REGISTRO DE PRECIPITACIÓN MÁXIMA DE 24 HORAS (mm)

Estación	**PAUNA [23125090]**	**Latitud**	**5.649**	**Departamento**	**Boyacá**
		Longitud	**-73.981**		
Parámetro	**Precipitación Máxima en 24 hr (mm)**	**Altitud**	**1225**	**Municipio**	**Pauna**

Año	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Pmax24	Log(P24hr)
1994	32	43	54	43	32	31	51	13	55	61	73	37	**73**	**1.87**
1995	19	61	107	78	71	33	35	34	71	41	25	72	**107**	**2.03**
1996	31	31	49	29	27	53	29	35	23	49	62	48	**62**	**1.79**
1997	27	31	29	66	57	35	6	13	66	44	104	18	**104**	**2.01**
1998	40	43	39	60	62	11	14	40	72	68	45	33	**72**	**1.86**
1999	56	66	48	46	27	63	34	29	51	49	37	64	**66**	**1.82**
2000	28	22	65	71	23	45	34	13	54	42	49	70	**71**	**1.85**
2001	19	23	70	49	53	19	33	25	39	74	42	26	**74**	**1.87**
2002	16	24	76	75	74	26	56	50	40	37	39	64	**76**	**1.88**
2003	60	41	56	45	54	37	18	20	50	47	50	92	**92**	**1.96**
2004	33	57	62	40	28	11	52	12	56	44	73	39	**73**	**1.86**
2005	30	36	23	30	47	41	29	15	35	52	39	54	**54**	**1.73**
2006	66	42	45	46	54	38	11	44	14	93	65	25	**93**	**1.97**
2007	43	8	38	52	54	13	29	33	35	51	47	42	**54**	**1.73**
2008	23	22	55	71	64	22	31	39	50	43	62	23	**71**	**1.85**
2009	34	78	58	44	52	18	7	20	28	42	36	25	**78**	**1.89**
2010	27	53	30	78	51	27	51	31	57	60	87	38	**87**	**1.94**
2011	46	44	53	65	63	43	31	59	48	76	76	64	**76**	**1.88**
2012	39	14	43	62	39	32	17	48	59	55	63	25	**63**	**1.80**
2013	10	38	51	70	51	27	18	39	28	38	33	33	**70**	**1.84**
2014	49	51	37	85	44	13	36	17	33	53	77	53	**85**	**1.93**
2015	37	29	86	51	57	13	5	17	47	66	72	13	**86**	**1.93**
2016	34	22	46	52	32	44	12	30	51	49	70	82	**82**	**1.92**
2017	52	37	74	41	42	44	4	114	47	38	40	47	**114**	**2.06**
2018	28	20	35	33	41	42	13	27	84	59	56	38	**84**	**1.92**
2019	33	34	79	36	25	16	19	18	38	42	59	29	**79**	**1.89**
2020	37	31	34	35	25	25	27	25	70	66	49	45	**70**	**1.84**
2021	10	38	22	60	38	37	39	42	50	44	37	38	**60**	**1.78**
2022	19	51	73	57	34	27	17	34	39	37	54	59	**73**	**1.86**
2023	31	48	49	64	39	19	18	41	33	44	55	35	**64**	**1.81**

Datos Agrupados

Año	Precipitación (mm)
1994	73.3
1995	107.4
1996	62.0
1997	103.5
1998	72.0
1999	65.7
2000	70.5
2001	74.0
2002	76.3
2003	91.5
2004	73.2
2005	54.0
2006	92.7
2007	54.0
2008	70.7
2009	77.6
2010	86.7
2011	75.5
2012	63.0
2013	69.5
2014	84.5
2015	85.5
2016	82.3
2017	114.3
2018	83.6
2019	78.5
2020	69.8
2021	59.6
2022	72.6
2023	64.0

Datos Ordenados	m	P	T
54.0	1	0.032	31.0
54.0	2	0.065	15.5
59.6	3	0.097	10.3
62.0	4	0.129	7.8
63.0	5	0.161	6.2
64.0	6	0.194	5.2
65.7	7	0.226	4.4
69.5	8	0.258	3.9
69.8	9	0.290	3.4
70.5	10	0.323	3.1
70.7	11	0.355	2.8
72.0	12	0.387	2.6
72.6	13	0.419	2.4
73.2	14	0.452	2.2
73.3	15	0.484	2.1
74.0	16	0.516	1.9
75.5	17	0.548	1.8
76.3	18	0.581	1.7
77.6	19	0.613	1.6
78.5	20	0.645	1.6
82.3	21	0.677	1.5
83.6	22	0.710	1.4
84.5	23	0.742	1.3
85.5	24	0.774	1.3
86.7	25	0.806	1.2
91.5	26	0.839	1.2
92.7	27	0.871	1.1
103.5	28	0.903	1.1
107.4	29	0.935	1.1
114.3	30	0.968	1.0

n	30

N	30	
Rango	60.3	
No. Clase	5.5	6.0
DeltaX	13.3	12.1
X_{min}	54.0	
X_{max}	114.3	

[LC1	MCL	LCS]	Fre_Abs	Fre_Relativa
47.97	54.0	60.0	3	0.100
60.0	66.1	72.1	9	0.300
72.1	78.1	84.2	10	0.333
84.2	90.2	96.2	5	0.167
96.2	102.2	108.3	2	0.067
108.3	114.3	120.3	1	0.033
			30	1

Parámetros Estadísticos

xi	fi	xi*fi	$fi*xi^2$
54.0	3	162.0	8748.0
66.1	9	594.5	39275.3
78.1	10	781.2	61027.3
90.2	5	450.9	40662.2
102.2	2	204.5	20906.0
114.3	1	114.3	13064.5
suma	30	2307.42	183683.3436

Parámetros Estadísticos	P24hr
Media	76.914
Varianza	211.167
Desv.Standar	14.532
Coef.Varianza	0.189
Coef.Sesgo	0.588
Coef.Curtosis	3.575

fi	xi	Xmed	(xi-Xmed)	$(xi-Xmed)^3$	$(xi-Xmed)^4$	$(xi-Xmed)^3*fi$	$(xi-Xmed)^4*fi$
3	54.0	76.914	-22.9	-12031.0277	275678.9684	-36093.0831	827036.9053
9	66.1		-10.9	-1278.70232	13879.03494	-11508.3208	124911.3144
10	78.1		1.2	1.754049816	2.115384078	17.54049816	21.15384078
5	90.2		13.3	2334.640305	30971.33829	11673.20153	154856.6914
2	102.2		25.3	16244.25535	411402.0109	32488.51069	822804.0218
1	114.3		37.4	52254.89807	1953601.619	52254.89807	1953601.619
Total						48832.74688	3883231.706

Prueba de Chi^2 para una distribución normal

	Intervalo	Límite Clase	Z=(p-pmed)/s	F(z)	Frec. Relativa	Frec. Esperada	Frec. Observad	Prob.
1		48.0	-1.992	0.023196516				0.125
2	47.97 - 60	60.0	-1.162	0.122641456	0.09944	3	3	0.250
3	60 - 72.1	72.1	-0.332	0.369957229	0.24732	7	9	0.375
4	72.1 - 84.2	84.2	0.498	0.690740338	0.32078	10	10	0.500
5	84.2 - 96.2	96.2	1.328	0.907888896	0.21715	7	5	0.625
6	96.2 - 108.3	108.3	2.158	0.98452765	0.07664	2	2	0.750
7	108.3 - 120.3	120.3	2.988	0.998594572	0.01407	0	1	0.875
					1	29	30	

Media	Datos Agrupados	76.914
Desviación Estandar		14.532
Numero de Datos		30

Cálculo X^2_c	1.934490019

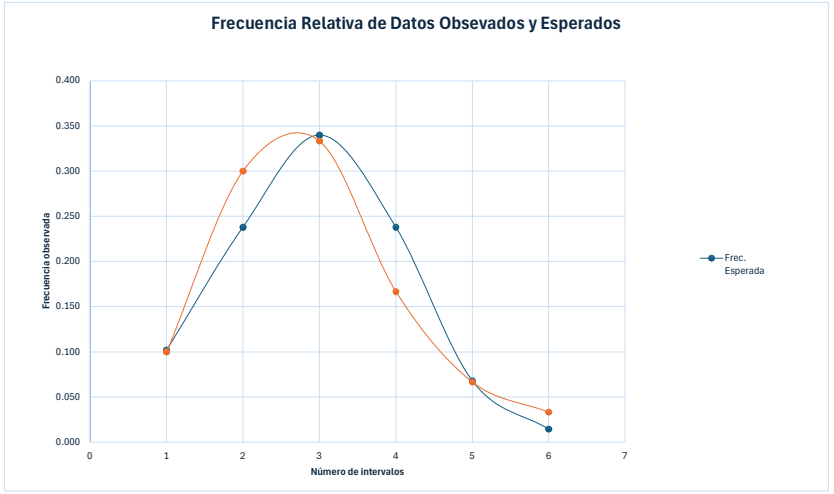
Tabula X_t^2	
V=G*L	3
Grados de Significancia	5%
X_t^2	7.814727903

si 1.934490019 ⟨ 7.814727903

Los datos se ajustan a la distribución normal con un nivel de significancia del 5% ó 95% de

% de alcance 25% ⟨ 95%

	Frec. Esperada	Frec. Observada
1	0.102	0.100
2	0.238	0.300
3	0.340	0.333
4	0.238	0.167
5	0.068	0.067
6	0.014	0.033



PARÁMETROS ESTADÍSTICOS	P24hr	Log(P24hr)
Número de datod (N)	**30**	**30**
Sumatoria	**2308**	**56**
Valor Máximo	**114.30**	**2.06**
Valor Mínimo	**54.00**	**1.73**
Media	**76.93**	**1.88**
Varianza	**211.17**	**0.01**
Desviación Estandar	**14.53**	**0.08**

n= 30

Kn 2.563

Umbral de datos dudosos altos

Xh 2.08239851

Precipitación Máxima aceptada

PH 120.8922639 mm

No existen datos dudosos altos de la muestra

Umbral de datos dudosos bajos

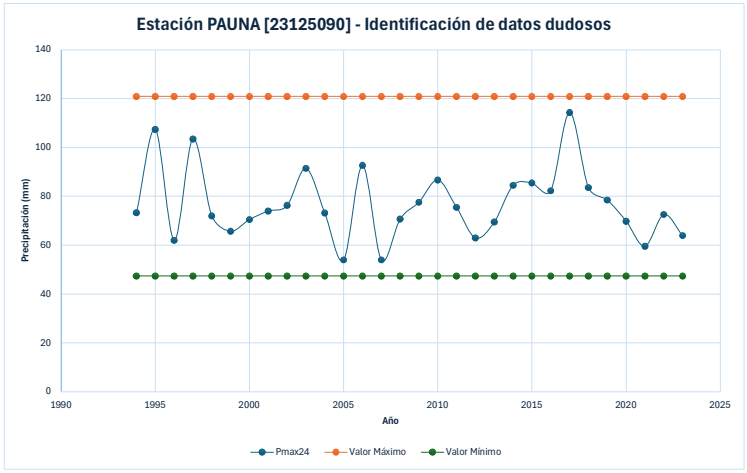
Xh 1.67548273

Precipitación Máxima aceptada

PH 47.36774716 mm

No existen datos dudosos bajos de la muestra

Año	Pmax24	Valor Máximo	Valor Mínimo
1994	73.3	120.89	47.37
1995	107.4	120.89	47.37
1996	62	120.89	47.37
1997	103.5	120.89	47.37
1998	72	120.89	47.37
1999	65.7	120.89	47.37
2000	70.5	120.89	47.37
2001	74	120.89	47.37
2002	76.3	120.89	47.37
2003	91.5	120.89	47.37
2004	73.2	120.89	47.37
2005	54	120.89	47.37
2006	92.7	120.89	47.37
2007	54	120.89	47.37
2008	70.7	120.89	47.37
2009	77.6	120.89	47.37
2010	86.7	120.89	47.37
2011	75.5	120.89	47.37
2012	63	120.89	47.37
2013	69.5	120.89	47.37
2014	84.5	120.89	47.37
2015	85.5	120.89	47.37
2016	82.3	120.89	47.37
2017	114.3	120.89	47.37
2018	83.6	120.89	47.37
2019	78.5	120.89	47.37
2020	69.8	120.89	47.37
2021	59.6	120.89	47.37
2022	72.6	120.89	47.37
2023	64	120.89	47.37



Kolmogorov - Smirnov

		Weibull	Normal			Log-Normal			Pearson III			Log-Pearson			Gumbel		Log-Gumbul	
m	P = X(mm)	P(x)=1/(m+1)	Z=(x-xm)/s			Y =ln(x)			$(X-X_0)$									
1	54.0	0.0323	-1.5777	0.0573	0.0251	1.73239376	1.000	0.96774	12.5	0.022	0.011	0.356	0.022	0.010	0.001	0.031465698	0.000	0.03221591
2	54.0	0.0645	-1.5777	0.0573	0.0072	1.73239376	1.000	0.93548	12.5	0.022	0.043	0.356	0.022	0.042	0.001	0.063723763	0.000	0.03221591
3	59.6	0.0968	-1.1923	0.1166	0.0198	1.77524626	1.000	0.90323	18.1	0.092	0.005	0.399	0.088	0.009	0.013	0.083943119	0.006	0.02579153
4	62.0	0.1290	-1.0272	0.1522	0.0231	1.792391689	1.000	0.87097	20.5	0.140	0.011	0.416	0.134	0.005	0.029	0.099562247	0.022	0.0103609
5	63.0	0.1613	-0.9584	0.1689	0.0076	1.799340549	1.000	0.83871	21.5	0.163	0.002	0.423	0.157	0.005	0.040	0.121600238	0.033	0.00059933
6	64.0	0.1935	-0.8896	0.1869	0.0067	1.806179974	1.000	0.80645	22.5	0.188	0.006	0.430	0.181	0.013	0.052	0.141421623	0.047	0.01471139
7	65.7	0.2258	-0.7726	0.2199	0.0059	1.81756537	1.000	0.77419	24.2	0.232	0.006	0.442	0.225	0.000	0.079	0.147136411	0.079	0.04626169
8	69.5	0.2581	-0.5111	0.3047	0.0466	1.841984805	1.000	0.74194	28.0	0.340	0.082	0.466	0.336	0.078	0.162	0.095720888	0.180	0.14772102
9	69.8	0.2903	-0.4904	0.3119	0.0216	1.843855423	1.000	0.70968	28.3	0.349	0.059	0.468	0.345	0.054	0.170	0.120080517	0.189	0.15714827
10	70.5	0.3226	-0.4423	0.3292	0.0066	1.848189117	1.000	0.67742	29.0	0.370	0.047	0.472	0.366	0.043	0.189	0.133287414	0.212	0.17970436
11	70.7	0.3548	-0.4285	0.3341	0.0207	1.849419414	1.000	0.64516	29.2	0.376	0.021	0.473	0.372	0.017	0.195	0.159951623	0.219	0.18627585
12	72.0	0.3871	-0.3390	0.3673	0.0198	1.857332496	1.000	0.61290	30.5	0.414	0.027	0.481	0.412	0.025	0.233	0.154410719	0.262	0.23003397
13	72.6	0.4194	-0.2977	0.3829	0.0364	1.860936621	1.000	0.58065	31.1	0.432	0.012	0.485	0.430	0.010	0.251	0.16849505	0.283	0.25066139
14	73.2	0.4516	-0.2565	0.3988	0.0528	1.864511081	1.000	0.54839	31.7	0.449	0.002	0.489	0.448	0.004	0.269	0.182206958	0.304	0.27143351
15	73.3	0.4839	-0.2496	0.4015	0.0824	1.865103975	1.000	0.51613	31.8	0.452	0.032	0.489	0.451	0.033	0.273	0.211342263	0.307	0.27490352
16	74.0	0.5161	-0.2014	0.4202	0.0959	1.86923172	1.000	0.48387	32.5	0.473	0.044	0.493	0.472	0.044	0.295	0.221525634	0.331	0.29920823
17	75.5	0.5484	-0.0982	0.4609	0.0875	1.877946952	1.000	0.45161	34.0	0.515	0.033	0.502	0.516	0.032	0.343	0.20557804	0.383	0.35094303
18	76.3	0.5806	-0.0431	0.4828	0.0978	1.882524538	1.000	0.41935	34.8	0.538	0.043	0.507	0.539	0.042	0.369	0.211880799	0.410	0.37806312
19	77.6	0.6129	0.0463	0.5185	0.0944	1.889861721	1.000	0.38710	36.1	0.573	0.040	0.514	0.575	0.038	0.411	0.202024909	0.453	0.42102718
20	78.5	0.6452	0.1083	0.5431	0.1021	1.894869657	1.000	0.35484	37.0	0.596	0.049	0.519	0.599	0.046	0.440	0.205406773	0.482	0.4497783
21	82.3	0.6774	0.3698	0.6442	0.0332	1.915399835	1.000	0.32258	40.8	0.687	0.010	0.539	0.692	0.014	0.556	0.121677313	0.592	0.56004609
22	83.6	0.7097	0.4592	0.6770	0.0327	1.922206277	1.000	0.29032	42.1	0.715	0.006	0.546	0.720	0.010	0.592	0.117394904	0.626	0.59324788
23	84.5	0.7419	0.5212	0.6989	0.0431	1.926856709	1.000	0.25806	43.0	0.733	0.009	0.551	0.738	0.004	0.616	0.125484232	0.647	0.61485556
24	85.5	0.7742	0.5900	0.7224	0.0518	1.931966115	1.000	0.22581	44.0	0.753	0.022	0.556	0.757	0.017	0.642	0.132027407	0.670	0.63756096
25	86.7	0.8065	0.6726	0.7494	0.0571	1.938019097	1.000	0.19355	45.2	0.774	0.032	0.562	0.779	0.027	0.671	0.135056771	0.695	0.66304193
26	91.5	0.8387	1.0029	0.8420	0.0033	1.961421094	1.000	0.16129	50.0	0.847	0.008	0.585	0.851	0.012	0.770	0.068285105	0.780	0.7473241
27	92.7	0.8710	1.0855	0.8611	0.0098	1.967079734	1.000	0.12903	51.2	0.862	0.009	0.591	0.865	0.006	0.791	0.080082895	0.797	0.76446952
28	103.5	0.9032	1.8287	0.9663	0.0630	2.01494035	1.000	0.09677	62.0	0.949	0.046	0.639	0.949	0.045	0.914	0.010302904	0.900	0.86818028
29	107.4	0.9355	2.0970	0.9820	0.0465	2.031004281	1.000	0.06452	65.9	0.965	0.030	0.655	0.964	0.029	0.938	0.002425196	0.922	0.89002753
30	114.3	0.9677	2.5719	0.9949	0.0272	2.05804623	1.000	0.03226	72.8	0.983	0.015	0.682	0.981	0.014	0.966	0.002006356	0.949	0.91681991
Xm	76.9					Xm	1.9		Alfa	5.927900562		Alfa	40.15018554		Alfa	11.33022734	Alfa	0.06189445
S	14.53158115					S	0.079382712		Beta	5.96846177		Beta	0.012528012		Miu	76.27274552	Miu	1.8753684
Cs	0.821446986					Cs	0.315635772		X_0	41.54621879		X_0	1.375938624					
n	30			Dmáx	0.1021		Dmáx	0.9677		Dmáx	0.0821		Dmáx	0.0775	Dmáx	0.2215	Dmáx	0.9168
Significancia	5%			Dcrit > Dáx	Si se ajusta		Dcrit > Dáx	No se ajusta		Dcrit > Dáx	Si se ajusta		Dcrit > Dáx	Si se ajusta	Dcrit > Dáx	Si se ajusta	Dcrit > Dáx	No se ajusta
Dcrit	0.248300893			Ajuste	3		Ajuste	6		Ajuste	2		Ajuste	1	Ajuste	4	Ajuste	5