3	137.7	0.3	131.1
D 9	0.4	193.4	0.4	62.2	0.2	105.8	0.5	193.1	0.0	121.4	0.8	50.6	0.0	89.8	0.5	231.1	0.0	173.6	0.4	72.8	0.3	81.3	1.4		0.4	83.6	0.0	100.3	0.3	114.8
L 10	0.0	192.2	0.0	61.8	0.0	100.2	0.0	191.8	0.0	119.2	0.0	50.0	0.0	88.0	0.0	229.9	0.0	173.4	0.0	72.0	0.0	80.5	0.0	93.6	0.0	82.8	0.0	96.5	0.0	113.2
Ma 11	0.0	192.2	0.0	61.8	0.0	100.2	0.0	191.8	0.0	119.0	0.0	50.0	0.0	88.0	0.0	229.9	0.0	173.4	0.0	72.0	0.0	80.5	0.0	93.6	0.0	82.8	0.3	96.8	0.0	113.2
Mi 12	0.0	176.2	0.0	56.6	0.0	91.0	0.0	176.3	0.0	103.8	0.0	48.3	0.0	77.0	0.0	205.2	0.0	141.4	0.0	64.6	0.0	68.1	0.0	91.2	0.0	68.0	0.0	86.4	0.0	100.5
J 13	0.0	133.8	2.0	46.0	0.8	64.2	0.8	133.1	0.6	68.2	0.5	43.4	0.4	57.0	0.0	156.5	4.2	93.6	1.2	53.4	0.5	50.1	0.4	72.8	0.6	50.6	0.5	69.9	1.0	76.1
V 14	0.0	109.8	0.0	45.6	0.0	62.0	0.0	111.8	0.0	58.6	0.3	42.7	0.2	55.0	0.0	129.3	1.0	75.2	0.8	53.2	0.5	50.1	0.4	73.0	0.0	49.0	1.8	70.9	0.5	68.7
S 15	0.8	110.4	0.0	45.6	0.0	62.0	1.3	112.8	0.0	58.6	0.0	42.4	0.6	55.6	0.5	129.8	0.0	75.2	0.0	53.2	1.3	51.3	0.0	72.8	0.8	49.6	0.0	70.9	0.3	68.9
D 16	13.8	124.2	0.6	46.2	0.8	62.8	7.4	120.2	0.0	58.6	2.3	44.7	0.0	55.6	6.4	136.1	3.0	78.2	0.6	53.8	0.3	51.6	14.0	86.8	0.0	49.6	2.5	73.4	2.9	71.8
L 17	0.0	124.2	0.0	46.2	0.8	63.6	0.0	120.2	0.0	58.6	0.0	44.7	0.0	55.6	0.0	136.1	0.0	78.2	0.6	54.4	0.3	51.8	0.0	86.8	0.2	49.8	0.5	73.9	0.2	72.0
Ma 18	0.0	121.4	0.0	44.6	0.2	57.8	0.3	116.9	0.0	52.8	1.3	44.0	1.8	54.4	0.3	132.3	0.0	73.8	1.6	52.4	2.5	51.1	0.2	81.0	1.6	49.0	3.8	71.6	1.2	69.3
Mi 19	0.0	114.0	0.0	37.8	0.0	53.6	0.0	109.5	0.0	48.4	0.0	38.4	0.0	47.8	0.0	125.0	0.0	70.6	0.0	44.2	0.0	45.0	0.0	76.6	0.2	43.2	0.0	62.7	0.0	62.8
J 20	2.2	113.6	0.0	35.6	0.4	47.8	3.6	110.5	3.6	46.4	0.0	36.1	0.0	44.8	3.1	124.5	3.8	67.4	0.0	40.8	0.0	41.9	0.0	70.2	0.0	40.8	0.0	57.2	1.2	60.0
V 21	0.0	112.8	0.0	35.6	0.0	46.2	0.0	109.8	0.0	44.6	0.0	36.1	0.0	43.6	0.0	124.0	0.0	66.6	0.0	38.8	0.0	39.1	0.0	70.0	0.0	38.2	0.0	53.9	0.0	58.5
S 22	2.6	115.4	0.0	35.6	0.0	46.0	2.8	112.5	2.2	46.8	0.0	36.1	0.0	43.6	2.3	126.2	0.0	66.6	0.0	38.8	0.0	39.1	0.0	69.8	0.2	38.2	0.0	53.6	0.7	59.1
D 23	0.0	115.4	0.0	35.6	0.0	46.0	0.0	112.5	0.0	46.8	0.0	36.1	0.0	43.6	0.0	126.2	0.0	66.6	0.0	38.8	0.0	39.1	0.0	69.8	0.0	38.2	0.0	53.6	0.0	59.1
L 24	0.0	100.0	0.0	35.6	0.0	46.0	0.0	105.2	0.0	46.0	0.0	36.1	0.0	43.6	0.0	110.5	0.0	61.6	0.0	38.8	0.0	39.1	0.0	69.8	0.0	38.2	0.0	53.6	0.0	56.2
Ma 25	0.0	92.4	0.0	35.6	0.0	46.0	0.0	98.6	0.0	45.6	0.0	35.8	0.0	43.6	0.0	103.4	0.0	61.2	0.0	38.8	0.0	39.1	0.0	69.6	0.0	38.2	0.0	53.6	0.0	54.7
Mi 26	0.0	92.4	1.2	36.8	1.2	47.2	0.3	98.8	0.8	46.4	6.6	42.4	0.0	43.6	0.5	103.9	1.2	62.4	4.0	42.8	1.3	40.4	2.6	72.2	0.4	38.6	2.3	55.9	2.3	57.0
J 27	0.0	92.4	0.0	35.2	0.0	46.2	0.0	98.6	0.0	46.4	0.3	42.7	0.0	43.0	0.0	103.9	0.0	62.4	0.0	40.8	0.0	37.3	0.0	72.2	0.0	37.0	0.0	54.4	0.0	56.1
V 28	0.0	85.6	0.0	29.0	0.0	45.6	0.0	90.7	0.0	45.2	0.0	40.9	0.0	40.8	0.0	94.2	0.0	50.6	0.0	39.2	0.0	35.6	0.0	69.2	0.0	33.4	0.0	53.3	0.0	52.3
S 29	0.0	24.2	0.0	9.8	0.0	15.0	0.0	23.9	0.0	11.6	0.0	19.1	0.0	11.6	0.0	18.3	0.0	17.0	0.0	19.8	0.0	17.0	0.0	41.0	0.0	13.6	0.0	23.1	0.0	18.5
D 30	0.0	19.8	0.0	4.2	0.0	7.2	0.0	17.3	0.0	7.2	0.0	14.0	0.0	3.4	0.0	14.0	0.0	14.0	0.0	10.4	0.0	7.6	0.0	22.2	0.0	5.2	0.0	13.0	0.0	11.7
L 31	0.0	19.8	0.0	4.2	0.0	6.8	0.5	17.8	0.0	7.2	0.0	13.2	0.0	3.4	0.0	13.7	0.0	14.0	0.0	10.0	0.0	7.6	0.0	21.6	0.0	5.0	0.0	12.7	0.0	11.4
LI. mes	92.4		36.8		47.2		99.3		46.4		42.7		43.6		103.9		62.4		42.8		40.4		72.2		38.6		55.9		57.0	
Máx. mes	61.4	298.0	19.2	119.2	30.6	198.0	66.8	322.4	33.6	192.6	21.8	81.5	29.2	180.4	76.0	368.1	33.6	251.8	19.4	148.4	18.5	183.4	28.2	93.6	19.8	159.8	30.2	221.7	33.8	201.2
Ll. acum. en el año	92	2.4	36	6.8	4	7.2	99	9.3	46	5.4	42	2.7	43	3.6	10	3.9	62	2.4	4:	2.8	40	1.4	72	2.2	38	1.6	55	5.9	57	7.0
No. días Iluvia año	8	26%	8	26%	14	45%	15	48%	7	23%	13	42%	9	29%	12	39%	10	32%	14	45%	14	45%	12	39%	15	48%	14	45%	17	55%





Días trar	scurridos	en el año	31
Νú	imero de c	lías con alg	ún
n	ivel de ale	rta en el añ	0
Estación	Α	N	R
Alc	8	0	0
Ara	0	0	0
Bos	0	0	0
Car	5	3	0
Emas	0	0	0
Enea	0	0	0
Hos	0	0	0
Ing	8	4	0
Pal	6	0	0
Niza	0	0	0
Pos	0	0	0
Qman	0	0	0
Ruta	0	0	0
Yar	3	0	0
Prom.	1	0	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

LI. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm No. días lluvia año: Número de días con lluvia en lo corrido del año

No. días lluvia año: Número de días con lluvia en lo corrido del aí Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD; 2 Empresa Metropolitiana de Aseo-EMAS S.A. E.S.P; Universidad Nacional de Colombia-sede Manizales; 4 Corporación Autónoma Regional de Caldas-CORPOCALDAS

NIVELES DE ALERTA (N.A.)

 Amarilla o baja:
 A
 200 mm <= A25 < 300 mm</td>

 Naranja o media:
 N
 300 mm <= A25 < 400 mm</td>

 Roja o alta:
 R
 A25 >= 400 mm



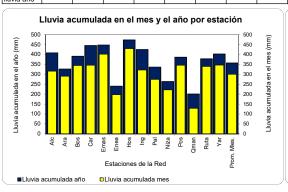
OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

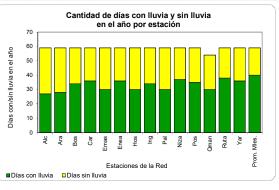


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

FEBRERO DE 2011

Estaciones	Alcáz	ares	Aran	juez	Bosqu No	ies del orte	El Ca	ırmen	Em	as	En	ea		tal de das	Ingeo	minas	La Pa	alma	Ni	za	Posgr	ados	Queb Maniz Tesc		Ruta	a 30	Yaru	mos	Prom Maniz	
Propietario	1		1	Į.		1	1	1	2			1		1		1	1		1	Į.	3		4	1	3	3	1			
Día	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
Ma 1	0.6	20.4	2.4	6.6	1.0	6.4	8.0	18.3	1.0	8.2	1.5	14.2	0.8	3.8	0.8	14.2	0.8	14.2	0.8	10.4	0.8	7.9	1.6	22.0	0.8	5.4	1.0	13.0	1.0	12.0
Mi 2	0.0	20.4	0.0	6.6	0.0	5.4	0.0	18.0	0.0	8.2	0.0	13.5	0.0	3.8	0.0	14.2	0.0	14.0	0.0	10.0	0.0	7.6	0.0	20.6	0.0	5.2	0.0	12.7	0.0	11.6
J 3	0.0	20.0	0.0	6.2	0.0	5.2	0.0	17.5	0.0	8.2	0.0	12.7	0.0	3.8	0.0	13.7	0.0	14.0	0.0	9.6	0.0	7.4	0.0	19.2	0.0	4.8	0.0	12.7	0.0	11.3
V 4	0.0	20.0	0.0	6.2	0.0	5.2	0.0	17.5	0.0	8.2	0.0	12.7	0.4	4.2	0.0	13.7	0.0	14.0	0.0	9.6	0.3	7.6	0.0	19.2	0.2	5.0	0.0	12.7	0.0	11.4
S 5	0.0	20.0	0.0	6.2	0.0	5.2	0.0	17.5	0.0	8.2	0.0	12.7	0.0	4.2	0.3	14.0	1.0	15.0	0.0	9.6	0.0	7.6	0.0	19.2	0.0	5.0	0.0	12.4	0.1	11.4
D 6	59.0	79.0	47.4	53.6	51.6	56.8	74.2	91.7	83.4	91.6	21.3	34.0	95.2	99.4	59.4	73.4	44.2	59.2	35.2	44.8	66.3	73.9			79.8	84.8	85.1	97.5	56.4	67.9
L 7	7.6	86.6	13.4	65.0	12.0	68.0	12.5	103.4	10.4	101.4	16.0	49.5	16.8	115.8	9.1	82.6	10.0	65.0	11.8	55.4	11.9	85.3			13.2	97.4	9.9	106.9	11.7	78.6
Ma 8	18.2	104.8	21.0	86.0	42.2	110.2	19.8	123.2	29.8	131.2	26.2	75.4	19.0	134.6	15.0	97.5	32.8	96.8	16.8	71.4	17.0	101.9	Datos fa	altantes	13.8	111.2	23.1	128.3	23.1	101.2
Mi 9	5.2	109.2	1.4	87.4	25.6	135.8	5.8	127.8	21.6	152.8	5.3	80.8	2.4	136.4	6.1	103.1	3.8	100.6	5.6	77.0	1.3	101.9	en la es	stación	1.6	112.0	14.0	142.2	8.3	109.2
J 10	1.4	96.8	1.2	88.0	1.6	136.6	1.8	122.2	2.0	154.8	0.8	79.2	1.4	137.8	1.8	98.6	3.8	101.4	1.4	77.8	1.8	103.4			1.4	113.4	1.8	141.5	1.7	108.0
V 11	0.2	97.0	0.0	88.0	0.4	136.2	0.3	122.4	0.4	155.2	1.8	81.0	0.0	137.8	0.3	98.8	0.0	101.4	2.4	79.6	0.0	103.1			0.0	113.2	0.5	141.5	0.8	108.6
S 12	0.0	97.0	0.0	88.0	0.0	136.0	0.0	122.2	0.2	155.4	0.3	80.0	0.0	136.0	0.0	98.6	0.0	101.4	0.0	78.0	0.0	100.6	3.8		0.0	111.6	0.0	137.7	0.0	107.5
D 13	23.2	120.2	37.8	125.8	33.6	169.6	21.9	144.0	36.4	191.8	14.7	94.7	26.6	162.6	18.0	116.6	25.4	126.8	15.6	93.6	25.7	126.2	3.8		27.6	139.0	23.9	161.5	23.0	130.5
L 14	2.8	120.8	0.2	126.0	5.2	174.4	3.8	144.3	1.6	189.8	1.5	96.3	2.4	165.0	3.6	117.1	1.6	124.6	1.4	95.0	1.0	127.3	6.0		0.6	139.6	6.6	168.2	2.7	132.0
Ma 15	1.8	122.6	8.4	134.4	6.2	180.6	6.4	150.6	2.0	191.8	3.3	99.6	19.0	184.0	1.0	118.1	1.6	126.2	18.6	113.6	28.2	155.5	6.6		22.8	162.4	10.4	178.6	9.2	141.2
Mi 16	54.2	174.2	25.0	159.4	27.2	207.8	53.9	201.7	38.6	228.2	6.9	106.4	50.6	234.6	55.1	170.9	27.2	153.4	5.6	119.2	21.1	176.5	22.8		21.6	183.8	16.3	194.8	25.8	166.3
J 17	31.8	206.0	17.2	176.6	17.4	225.2	37.3	239.0	24.6	252.8	6.6	113.0	20.2	254.8	41.9	212.9	35.4	188.8	8.8	128.0	18.8	195.3	4.2		16.2	200.0	18.0	212.9	20.5	186.8
V 18	11.0	217.0	37.2	213.8	18.6	243.8	18.5	257.6	40.2	293.0	28.7	141.7	59.4	314.2	16.3	229.1	12.8	201.6	25.0	153.0	39.9	235.2	4.6		42.4	242.4	38.6	251.5	28.0	214.8
S 19	1.4	218.4	0.4	214.2	0.4	244.2	1.3	258.8	0.8	293.8	0.3	142.0	0.8	315.0	1.3	230.4	1.4	203.0	0.2	153.2	0.5	235.7	0.2		8.0	243.2	0.3	251.7	0.7	215.5
D 20	4.0	222.4	1.4	214.4	2.6	245.6	3.8	262.4	2.8	295.8	0.5	135.9	2.0	317.0	2.5	232.4	1.6	203.4	2.6	151.8	2.3	236.7	2.6		8.0	243.6	2.5	252.0	2.3	215.5
L 21	8.4	230.8	3.2	217.6	3.6	249.2	7.6	270.0	8.2	304.0	0.5	136.2	3.8	320.8	8.4	240.8	1.2	204.6	0.8	152.6	2.3	239.0	0.2		2.6	246.2	2.3	254.3	3.4	218.9
Ma 22	0.0	230.8	0.0	217.6	0.0	249.2	0.0	270.0	0.0	304.0	9.4	145.6	0.0	320.8	0.0	240.8	0.0	204.6	14.4	167.0	0.0	239.0	8.2		0.2	246.4	2.0	256.3	4.1	223.0
Mi 23	16.0	246.8	14.8	232.4	28.6	277.8	18.8	288.8	31.4	335.4	14.0	159.5	21.6	342.4	17.8	258.6	13.8	218.4	19.4	186.4	20.3	259.3	15.8		19.8	266.2	20.8	277.1	19.4	242.4
J 24	16.2	263.0	19.0	251.4	13.0	290.8	15.2	304.0	22.8	358.2	20.6	180.1	23.0	365.4	17.8	276.4	19.2	237.6	12.2	198.6	23.1	282.5	31.8		18.2	284.4	22.6	299.7	18.2	260.6
V 25	0.0	263.0	12.8	264.2	22.8	313.6	2.8	306.3	0.6	358.8	3.8	183.9	33.0	398.4	0.5	276.9	0.0	237.6	4.4	203.0	33.0	315.5	0.8		26.8	311.2	7.9	307.6	7.7	268.3
S 26	0.0	262.4	0.0	261.8	0.0	312.6	0.0	305.6	0.2	358.0	0.0	182.4	0.0	397.6	0.0	276.1	0.0	236.8	0.2	202.4	0.0	314.7	0.2		0.4	310.8	0.0	306.6	0.1	267.4
D 27	0.0	262.4	2.6	264.4	0.0	312.6	0.3	305.8	2.8	360.8	1.3	183.6	2.6	400.2	1.5	277.6	0.4	237.2	1.6	204.0	6.9	321.6	2.8		2.2	313.0	6.4	312.9	2.1	269.5
L 28	52.8	315.2	23.4	287.8	30.6	343.2	38.9	344.7	39.6	400.4	13.0	196.6	28.6	428.8	43.2	320.8	36.2	273.4	16.6	220.6	23.4	344.9	12.6		25.8	338.8	32.5	345.4	29.3	298.9
Ma 1																													-	\longrightarrow
Mi 2																													$\overline{}$	\longrightarrow
J 3																													\vdash	\longrightarrow
Ll. mes	315.8		290.2		344.2		345.4		401.4		198.1		429.6		321.6		274.2		221.4		345.7		128.6		339.6		346.5		299.8	\longrightarrow
Máx. mes	59.0	315.2	47.4	287.8	51.6	343.2	74.2	344.7	83.4	400.4	28.7	196.6	95.2	428.8	59.4	320.8	44.2	273.4	35.2	220.6	66.3	344.9	31.8	22.0	79.8	338.8	85.1	345.4	56.4	298.9
Ll. acum. en el año	408	8.2	32	7.0	39	1.4	44	4.8	447	7.8	24	0.8	47	3.2	42	5.5	33	6.6	26	4.2	386	5.1	20	8.0	378	3.2	40	2.3	356	6.9
No. días Iluvia año	27	46%	28	47%	34	58%	36	61%	30	51%	36	61%	30	51%	34	58%	30	51%	37	63%	35	59%	30	56%	38	64%	36	61%	40	68%





Días trar	nscurridos	en el año	59
Nı	ímero de c	lías con alg	ún
r	ivel de ale	rta en el añ	0
Estación	Α	N	R
Alc	19	1	0
Ara	11	0	0
Bos	9	4	0
Car	13	8	0
Emas	5	7	1
Enea	0	0	0
Hos	2	9	2
Ing	19	5	0
Pal	17	0	0
Niza	4	0	0
Pos	7	4	0
Qman	0	0	0
Ruta	8	4	0
Yar	11	4	0
Prom.	12	0	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

LI. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año
Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD; 2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P; Universidad Nacional de Colombia-sede Manizales; 4 Corporación Autónoma Regional de Caldas-CORPOCALDAS

NIVELES DE ALERTA (N.A.)

Amarilla o baja: A 200 mm <= A25 < 300 mm

Naranja o media: N 300 mm <= A25 < 400 mm

Roja o alta: R A25 >= 400 mm



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

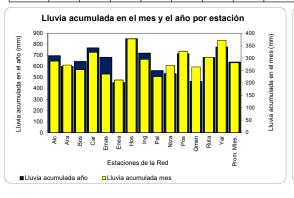
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

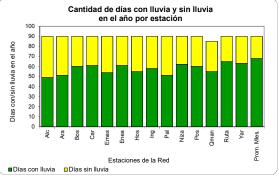


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

MARZO DE 2011

Estaciones	Alcá	zares	Arar	njuez		ies del rte	El Ca	ırmen	Em	nas	Er	nea	Hospi Cal	tal de das	Ingeo	minas	La P	alma	Ni	za	Posg	rados	Mania	orada zales- orito	Ruta	a 30	Yarı	ımos	Prom Maniz	
Propietario		1		1		1		1	:	2		1	1	1		1		1		1	3	3	4	1	3	3		1		
Día	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
Ma 1	49.0	364.2	36.4	324.2	30.2	373.4	48.8	393.5	37.0	437.4	23.9	220.5	49.0	477.4	42.9	363.7	37.8	311.2	23.0	243.6	38.9	383.5	26.0		37.8	376.4	30.0	375.4	34.0	332.9
Mi 2	61.2	425.4	46.6	370.8	36.6	410.0	69.9	463.3	47.2	484.6	27.9	248.4	79.6	557.0	61.0	424.4	28.0	338.2	42.0	285.6	60.5	444.0	29.6		56.6	433.0	59.7	435.1	48.3	381.1
J 3	0.0	366.4	29.8	353.2	12.8	371.2	0.8	389.9	2.4	403.6	34.3	261.4	27.4	489.2	0.3	365.3	0.4	294.4	51.6	302.0	52.6	430.3	53.6		36.0	389.2	40.4	390.4	25.1	349.8
V 4	6.2	365.0	11.0	350.8	1.6	360.8	6.6	384.1	0.6	393.8	7.6	253.0	1.6	474.0	6.6	362.7	0.6	285.0	4.4	294.6	6.6	424.9	4.4		4.4	380.4	1.5	382.0	4.2	342.2
S 5	23.6	370.4	6.0	335.8	2.8	321.4	19.1	383.3	5.4	369.4	5.1	231.9	3.6	458.6	21.9	369.6	7.4	259.6	2.4	280.2	2.3	410.2	1.4		2.8	369.4	1.5	360.4	7.2	326.3
D 6	9.4	374.6	11.0	345.4	11.6	307.4	9.2	386.6	11.2	359.0	7.9	234.4	24.2	480.4	10.4	373.9	8.2	264.0	15.2	289.8	13.0	421.9	14.8		11.2	379.0	32.3	378.7	14.2	332.2
L 7	8.0	374.0	1.2	345.4	2.2	308.0	1.0	385.8	0.0	357.0	0.8	234.5	4.4	483.4	0.5	372.6	0.0	260.2	1.4	289.8	4.6	424.7	2.6		2.2	379.8	5.3	382.3	1.8	332.3
Ma 8	3.0	376.8	3.8	349.2	16.6	324.2	3.6	389.1	1.8	358.4	12.7	245.4	3.2	486.6	3.6	375.9	15.4	275.6	8.0	295.4	3.6	428.3	16.4	275.8	2.2	382.0	23.9	405.6	9.8	341.2
Mi 9	18.4	395.2	50.2	399.4	31.6	355.8	25.9	415.1	13.2	371.4	33.3	278.4	74.4	561.0	20.8	396.7	13.8	289.4	35.4	330.8	57.9	486.2	31.2	303.2	66.2	448.2	52.1	457.7	34.6	375.8
J 10	3.2	375.2	2.8	364.4	2.6	324.8	3.0	396.2	3.0	338.0	4.1	267.7	4.4	538.8	2.8	381.5	2.4	266.4	3.4	318.6	3.8	464.3	6.0	305.4	3.4	424.0	4.3	438.2	3.4	356.2
V 11	0.0	372.4	0.0	364.2	1.0	320.6	0.5	392.9	0.4	336.8	0.0	266.2	0.0	536.4	0.0	378.0	0.0	264.8	0.0	317.2	0.0	463.3	0.0	299.4	0.0	423.4	1.0	432.6	0.3	353.8
S 12	0.0	370.6	0.0	355.8	0.0	314.4	0.0	386.6	0.0	334.8	0.0	262.9	0.0	517.4	0.0	376.9	0.0	263.2	0.0	298.6	0.0	435.1	0.0	292.8	0.0	400.6	0.0	422.2	0.0	344.6
D 13	0.0	316.4	0.0	330.8	0.0	287.2	0.0	332.7	0.0	296.2	0.0	256.0	0.0	466.8	0.0	321.8	0.0	236.0	0.0	293.0	0.0	414.0	0.0	270.0	0.0	379.0	0.0	405.9	0.0	318.8
L 14	0.0	284.6	0.0	313.6	0.0	269.8	0.0	295.4	0.0	271.6	0.0	249.4	0.0	446.6	0.0	279.9	0.0	200.6	0.0	284.2	0.0	395.2	0.0	265.8	0.0	362.8	0.0	387.9	0.0	298.2
Ma 15	2.4	276.0	0.0	276.4	0.0	251.2	4.8	281.7	3.6	235.0	0.5	221.2	9.0	396.2	3.8	267.5	0.0	187.8	0.4	259.6	1.5	356.9	1.4	262.6	1.8	322.2	11.4	360.7	3.1	273.3
Mi 16	30.6	305.2	10.4	286.4	30.4	281.2	44.4	324.9	38.6	272.8	11.2	232.2	19.0	414.4	47.0	313.2	27.0	213.4	14.4	273.8	18.6	374.9	5.4	267.8	15.2	336.6	18.5	379.0	23.6	296.3
J 17	0.6	301.8	0.4	285.4	0.6	279.2	0.8	321.8	0.8	270.8	0.8	232.4	0.4	412.8	0.5	311.2	0.4	212.2	0.4	271.6	0.5	373.1	1.2	266.4	0.2	336.0	0.5	376.9	0.5	294.6
V 18	12.2	305.6	11.2	293.4	6.0	281.6	11.4	325.6	5.2	267.8	3.6	235.5	11.4	420.4	8.1	310.9	8.6	219.6	12.6	283.4	8.6	379.5	6.4	272.6	11.4	344.8	8.6	383.3	8.9	300.1
S 19	1.6	307.2	0.8	294.2	0.4	282.0	2.3	327.9	0.4	268.2	2.3	228.3	5.8	426.2	1.3	312.2	0.2	219.8	3.6	272.6	4.1	383.5	3.2	267.6	2.8	347.4	9.1	390.4	3.0	299.0
D 20	1.8	293.0	1.4	280.8	3.8	257.2	2.5	311.6	2.8	239.6	2.5	216.9	3.2	407.8	1.8	296.2	2.0	208.0	0.6	253.8	5.6	368.8	4.6	256.4	3.0	330.6	3.8	373.4	2.4	282.0
L 21	2.8	279.6	12.2	274.0	8.8	253.0	4.6	301.0	2.4	219.2	2.5	198.9	6.6	391.4	3.3	281.7	3.4	192.2	4.4	246.0	7.4	353.1	3.4	228.0	7.2	319.6	5.6	356.4	4.6	268.4
Ma 22	7.6	287.2	1.2	262.4	8.4	238.6	10.2	308.3	11.0	229.6	4.8	199.9	7.6	366.0	9.9	291.1	9.2	201.4	1.8	243.4	1.5	321.6	5.0	232.2	2.2	295.0	4.6	353.1	6.0	266.7
Mi 23	24.4	311.6	17.0	279.4	18.4	257.0	24.6	333.0	14.4	243.8	13.0	212.9	22.2	388.2	20.6	311.7	13.2	214.6	17.4	260.6	19.8	341.4	22.0	254.0	17.0	311.6	20.6	373.6	18.0	284.7
J 24	0.8	312.4	1.8	278.6	2.4	259.4	0.8	333.5	0.6	241.6	1.5	213.1	1.2	386.8	0.8	310.9	0.2	214.4	1.2	260.2	1.5	336.0	13.0	264.2	1.4	310.8	2.3	369.6	1.3	283.8
V 25 S 26	19.6	279.2	1.6 0.2	256.8 220.6	10.6	239.4	18.8	313.4 264.7	25.0	227.0 190.4	0.5	200.7 177.0	8.0	366.2 317.8	18.0	285.8 243.1	38.6	216.8 179.4	0.6	244.2 221.6	1.5	314.2 275.8	1.0 0.2	252.6 226.8	6.4	291.4 254.2	3.8	340.9	11.1	265.6 231.8
D 27	0.0	230.2 169.0	0.2	174.0	0.4 5.0	178.0	0.0	194.8	0.4 1.0	144.2	0.3	149.1	0.6 1.0	239.2	0.3	182.1	0.4	179.4	0.4	179.6	0.5 0.8	216.2	0.2	197.2	0.6	198.0	0.3 7.1	311.2 258.6	0.3 1.4	184.9
L 28	6.8	175.8	15.0	159.2	8.4	178.0	7.6	201.7	7.2	144.2	8.9	123.7	8.8	239.2	7.1	182.1	8.0	151.4	17.6	145.6	10.2	173.7	10.0	153.6	9.6	171.6	19.1	237.2	11.4	171.2
Ma 29	0.0	169.6	0.0	148.2	0.0	173.6	0.0	195.1	0.0	149.0	0.3	116.3	0.0	219.0	0.0	189.0	0.0	158.4	0.2	141.4	0.0	167.1	0.0	149.2	0.2	167.4	0.3	236.0	0.1	167.1
Mi 30	2.0	148.0	0.0	148.2	0.0	169.6	2.0	178.0	0.0	148.4	2.0	113.3	0.0	215.4	1.8	162.3	0.0	151.0	0.2	139.0	0.0	164.8	0.0	149.2	0.2	164.8	0.3	234.4	0.1	160.6
J 31	0.0	138.6	0.0	131.6	0.4	158.4	0.3	169.1	0.0	131.8	0.0	105.4	0.0	192.0	0.0	151.9	0.0	142.8	8.6	139.0	2.5	154.4	1.2	135.0	0.2	154.4	4.8	207.0	2.4	148.8
Ll. mes	288.0	130.0	272.4	131.0	254.0	150.4	323.3	108.1	235.6	131.0	212.1	100.4	377.4	192.0	294.9	101.8	225.2	142.0	271.0	132.4	328.2	154.4	264.8	133.0	303.2	104.4	372.4	207.0	281.8	140.0
Máx. mes	61.2	425.4	50.2	399.4	36.6	410.0	69.9	463.3	47.2	484.6	34.3	278.4	79.6	561.0	61.0	424.4	38.6	338.2	51.6	330.8	60.5	486.2	53.6	305.4	66.2	448.2	59.7	457.7	48.3	381.1
Ll. acum.												•						•											—	
en el año	69	96.2	59	9.4	64	5.4	76	8.1	68	3.4	45	2.9	85	0.6	72	0.3	56	1.8	53	5.2	71	4.3	46	5.6	68	1.4	77	4.7	638	8.7
No. días Iluvia año	49	54%	51	57%	60	67%	61	68%	54	60%	61	68%	55	61%	58	64%	51	57%	62	69%	60	67%	55	65%	65	72%	63	70%	68	76%





Días trar	nscurridos	en el año	90
Nı	úmero de o	lías con alg	jún
r	nivel de ale	rta en el añ	io
Estación	Α	N	R
Alc	26	19	1
Ara	23	14	0
Bos	23	15	1
Car	17	29	2
Emas	18	16	4
Enea	23	0	0
Hos	6	16	21
Ing	26	23	1
Pal	38	2	0
Niza	26	4	0
Pos	9	17	12
Qman	17	2	0
Ruta	11	22	5
Yar	16	23	7
Prom.	24	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año

Propietarios: 1 Alcaldía de Manizales-OMPAD; 2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P; Universidad Nacional de Colombia-sede Manizales; 4 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación NIVELES DE ALERTA (N.A.)

 Amarilla o baja:
 A
 200 mm <= A25 < 300 mm</td>

 Naranja o media:
 N
 300 mm <= A25 < 400 mm</td>

 Roja o alta:
 R
 A25 >= 400 mm



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

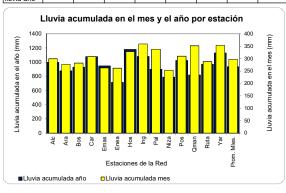
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

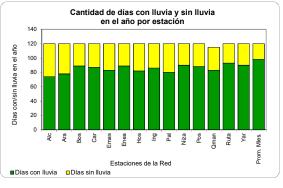


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

ABRIL DE 2011

Estaciones	Alcá	zares	Arar	njuez		ues del orte	El Ca	armen	En	nas	Er	nea		ital de das	Ingeo	minas	La P	alma	Ni	iza	Posg	rados	Mani	orada zales- orito	Rut	a 30	Yarı	ımos		nedio izales
Propietario		1		1		1		1		2		1		1		1		1		1	,	3		4	;	3		1		
Día	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
V 1	1.2	139.0	3.6	134.0	2.6	158.8	1.0	169.2	1.0	132.8	5.6	110.2	2.0	189.6	1.3	152.7	0.6	143.4	5.2	136.2	1.8	151.6	36.6	169.0	2.4	154.6	2.8	204.5	2.9	149.9
S 2	0.0	136.0	0.0	130.2	1.4	143.6	0.0	165.6	0.2	131.2	0.0	97.5	0.2	186.6	0.0	149.1	0.2	128.2	0.2	128.4	0.5	148.6	0.0	152.6	0.4	152.8	1.3	181.9	0.4	140.4
D 3	0.0	117.6	0.0	80.0	1.2	113.2	0.0	139.7	2.2	120.2	0.5	64.8	0.0	112.2	0.3	128.5	2.2	116.6	0.0	93.0	0.0	90.7	2.0	123.4	0.0	86.6	0.0	129.8	0.5	106.3
L 4	1.8	116.2	1.0	78.2	5.8	116.4	1.3	137.9	0.8	118.0	3.3	64.0	11.0	118.8	0.8	126.5	4.6	118.8	2.8	92.4	9.7	96.5	7.8	125.2	8.6	91.8	6.6	132.1	4.0	106.9
Ma 5	6.2	122.4	6.6	84.8	10.2	125.6	5.8	143.2	4.8	122.4	7.9	71.9	6.2	125.0	5.6	132.1	6.6	125.4	5.8	98.2	5.6	102.1	13.0	138.2	6.2	98.0	8.4	139.4	6.7	113.4
Mi 6	18.8	141.2	9.2	94.0	4.0	129.6	27.9	171.2	4.6	127.0	4.3	76.2	11.8	136.8	52.1	184.2	20.4	145.8	2.6	100.8	13.0	115.1	5.2	143.4	10.6	108.6	6.9	146.3	12.1	125.5
J 7	22.0	163.2	6.6	100.6	6.6	136.2	17.0	188.2	17.2	144.2	2.0	78.2	4.8	141.6	24.1	208.3	18.0	163.8	3.0	103.8	5.8	120.9	5.0	148.4	11.8	120.4	6.6	152.9	10.1	135.6
V 8	5.6	168.8	3.6	104.2	4.4	140.6	4.6	192.8	2.8	147.0	4.1	82.3	3.6	145.2	4.8	213.1	2.6	166.4	3.2	107.0	3.6	124.5	5.6	154.0	3.4	123.8	4.8	157.7	3.9	139.4
S 9	8.0	174.4	14.8	119.0	11.4	152.0	9.4	197.3	7.8	151.2	19.1	100.8	12.2	148.4	7.9	217.2	11.2	177.6	10.6	117.2	12.7	135.6	18.4	171.0	12.8	134.8	15.0	161.3	12.1	148.4
D 10	17.6	161.4	12.8	121.4	11.6	133.2	17.3	170.1	15.6	128.2	8.6	98.3	17.2	146.6	17.5	187.7	36.8	187.4	8.8	111.6	14.2	131.3	9.2	174.8	15.6	135.2	12.2	154.9	15.1	139.9
L 11	3.6	164.4	5.4	126.4	3.4	136.0	3.8	173.2	2.4	129.8	7.6	105.2	5.4	151.6	3.1	190.2	1.2	188.2	3.4	114.6	4.3	135.1	5.4	179.0	4.2	139.2	6.1	160.5	4.2	143.6
Ma 12	18.0	170.2	15.8	131.0	25.4	155.4	17.8	179.5	19.2	143.8	15.7	117.3	16.0	156.2	22.9	205.0	17.4	197.0	14.6	116.6	16.3	142.8	27.6	200.2	16.2	144.0	21.3	173.2	18.0	152.6
Mi 13	3.2	171.8	2.0	132.2	2.4	157.4	3.3	180.6	4.4	147.8	1.3	116.3	2.8	153.2	4.1	207.8	11.6	208.4	1.4	114.4	2.3	141.0	4.6	201.6	2.2	143.4	2.0	166.1	3.2	152.8
J 14	0.4	170.4	15.8	146.6	16.4	170.0	0.8	178.8	15.6	160.6	4.3	118.1	20.0	170.0	0.8	206.8	2.4	208.8	9.2	123.0	15.5	150.9	2.8	199.8	16.0	156.4	13.7	176.0	8.9	159.3
V 15	16.0	183.6	16.2	150.6	14.8	176.0	15.0	189.2	9.0	167.2	10.7	126.2	38.0	201.4	18.5	222.0	7.4	212.8	24.4	143.0	23.4	166.9	11.2	207.6	17.8	167.0	32.8	203.2	18.9	173.5
S 16	5.0	181.0	5.8	155.2	14.6	182.2	6.1	185.1	6.8	163.0	5.3	126.7	9.4	203.2	5.3	217.4	2.0	205.6	5.6	146.8	6.4	171.7	17.4	220.0	6.6	171.4	8.4	207.0	6.4	173.9
D 17	0.6	157.2	5.0	143.2	8.2	172.0	1.8	162.3	2.8	151.4	7.1	120.9	4.4	185.4	1.3	198.1	2.8	195.2	4.6	134.0	6.4	158.3	12.0	210.0	2.8	157.2	7.1	193.6	4.5	160.4
L 18	15.4	171.8	13.4	154.8	23.8	193.4	17.3	178.8	19.0	169.8	12.2	131.6	18.6	202.8	21.1	218.4	21.6	216.6	13.6	146.4	16.3	173.0	17.6	214.6	14.2	170.0	21.8	213.1	17.3	176.4
Ma 19	34.8	187.0	17.0	170.2	17.6	200.4	29.7	189.7	14.4	159.2	8.6	139.7	21.8	216.6	30.7	231.1	24.4	202.4	16.0	161.8	20.8	192.3	24.0	237.6	21.6	185.2	23.6	232.9	20.4	185.8
Mi 20	56.2	243.2	45.2	215.2	37.4	237.4	57.9	247.6	46.0	204.8	41.4	180.9	51.8	267.8	61.2	292.1	37.6	239.6	34.4	195.8	49.8	241.6	32.0	269.4	44.4	229.0	52.1	284.7	45.4	230.9
J 21	3.8	247.0	11.0	226.2	5.0	237.4	4.8	252.4	8.6	212.4	25.1	206.0	2.4	269.2	6.1	298.2	38.4	278.0	20.2	216.0	5.9	246.6	13.2	282.6	2.2	230.8	11.9	289.6	14.6	244.2
V 22	26.6	266.8	27.6	238.8	14.6	243.6	26.7	271.5	18.4	223.6	23.4	220.5	30.2	290.6	27.7	318.8	16.8	286.8	18.4	216.8	30.7	267.2	21.6	294.2	31.8	253.0	24.1	294.6	22.7	255.5
S 23	0.4	267.2	1.2	240.0	2.2	245.8	0.5	272.0	0.6	224.2	2.5	222.8	0.8	291.4	0.8	319.5	0.8	287.6	5.8	222.4	1.3	268.5	7.4	301.6	0.8	253.6	4.1	298.5	2.4	257.8
D 24	0.0	265.2	1.2	241.2	8.0	253.4	1.3	271.2	1.4	225.6	1.0	221.7	1.4	292.8	2.5	320.3	9.2	296.8	9.2	231.6	2.8	271.3	10.6	311.4	0.8	254.2	20.3	318.8	6.3	263.4
L 25	8.8	274.0	7.0	247.8	20.2	273.2	15.8	286.8	21.4	247.0	3.6	225.3	9.4	301.4	21.6	341.9	20.6	317.4	12.0	235.0	11.4	280.2	6.2	316.4	8.2	261.6	20.8	334.8	14.2	275.2
Ma 26	0.0	272.8	0.0	244.2	0.2	270.8	0.0	285.7	0.4	246.4	0.0	219.7	0.0	299.4	0.3	340.9	0.6	317.4	0.0	229.8	0.0	278.4	0.6	280.4	0.0	259.2	0.0	332.0	0.1	272.4
Mi 27	7.0	279.8	15.8	260.0	2.4	271.8	6.9	292.6	3.4	249.6	17.8	237.5	11.6	310.8	4.6	345.4	2.2	319.4	9.2	238.8	15.5	293.4	6.8	287.2	14.2	273.0	10.2	340.9	9.1	281.2
J 28	7.0	286.8	8.2	268.2	3.0	273.6	6.9	299.5	4.8	252.2	9.2	246.1	10.0	320.8	6.1	351.3	9.2	326.4	4.2	243.0	9.7	303.0	4.0	289.2	6.8	279.8	4.6	345.4	6.5	287.1
V 29	11.6	296.6	4.4	271.6	3.2	271.0	7.4	305.6	7.4	258.8	8.6	251.5	5.2	315.0	6.4	356.9	8.6	330.4	4.6	244.8	4.3	297.7	24.0	305.4	4.8	276.0	3.8	342.7	6.3	289.4
S 30	0.0	290.4	0.4	265.4	0.0	260.8	0.0	299.7	0.0	254.0	0.5	244.1	0.0	308.8	0.0	351.3	0.0	323.8	0.4	239.4	0.3	292.4	0.0	292.4	0.4	270.2	0.0	334.3	0.2	282.9
D 1																														
LI. mes	299.6		276.6		282.0		307.8		263.0		261.4		328.2		359.2		338.0		253.4		309.9		351.8		287.8		353.3		297.3	
Máx. mes	56.2	296.6	45.2	271.6	37.4	273.6	57.9	305.6	46.0	258.8	41.4	251.5	51.8	320.8	61.2	356.9	38.4	330.4	34.4	244.8	49.8	303.0	36.6	316.4	44.4	279.8	52.1	345.4	45.4	289.4
Ll. acum. en el año	99	5.8	87	6.0	92	7.4	107	75.9	94	6.4	71	4.3	11	78.8	107	79.5	89	9.8	78	8.6	102	24.1	81	7.4	96	9.2	112	28.0	93	86.0
No. días Iluvia año	74	62%	78	65%	89	74%	87	73%	83	69%	89	74%	82	68%	86	72%	80	67%	90	75%	88	73%	83	72%	93	78%	90	75%	98	82%





Días tran	scurridos	en el año	120
Νú	mero de o	días con alç	gún
n	ivel de ale	rta en el af	io
Estación	Α	N	R
Alc	37	19	1
Ara	34	14	0
Bos	35	15	1
Car	27	30	2
Emas	29	16	4
Enea	33	0	0
Hos	16	21	21
Ing	38	32	1
Pal	49	8	0
Niza	36	4	0
Pos	19	18	12
Qman	31	6	0
Ruta	22	22	5
Yar	25	30	7
Prom.	35	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año

Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD; Empresa Metropolitana de Aseo-EMAS S.A. E.S.P;

Universidad Nacional de Colombia-sede Manizales; 4 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación NIVELES DE ALERTA (N.A.)

 Amarilla o baja:
 A
 200 mm <= A25 < 300 mm</td>

 Naranja o media:
 N
 300 mm <= A25 < 400 mm</td>

 Roja o alta:
 R
 A25 >= 400 mm



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

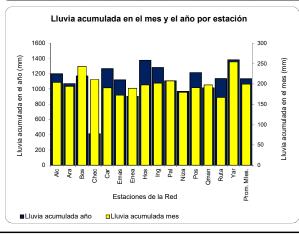
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

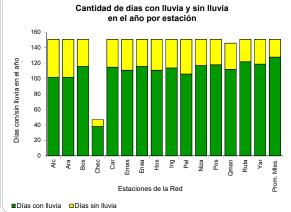


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

MAYO DE 2011

	iones	Alcáz	ares	Arar	njuez		ies del	Chec	Uribe	El Ca	rmen		nas	En	iea		ital de Idas	Ingeo	minas	La P	alma	Ni	za	Posg	rados	Queb Maniz Tes		Ruta	a 30	Yarı	ımos	Prom Maniz	
_	etario	1			1		1		3		1				1		1		1		1		1						1			1	
	ía	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
D	1	11.8	283.4	2.0	258.2	20.6	277.4	26.8		10.9	282.7	9.2	258.6	4.3	244.1	1.8	298.8	11.9	311.2	2.2	305.6	1.4	238.2	1.0	280.4	7.2	294.4	2.2	261.8	3.6	331.0	7.3	278.1
L L	2	8.0	262.2	4.0	255.6	2.8	273.6	0.0		1.0	266.7	0.4	241.8	0.3	242.3	1.0	295.0	1.3	288.3	0.2	287.8	7.2	242.4	7.6	282.2	1.8	291.2	4.4	254.4	9.1	333.5	2.7	270.7
Ma	3	3.0	259.6	1.6	253.6	2.4	271.6	3.6		2.5	264.7	1.8	240.8	1.8	240.0	1.8	293.2	2.5	286.0	2.2	287.4	1.6	240.8	2.0	280.7	3.0	288.6	1.8	252.8	2.3	331.0	2.3	269.1
Mi	4	1.2	252.8	0.0	238.8	1.2	261.4	0.0		0.5	255.8	1.4	234.4	0.0	221.0	0.4	281.4	0.8	278.9	3.0	279.2	0.2	230.4	0.3	268.2	1.4	271.6	0.2	240.2	1.8	317.8	1.0	258.1
J	5	0.0	235.2	0.0	226.0	0.0	249.8	0.0		0.0	238.6	0.2	219.0	0.0	212.3	0.4	264.6	0.5	261.9	1.2	243.6	0.0	221.6	0.5	254.5	0.4	262.8	0.6	225.2	0.5	306.1	0.3	243.3
V	6	0.6	232.2	0.6	221.2	1.2	247.6	0.0		0.5	235.3	0.6	217.2	0.3	205.0	0.4	259.6	0.3	259.1	0.8	243.2	0.6	218.8	0.3	250.5	0.0	257.4	0.2	221.2	0.8	300.7	0.4	239.5
S	/	0.0	214.2	0.0	205.4	2.2	224.4	0.0		0.3	217.7	1.2	199.2	0.3	189.5	0.4	244.0	0.3	236.5	1.4	227.2	0.0	204.2	0.3	234.4	0.8	230.6	0.2	205.2	0.8	280.2	0.6	222.2
D	8	2.4	213.4	0.6	204.0	3.0	225.0	3.4		2.5	217.0	3.2	198.0	3.3	191.5	2.6	243.8	2.0	234.4	1.0	216.6	1.2	204.0	1.8	233.9	4.2	230.2	2.0	205.0	2.5	280.7	2.6	221.5
L.	9	3.4	216.4	5.0	193.2	6.2	214.8	4.0	200.0	4.6	220.8	3.2	185.6	3.6	190.8	5.0	228.8	5.1	238.8	11.6	225.8	2.0	196.8	4.3	222.8	0.4	227.8	3.0	192.0	4.1	271.0	3.9	216.6
Ma	10	6.6	207.0	4.8	181.8	0.4	200.4	1.6	238.6	7.1	212.9	3.2	179.8	10.7	190.8	16.0	206.8	8.1	228.4	2.0	220.4	11.0	183.4	12.2	211.6	1.4	218.0	14.6	188.8	4.8	243.1	6.0	203.7
Mi	11	11.4	213.4	2.6	178.6	10.8	196.6	5.4	236.6	9.7	216.5	2.2	175.2	3.8	189.2	3.0	200.4	8.6	231.7	6.8	225.2	3.6	181.4	2.3	207.5	17.6	218.2	2.8	185.0	10.4	245.1	8.2	205.5
J	12	13.2	226.0	4.6	178.2	6.6	195.0	16.8	252.2	14.2	228.9	8.2	180.6	4.1	186.2	11.4	207.4	15.2	245.6	22.6	245.0	4.2	181.0	5.9	207.0	7.8	214.0	7.6	189.8	9.4	247.4	9.9	210.9
V	13	62.0	272.6	53.4	218.2	53.4	224.6	63.4	297.4	63.5	275.1	50.8	212.4	57.4	231.4	67.0	255.8	69.6	294.1	46.0	269.4	41.2	208.6	52.1	242.8	72.2	268.6	49.6	225.2	51.1	276.6	57.4	251.0
S	14	6.6	244.4	6.6	207.8	6.2	213.2	6.6	244.0	6.9	252.3	6.4	204.4	5.1	227.9	8.8	242.8	8.1	271.5	10.8	255.8	5.8	198.4	7.6	229.6	5.0	249.6	6.6	210.2	9.1	262.1	6.8	237.4
D	15	0.0	188.2	5.6	168.2	0.0	175.8	0.4	198.2	0.0	194.4	0.0	158.4	3.6	190.0	1.2	192.2	0.0	210.3	0.0	218.2	3.0	167.0	2.8	182.6	0.2	217.8	1.8	167.6	2.0	212.1	1.1	193.1
L	16	2.4	186.8	7.4	164.6	10.8	181.6	8.0	205.4	3.3	192.8	3.6	153.4	7.1	172.0	3.0	192.8	2.3	206.5	0.0	179.8	15.6	162.4	5.3	182.1	5.0	209.6	2.8	168.2	9.1	209.3	6.1	184.5
Ma	17	0.4	160.6	11.2	148.2	4.4	171.4	0.4	164.8	0.3	166.4	0.6	135.6	10.2	158.7	7.2	169.8	0.0	178.8	0.0	163.0	18.8	162.8	18.0	169.4	2.6	190.6	14.2	150.6	31.2	216.4	7.5	169.3
Mi	18	4.6	164.8	37.4	184.4	26.8	196.0	7.4	172.2	2.8	168.7	6.2	141.2	23.9	180.0	6.4	175.4	3.1	181.1	0.8	163.0	7.6	164.6	5.6	173.7	3.6	186.8	5.4	155.2	8.6	221.0	8.3	175.2
J	19	3.8	168.6	8.4	191.6	4.0	192.0	3.4	175.6	4.1	171.5	2.8	142.6	7.4	186.4	4.6	178.6	3.8	182.4	3.6	157.4	18.8	174.2	4.1	175.0	2.2	178.4	3.8	158.2	15.5	216.2	6.3	175.2
V	20	0.4	160.2	0.6	185.2	0.6	172.4	0.0	173.8	0.3	156.0	0.2	121.4	0.0	182.8	1.2	170.4	0.3	161.0	0.0	136.8	2.2	164.4	1.3	164.9	0.4	172.6	0.4	150.4	5.9	201.2	0.9	162.0
S	21	17.8	178.0	8.6	193.8	15.0	187.2	17.4	191.2	14.2	170.2	12.2	133.2	10.4	193.3	5.8	176.2	15.0	175.8	30.6	166.8	5.6	170.0	4.3	169.2	15.0	187.0	4.6	155.0	15.7	216.9	13.8	175.6
D	22	15.2	186.2	13.2	191.2	10.4	195.2	10.4	192.4	17.3	180.6	16.8	146.6	9.2	184.6	20.8	185.4	17.8	189.0	14.4	179.0	6.8	167.6	21.1	174.8	16.0	196.2	16.8	157.6	12.2	219.0	14.0	180.6
L_L	23	0.2	179.4	0.0	183.0	0.0	192.2	0.2	187.8	0.0	173.8	0.0	141.8	0.0	175.5	0.0	175.4	0.0	182.9	0.2	170.0	0.0	163.4	0.0	165.1	0.0	192.2	0.0	150.8	0.0	214.4	0.0	174.2
Ma	24	3.2	171.0	1.0	179.6	6.6	195.6	7.4	187.4	1.5	167.9	7.4	141.8	2.0	168.9	0.8	171.0	2.3	178.8	20.2	181.6	1.2	160.0	1.5	162.3	2.0	170.2	1.0	147.0	2.0	212.6	4.4	172.3
Mi	25	5.6	176.6	2.4	181.6	3.2	198.8	1.8	188.4	4.1	172.0	2.8	144.6	3.1	171.4	3.4	174.4	3.8	182.6	2.8	184.4	2.2	161.8	3.1	165.1	5.4	175.6	3.0	149.6	4.8	217.4	3.6	175.7
J	26	6.4	171.2	9.2	188.8	14.6	192.8	9.0	170.6	7.1	168.2	7.4	142.8	13.5	180.6	13.6	186.2	6.1	176.8	5.2	187.4	9.4	169.8	15.8	179.8	11.8	180.2	10.4	157.8	17.0	230.9	10.4	178.8
V	27	1.0	171.4	0.0	184.8	1.0	191.0	0.4	171.0	1.0	168.2	1.6	144.0	0.3	180.6	2.0	187.2	2.0	177.5	1.4	188.6	1.0	163.6	1.8	174.0	0.6	179.0	1.4	154.8	1.8	223.5	1.1	177.2
S	28	5.4	173.8	0.0	183.2	1.6	190.2	5.2	172.6	2.5	168.2	0.0	142.2	0.3	179.0	0.4	185.8	2.0	177.0	0.0	186.4	0.6	162.6	0.3	172.2	0.4	176.4	0.0	153.0	1.3	222.5	1.1	175.9
D	29	2.8	175.4	2.6	185.8	8.4	197.4	2.2	174.8	3.3	170.9	3.0	143.8	2.8	181.8	4.4	189.8	2.8	179.1	2.4	185.8	3.0	165.4	4.1	176.0	5.2	180.2	3.2	156.0	6.4	227.1	3.9	178.8
L_L	30	3.2	178.6	0.0	185.8	0.0	197.4	2.8	177.6	0.5	171.5	0.2	143.8	0.3	182.1	0.0	189.4	0.8	179.3	0.2	184.8	0.0	165.4	0.3	175.8	0.2	180.0	0.2	155.6	0.0	226.6	0.4	178.9
Ma	31	8.2	186.2	0.4	185.6	18.6	214.8	2.8	180.4	3.8	174.7	15.4	158.6	0.8	182.6	2.6	191.6	5.3	184.4	13.8	197.8	3.4	168.2	3.6	179.1	3.8	183.8	1.8	157.2	10.2	236.0	6.6	185.1
Ll. me		203.6		193.8		243.0		210.8		190.3		172.2		189.2		197.4		201.7		207.4		179.2		190.8		197.6		166.6		254.0	\longrightarrow	199.2	
Máx. r		62.0	283.4	53.4	258.2	53.4	277.4	63.4	297.4	63.5	282.7	50.8	258.6	57.4	244.1	67.0	298.8	69.6	311.2	46.0	305.6	41.2	242.4	52.1	282.2	72.2	294.4	49.6	261.8	51.1	333.5	57.4	278.1
Ll. acu el año	m. en	119	9.4	106	69.8	117	70.4	41:	2.6	126	66.2	11	18.6	90	3.4	137	76.2	128	81.2	110	07.2	96	7.8	121	4.9	101	15.0	113	85.8	138	82.0	113	35.2
No. dí Iluvia		102	68%	102	68%	116	77%	38	81%	115	76%	111	74%	116	77%	111	74%	114	75%	106	70%	117	77%	118	78%	112	77%	122	81%	119	79%	128	85%





	anscurrido o a la fec		151
No. de	días con al	gún N.A. e	n el año
Estación	Α	N	R
Alc	51	19	1
Ara	44	14	0
Bos	48	15	1
Chec	6	0	0
Car	41	30	2
Emas	37	16	4
Enea	41	0	0
Hos	30	21	21
Ing	53	33	1
Pal	63	9	0
Niza	45	4	0
Pos	33	18	12
Qman	47	6	0
Ruta	32	22	5
Yar	50	36	7
Prom.	49	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año
Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD; 2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P;

3 Central Hidroeléctrica de Caldas-CHEC S.A E.S.P;

4 Universidad Nacional de Colombia-sede Manizales;

5 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación NIVELES DE ALERTA (N.A.)

Amarilla o baja: A $200 \text{ mm} \le A25 < 300 \text{ mm}$ Naranja o media: N $300 \text{ mm} \le A25 < 400 \text{ mm}$ Roja o alta: R $A25 \le 400 \text{ mm}$



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

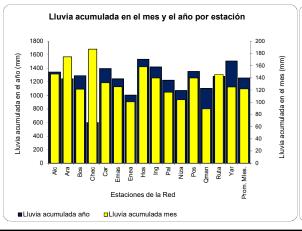
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

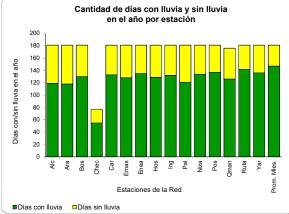


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

JUNIO DE 2011

	ciones	Alcáz	zares	Arar	njuez		ues del orte	Chec	Uribe	El Ca	rmen		nas	Er	iea		ital de Idas	Ingeo	minas	La P	alma	Ni	za		rados	Quel Mani Tes		Rut		Yaru	imos	Prom Maniz	
	ietario					L	1		3								1		1		1	L) 					1	
)ía	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	LI. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
Mi	1	14.4	200.6	25.0	210.6	27.6	240.2	28.0	208.4	15.2	189.7	22.0	179.4	14.0	196.3	30.0	221.2	16.5	200.7	24.4	220.8	14.0	182.2	30.2	209.0	18.0	201.0	25.0	182.0	31.0	266.2	21.0	205.5
J	2	45.8	244.0	49.2	259.2	29.4	266.6	40.4	245.4	49.3	236.5	37.2	213.4	40.6	233.6	53.8	272.4	47.5	246.1	33.6	253.4	36.0	217.0	47.8	255.0	18.0	214.8	57.0	237.0	37.1	300.7	36.6	239.5
V	3	6.2	246.8	7.4	261.6	6.2	266.6	4.6	246.0	7.6	239.5	7.0	217.2	7.6	237.7	7.6	275.0	6.6	247.7	4.4	246.2	6.8	221.8	7.4	258.1	8.6	223.0	6.6	240.6	8.1	304.8	7.0	242.6
S	4	14.6	254.8	33.0	289.8	28.2	294.4	22.2	266.6	17.8	250.2	9.0	223.0	7.9	234.9	13.4	272.4	19.6	259.1	23.4	267.6	23.2	234.0	15.8	261.6	14.4	236.0	16.4	242.4	22.9	322.8	18.1	254.7
D	5	0.2	243.6	0.2	287.4	0.0	283.6	0.0	261.2	0.0	240.5	0.0	220.8	0.0	231.1	0.0	269.4	0.0	250.5	0.0	260.8	0.2	230.6	0.0	259.3	0.0	218.4	0.0	239.6	0.0	312.4	0.0	246.6
L	6	0.0	230.4	0.0	282.8	2.8	279.8	0.0	244.4	2.0	228.3	17.2	229.8	0.3	227.3	8.6	266.6	3.8	239.0	6.6	244.8	0.0	226.4	2.5	256.0	1.0	211.6	3.6	235.6	0.8	303.8	3.3	239.9
Ma	7	7.4	175.8	0.0	229.4	0.0	226.4	2.6	183.6	4.3	169.1	1.2	180.2	0.3	170.1	15.2	214.8	3.3	172.7	0.2	199.0	4.8	190.0	6.1	210.1	0.0	139.4	2.6	188.6	1.8	254.5	2.6	185.1
Mi	8	0.0	169.2	0.0	222.8	0.0	220.2	0.0	177.0	0.0	162.3	0.0	173.8	0.0	165.1	0.0	206.0	0.0	164.6	0.0	188.2	0.0	184.2	0.0	202.4	0.0	134.4	0.2	182.2	0.0	245.4	0.0	178.3
J	9	0.0	169.2	0.0	217.2	0.0	220.2	0.0	176.6	0.0	162.3	0.0	173.8	0.0	161.5	0.0	204.8	0.0	164.6	0.0	188.2	0.0	181.2	0.0	199.6	0.0	134.2	0.0	180.4	0.0	243.3	0.0	177.1
V	10	0.0	166.8	0.0	209.8	0.0	209.4	0.0	168.6	0.0	159.0	0.0	170.2	0.0	154.4	0.0	201.8	0.0	162.3	0.0	188.2	0.0	165.6	0.0	194.3	0.0	129.2	0.0	177.6	0.0	234.2	0.0	171.0
S	11	0.0	166.4	0.0	198.6	0.0	205.0	0.0	168.2	0.0	158.7	0.0	169.6	0.0	144.3	0.0	194.6	0.0	162.3	0.0	188.2	0.0	146.8	0.0	176.3	0.0	126.6	0.0	163.4	0.0	203.0	0.0	163.6
D	12	0.0	161.8	0.0	161.2	0.0	178.2	0.4	161.2	0.0	155.9	0.0	163.4	0.0	120.4	0.0	188.2	0.0	159.3	0.0	187.4	0.0	139.2	0.0	170.7	0.0	123.0	0.0	158.0	0.0	194.3	0.0	155.3
L	13	0.4	158.4	0.4	153.2	0.0	174.2	1.0	158.8	0.3	152.1	0.0	160.6	0.3	113.3	0.4	184.0	0.3	155.7	0.0	183.8	0.4	120.8	0.5	167.1	0.2	121.0	0.4	154.6	0.3	179.1	0.3	149.2
Ma	14	0.4	158.4	1.0	153.6	0.0	173.6	0.6	159.4	0.5	152.4	1.2	161.6	2.0	115.3	0.2	183.0	0.5	156.0	0.0	183.8	1.0	119.6	0.5	166.4	0.0	120.6	0.4	154.6	0.5	173.7	0.5	148.9
Mi	15	0.0	140.6	0.0	145.0	0.0	158.6	0.0	142.0	0.0	138.1	0.0	149.4	0.3	105.2	0.0	177.2	0.0	141.0	0.0	153.2	0.0	114.0	0.0	162.1	0.0	105.6	0.2	150.2	0.0	158.0	0.0	135.1
J	16	0.0	125.4	0.0	131.8	0.0	148.2	0.0	131.6	0.3	121.1	0.0	132.6	0.0	96.0	0.0	156.4	0.0	123.2	0.0	138.8	0.0	107.2	0.0	141.0	0.0	89.6	0.0	133.4	0.0	145.8	0.0	121.1
V	17	0.0	125.2	0.0	131.8	0.0	148.2	0.0	131.4	0.0	121.1	0.0	132.6	0.0	96.0	0.0	156.4	0.0	123.2	0.0	138.6	0.0	107.2	0.0	141.0	0.0	89.6	0.0	133.4	0.0	145.8	0.0	121.1
S	18	0.0	122.0	0.0	130.8	0.0	141.6	0.0	124.0	0.0	119.6	0.0	125.2	0.0	94.0	0.0	155.6	0.0	120.9	0.0	118.4	0.0	106.0	0.0	139.5	0.0	87.6	0.0	132.4	0.0	143.8	0.0	116.6
D	19	0.6	117.0	0.8	129.2	0.8	139.2	1.4	123.6	0.5	116.0	1.2	123.6	0.3	91.2	0.4	152.6	1.0	118.1	1.8	117.4	0.4	104.2	0.3	136.7	0.0	82.2	0.4	129.8	0.5	139.5	0.6	113.6
L	20	1.4	112.0	2.0	122.0	2.0	126.6	2.2	116.8	1.3	110.2	1.2	117.4	3.3	81.0	1.4	140.4	1.5	113.5	1.2	113.4	1.6	96.4	2.5	123.4	1.4	71.8	1.8	121.2	1.5	124.0	1.7	104.9
Ma	21	0.6	111.6	0.0	122.0	0.4	126.0	0.0	116.4	0.3	109.4	0.8	116.6	0.3	81.0	0.8	139.2	0.3	111.8	0.0	112.0	1.0	96.4	0.3	121.9	0.6	71.8	0.0	119.8	1.5	123.7	0.5	104.4
Mi	22	30.2	136.4	30.0	152.0	0.0	124.4	31.6	142.8	15.0	121.9	1.2	117.8	3.3	84.1	10.0	148.8	18.6	128.3	1.8	113.8	1.2	97.0	11.9	133.6	0.0	71.4	13.8	133.6	0.0	122.4	7.2	110.5
J	23	2.2	135.8	2.2	151.6	2.8	118.8	4.4	145.0	2.8	121.4	3.6	118.4	1.5	82.8	1.8	146.2	4.1	129.5	4.0	115.4	0.8	94.8	1.5	131.1	2.0	68.2	2.2	132.6	2.8	118.9	2.5	109.1
V	24	2.4	135.0	1.2	152.8	4.6	123.4	9.6	151.8	2.0	122.9	2.8	121.0	1.5	84.1	4.2	150.4	2.5	131.3	2.0	117.2	5.0	99.8	3.8	134.6	1.6	69.6	2.4	134.8	6.9	125.7	3.3	111.9
S	25	13.8	140.6	19.4	171.8	5.6	110.4	31.8	180.8	7.9	127.0	6.6	112.2	3.8	87.1	6.0	153.8	8.1	134.1	5.2	108.6	2.2	98.6	3.3	134.4	3.0	68.8	8.0	141.0	3.8	119.4	6.6	111.9
D	26	0.0	126.2	0.0	146.8	0.2	83.0	0.2	153.0	0.0	111.7	0.4	90.6	0.0	73.2	0.0	123.8	0.3	117.9	1.0	85.2	0.0	84.6	0.3	104.4	0.0	50.8	0.0	116.0	0.3	88.6	0.2	91.1
L	27	3.2	83.6	1.2	98.8	0.0	53.6	4.6	117.2	2.0	64.5	0.0	53.4	0.8	33.3	0.4	70.4	2.0	72.4	1.2	52.8	0.0	48.6	0.3	56.9	0.4	33.2	0.6	59.6	0.0	51.6	0.9	55.4
Ma	28	0.0	77.4	0.0	91.4	0.0	47.4	0.0	112.6	0.0	56.9	0.0	46.4	0.0	25.7	0.0	62.8	0.0	65.8	0.0	48.4	0.0	41.8	0.0	49.5	0.0	24.6	0.2	53.2	0.0	43.4	0.0	48.4
Mi	29	0.0	62.8	0.4	58.8	8.0	27.2	0.0	90.4	0.0	39.1	2.4	39.8	7.1	24.9	0.6	50.0	0.0	46.2	0.0	25.0	1.8	20.4	1.0	34.8	0.4	10.6	1.2	38.0	2.5	23.1	1.7	31.9
J	30	2.4	65.0	1.0	59.6	2.8	30.0	1.4	91.8	2.8	41.9	10.4	50.2	5.6	30.5	3.2	53.2	3.3	49.5	5.6	30.6	3.6	23.8	3.8	38.6	19.4	30.0	2.4	40.4	2.8	25.9	7.1	39.0
V	1																																
LI. me	s	146.2		174.4		121.4		187.0		131.8		125.4		100.6		158.0		139.7		116.4		104.0		139.7		89.0		145.4		125.0		121.7	
Máx.	nes	45.8	254.8	49.2	289.8	29.4	294.4	40.4	266.6	49.3	250.2	37.2	229.8	40.6	237.7	53.8	275.0	47.5	259.1	33.6	267.6	36.0	234.0	47.8	261.6	19.4	236.0	57.0	242.4	37.1	322.8	36.6	254.7
Ll. ac	ım. en	134	15.6	124	14.2	12	91.8	59	9.6	139	98.0	124	14.0	100	04.0	153	34.2	14:	20.9	122	23.6	107	71.8	138	54.6	110	04.0	128	31.2	150	07.0	125	7.0
No. d Iluvia		119	66%	118	65%	130	72%	55	71%	133	73%	128	71%	135	75%	129	71%	132	73%	121	67%	134	74%	137	76%	126	72%	142	78%	136	75%	147	81%





	nscurrido o a la fec		181
No. de d	lías con a	gún N.A. e	n el año
Estación	Α	N	R
Alc	57	19	1
Ara	54	14	0
Bos	59	15	1
Chec	12	0	0
Car	46	30	2
Emas	42	16	4
Enea	46	0	0
Hos	40	21	21
Ing	59	33	1
Pal	69	9	0
Niza	50	4	0
Pos	41	18	12
Qman	53	6	0
Ruta	37	22	5
Yar	56	41	7
Prom.	55	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año
Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD;

2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P; 3 Central Hidroeléctrica de Caldas-CHEC S.A E.S.P;

4 Universidad Nacional de Colombia-sede Manizales;

5 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación NIVELES DE ALERTA (N.A.)

Amarilla o baja: A $200 \text{ mm} \le A25 < 300 \text{ mm}$ Naranja o media: N $300 \text{ mm} \le A25 < 400 \text{ mm}$ Roja o alta: R $A25 \le 400 \text{ mm}$



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

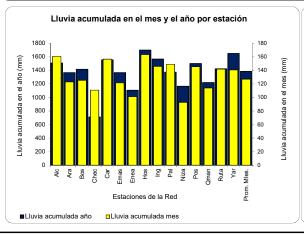
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

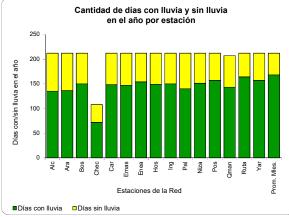


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

JULIO DE 2011

	iones	Alcáz	zares	Arar	njuez		ues del orte	Chec		El Ca	irmen		nas	Er	nea		ital de das	Ingeo	minas	La P	alma	Ni	za		rados	Mani	orada zales- orito	Ruta	a 30		ımos	Prom Maniz	
	ía	Ll. d.	A25	Ll. d.	A25	LI. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	LL d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
V	1a	6.8	71.8	2.0	61.6	3.8	31.0	2.8	94.6	3.6	43.4	1.2	34.2	2.8	33.0	3.2	47.8	4.8	50.5	2.4	26.4	1.0	24.8	3.0	39.1	26.4	55.4	4.2	41.0	6.9	32.0	7.6	43.3
s	2	3.2	67.6	2.0	63.6	4.6	35.6	6.2	98.2	5.1	44.2	14.8	47.8	1.0	33.8	6.0	38.6	4.6	51.8	5.0	31.2	1.6	21.6	1.5	34.6	0.4	55.8	1.6	40.0	4.3	34.5	3.8	44.6
D	3	0.0	67.6	0.0	63.6	0.0	35.6	0.0	98.2	0.0	44.2	0.2	48.0	0.0	33.8	0.0	38.6	0.0	51.8	0.2	31.4	0.0	21.6	0.0	34.6	0.0	55.8	0.2	40.0	0.3	34.8	0.1	44.6
1	4	0.0	67.6	0.0	64.0	1.0	36.6	0.0	98.2	0.0	44.2	0.0	48.0	1.0	34.8	1.0	39.6	0.3	52.1	0.0	31.4	0.6	22.2	0.3	34.8	0.8	56.6	0.2	40.2	0.5	35.3	0.5	45.1
Ma	5	0.0	67.6	0.0	64.0	0.0	36.6	0.0	98.2	0.0	44.2	0.0	48.0	0.0	34.8	0.0	39.6	0.0	52.1	0.0	31.4	0.0	22.2	0.0	34.8	0.0	56.6	0.0	40.2	0.3	35.6	0.0	45.1
Mi	6	7.6	75.2	15.6	79.6	10.8	47.4	9.2	107.4	12.7	56.9	6.4	54.4	3.3	38.1	15.0	54.6	11.4	63.5	6.2	37.6	10.6	32.8	11.7	46.5	3.6	60.2	10.6	50.8	11.2	46.7	8.4	53.5
	7	0.0	75.2	0.2	79.8	0.2	47.6	0.0	107.0	0.0	56.9	0.2	54.6	1.0	39.1	0.2	54.8	0.3	63.8	0.0	37.6	0.0	32.8	0.3	46.7	0.0	60.2	0.2	51.0	0.0	46.7	0.1	53.6
V	8	0.0	74.8	0.0	79.4	0.0	47.6	0.0	106.0	0.0	56.6	0.0	54.6	0.0	38.9	0.0	54.4	0.0	63.5	0.0	37.6	0.0	32.4	0.0	46.2	0.0	60.0	0.0	50.6	0.0	46.5	0.0	53.4
S	9	0.0	74.4	0.0	78.4	0.0	47.6	0.0	105.4	0.0	56.1	0.0	53.4	0.0	36.8	0.0	54.2	0.0	63.0	0.0	37.6	0.0	31.4	0.0	45.7	0.0	60.0	0.0	50.2	0.0	46.0	0.0	52.8
D	10	0.0	74.4	0.0	78.4	0.0	47.6	0.0	105.4	0.0	56.1	1.2	54.6	0.0	36.6	0.6	54.8	0.8	63.8	0.4	38.0	0.0	31.4	0.5	46.2	0.0	60.0	0.2	50.2	0.3	46.2	0.2	53.0
Ī	11	0.0	74.4	0.0	78.4	0.0	47.6	0.4	105.8	0.0	55.9	0.0	54.6	0.0	36.6	0.0	54.8	0.0	63.8	0.0	38.0	0.0	31.4	0.0	46.2	0.0	60.0	0.0	50.2	0.0	46.2	0.0	53.0
Ma	12	7.8	82.2	5.0	83.4	2.0	49.6	5.6	111.4	8.1	64.0	3.2	57.8	2.5	39.1	6.4	61.2	8.6	72.4	4.4	42.4	2.2	33.6	5.6	51.8	1.8	61.8	6.4	56.6	1.5	47.8	3.9	57.0
Mi	13	16.2	98.4	4.6	88.0	7.0	56.6	10.2	121.6	12.0	76.0	11.2	69.0	5.8	45.0	7.0	68.2	11.4	83.8	8.2	50.6	7.6	41.2	9.4	61.2	8.0	69.8	8.8	65.4	12.7	60.5	9.1	66.1
J	14	11.6	109.4	15.2	102.4	13.0	68.8	8.8	129.0	15.2	90.7	8.0	75.8	8.9	53.6	17.4	85.2	9.4	92.2	9.8	58.6	7.8	48.6	29.7	90.7	8.0	77.8	19.8	84.8	16.5	76.5	11.4	76.9
V	15	37.4	145.4	28.0	128.4	24.2	91.0	23.6	150.4	30.7	120.1	22.0	96.6	17.0	67.3	30.2	114.0	31.5	122.2	25.8	83.2	17.8	64.8	32.3	120.4	21.6	98.0	36.0	119.0	28.2	103.1	25.0	100.2
S	16	0.2	145.0	0.8	129.2	0.2	90.8	0.2	150.6	0.0	119.9	0.0	95.8	11.4	78.5	0.8	114.0	0.0	121.9	0.0	83.2	1.4	65.2	1.0	121.2	0.0	97.4	0.6	119.6	2.3	103.9	1.2	100.9
D	17	6.0	120.8	1.4	100.6	2.0	92.8	0.8	119.8	2.6	107.5	0.8	95.4	1.0	76.2	1.8	105.8	3.1	106.4	2.8	84.2	0.8	64.8	2.0	111.3	2.4	99.8	1.8	107.6	1.0	104.9	2.0	95.7
L	18	3.8	122.4	6.4	104.8	1.0	91.0	3.6	119.0	3.6	108.2	3.4	95.2	2.8	77.5	2.4	106.4	3.1	105.4	4.6	84.8	2.8	66.8	3.1	112.8	3.2	101.0	2.6	108.0	2.5	104.7	3.2	96.4
Ma	19	0.2	120.2	0.2	103.8	0.4	86.8	0.2	109.6	0.0	106.2	0.2	92.6	1.0	77.0	0.6	102.8	0.0	102.9	0.8	83.6	0.4	62.2	0.5	109.5	0.0	99.4	0.2	105.8	0.5	98.3	0.3	93.4
Mi	20	0.0	106.4	0.0	84.4	0.0	81.2	0.0	77.8	0.0	98.3	0.0	86.0	0.0	73.2	0.2	97.0	0.0	94.7	0.2	78.6	0.2	60.2	0.0	106.2	0.0	96.4	0.2	98.0	0.3	94.7	0.1	86.9
J	21	0.0	106.4	0.0	84.4	0.0	81.0	0.0	77.6	0.0	98.3	0.0	85.6	0.0	73.2	0.0	97.0	0.0	94.5	0.0	77.6	0.0	60.2	0.0	105.9	0.0	96.4	0.0	98.0	0.0	94.5	0.0	86.7
V	22	0.0	103.2	0.0	83.2	0.0	81.0	0.0	73.0	0.0	96.3	0.0	85.6	0.0	72.4	0.0	96.6	0.0	92.5	0.0	76.4	0.0	60.2	0.0	105.7	0.0	96.0	0.0	97.4	0.0	94.5	0.0	85.8
S	23	0.0	103.2	1.0	84.2	0.8	81.8	0.4	73.4	0.3	96.5	1.6	87.2	2.5	74.9	0.4	97.0	0.0	92.5	5.6	82.0	0.0	60.2	0.3	105.9	0.4	96.4	0.2	97.4	0.5	95.0	1.1	86.9
D	24	0.0	103.2	0.0	83.8	0.0	73.8	0.0	73.4	0.0	96.5	0.0	84.8	0.0	67.8	0.0	96.4	0.0	92.5	0.0	82.0	0.0	58.4	0.0	104.9	0.0	96.0	0.0	96.2	0.0	92.5	0.0	85.2
L	25	0.4	101.2	0.4	83.2	1.0	72.0	0.0	72.0	0.5	94.2	0.8	75.2	1.0	63.3	1.0	94.2	0.5	89.7	0.4	76.8	0.0	54.8	0.5	101.6	0.6	77.2	0.4	94.2	0.0	89.7	0.5	78.6
Ma	26	0.0	94.4	0.0	81.2	0.0	68.2	0.0	69.2	0.0	90.7	0.0	74.0	0.0	60.5	0.0	91.0	0.0	84.8	0.0	74.4	0.0	53.8	0.0	98.6	0.0	50.8	0.0	90.0	0.0	82.8	0.0	71.0
Mi	27	0.0	91.2	0.0	79.2	3.0	66.6	0.0	63.0	0.0	85.6	3.2	62.4	0.0	59.4	0.0	85.0	0.3	80.5	4.6	74.0	0.0	52.2	0.0	97.0	0.4	50.8	0.0	88.4	0.0	78.5	0.9	68.1
J	28	22.8	114.0	3.2	82.4	12.0	78.6	6.0	69.0	23.1	108.7	14.0	76.2	4.1	63.5	24.8	109.8	21.1	101.6	22.6	96.4	11.0	63.2	9.9	106.9	2.6	53.4	10.4	98.6	17.8	96.0	12.5	80.5
V	29	21.6	135.6	26.2	108.2	26.6	104.2	19.2	88.2	25.4	134.1	18.4	94.6	24.4	86.9	31.2	140.0	23.1	124.5	28.8	125.2	18.4	81.0	23.4	130.1	21.0	73.6	26.0	124.4	21.8	117.3	22.9	103.0
S	30	14.4	150.0	10.4	118.6	11.0	115.2	13.0	101.2	13.2	147.3	10.6	105.2	7.9	94.7	13.2	153.2	11.2	135.6	16.0	141.2	7.8	88.8	9.9	140.0	10.0	83.6	10.8	135.2	10.7	127.8	11.0	114.0
D	31	0.6	143.0	0.0	103.0	0.8	105.2	0.6	92.6	0.5	135.1	0.0	98.8	1.5	93.0	0.0	138.2	0.5	124.7	0.0	135.0	0.8	79.0	0.5	128.8	2.8	82.8	0.4	125.0	0.8	117.3	1.0	106.6
Ll. me		160.6		123.0		125.4		110.8		156.5		121.4		101.1		163.4		145.8		148.8		92.8		145.3		114.0		141.8		140.7		127.0	$\overline{}$
Máx. ı		37.4	150.0	28.0	129.2	26.6	115.2	23.6	150.6	30.7	147.3	22.0	105.2	24.4	94.7	31.2	153.2	31.5	135.6	28.8	141.2	18.4	88.8	32.3	140.0	26.4	101.0	36.0	135.2	28.2	127.8	25.0	114.0
el año	ım. en	150	06.2	136	67.2	14	17.2	71	0.4	15	54.5	136	65.4	110	05.1	169	97.6	150	66.7	137	72.4	116	64.6	149	99.9	121	18.0	142	23.0	164	47.7	138	33.9
No. dí Iluvia		135	64%	136	64%	150	71%	72	67%	148	70%	147	69%	154	73%	149	70%	150	71%	140	66%	151	71%	157	74%	143	69%	164	77%	157	74%	168	79%





1	anscurrido o a la fec		212
No. de o	días con a	gún N.A. e	n el año
Estación	Α	N	R
Alc	57	19	1
Ara	54	14	0
Bos	59	15	1
Chec	12	0	0
Car	46	30	2
Emas	42	16	4
Enea	46	0	0
Hos	40	21	21
Ing	59	33	1
Pal	69	9	0
Niza	50	4	0
Pos	41	18	12
Qman	53	6	0
Ruta	37	22	5
Yar	56	41	7
Prom.	55	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de Iluvia diaria y A25 en el mes en mm

Ll. acum, en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año

Resalta la lluvia diaria máxima del mes Propietarios: 1 Alcaldía de Manizales-OMPAD;

2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P;

3 Central Hidroeléctrica de Caldas-CHEC S.A E.S.P: 4 Universidad Nacional de Colombia-sede Manizales:

5 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación **NIVELES DE ALERTA (N.A.)**

A 200 mm <= A25 < 300 mm Amarilla o baia: N 300 mm <= A25 < 400 mm Naranja o media: R A25 >= 400 mm



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

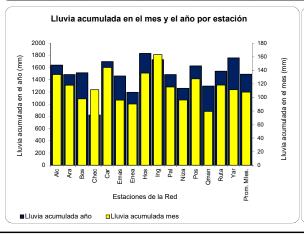
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

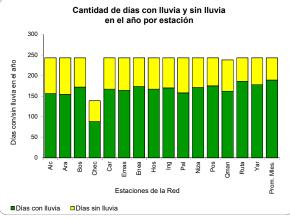


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

AGOSTO DE 2011

	ciones	Alcá	zares	Arar	njuez		ues del orte	Chec		El Ca	rmen		nas	En	iea		ital de das	Ingeo	ominas	La P	alma	Ni	za		rados	Mani	orada zales- orito	Ruta			umos	Prom Maniz	nedio izales
	ía	Ll. d.	A25	Ll. d.	A25	LI. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
	1a 1	0.0	143.0	0.0	102.8	0.0	105.0	0.0	92.6	0.0	135.1	0.0	98.6	0.5	92.5	0.0	138.0	0.3	124.7	0.0	135.0	0.2	79.2	0.0	128.5	1.0	83.8	0.2	125.0	0.3	117.6	0.3	106.7
Ma	2	4.2	147.2	11.4	114.2	6.0	111.0	3.6	96.2	5.6	140.7	6.4	105.0	16.3	108.7	11.0	149.0	4.3	129.0	11.4	146.4	17.2	96.4	15.2	143.8	8.8	92.6	13.0	138.0	13.5	131.1	10.2	116.9
Mi	3	1.0	148.2	2.2	116.4	2.6	113.6	2.0	98.2	0.5	141.2	1.2	106.2	4.3	113.0	1.6	150.6	0.5	129.6	0.2	146.6	2.6	99.0	2.5	146.3	8.6	101.2	1.8	139.8	6.6	137.7	3.4	120.3
IVII	4	0.2	148.4	0.0	116.4	0.2	113.8	0.0	98.2	0.0	141.2	0.0	105.0	0.0	113.0	0.0	150.0	0.0	128.8	0.0	146.2	0.0	99.0	0.0	145.8	0.0	101.2	0.2	139.8	0.0	137.4	0.0	120.3
V	5	13.4	161.8	3.4	119.8	0.2	114.4	11.8	109.6	13.2	154.4	1.0	106.0	0.5	113.5	10.0	160.0	23.1	151.9	3.4	149.6	1.0	100.0	7.6	153.4	0.0	101.4	8.2	148.0	0.5	137.4	4.8	124.8
s	6	0.0	154.0	0.0	114.8	0.4	112.8	0.0	104.0	0.0	146.3	0.0	100.0	0.0	111.0	0.0	153.6	0.0	143.3	0.0	145.2	0.0	97.8	0.0	147.8	0.0	99.6	0.0	141.6	0.0	136.4	0.0	120.9
D D	7	0.0	137.8	0.0	110.2	0.0	105.8	0.0	93.8	0.0	134.3	0.0	91.6	0.0	105.2	0.0	146.6	0.0	131.8	0.0	137.0	0.0	90.2	0.0	138.4	0.0	91.6	0.0	132.8	0.0	123.7	0.0	111.8
F	8	0.0	126.2	0.0	95.0	0.0	92.8	0.0	85.0	0.0	119.1	0.0	83.6	0.0	96.3	0.0	129.2	0.0	122.4	0.0	127.2	0.0	82.4	0.0	108.7	0.0	83.6	0.0	113.0	0.0	107.2	0.0	100.4
Ma	9	0.0	88.8	0.0	67.0	0.0	68.6	0.0	61.4	0.0	88.4	0.0	61.6	0.0	79.2	0.0	99.0	0.0	90.9	0.0	101.4	0.0	64.6	0.0	76.5	0.0	62.0	0.0	77.0	0.0	79.0	0.0	75.4
Mi	10	0.0	88.6	0.0	66.2	0.0	68.4	0.0	61.2	0.0	88.4	0.0	61.6	0.0	67.8	0.0	98.2	0.0	90.9	0.0	101.4	0.0	63.2	0.0	75.4	0.0	62.0	0.0	76.4	0.0	76.7	0.0	74.1
	11	0.0	82.6	0.0	64.8	0.0	66.4	0.0	60.4	0.0	85.8	0.0	60.8	0.0	66.8	0.0	96.4	0.0	87.9	0.0	98.6	0.0	62.4	0.0	73.4	0.0	59.6	0.0	74.6	0.3	76.0	0.0	72.2
V	12	1.2	80.0	0.4	58.8	1.4	66.8	1.0	57.8	1.3	83.5	1.4	58.8	0.5	64.5	2.0	96.0	1.0	85.9	2.0	96.0	2.2	61.8	1.5	71.9	0.0	56.4	1.2	73.2	4.3	77.7	1.4	70.4
S	13	0.2	80.0	0.4	59.0	4.6	71.0	0.0	57.6	0.5	84.1	1.4	60.0	4.1	67.6	1.2	96.6	0.8	86.6	1.0	96.2	2.8	64.2	2.5	73.9	1.2	57.6	1.6	74.6	3.6	80.8	1.8	71.9
D	14	0.6	80.6	1.2	60.2	0.2	71.2	2.2	59.8	0.8	84.8	2.0	62.0	2.5	70.1	0.6	97.0	1.3	87.9	9.2	105.2	0.6	64.6	0.8	74.7	1.0	58.6	0.8	75.2	0.5	81.0	1.8	73.6
L	15	6.6	87.2	22.2	82.4	1.0	72.2	6.4	66.2	6.6	91.4	3.6	65.6	5.8	76.0	8.8	105.8	6.4	94.2	3.2	108.4	2.2	66.8	6.9	81.5	0.4	59.0	9.4	84.6	1.8	82.8	4.3	77.9
Ma	16	2.6	89.8	2.0	84.4	1.6	73.8	3.0	69.2	3.0	94.5	0.2	65.8	1.3	77.2	4.8	110.6	12.2	106.4	2.2	110.6	1.2	68.0	5.3	86.9	0.6	59.6	5.0	89.6	1.0	83.8	2.4	80.3
Mi	17	0.4	90.2	2.8	86.2	0.6	73.6	1.0	69.8	0.8	95.0	0.0	64.2	7.6	82.3	1.4	111.6	0.5	106.9	0.0	105.0	4.2	72.2	2.0	88.6	1.6	60.8	2.2	91.6	2.3	85.6	1.9	81.2
J	18	15.2	105.4	14.2	100.4	11.6	85.2	14.8	84.6	11.9	106.9	8.0	72.2	14.7	97.0	13.8	125.4	10.4	117.4	13.6	118.6	8.8	81.0	9.2	97.8	19.2	80.0	10.0	101.6	13.2	98.8	13.2	94.4
V	19	5.8	110.8	2.0	102.0	6.2	90.4	2.4	87.0	5.6	112.0	15.2	86.6	10.2	106.2	3.0	127.4	9.4	126.2	7.8	126.0	5.4	86.4	2.0	99.3	2.4	81.8	2.2	103.4	4.1	102.9	5.8	99.7
S	20	21.0	131.8	4.6	106.6	14.0	104.4	7.4	94.4	22.9	134.9	8.6	95.2	4.6	110.7	18.4	145.8	21.8	148.1	4.8	130.8	7.8	94.2	16.3	115.6	8.6	90.4	8.8	112.2	15.0	117.9	11.1	110.7
D	21	0.6	132.4	1.6	108.2	1.4	102.8	1.0	95.4	0.8	135.6	0.8	92.8	3.3	114.0	1.0	146.8	0.5	148.3	0.4	126.6	2.0	96.2	1.5	117.1	7.2	97.2	2.0	114.2	2.0	119.9	2.5	112.3
L	22	0.0	109.6	0.0	105.0	0.2	91.0	0.0	89.4	0.0	112.5	0.0	78.8	0.0	110.0	0.0	122.0	0.0	127.3	0.2	104.2	0.2	85.4	0.0	107.2	0.4	95.0	0.0	103.8	0.3	102.4	0.1	100.0
Ma	23	29.6	117.6	34.8	113.6	28.0	92.4	32.8	103.0	36.1	123.2	18.6	79.0	8.6	94.2	35.4	126.2	34.3	138.4	33.8	109.2	22.4	89.4	24.1	108.0	8.4	82.4	27.6	105.4	31.0	111.5	23.6	100.7
Mi	24	1.6	104.8	2.2	105.4	1.8	83.2	1.6	91.6	2.0	112.0	1.4	69.8	2.3	88.7	3.0	116.0	1.8	129.0	2.0	95.2	2.2	83.8	2.5	100.6	3.0	75.4	2.2	96.8	2.3	103.1	2.2	91.9
J	25	0.6	104.8	0.0	105.4	0.2	82.6	0.0	91.0	0.5	112.0	0.0	69.8	0.0	87.1	0.0	116.0	1.0	129.6	0.0	95.2	0.0	83.0	0.0	100.1	0.0	72.6	0.2	96.6	0.0	102.4	0.1	91.0
V	26	0.6	105.4	0.6	106.0	2.2	84.8	0.0	91.0	0.8	112.7	14.2	84.0	0.3	86.9	0.6	116.6	2.0	131.3	12.2	107.4	0.6	83.4	0.5	100.6	1.6	73.2	0.6	97.0	0.5	102.6	3.1	93.8
S	27	1.4	102.6	0.0	94.6	4.0	82.8	3.2	90.6	2.0	109.2	7.8	85.4	0.3	70.9	2.6	108.2	1.8	128.8	1.0	97.0	1.0	67.2	1.5	86.9	0.0	64.4	1.0	85.0	2.3	91.4	1.8	85.4
D	28	26.8	128.4	11.8	104.2	9.0	89.2	17.2	105.8	29.5	138.2	4.0	88.2	2.5	69.1	16.8	123.4	29.7	158.0	7.0	103.8	11.6	76.2	25.4	109.7	4.8	60.6	19.8	103.0	6.1	90.9	11.9	94.0
L	29	0.2	128.4	0.2	104.4	0.0	89.0	0.0	105.8	0.0	138.2	0.0	88.2	0.0	69.1	0.0	123.4	0.0	158.0	0.0	103.8	0.0	76.2	0.0	109.7	0.2	60.8	0.0	102.8	0.0	90.9	0.1	94.0
Ma	30	0.0	115.0	0.0	101.0	0.0	88.4	0.0	94.0	0.0	125.0	0.0	87.2	0.0	68.6	0.0	113.4	0.0	134.9	0.0	100.4	0.0	75.2	0.0	102.1	0.0	60.6	0.2	94.8	0.0	90.4	0.0	89.2
Mi	31	0.0	115.0	0.0	101.0	0.0	88.0	0.0	94.0	0.0	125.0	0.0	87.2	0.0	68.6	0.0	113.4	0.0	134.9	0.0	100.4	0.0	75.2	0.0	102.1	0.0	60.6	0.0	94.8	0.0	90.4	0.0	89.2
Ll. me		133.8		118.0		97.8		111.4		144.2		95.8		90.2		136.0		163.1		115.4		96.2		127.5		79.2		118.2		111.3	ldot	107.9	
Máx.	nes	29.6	161.8	34.8	119.8	28.0	114.4	32.8	109.6	36.1	154.4	18.6	106.2	16.3	114.0	35.4	160.0	34.3	158.0	33.8	149.6	22.4	100.0	25.4	153.4	19.2	101.4	27.6	148.0	31.0	137.9	23.6	124.8
el año		164	10.0	148	35.2	15	15.0	82	1.8	169	98.7	146	61.2	119	95.3	183	33.6	17:	29.7	148	87.8	126	80.8	162	27.4	129	97.2	154	1.2	175	59.0	149)1.8
No. di Iluvia		156	64%	154	63%	172	71%	88	63%	167	69%	164	67%	173	71%	167	69%	170	70%	158	65%	171	70%	175	72%	162	68%	186	77%	178	73%	189	78%





	anscurrido o a la fec		243
No. de d	días con a	gún N.A. e	n el año
Estación	Α	N	R
Alc	57	19	1
Ara	54	14	0
Bos	59	15	1
Chec	12	0	0
Car	46	30	2
Emas	42	16	4
Enea	46	0	0
Hos	40	21	21
Ing	59	33	1
Pal	69	9	0
Niza	50	4	0
Pos	41	18	12
Qman	53	6	0
Ruta	37	22	5
Yar	56	41	7
Prom.	55	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de Iluvia diaria y A25 en el mes en mm Ll. acum, en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD;

2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P;

3 Central Hidroeléctrica de Caldas-CHEC S.A E.S.P:

4 Universidad Nacional de Colombia-sede Manizales:

5 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación **NIVELES DE ALERTA (N.A.)**

A 200 mm <= A25 < 300 mm Amarilla o baia: N 300 mm <= A25 < 400 mm Naranja o media: R A25 >= 400 mm



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

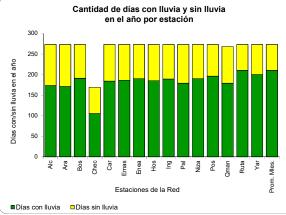


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

SEPTIEMBRE DE 2011

Estad		Alcáz	zares	Arar	njuez		ues del orte	Chec	Uribe	El Ca	rmen		ıas	En	iea		ital de das	Ingeo	minas	La P	alma	Ni	iza	Posg	rados	Queb Maniz Tes		Ruta	a 30	Yaru	ımos	Prom Maniz	
Propi					1		1				1				1		1						1		1				1				
, D	ıa ,	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
J	1	0.0	115.0	0.0	101.0	0.0	88.0	0.0	94.0	0.0	125.0	0.0	87.2	0.0	68.6	0.0	113.4	0.0	134.9	0.0	100.4	0.0	75.2	0.0	102.1	0.0	60.6	0.0	94.8	0.0	90.4	0.0	89.2
V	2	0.0	115.0	0.0	101.0	0.0	88.0	0.0	94.0	0.0	125.0	0.0	87.2	0.0	68.6	0.0	113.4	0.0	134.9	0.0	100.4	0.0	75.2	0.0	102.1	0.4	61.0	0.0	94.8	0.0	90.4	0.1	89.3
S	3	0.0	115.0	0.0	101.0	1.4	89.4	0.0	94.0	0.0	125.0	1.2	88.4	0.0	68.6	0.6	114.0	0.5	135.4	1.2	101.6	2.0	77.2	0.5	102.6	0.2	61.2	0.4	95.2	2.3	92.7	0.8	90.1
D	4	0.0	115.0	0.0	101.0	1.0	90.4	0.0	94.0	0.0	125.0	1.6	90.0	0.0	68.6	0.4	114.4	0.8	136.1	1.2	102.8	0.0	77.2	0.5	103.1	0.0	61.2	0.2	95.4	1.0	93.7	0.4	90.5
L L	5	0.0	115.0	0.0	101.0	0.0	90.4	0.0	94.0	0.0	125.0	0.2	90.2	0.0	68.6	0.0	114.4	0.0	136.1	0.0	102.8	0.0	77.2	0.0	103.1	0.0	61.2	0.2	95.6	0.0	93.5	0.0	90.5
Ma	6	0.0	113.8	0.0	100.6	0.0	89.0	0.0	93.0	0.0	123.7	0.0	88.8	0.0	68.1	0.0	112.4	0.0	135.1	0.0	100.8	0.0	75.0	0.0	101.6	0.0	61.2	0.0	94.4	0.0	89.2	0.0	89.2
Mi	/	2.4	116.0	0.6	100.8	2.0	86.4	2.0	95.0	2.0	125.2	1.4	88.8	0.5	64.5	2.2	113.4	1.8	136.1	2.8	102.6	1.4	73.6	3.1	102.1	0.8	60.8	2.2	95.0	2.8	88.4	1.7	89.1
J	8	77.6	193.0	21.8	121.4	30.2	116.4	70.4	163.2	63.0	187.4	28.8	115.6	11.4	73.4	36.2	149.0	75.4	210.3	41.8	135.2	10.0	83.0	16.0	117.4	7.4	67.2	30.0	124.2	25.9	113.8		117.6
V	9	10.4	196.8	18.4	117.6	20.6	136.0	17.6	174.4	8.9	189.7	12.8	124.8	20.3	87.9	22.2	162.4	9.9	213.9	9.6	141.6	16.0	96.8	26.9	137.4	46.2	113.0	17.0	131.8	27.2	139.2	22.1	135.4
S	10	46.2	240.4	5.2	120.8	33.0	167.4	22.4	193.8	44.7	231.4	24.2	148.8	3.1	89.7	40.2	197.8	54.1	255.8	20.8	160.2	22.2	117.8	19.8	151.9	16.4	128.8	13.2	140.0	34.5	172.7	25.0	158.0
D	11	2.0	242.0	2.0	120.0	2.4	169.2	1.6	194.4	2.3	232.9	1.6	150.4	3.1	85.1	2.4	198.8	2.3	257.6	2.0	162.2	2.2	115.8	2.3	152.2	4.0	131.2	2.0	139.8	3.3	173.7	2.6	158.7
L_L	12	7.2	234.0	1.6	107.4	8.0	165.6	7.6	187.2	8.1	229.1	8.2	150.6	0.8	71.1	7.6	192.6	8.6	255.8	15.4	164.0	0.4	107.4	4.6	147.6	1.2	113.2	2.8	132.6	8.1	168.7	5.5	151.0
Ma	13	0.0	228.2	0.0	105.4	0.0	159.4	0.0	184.8	0.0	223.5	0.0	135.4	0.0	61.0	0.0	189.6	0.0	246.4	0.0	156.2	0.0	102.0	0.0	145.5	0.0	110.8	0.0	130.4	0.3	164.9	0.0	145.2
Mi	14	0.0	207.2	0.0	100.8	0.0	145.4	0.0	177.4	0.0	200.6	0.0	126.8	0.0	56.4	0.0	171.2	0.0	224.5	0.6	152.0	0.6	94.8	0.3	129.5	0.0	102.2	0.4	122.0	2.0	151.9	0.3	134.4
J	15	0.0	206.6	0.0	99.2	0.0	144.0	0.0	176.4	0.0	199.9	0.0	126.0	0.0	53.1	0.0	170.2	0.0	224.0	0.6	152.2	0.2	93.0	0.3	128.3	0.0	95.0	0.0	120.0	0.0	149.9	0.1	132.0
V	16	15.2	221.8	11.0	110.2	4.4	148.2	6.0	182.4	19.1	218.9	8.2	134.2	1.8	54.9	4.8	175.0	24.6	248.7	5.6	157.6	1.4	94.2	1.8	130.1	5.6	100.2	9.6	129.6	2.0	151.6	7.0	138.9
S	17	6.0	198.2	7.6	83.0	8.6	128.8	10.0	159.6	6.1	189.0	13.2	128.8	3.1	49.3	7.8	147.4	4.6	219.0	5.8	129.6	3.0	74.8	3.8	109.7	4.2	96.0	5.4	107.4	4.8	125.5	5.8	121.1
D	18	28.8	225.4	36.4	117.2	29.6	156.6	38.0	196.0	50.3	237.2	27.4	154.8	13.5	60.5	45.8	190.2	48.3	265.4	33.6	161.2	6.2	78.8	25.4	132.6	12.2	105.2	44.2	149.4	15.2	138.4	25.4	144.3
L_L	19	1.2	226.0	1.0	118.2	1.0	157.4	1.0	197.0	2.3	239.0	0.6	155.4	4.6	65.0	0.8	191.0	2.0	266.4	19.4	180.6	2.2	81.0	1.3	133.9	0.6	105.8	8.0	150.0	1.5	140.0	3.2	147.3
Ma	20	10.8	236.2	15.8	133.4	12.8	168.0	10.2	207.2	13.5	251.7	7.0	148.2	4.6	69.3	13.6	204.0	12.7	277.1	16.8	185.2	4.2	84.6	17.8	151.1	0.0	104.2	10.4	159.8	18.0	157.5	9.1	153.3
Mi	21	0.0	234.8	0.0	133.4	0.0	164.0	0.0	204.0	0.0	249.7	0.0	140.4	0.0	69.1	0.0	201.4	0.0	275.3	0.0	184.2	0.0	83.6	0.0	149.6	0.0	104.2	0.2	159.0	0.3	155.5	0.0	151.5
J	22	1.6	209.6	5.4	127.0	1.2	156.2	3.6	190.4	1.5	221.7	1.6	138.0	2.0	68.6	1.6	186.2	1.0	246.6	0.8	178.0	0.0	72.0	1.0	125.2	0.0	99.4	2.6	141.8	0.3	149.6	1.1	140.7
V	23	5.0	214.4	12.0	138.8	8.4	164.6	6.4	196.8	9.4	231.1	4.6	142.6	20.6	89.2	19.2	205.4	7.6	254.3	0.4	178.4	16.8	88.8	15.5	140.7	32.0	131.2	9.2	151.0	10.4	160.0	14.4	155.1
S	24	3.0	217.4	12.8	151.6	7.2	171.8	5.2	202.0	5.6	236.7	3.4	146.0	4.1	93.2	17.0	222.4	2.0	256.3	1.6	180.0	18.2	107.0	16.8	157.5	2.0	133.2	16.0	166.8	22.1	182.1	8.0	163.1
D	25	1.6	219.0	3.4	155.0	7.0	178.8	1.4	203.4	3.6	240.3	5.2	151.2	5.8	99.1	6.0	228.4	3.1	259.3	3.6	183.6	8.6	115.6	4.8	162.3	6.2	139.4	2.8	169.6	9.4	191.5	5.4	168.5
L	26	4.0	223.0	5.2	160.2	1.0	179.8	3.4	206.8	2.8	243.0	8.2	159.4	1.0	100.1	0.0	228.4	1.8	261.1	7.8	191.4	0.4	116.0	0.5	162.8	0.4	139.8	2.4	172.0	0.3	191.8	2.4	170.9
Ma	27	0.0	223.0	0.0	160.2	0.0	179.8	0.0	206.8	0.0	243.0	0.2	159.6	0.0	100.1	0.0	228.4	0.0	261.1	0.0	191.4	0.0	116.0	0.0	162.8	0.0	139.4	0.2	172.2	0.0	191.8	0.0	170.9
Mi	28	0.0	223.0	0.0	160.2	0.0	178.4	0.0	206.8	0.0	243.0	0.0	158.4	0.0	100.1	0.0	227.8	0.0	260.6	0.0	190.2	0.0	114.0	0.0	162.3	0.0	139.2	0.0	171.8	0.0	189.5	0.0	170.1
J	29	0.8	223.8	0.8	161.0	4.2	181.6	0.6	207.4	2.8	245.8	3.8	160.6	0.8	100.8	5.4	232.8	2.0	261.9	0.6	189.6	1.0	115.0	1.5	163.3	3.4	142.6	1.6	173.2	3.3	191.8	2.3	171.9
V	30	0.0	223.8	0.0	161.0	0.0	181.6	0.0	207.4	0.0	245.8	2.0	162.4	0.0	100.8	0.0	232.8	0.0	261.9	0.0	189.6	0.0	115.0	0.0	163.3	0.0	142.6	0.2	173.2	0.0	191.8	0.2	172.1
S	1																																
Ll. me:	3	223.8		161.0		184.0		207.4		245.8		165.4		100.8		233.8		263.2		192.0		117.0		164.3		143.2		174.0		195.1		173.4	
Máx. n	nes	77.6	242.0	36.4	161.0	33.0	181.6	70.4	207.4	63.0	251.7	28.8	162.4	20.6	100.8	45.8	232.8	75.4	277.1	41.8	191.4	22.2	117.8	26.9	163.3	46.2	142.6	44.2	173.2	34.5	191.8	30.3	172.1
Ll. acu el año	m. en	186	3.8	164	16.2	169	99.0	102	9.2	194	14.5	162	26.6	129	96.1	206	67.4	199	92.9	167	79.8	137	77.8	179	91.7	144	10.4	171	15.2	195	54.0	166	5.2
No. día		173	63%	171	63%	191	70%	105	62%	184	67%	186	68%	190	70%	185	68%	189	69%	179	66%	190	70%	196	72%	179	67%	210	77%	200	73%	210	77%





	nscurrido a la fec		273
No. de d	ías con al	gún N.A. e	n el año
Estación	Α	N	R
Alc	77	19	1
Ara	54	14	0
Bos	59	15	1
Chec	21	0	0
Car	65	30	2
Emas	42	16	4
Enea	46	0	0
Hos	50	21	21
Ing	82	33	1
Pal	69	9	0
Niza	50	4	0
Pos	41	18	12
Qman	53	6	0
Ruta	37	22	5
Yar	56	41	7
Prom.	55	14	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm A25 : Indicador Iluvia antecedente de 25 días en mm

LI. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria y A25 en el mes en mm

Ll. acum. en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año

Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD; 2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P;

Central Hidroeléctrica de Caldas-CHEC S.A E.S.P;
 Universidad Nacional de Colombia-sede Manizales:

Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación NIVELES DE ALERTA (N.A.)

Amarilla o baja: A $200 \text{ mm} \le A25 < 300 \text{ mm}$ Naranja o media: N $300 \text{ mm} \le A25 < 400 \text{ mm}$ Roja o alta: R $A25 \le 400 \text{ mm}$



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

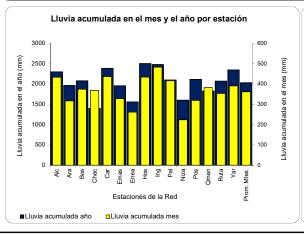
RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

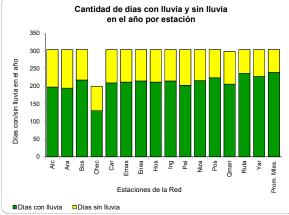


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

OCTUBRE DE 2011

Estaci	iones	Alcáz	zares	Arar	njuez		ues del orte	Chec	Uribe	El Ca	rmen	Em	ıas	Er	ea	Hospi Cal		Ingeo	minas	La P	alma	Ni	za	Posg	rados	Quel Maniz Tes		Ruta	a 30	Yaru	ımos	Prom Maniz	
Propie	etario		1		1		1	;	3	•	1	2	2		1	•	1		I		1	,	1	4	4		5	4	ļ.		1		
Dí	а	Ll. d.	A25	Ll. d.	A25	LI. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
S	1	8.8	232.6	16.0	177.0	19.4	201.0	14.4	221.8	15.0	260.8	15.2	177.6	13.2	114.1	19.4	252.2	9.7	271.5	15.4	205.0	15.4	130.4	21.6	184.9	1.4	144.0	20.2	193.4	23.6	215.4	13.2	185.3
D	2	0.2	230.4	0.8	177.2	3.0	202.0	1.4	221.2	0.5	259.3	1.6	177.8	1.5	115.1	3.4	253.4	0.5	270.3	1.4	203.6	1.6	130.6	2.3	184.2	2.2	145.4	2.6	193.8	3.8	216.4	1.8	185.4
L	3	8.6	161.4	4.4	159.8	4.6	176.4	23.2	174.0	6.6	202.9	5.6	154.6	4.3	108.0	5.6	222.8	11.7	206.5	11.2	173.0	4.2	124.8	4.3	172.5	26.2	164.2	3.4	167.2	3.6	194.0	10.8	165.9
Ma	4	17.0	168.0	8.8	150.2	9.8	165.6	13.2	169.6	19.8	213.8	9.4	151.2	2.5	90.2	14.6	215.2	27.4	224.0	20.0	183.4	7.2	116.0	4.1	149.6	14.6	132.6	11.2	161.4	9.2	176.0	12.8	156.5
Mi	5	0.0	121.8	0.0	145.0	0.0	132.6	1.0	148.2	0.3	169.4	0.0	127.0	0.0	87.1	0.0	175.0	0.0	169.9	0.0	162.6	0.0	93.8	0.0	129.8	2.6	118.8	0.0	148.2	0.0	141.5	0.6	132.1
J	6	12.4	132.2	18.0	161.0	16.0	146.2	13.8	160.4	13.0	180.1	9.0	134.4	39.9	124.0	18.0	190.6	12.2	179.8	11.4	172.0	22.2	113.8	18.0	145.5	31.8	146.6	15.2	161.4	22.4	160.5	20.4	149.9
V	7	1.8	126.8	1.4	160.8	0.8	139.0	2.0	154.8	1.8	173.7	0.4	126.6	0.3	123.4	1.6	184.6	2.0	173.2	1.4	158.0	0.8	114.2	1.3	142.2	0.0	145.4	1.6	160.2	0.8	153.2	0.9	145.3
S	8	9.0	135.8	8.2	169.0	10.0	149.0	7.4	162.2	9.7	183.4	8.8	135.4	3.8	127.3	11.6	196.2	10.4	183.6	8.2	166.2	4.6	118.8	8.9	151.1	22.0	167.4	8.0	168.2	9.4	162.3	10.7	155.9
D	9	0.4	136.2	0.0	169.0	1.6	150.6	0.0	162.2	0.3	183.6	1.4	136.8	1.3	128.5	1.0	197.2	3.8	187.5	1.6	167.2	1.4	119.6	3.8	154.7	3.4	170.8	2.2	170.0	2.8	163.1	1.9	157.6
L	10	35.6	171.8	36.6	205.6	30.0	180.6	14.4	176.6	36.1	219.7	39.2	176.0	12.5	141.0	32.2	229.4	45.0	232.4	58.6	225.2	8.0	127.4	18.5	173.0	16.8	187.6	33.8	203.8	20.3	183.4	27.2	184.7
Ma	11	50.6	207.2	24.2	218.8	14.4	190.6	64.2	234.8	32.8	233.4	20.0	187.8	6.6	145.8	14.0	238.6	31.0	238.8	14.8	234.4	8.8	134.8	14.2	185.4	5.2	187.2	16.6	210.8	9.2	190.5	17.4	195.1
Mi	12	22.2	223.4	20.8	232.0	25.8	207.8	20.8	245.6	23.1	250.4	18.2	192.8	16.0	158.8	27.8	258.6	21.8	256.0	24.6	253.2	15.0	146.8	21.8	203.5	30.4	213.4	22.8	228.2	29.2	214.9	23.3	212.5
J	13	0.8	195.4	0.8	196.4	1.2	179.4	1.2	208.8	0.8	200.9	0.8	166.2	2.0	147.3	1.0	213.8	0.8	208.5	1.0	220.6	0.6	141.2	0.8	178.8	13.8	215.0	1.0	185.0	1.5	201.2	3.5	190.6
V	14	39.0	233.2	24.2	219.6	33.6	212.0	23.0	230.8	40.1	238.7	26.0	191.6	20.3	163.1	37.8	250.8	43.4	249.9	34.2	235.4	19.8	158.8	31.5	209.0	37.2	251.6	31.0	215.2	37.3	237.0	31.9	219.3
S	15	27.6	250.0	40.0	243.8	33.8	233.0	32.8	253.4	29.5	254.7	31.0	215.6	32.0	190.5	33.4	270.6	27.2	264.4	32.6	251.2	24.0	178.6	28.2	219.5	36.6	288.2	29.0	233.8	37.1	256.0	31.8	242.1
D	16	42.2	292.2	22.8	266.6	42.0	275.0	26.6	280.0	40.6	295.4	30.4	246.0	15.0	205.5	50.6	321.2	43.7	308.1	38.4	289.6	17.0	195.6	31.0	250.5	22.8	311.0	31.0	264.6	45.2	301.0	31.0	273.0
<u> </u>	17	27.4	318.0	26.4	287.6	34.4	308.2	30.8	307.2	32.8	326.6	22.4	266.8	28.7	232.2	41.0	360.6	29.0	336.0	35.2	324.0	20.6	216.2	30.0	279.4	39.8	350.8	28.8	290.8	40.1	340.9	31.8	303.7
Ma	18	6.8	319.8	11.8	287.4	14.0	313.8	7.4	308.2	7.4	324.6	12.0	274.2	7.1	218.7	16.4	357.8	7.4	335.8	7.2	330.8	10.2	209.6	13.0	276.9	18.8	337.6	16.4	298.0	17.0	347.5	12.2	301.5
Mi	19	0.8	317.6	0.4	275.0	0.8	307.4	0.2	303.2	0.5	319.5	0.6	271.4	0.5	215.1	0.6	341.4	0.8	334.5	0.8	330.0	0.4	191.8	0.5	260.6	1.0	336.6	0.8	282.8	1.0	326.4	0.7	294.2
J	20	0.0	316.0	0.0	271.6	0.0	300.4	0.0	301.8	0.0	316.0	0.0	266.2	0.0	209.3	0.0	335.4	0.0	331.5	0.0	326.4	0.0	183.2	0.0	255.8	0.0	330.4	0.0	280.0	0.0	317.0	0.0	288.8
V	21	0.0	312.0	0.0	266.4	0.6	300.0	0.0	298.4	0.0	313.2	0.0	258.0	0.0	208.3	0.6	336.0	0.0	329.7	0.0	318.6	0.0	182.8	0.8	256.0	0.0	330.0	0.0	277.6	1.8	318.5	0.2	286.6
S	22	0.0	312.0	0.0	266.4	0.0	300.0	0.0	298.4	0.0	313.2	0.0	257.8	0.0	208.3	0.0	336.0	0.0	329.7	0.0	318.6	0.0	182.8	0.0	256.0	0.0	330.0	0.0	277.4	0.0	318.5	0.0	286.5
D	23	25.4	337.4	13.0	279.4	3.0	303.0	7.0	305.4	25.6	338.8	1.2	259.0	0.0	208.3	20.4	356.4	30.2	359.9	1.0	319.6	3.0	185.8	9.9	266.0	1.4	331.4	21.6	299.0	5.3	323.8	8.0	294.5
L-L-	24	0.0	336.6	0.2	278.8	0.2	299.0	1.4	306.2	0.0	336.0	0.6	255.8	0.8	208.3	0.0	351.0	0.3	358.1	0.0	319.0	0.6	185.4	0.3	264.7	1.0	329.0	0.4	297.8	0.5	321.1	0.5	292.8
Ma	25	13.4	350.0	5.0	283.8	8.4	307.4	3.4	309.6	11.2	347.2	11.6	265.4	9.9	218.2	6.4	357.4	13.7	371.9	17.0	336.0	3.2	188.6	6.4	271.0	2.2	331.2	5.8	303.4	7.4	328.4	7.8	300.4
Mi	26	1.8	343.0	0.2	268.0	1.2	289.2	0.4	295.6	1.5	333.7	1.2	251.4	0.8	205.7	1.2	339.2	2.0	364.2	18.8	339.4	0.6	173.8	1.0	250.5	0.6	330.4	0.6	283.8	1.3	306.1	2.6	289.8
J	27	3.6	346.4	0.0	267.2	1.2	287.4	0.8	295.0	2.0	335.3	1.4	251.2	0.0	204.2	1.4	337.2	1.0	364.7	0.0	338.0	0.0	172.2	0.5	248.7	0.2	328.4	0.4	281.6	1.0	303.3	0.7	288.7
V	28	44.6	382.4	9.2	272.0	25.4	308.2	24.6	296.4	46.0	3/4.6	27.0	272.6	9.4	209.3	37.0	368.6	64.5	417.6	29.8	356.6	7.0	175.0	15.5	259.9	6.8	309.0	20.2	298.4	15.5	315.2	22.0	299.9
S	29	12.6	378.0	10.0	273.2	11.6	310.0	13.0	296.2	13.7	368.6	5.4	268.6	11.7	218.4	10.2	364.2	13.2	403.4	13.4	350.0	11.8	179.6	10.4	266.2	17.2	311.6	9.2	296.4	15.8	321.8	12.7	299.9
D	30	19.8	397.8	12.8	286.0	27.2	337.2	19.6	314.8	25.4	393.7	27.0	295.6	18.8	237.2	26.4	390.6	30.0	433.3	17.2	367.2	13.8	193.4	19.6	285.8	23.6	332.6	18.6	315.0	27.9	349.8	21.9	321.2
L	31	0.0	385.4	0.0	268.0	0.0	321.2	0.0	301.0	0.0	380.8	0.0	286.6	1.8	199.1	0.2	372.8	0.0	421.1	0.0	355.8	1.2	172.4	0.3	268.0	1.8	302.6	0.2	300.0	0.3	327.7	0.6	301.5
Ll. mes		432.4		316.0		374.0		368.0		435.9		327.4		260.6		433.8		482.6		415.2		223.0		318.3		381.4		352.6		390.1		361.0	
Máx. m		50.6	397.8	40.0	287.6	42.0	337.2	64.2	314.8	46.0	393.7	39.2	295.6	39.9	237.2	50.6	390.6	64.5	433.3	58.6	367.2	24.0	216.2	31.5	285.8	39.8	350.8	33.8	315.0	45.2	349.8	31.9	321.2
Ll. acur el año	m. en	229	96.2	196	52.2	20	73.0	139	97.2	238	30.4	195	54.0	15	56.7	250)1.2	247	75.5	209	95.0	160	8.00	211	10.0	182	21.8	206	7.8	234	14.1	202	:6.3
No. día Iluvia a		198	65%	195	64%	218	72%	131	66%	210	69%	212	70%	215	71%	212	70%	215	71%	203	67%	216	71%	224	74%	206	69%	237	78%	228	75%	239	79%





	anscurrido o a la fec		304
No. de o	días con al	gún N.A. e	n el año
Estación	Α	N	R
Alc	84	34	1
Ara	75	14	0
Bos	68	27	1
Chec	35	9	0
Car	76	45	2
Emas	59	16	4
Enea	61	0	0
Hos	60	37	21
Ing	92	45	5
Pal	78	24	0
Niza	52	4	0
Pos	60	18	12
Qman	57	22	0
Ruta	55	25	5
Yar	62	57	7
Prom.	69	19	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de Iluvia diaria y A25 en el mes en mm

Ll. acum, en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año Resalta la lluvia diaria máxima del mes

Propietarios: 1 Alcaldía de Manizales-OMPAD;

2 Empresa Metropolitana de Aseo-EMAS S.A. E.S.P;

3 Central Hidroeléctrica de Caldas-CHEC S.A E.S.P: 4 Universidad Nacional de Colombia-sede Manizales:

5 Corporación Autónoma Regional de Caldas-CORPOCALDAS

* Indicadores con base a los días de funcinamiento de cada estación **NIVELES DE ALERTA (N.A.)**

A 200 mm <= A25 < 300 mm Amarilla o baia: N 300 mm <= A25 < 400 mm Naranja o media: R A25 >= 400 mm



OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

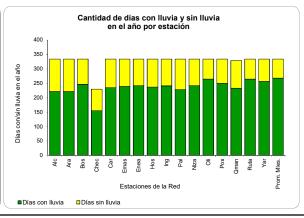


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

NOVIEMBRE DE 2011

Estacio			zares /OMPAD		njuez /OMPAD	No.	ues del orte	Chec		El Car		Em		En Alcaldía/		Hospi Cale	das	Ingeo			alma 'OMPAD	Ni:	za	Queb Olivar Po	res-El pal	Posg	rados	Mani	orada zales- orito	Quebra Luis-R	uta 30	Yaru Alcaldía/		Prom Maniz	
Día		Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	LI. d.	A25	Ll. d.	A25	LI. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
Ma	1	0.0	383.6	0.0	266.6	0.0	320.4	0.0	299.0	0.0	379.0	0.0	286.2	0.0	198.9	0.0	371.2	0.0	A25	0.0	354.4	0.0	171.6	0.0	267.2	0.0	266.8	0.0	202 G	0.0	298.4	0.0	326.9	0.0	300.6
Mi	2	0.0	374.6	0.6	259.0	2.2	312.6	1.6	293.2	0.0	369.6	6.4	200.2	0.0	195.6	0.0	359.6	0.0	419.1	3.6	349.8	0.0	167.4	0.0	259.4	0.5	258.4	0.0	280.8	0.6	290.4	0.0	317.7	1.2	291.1
IVII	3	0.0	374.0	0.0	259.0	0.6	311.6	0.0	293.2	0.0	369.3	2.2	284.6	0.0	194.3	0.0	358.6	1.5	406.9	22.8	371.0	0.4	166.0	0.2	256.6	0.0	254.6	0.2	277.4	0.0	289.0	0.0	215.0		291.6
V	4	56.8	395.4	15.2	237.8	29.2	310.8	39.2	318.0	64.0	307.3	33.8	279.2	11.7	193.6	30.6	357.0	66.3	428.0	20.6	333.0	11.8	169.8	16.6	254.0	16.5	252.5	7.6	268.2	12.8	268.0	23.4	318.0	25.2	289.6
S	5	0.8	345.6	1.6	215.2	1.4	297.8	1.0	254.8	1.3	365.8	1.0	260.2	2.3	189.2	1.4	344.4	1.3	398.3	0.6	318.8	3.4	164.4	2.2	246.2	1.3	239.6	10.2	273.2	1.6	253.0	2.0	310.0	3.0	275.1
D	6	24.0	347.4	0.8	195.2	1.0	273.0	17.6	251.6	27.7	370.3	1.6	243.6	0.5	173.7	1.0	317.6	31.8	408.2	18.6	312.8	0.4	149.6	0.2	217.8	0.3	218.0	1.2	244.0	0.6	230.8	0.3	281.9	7.2	259.1
l i l	7	6.6	353.2	21.4	215.8	35.4	307.2	26.6	277.0	19.8	389.4	27.0	269.8	2.0	173.7	42.2	358.8	16.8	424.2	52.8	364.6	31.0	180.0	22.8	239.4	34.6	251.8	0.2	230.4	31.4	261.2	37.1	317.5	22.9	
Ma	8	29.6	343.8	20.2	211.8	21.0	294.6	26.0	280.0	26.9	376.2	21.2	265.0	12.7	166.1	19.8	340.8	30.2	411.0	14.0	344.4	12.0	172.2	19.2	216.6	20.3	240.7	11.2	204.4	21.4	251.6	22.4	302.5	18.5	265.2
Mi	9	2.6	318.8	2.6	174.4	2.8	263.6	1.6	248.8	2.8	349.5	2.4	236.4	3.6	137.7	2.6	310.0	2.8	386.6	1.8	313.6	1.6	149.8	2.4	193.8	2.5	215.0	3.2	171.0	2.2	224.8	3.6	269.0	2.6	235.9
J	10	30.4	307.0	18.0	169.6	37.4	259.0	19.2	241.4	32.5	341.4	47.0	253.0	14.5	137.2	32.6	292.0	34.8	377.7	30.2	305.4	13.2	146.0	23.6	177.6	16.8	200.8	12.6	160.8	18.6	212.4	32.5	256.3	24.6	229.6
V	11	11.8	291.4	2.8	146.0	12.2	236.8	9.8	220.4	12.2	320.8	13.2	243.8	4.6	113.1	6.2	257.2	11.7	360.4	10.4	280.6	6.0	131.4	11.2	156.2	6.6	177.5	4.0	125.0	5.2	188.8	16.8	232.9	8.6	206.3
S	12	33.8	318.4	28.4	162.6	43.2	266.0	30.6	243.6	43.2	356.6	23.6	255.4	32.9	138.8	45.2	286.0	41.7	394.7	26.0	299.4	34.8	156.0	56.2	199.2	36.9	201.4	31.0	137.2	31.0	203.4	60.7	276.6	36.1	230.2
D	13	0.8	318.4	0.8	163.0	1.2	266.4	0.8	244.2	1.0	357.1	0.6	255.4	2.5	140.9	1.2	286.6	1.3	395.2	0.8	299.4	1.4	157.0	1.8	200.0	1.3	202.1	3.0	139.2	0.8	203.4	2.0	277.6	1.5	231.0
L	14	0.0	318.4	0.0	163.0	0.0	266.4	0.0	244.2	0.0	357.1	0.0	255.4	0.5	141.4	0.0	286.6	0.0	395.2	0.0	299.4	0.0	157.0	0.2	200.2	0.0	202.1	1.4	140.6	0.0	203.4	0.3	277.9	0.3	231.3
Ma	15	1.0	319.4	0.0	163.0	0.4	266.2	4.8	249.0	1.5	358.7	0.6	256.0	4.1	145.4	0.0	286.0	1.0	396.2	4.2	303.6	1.4	158.4	1.8	201.4	0.5	201.9	15.6	156.2	0.2	203.6	1.0	277.1	4.0	235.1
Mi	16	4.0	323.4	1.8	164.8	29.0	295.2	1.2	250.2	2.8	361.5	11.4	267.4	1.3	146.7	2.6	288.6	3.1	399.3	4.6	308.2	2.0	160.4	3.0	204.4	3.1	204.9	3.6	159.8	1.8	205.4	9.4	286.5	5.2	240.3
J	17	14.4	312.4	16.0	167.8	38.0	330.2	29.6	272.8	20.3	356.2	34.6	300.8	13.2	159.9	30.4	298.6	16.0	385.1	12.4	319.6	20.6	178.0	25.0	228.8	18.8	213.8	36.0	194.4	22.4	206.2	31.5	312.7	24.5	256.8
V	18	46.0	358.4	36.0	203.6	36.6	366.6	22.2	293.6	48.3	404.4	42.2	342.4	42.2	201.3	54.8	353.4	44.2	429.0	31.0	350.6	22.6	200.0	40.2	268.6	39.2	252.7	26.2	219.6	41.6	247.4	56.4	368.6	36.8	293.1
S	19	34.0	379.0	11.0	209.6	29.0	387.2	22.4	312.6	29.5	422.7	12.8	343.6	9.9	201.3	28.0	375.0	25.7	440.9	2.4	336.0	10.2	207.0	29.0	293.6	20.1	266.5	27.0	244.4	22.0	263.6	32.5	393.7	20.4	305.8
D	20	51.4	428.6	16.0	225.4	13.6	399.6	41.8	354.0	56.1	477.3	13.2	355.6	8.9	209.5	21.4	395.2	59.4	498.3	42.0	359.2	6.6	213.0	14.4	306.8	10.9	276.4	31.0	274.8	15.4	278.4	21.3	413.8	26.1	329.2
	21	11.2	436.2	10.0	235.4	18.0	416.4	8.8	362.0	16.0	491.3	17.0	371.2	6.9	216.3	16.4	410.2	17.3	514.6	16.6	375.8	6.0	219.0	11.0	316.6	12.0	287.8	9.8	284.4	14.8	292.8	16.0	428.8	12.5	341.0
	22	68.2	459.8	45.8	272.0	17.6	408.6	37.0	374.4	57.9	503.2	35.6	379.8	39.4	246.3	56.4	429.6	49.0	499.1	29.8	375.8	15.8	227.8	17.2	324.8	33.6	305.9	48.0	325.6	31.8	304.4	25.7	438.9	37.0	356.0
	23	0.0	447.2	0.2	262.2	5.0	402.0	0.0	361.4	0.0	489.5	0.6	375.0	5.1	239.7	0.6	420.0	0.3	486.1	0.6	363.0	2.2	218.2	4.0	316.0	2.5	298.0	4.6	313.0	0.8	296.0	5.6	428.8	2.4	345.6
	24	30.2	457.6	29.8	279.2	15.0	389.8	26.6	368.4	37.4	501.4	23.8	371.8	29.7	250.6	48.4	442.0	33.5	489.7	15.6	361.4	12.2	216.6	8.2	311.0	23.1	301.6	8.2	297.6	33.8	311.2	11.7	412.5	21.1	344.9
	25	0.0	457.6	0.0	279.2	0.2	390.0	0.0	368.4	0.0	501.4	0.8	372.6	0.0	248.8	0.2	442.0	0.0	489.7	0.0	361.4	0.0	215.4	0.6	311.0	0.0	301.3	0.0	295.8	0.2	311.2	0.5	412.8	0.2	344.4
	26	0.0	457.6	0.4	279.6	0.8	390.8	0.0	368.4	0.3	501.7	0.0	372.6	1.3	250.1	0.4	442.4	0.0	489.7	0.0	361.4	1.8	217.2	2.0	313.0	0.8	302.1	2.2	298.0	0.6	311.8	2.0	414.8	1.0	345.3
	27	4.0	461.6	16.0	295.0	2.0	390.6	0.6	367.4	1.8	503.2	1.0	367.2	8.1	257.7	18.0	460.4	1.5	491.0	0.0	357.8	8.0	224.8	10.4	323.2	15.5	317.1	13.4	311.2	16.2	327.4	12.7	427.2	7.6	351.7
	28	31.6	493.2	35.0	329.8	45.8	435.8	25.2	392.6	38.9	542.1	38.2	403.2	19.3	277.0	79.4	539.8	32.0	521.5	18.8	353.8	34.8	259.6	48.8	372.0	56.0	373.1	15.6	326.8	60.4	387.6	75.2	502.4	35.2	
	29	8.0	444.4	14.8	329.4	6.4	413.0	5.8	359.2	8.9	487.0	4.0	373.4	10.7	276.0	10.0	519.2	8.4	463.5	7.2	340.4	14.8	262.6	14.8	370.2	16.0	372.5	7.8	327.0	10.0	384.8	14.7	493.8	9.6	368.9
	30	46.8	490.4	8.8	336.6	29.2	440.8	33.4	391.6	40.6	526.3	31.0	403.4	6.4	280.1	39.8	557.6	42.7	504.9	37.0	376.8	10.4	269.6	24.6	392.6	23.9	395.2	18.2	335.0	17.0	400.2	46.2	538.0	26.4	392.3
J II moo	1	F40.0		354.2		474.2		433.4		591.9		446.8		294.5		500.0		574.3		404.4		285.2		411.6		413.5		353.0		415.4		563.6		424.1	\vdash
Ll. mes Máx. me	_	548.0 68.2	493.2	354.2 45.8	336.6		440.8	433.4	392.6		542.1		403.4	42.2	200.1	589.6 79.4	557.6		521.5	424.4 52.8	376.8		269.6		392.6		395.2	48.0	335.0		400.2	75.2	E20 0		392.3
Ll. acum	_					!	•																												
el año		284	44.2	23	16.4	25	47.2	183	0.6	297	2.3	240	8.00	185	51.3	309	8.0	304	19.8	251	19.4	188	36.0	254	13.2	252	23.5	217	74.8	248	3.2	290	07.8	245	50.4
No. días Iluvia año		221	66%	221	66%	246	74%	155	67%	235	70%	239	72%	242	72%	237	71%	241	72%	228	68%	242	72%	265	79%	250	75%	233	71%	265	79%	256	77%	268	80%





Días trai año	nscurrido a la fec		334
No. de d	ias con al	gún N.A. e	n el año
Estación	Α	N	R
Alc	85	52	12
Ara	92	17	0
Bos	79	40	7
Chec	52	22	0
Car	76	62	15
Emas	75	28	6
Enea	74	0	0
Hos	68	49	31
Ing	92	55	25
Pal	82	50	0
Niza	65	4	0
Oli	80	53	1
Pos	81	26	12
Qman	71	29	0
Ruta	76	32	6
Yar	71	67	18
Prom.	86	32	0

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador Iluvia antecedente de 25 días en mm Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria v A25 en el mes en mm

Ll. acum, en el año: Lluvia acumulada en el año en mm

No. días lluvia año: Número de días con lluvia en lo corrido del año

Resalta la lluvia diaria máxima del mes

* Indicadores con base a los días de funcinamiento de cada estación

NIVELES DE ALERTA (N.A.)

Amarilla o baja: A 200 mm <= A25 < 300 mm Narania o media: N 300 mm <= A25 < 400 mm Roja o alta: R A25 >= 400 mm

1. La lluvia promedio y acumulada en lo corrido del año para

Manizales se calcularon con el Método de los Polígonos de Thiessen

2. Datos resaltados en rojo están incompleto

Entidades propietarias y participantes











OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOSTENIBLE EN MANIZALES

RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES

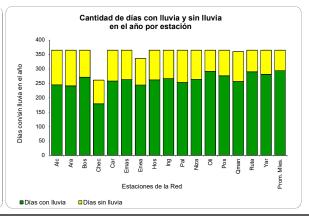


REGISTROS DE LLUVIA DIARIA E INDICADORES DE LLUVIA ANTECEDENTE DE 25 DÍAS

DICIEMBRE DE 2011

Estaciones		zares	Arar		No.	ues del orte		Uribe	El Ca		Em			ea	Hospi Cale	das		minas		alma		za	Po	res-El pal		rados	Queb Maniz Tesc	zales- orito	Luis-R	ida San tuta 30		ımos	Prom-	
Propietarios		/OMPAD	Alcaldía			/OMPAD	CHEC S.		Alcaldía/		EMAS S		Alcaldía/	_	Alcaldía/	_	Alcaldía/	_	Alcaldía/		Alcaldía/	_	CORPO		UN-Ma		CORPO		UN-Ma		Alcaldía/			
Día	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25	Ll. d.	A25
J 1 V 2	25.4 15.6	491.8	5.0	340.8	12.8	452.6	15.4	389.4 371.2	25.7	524.3	13.8 16.8	415.6	2.8	282.4	16.0	572.6	35.8	509.0	22.6	380.8 334.6	8.0	277.4 248.6	16.8 3.6	409.2	12.5	407.4	4.4	338.2	9.0	408.6 381.8	19.1	556.8	14.0 8.2	399.2
<u> </u>		474.0	2.2 0.8	321.6	21.2	438.4	8.4 0.2	- · · · · -	16.5	521.U		205.0	1.3	281.6	8.0	538.4	24.9 0.8	517.1	6.6 2.0	322.6	2.2 5.6	248.6	9.4	390.0 380.2	3.3 2.3	376.1	1.8 12.8	339.8	4.6 1.8	381.8	8.1 9.9	527.8	4.9	
S 3 D 4	0.6 73.8	5/2 O	17.2	302.2	9.2	419.4	42.0	345.4	1.3 47.0	495.5 520.5	0.8 15.8	200.0			1.8 29.8	520.4	71.4	401.1 556.2	17.8	338.6	11.8	252.4	16.4	394.2	16.3	358.0 371.8	5.4	343.6	17.4	277.4	17.5	520.2	22.3	370.7
L 5	32.6	545.0	41.6	340.4	46.0	423.6	38.6	405.2	44.5	551.5	49.8	401.2	Probler pluviór		64.6	570.6	36.6	558.0	30.0	338.4	30.2	269.4	42.0	412.6	49.9	404.8	14.6	345.6	53.8	412.6	46.6	543.4	36.3	402.1
Ma 6	4.0	537.4	5.2	342.8	11.6	433.8	3.8	399.2	4.3	5/13.6	7.4	395.4	no se t		4.4	577.8	4.6	550.0	3.6	331.6	6.8	270.2	9.2	410.6	8.4	406.6	8.4	350.0	5.2	412.0	14.0	540.6	6.8	400.1
Mi 7	16.2	519.8	18.0	332.4	22.0	412.6	23.0	391.6	24.9	525.3	27.2	399.0	dat		29.0	561.6	16.0	525.3	33.6	339.2	10.2	245.6	14.2	368.6	17.6	387.3	13.4	332.4	22.8	404.4	20.1	500.0	19.4	383.7
J 8	10.4	529.4	1.2	332.8	3.4	414.8	6.8	397.6	10.2	534.5	0.8	399.2			7.6	568.0	9.7	533.7	2.6	341.0	0.8	245.0	1.8	368.6	5.6	391.6	2.4	331.8	8.2	411.8	1.0	498.9	3.9	386.0
V 9	1.8	531.2	0.2	333.0	0.0	414.8	0.0	397.6	0.8	535.2	11.6	410.8			1.8	569.8	2.0	535.7	2.8	343.8	0.0	245.0	0.0	368.4	1.0	392.6	0.0	330.4	0.6	412.4	0.3	498.9	1.5	387.2
S 10	1.2	531.4	0.0	333.0	1.6	416.0	1.8	394.6	1.5	535.2	2.6	412.8			0.6	570.4	3.6	538.2	1.6	341.2	0.0	243.6	1.8	368.4	0.3	392.4	0.0	314.8	0.2	412.4	1.8	499.7	1.1	384.4
D 11	8.0	535.4	9.0	340.2	0.4	387.4	10.8	404.2	5.1	537.5	0.8	402.2			0.4	568.2	2.5	537.7	5.2	341.8	0.4	242.0	0.2	365.6	0.8	390.1	0.2	311.4	1.0	411.6	0.3	490.6	2.4	381.6
L 12	1.2	522.2	1.8	326.0	1.8	351.2	11.0	385.6	1.8	519.0	2.4	370.0			2.8	540.6	2.0	523.8	1.0	330.4	0.6	222.0	1.4	342.0	1.3	372.5	0.4	275.8	2.2	391.4	2.0	461.1	1.8	358.9
Ma 13	21.0	497.2	22.4	312.4	4.2	318.8	8.8	372.2	15.8	486.4	17.0	344.8			24.4	510.2	12.2	491.7	19.8	319.2	8.2	207.6	1.8	303.6	20.9	354.2	0.4	250.0	17.8	367.6	5.3	410.0	11.1	333.2
Mi 14	32.4	495.6	43.8	345.2	19.2	309.0	42.4	392.2	30.7	487.7	10.6	342.6			18.8	501.0	25.7	491.7	10.6	327.4	9.4	206.8	11.0	285.6	20.3	354.5	11.4	234.4	23.2	368.8	16.5	394.0	18.4	331.2
J 15	35.0	479.2	7.0	336.2	13.6	309.0	13.6	364.0	23.6	455.2	22.2	351.6			18.2	497.8	28.7	461.0	17.0	302.4	6.4	206.6	16.0	287.2	10.2	353.7	10.4	213.8	8.2	361.6	17.3	390.0	15.2	320.3
V 16	15.4	483.4	11.6	337.8	24.8	315.8	14.6	369.8	10.2	449.4	13.6	348.2			25.0	506.4	15.7	459.5	8.2	294.0	13.6	214.2	37.6	313.8	12.7	354.5	15.2	219.2	15.4	362.2	40.1	414.1	17.2	325.0
S 17	3.8	419.0	2.4	294.4	14.4	312.6	1.0	333.8	4.1	395.5	11.2	323.8			3.8	453.8	7.6	418.1	2.8	267.0	3.6	202.0	4.2	300.8	1.3	322.2	0.4	171.6	1.4	331.8	4.6	393.0	4.1	292.1
D 18	3.6	422.6	1.2	295.4	9.8	317.4	3.0	336.8	5.3	400.9	4.0	327.2			12.2	465.4	9.9	427.7	2.4	268.8	3.4	203.2	6.2	303.0	5.8	325.5	4.8	171.8	5.4	336.4	9.2	396.6		295.0
L 19	10.4	402.8	12.2	277.8	20.6	323.0	10.0	320.2	5.1	368.6	9.4	312.8			10.6	427.6	4.1	398.3	10.4	263.6	8.0	199.0	18.0	312.8	9.9	312.3	7.4	171.0	8.0	310.6	27.7	412.6		284.4
Ma 20	0.2	403.0	0.0	277.8	0.2	323.0	0.2	320.4	0.0	368.6	0.2	312.2			0.2	427.6	0.3	398.5	0.2	263.8	0.0	199.0	0.2	312.4	0.0	312.3	0.2	171.2	0.0	310.4	0.0	412.1		284.4
Mi 21	0.0	403.0	0.0	277.4	0.0	322.2	0.0	320.4	0.0	368.3	0.0	312.2			0.0	427.2	0.0	398.5	0.0	263.8	0.0	197.2	0.0	310.4	0.0	311.5	0.0	169.0	0.2	310.0	0.0	410.0		283.4
J 22	0.0	399.0	0.0	261.4	0.0	320.2 274.8	0.0	319.8	0.0	366.5	0.0	311.2			0.0	409.2	0.0	397.0	0.0	263.8	0.0	189.2	0.0	300.0	0.0	296.0	0.0	155.6	0.0	293.8	0.0	397.3		275.8
V 23 S 24	0.2	389.8 382.0	0.0	226.4 211.6	0.4	268.8	9.4 0.4	304.0 298.6	10.9 0.0	338.6 329.7	0.0	273.0 269.6			3.0 0.2	332.8	8.1 0.3	373.1	1.0 0.2	246.0 239.0	0.4	154.8 140.0	0.8	252.0 237.4	1.5 0.3	241.6 225.8	0.0	140.0 132.4	1.0 0.0	234.4	0.5	322.7		243.4
D 25	0.2	335.2	0.0	202.8	0.4	239.6	0.4	265.4	0.0	289.1	0.0	238.6			0.2	202.0	0.0	322.3	0.2	202.0	0.0	129.6	0.2	212.8	0.0	201.9	0.2	114.2	0.0	207.4	0.0	262.0		207.6
L 26	0.0	309.8	0.0	198.2	0.0	227.2	2.0	252.0	1.3	264.7	0.0	224.8			0.0	267.6	0.0	286.8	0.0	179.4	8.8	130.4	0.0	196.8	0.5	189.9	2.0	111.8	3.0	201.4	1.8	244.7		195.4
Ma 27	0.0	294.2	0.0	196.0	0.0	206.0	0.0	243.6	0.0	248.2	0.0	208.0			0.0	259.6	0.0	261.9	0.0	172.8	0.0	128.2	0.2	193.4	0.5	187.1	0.0	110.0	0.0	196.8	0.0	236.6		187.3
Mi 28	0.0	293.6	0.0	195.2	0.0	204.0	0.0	243.4	0.0	246.9	0.0	207.2			0.0	257.8	0.0	261.1	0.0	170.8	0.0	122.6	0.0	184.0	0.0	184.9	0.0	97.2	0.0	195.0	0.0	226.7	0.0	182.5
J 29	0.0	219.8	1.6	179.6	2.8	197.6	0.0	201.4	0.3	200.2	0.8	192.2			0.0	228.0	0.0	189.7	0.6	153.6	0.6	111.4	1.6	169.2	0.5	169.1	3.0	94.8	0.2	177.8	1.8	210.9		161.4
V 30	1.4	188.6	0.0	138.0	1.2	152.8	0.6	163.4	1.3	157.0	3.8	146.2			1.0	164.4	2.8	156.0	5.0	128.6	1.8	83.0	2.6	129.8	1.0	120.2	0.4	80.6	0.2	124.2	4.3	168.7	1.8	126.9
S 31	0.2	184.8	0.0	132.8	0.6	141.8	0.0	159.6	0.0	152.7	0.4	139.2			0.2	160.2	0.3	151.6	0.4	125.4	0.2	76.4	0.4	121.0	0.3	112.1	0.2	72.4	0.2	119.2	0.3	154.9	0.2	120.3
LI. mes	336.8		204.8		244.6		268.0		291.9		243.6		4.1		284.8		325.6		208.0		141.0		218.4		204.7		119.8		211.0		270.1		212.8	
Máx. mes	73.8	545.2	43.8	345.2	46.0	452.6	42.4	405.2	47.0	551.5	49.8	415.6	2.8	282.4	64.6	579.6	71.4	558.0	33.6	380.8	30.2	277.4	42.0	412.6	49.9	407.4	15.2	350.0	53.8	412.6	46.6	556.8	36.3	402.1
Ll. acum. en el año	31	81.0	252	21.2	27	91.8	209	98.6	326	64.1	264	4.4	185	55.3	337	5.6	337	75.4	272	27.4	202	27.0	276	61.6	272	28.2	229	94.6	269	94.2	317	77.8	266	3.2
No. días Iluvia año	245	67%	241	66%	271	74%	179	69%	258	71%	263	72%	244	73%	262	72%	266	73%	253	69%	264	72%	291	80%	276	76%	256	71%	290	79%	281	77%	294	81%





	o a la fec		365
No. de o	días con al	lgún N.A. e	n el año
Estación	Α	N	R
Alc	88	57	33
Ara	101	33	0
Bos	85	52	17
Chec	58	43	2
Car	81	69	32
Emas	81	44	12
Enea	85	0	0
Hos	73	51	53
Ing	95	62	43
Pal	92	65	0
Niza	83	4	0
Oli	85	70	4
Pos	85	44	15
Qman	76	40	0
Ruta	81	45	14
Yar	76	74	35
Prom.	95	46	2

CONVENCIONES

Ll. d. : Lluvia diaria en mm

A25 : Indicador lluvia antecedente de 25 días en mm

Ll. mes: Lluvia parcial o total en el mes en mm

Máx. mes: Valores máximos de lluvia diaria v A25 en el mes en mm

Ll. acum, en el año: Lluvia acumulada en el año en mm No. días lluvia año: Número de días con lluvia en lo corrido del año

Resalta la lluvia diaria máxima del mes

* Indicadores con base a los días de funcinamiento de cada estación

NIVELES DE ALERTA (N.A.)

Amarilla o baja: A 200 mm <= A25 < 300 mm Narania o media: N 300 mm <= A25 < 400 mm Roja o alta: R A25 >= 400 mm

1. La lluvia promedio y acumulada en lo corrido del año para

Manizales se calcularon con el Método de los Polígonos de 7

2. Datos resaltados en rojo están incompleto

Entidades propietarias y participantes









