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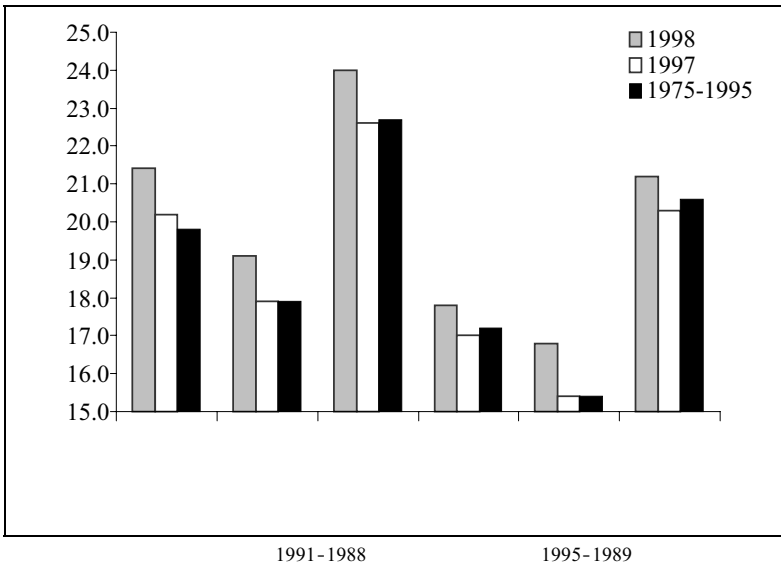
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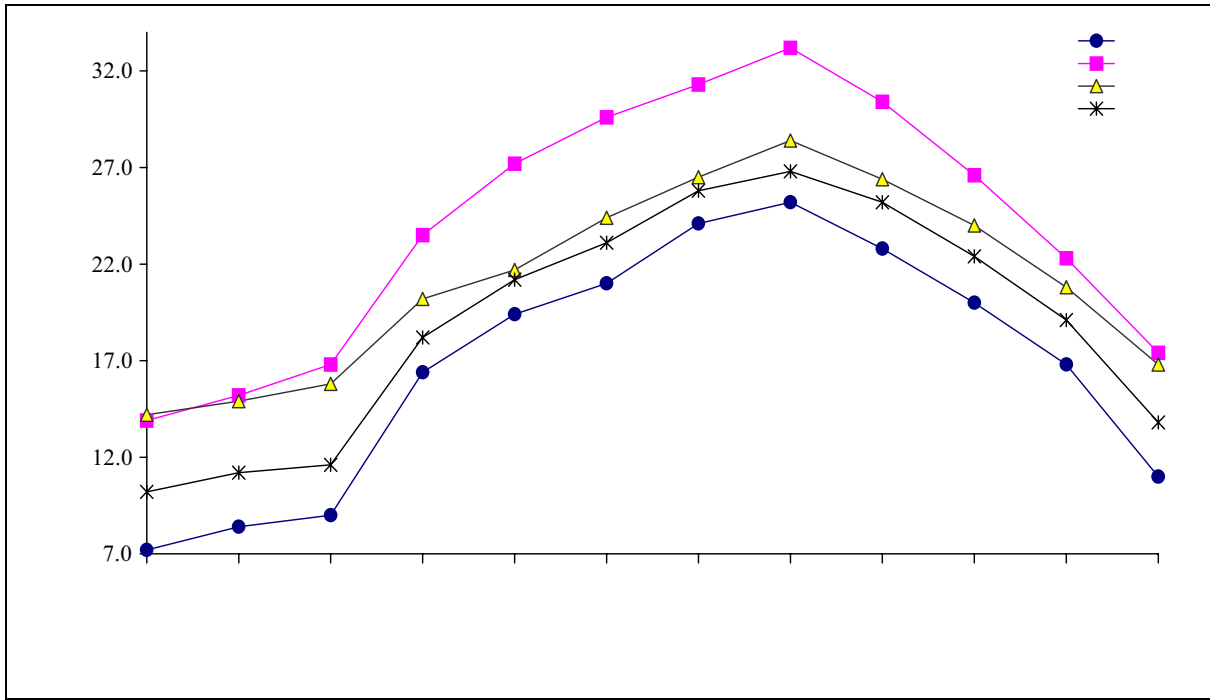
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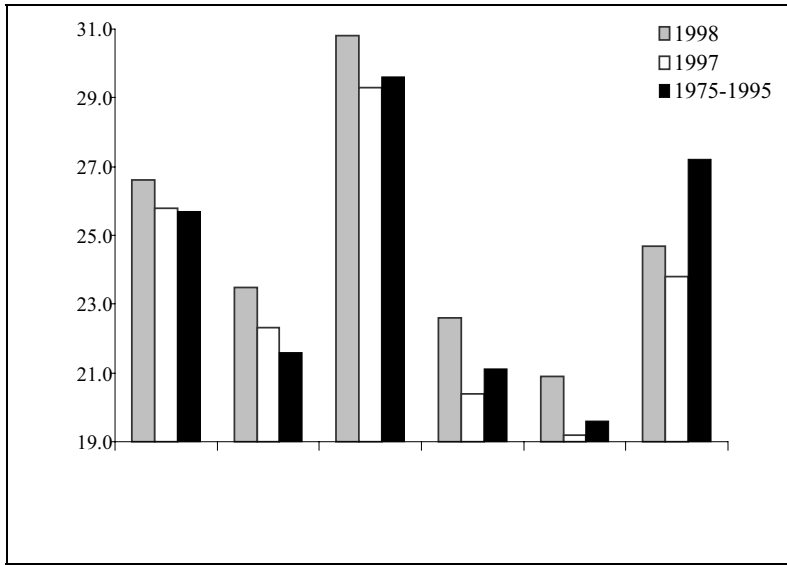
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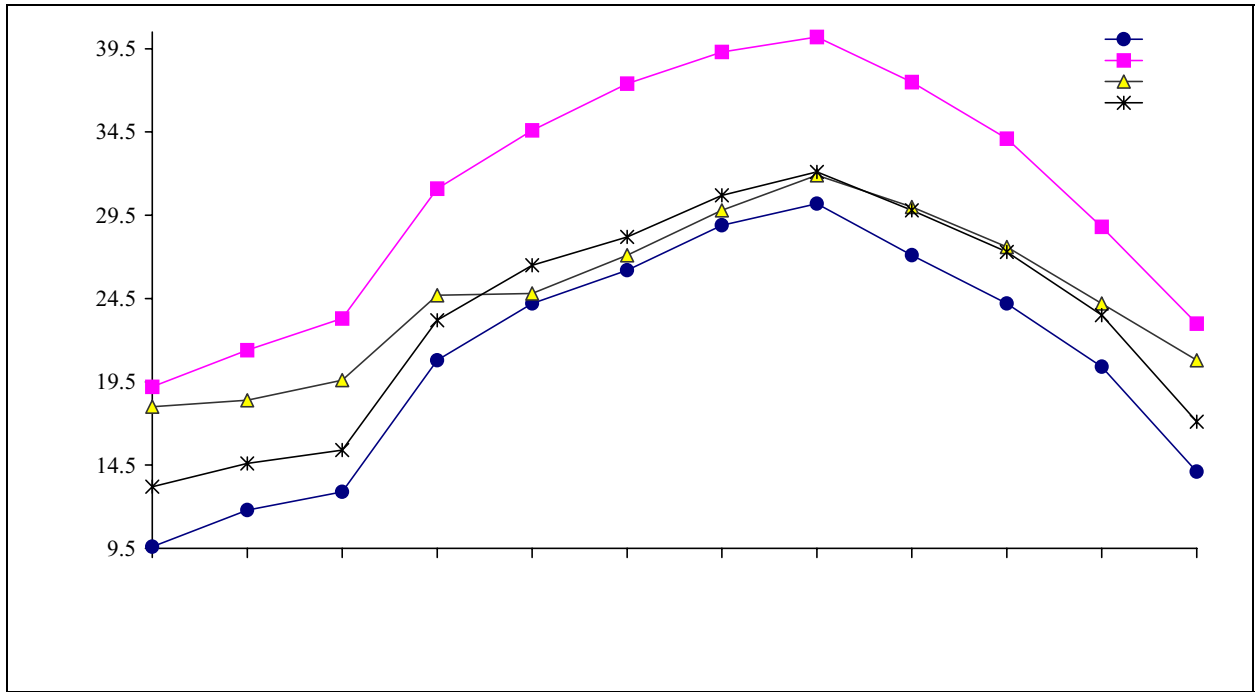


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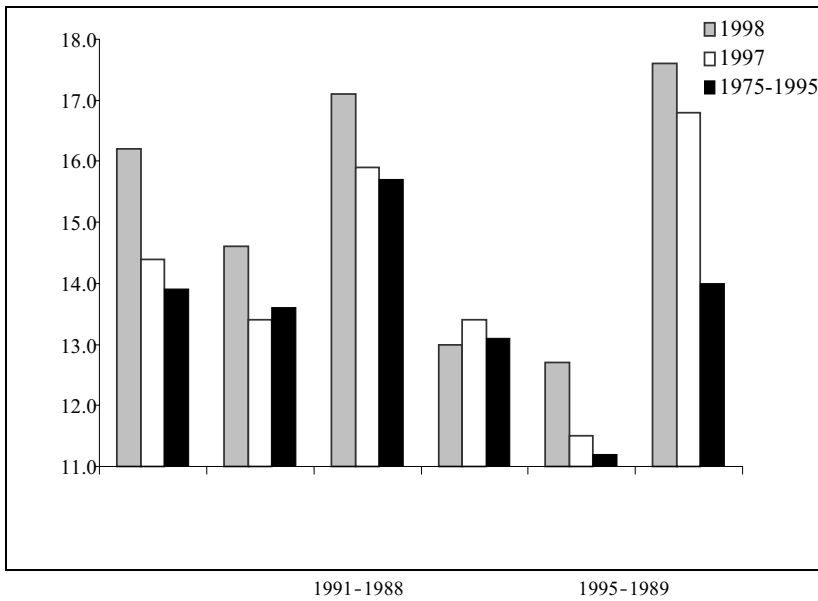
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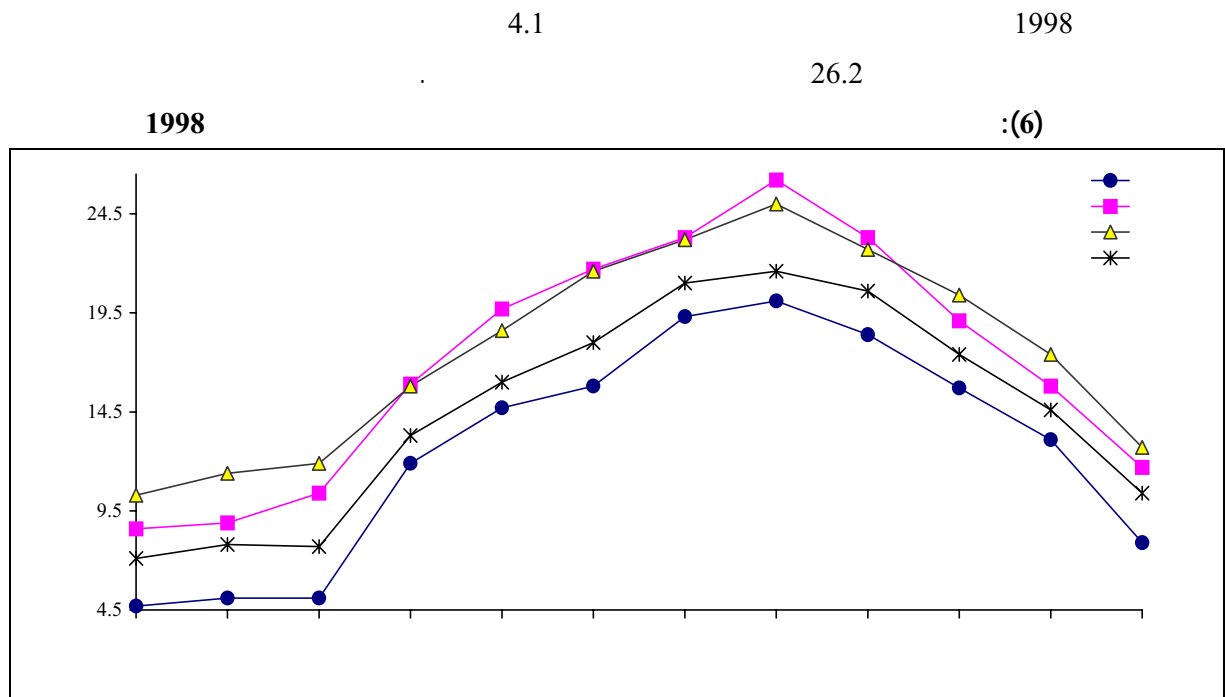


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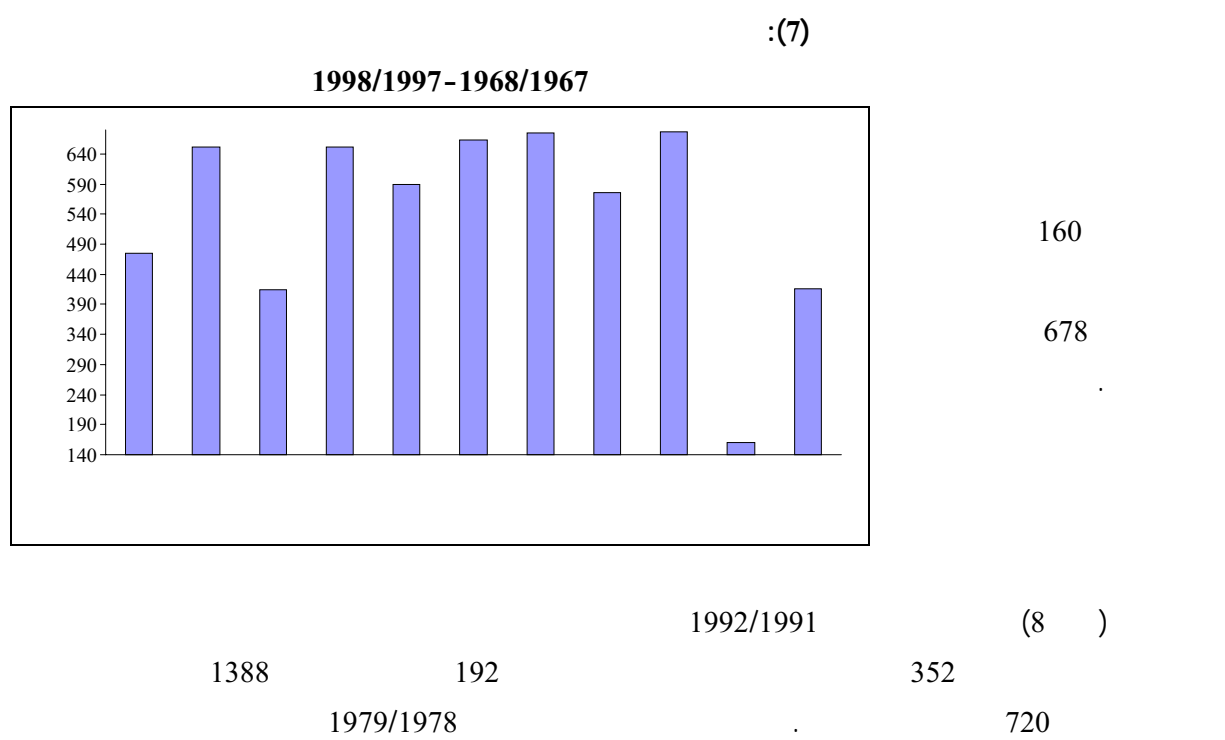


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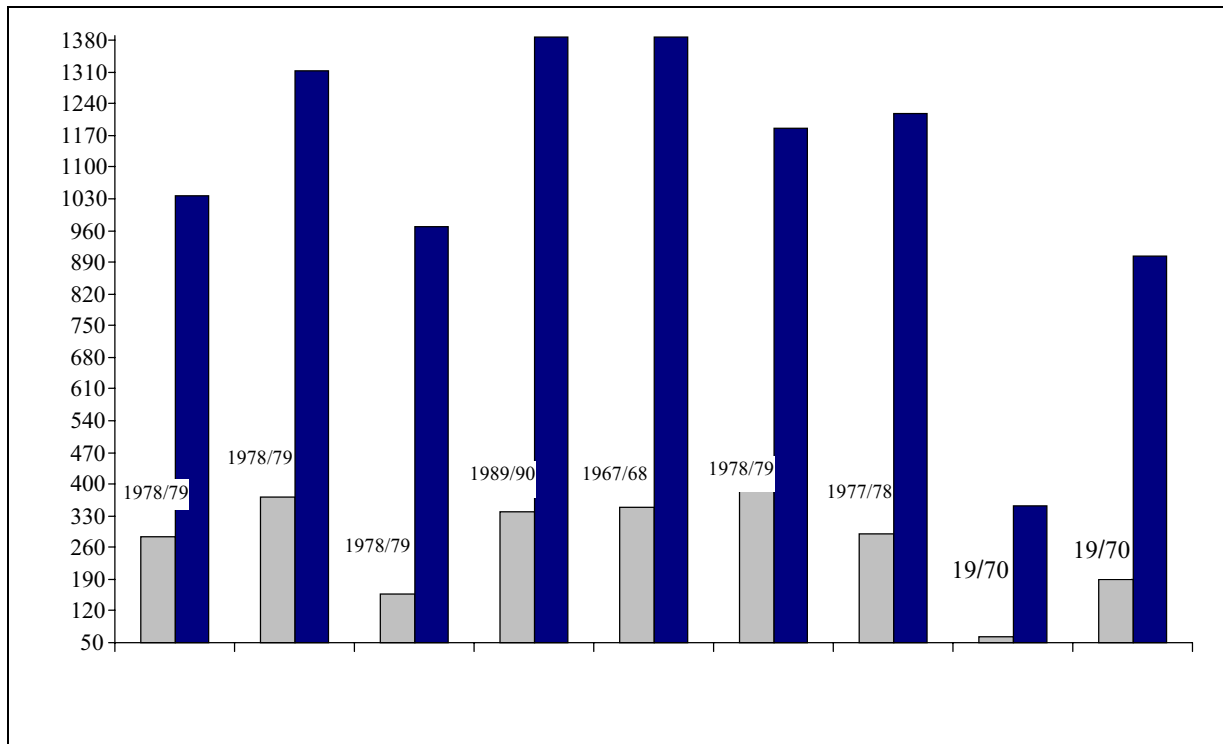
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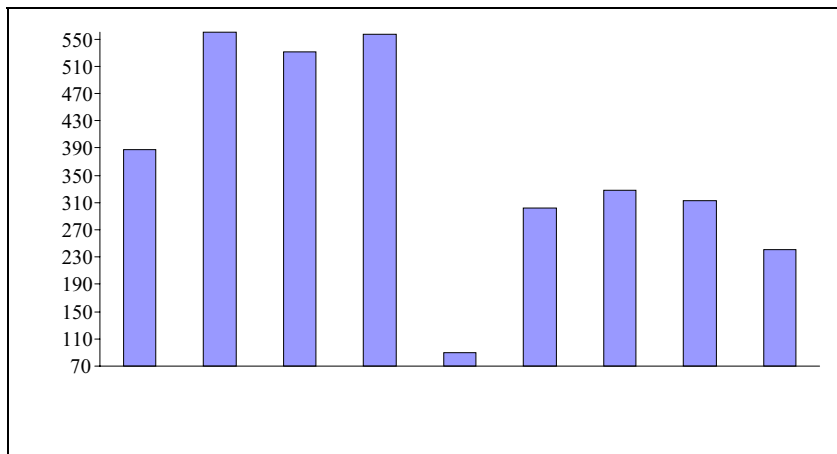
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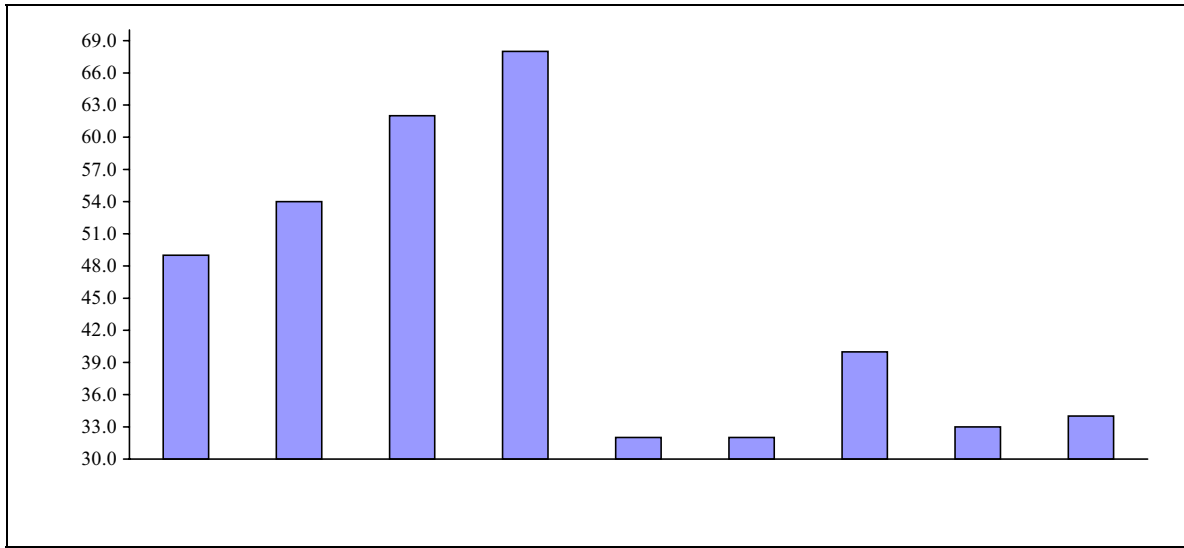
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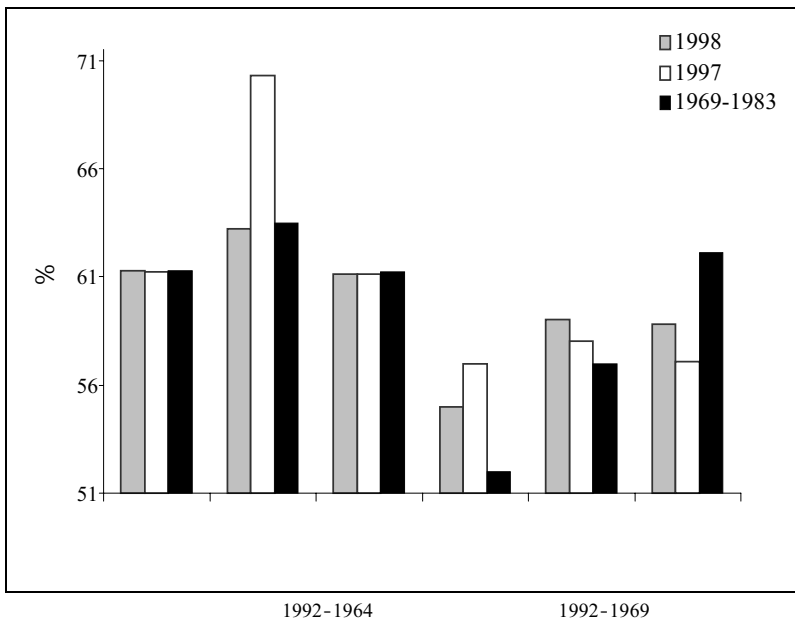


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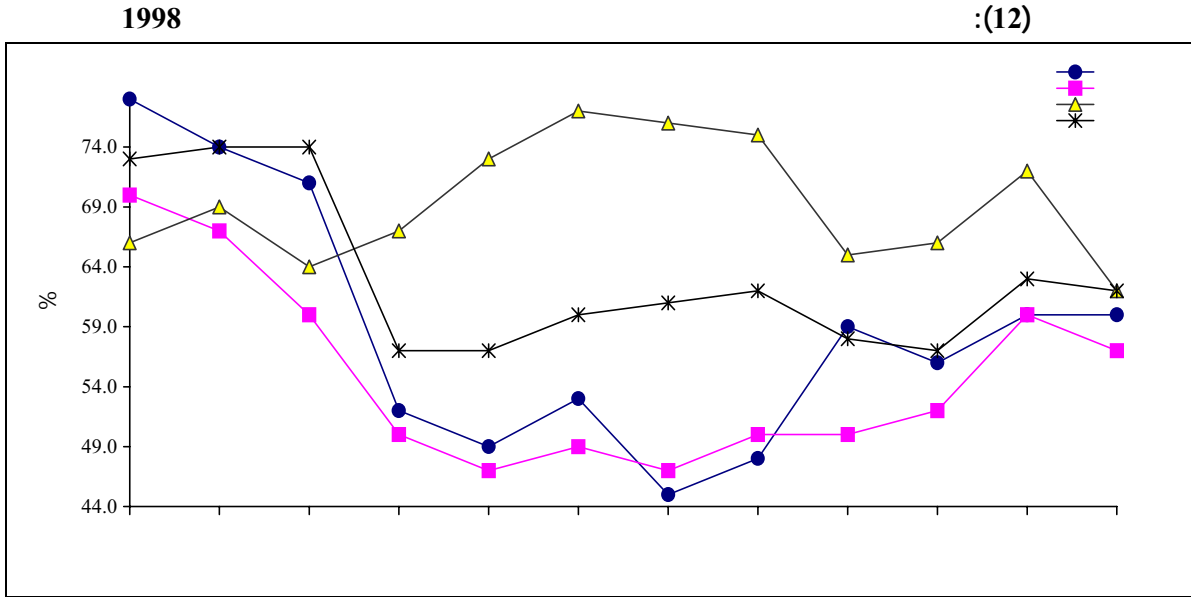
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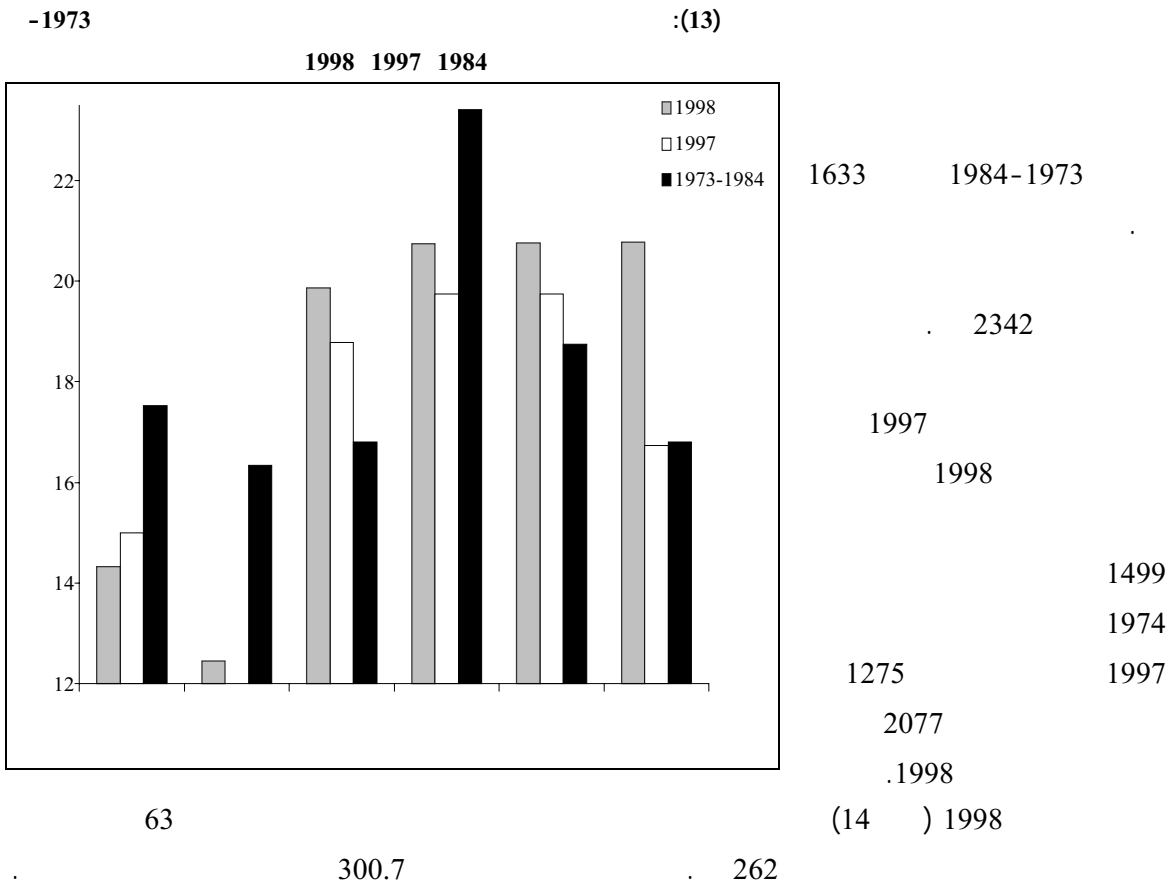
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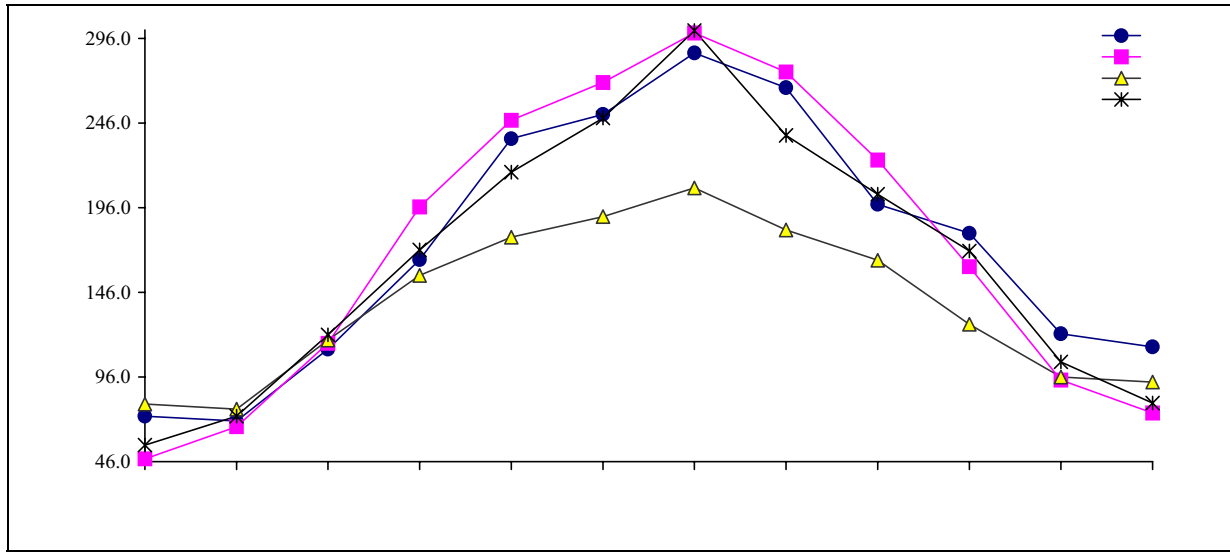


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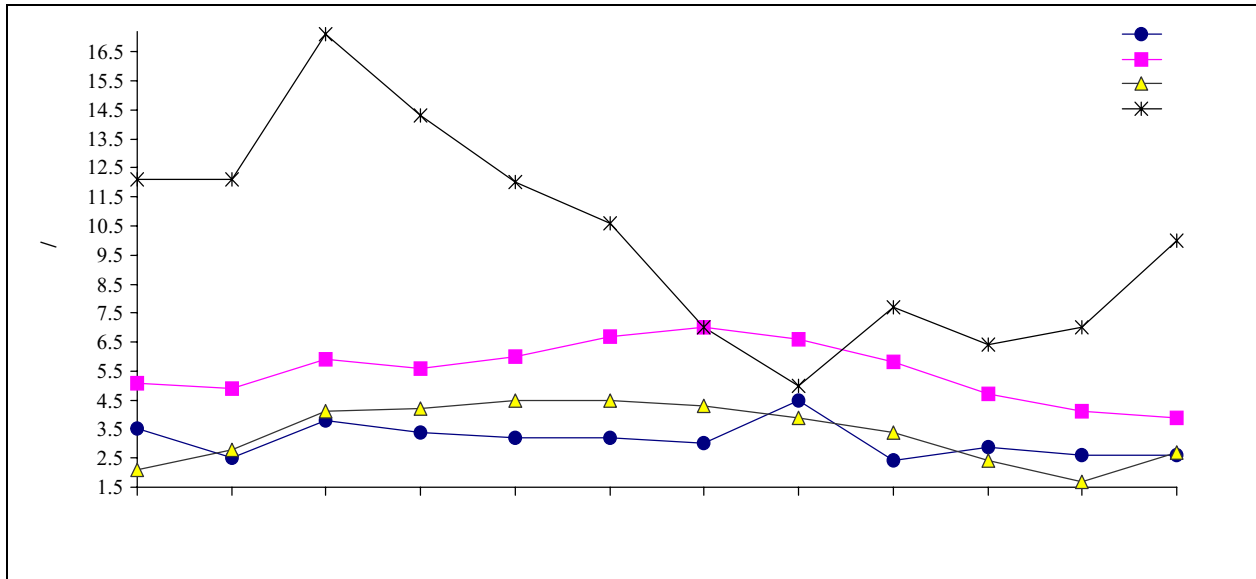
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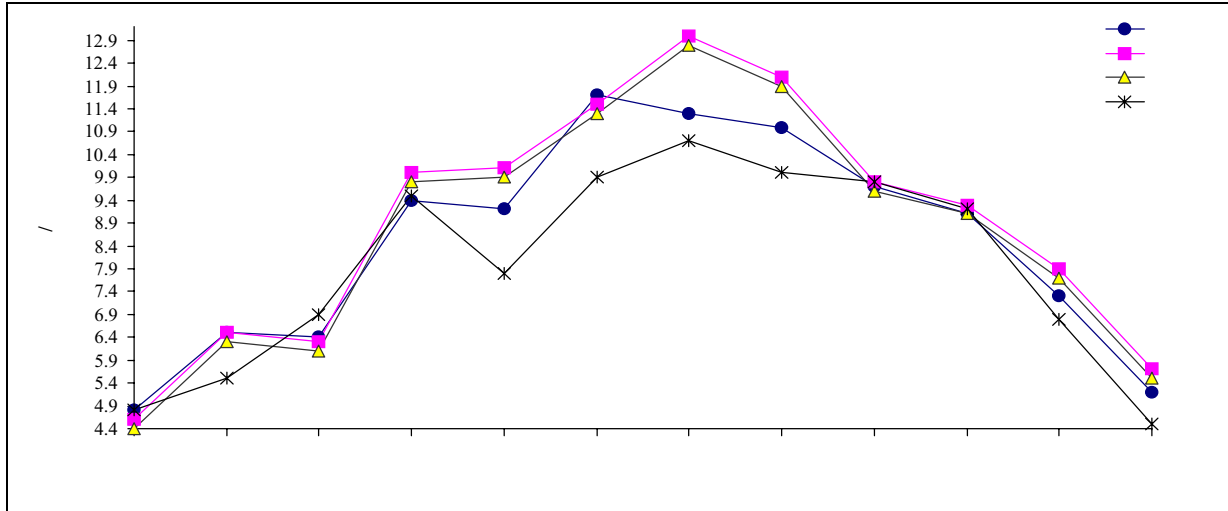
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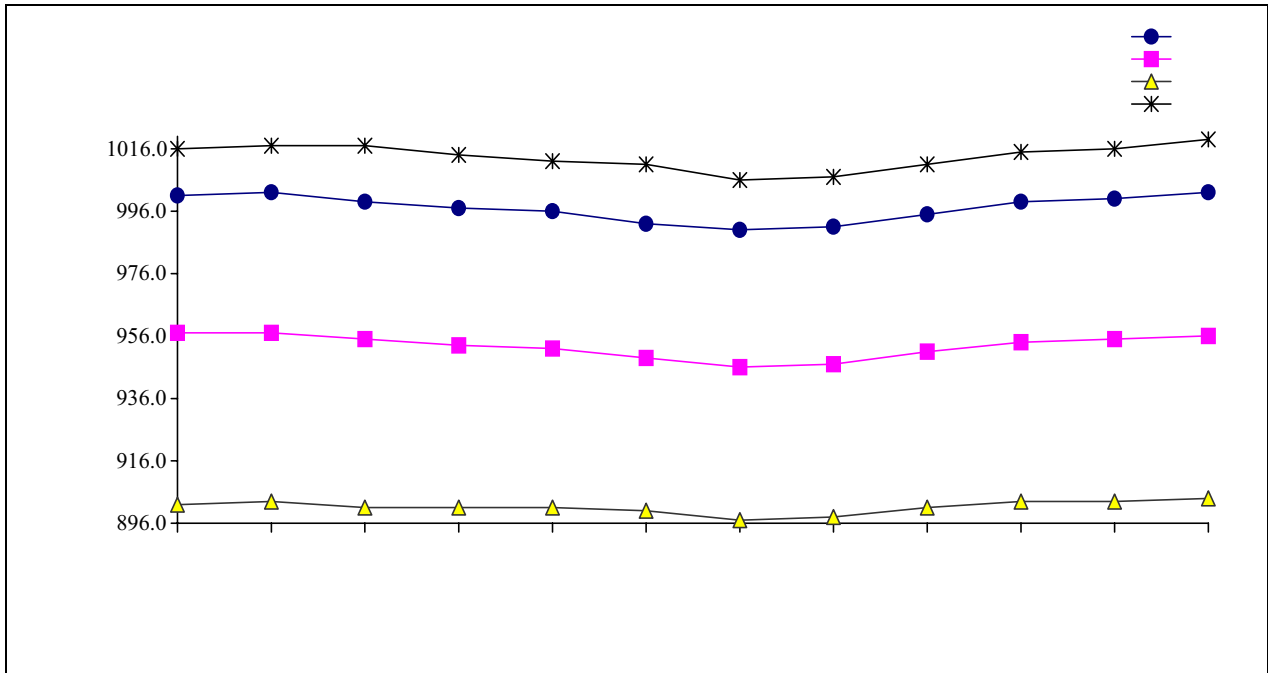
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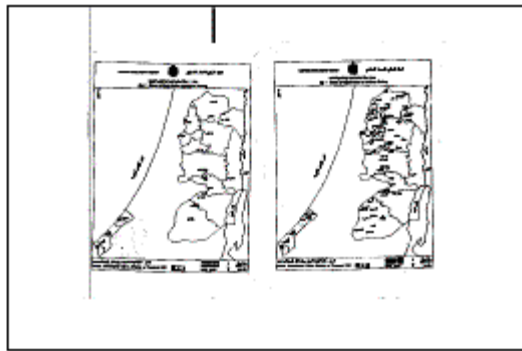
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Tables

1998 1997 *1995-1975

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Table 1: Monthly Mean of Air Temperatures in the Palestinian Territory by Month and Station Location, 1975-1995*, 1997, 1998

Degree

Unit in Centigrade

Month	Gaza			Hebron			Jerusalem			Jericho			Nablus			Tulkarm		
	1998	1997	1991-1988	1998	1997	1995-1975	1998	1997	1995-1975	1998	1997	1995-1989	1998	1997	1995-1975	1998	1997	1995-1975
January	14.2	15.2	13.1	7.2	9.4	7.0	7.6	11.0	8.8	13.9	14.4	14.8	10.2	11.8	10.1	13.0	14.2	12.6
February	14.9	13.0	15.8	8.4	5.4	7.4	9.1	7.1	10.3	15.2	12.4	13.5	11.2	8.8	11.4	13.8	12.2	13.4
March	15.8	14.4	17.1	9.0	7.8	9.9	9.8	9.4	12.6	16.8	15.0	15.6	11.6	11.3	13.4	14.5	13.1	15.0
April	20.2	18.2	21.4	16.4	12.2	14.9	17.4	14.0	16.1	23.5	20.6	21.4	18.2	15.8	16.8	20.2	17.4	18.6
May	21.7	21.1	21.4	19.4	20.2	18.3	20.6	21.5	19.9	27.2	27.1	26.5	21.2	21.2	20.0	23.0	21.8	21.3
June	24.4	24.4	22.8	21.0	21.2	20.7	22.4	22.8	22.4	29.6	29.8	28.5	23.1	23.4	21.9	25.3	25.0	23.8
July	26.5	26.6	25.0	24.1	22.6	22.1	25.6	24.2	23.4	31.3	31.0	30.6	25.8	25.2	23.4	27.6	27.4	25.8
August	28.4	26.2	25.8	25.2	21.2	22.3	26.6	22.6	23.5	33.2	30.0	31.2	26.8	23.8	23.5	29.2	27.1	26.2
September	26.4	25.0	24.3	22.8	20.0	21.1	24.1	21.4	22.4	30.4	28.8	29.4	25.2	22.4	22.7	27.1	25.4	25.4
October	24.0	23.0	23.1	20.0	19.4	18.2	21.2	21.1	20.4	26.6	25.5	26.0	22.4	21.5	20.7	24.5	23.6	22.8
November	20.8	20.0	19.8	16.8	15.2	13.6	17.8	16.8	15.6	22.3	20.6	20.4	19.1	16.8	16.5	21.0	19.4	18.6
December	16.8	16.1	17.8	11.0	10.2	9.5	11.7	11.8	10.5	17.4	16.0	14.5	13.8	12.2	11.0	17.0	15.2	14.2
Annual Average	21.2	20.3	20.6	16.8	15.4	15.4	17.8	17.0	17.2	24.0	22.6	22.7	19.1	17.9	17.6	21.4	20.2	19.8

*Data of Jericho refers to the period 1989-1995, and data of Gaza refers to the period 1988-1991

1991-1988

1995-1989

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1998 1997 *1995-1975

:2

Table 2: Mean of Maximum Air Temperatures in the Palestinian Territory by Month and Station Location, 1975-1995*, 1997, 1998

Degree

Unit in Centigrade

Month	Gaza			Hebron			Jerusalem			Jericho			Nablus			Tulkarm		
	1998	1997	1991-1988	1998	1997	1995-1975	1998	1997	1995-1975	1998	1997	1995-1989	1998	1997	1995-1975	1998	1997	1995-1975
January	18.0	18.9	19.8	9.6	12.2	10.0	11.1	13.3	11.4	19.2	20.4	22.3	13.2	15.0	13.0	17.9	19.9	17.5
February	18.4	16.8	24.6	11.8	8.4	10.6	13.4	9.6	13.5	21.4	18.9	19.1	14.6	13.3	14.8	18.6	17.3	18.8
March	19.6	18.1	24.5	12.9	11.1	13.7	14.6	12.2	16.4	23.3	20.7	20.2	15.4	15.6	17.2	19.7	18.6	20.8
April	24.7	22.1	31.5	20.8	16.6	19.5	22.6	17.9	20.4	31.1	28.1	28.6	23.2	21.4	21.3	26.4	24.5	25.3
May	24.8	24.3	28.4	24.2	24.5	23.4	26.0	25.7	24.6	34.6	35.7	33.7	26.5	26.4	24.8	28.8	28.3	28.5
June	27.1	27.5	28.2	26.2	26.1	25.7	28.2	27.2	27.2	37.4	37.4	36.1	28.2	28.3	26.6	30.6	31.4	30.2
July	29.8	29.7	29.2	28.9	27.4	27.0	30.9	28.5	28.1	39.3	38.4	38.6	30.7	29.9	27.8	33.5	33.0	31.2
August	31.9	29.3	29.6	30.2	26.1	27.3	32.2	27.3	28.3	40.2	36.7	39.1	32.1	28.1	27.8	33.9	31.7	31.8
September	30.0	28.3	28.8	27.1	24.8	26.0	29.0	25.9	27.1	37.5	35.0	37.1	29.8	27.3	27.0	32.6	30.9	31.3
October	27.6	26.5	29.9	24.2	23.4	22.4	26.0	24.6	24.5	34.1	32.3	33.1	27.3	26.3	25.2	30.0	29.7	29.3
November	24.2	24.0	26.8	20.4	17.8	17.2	22.1	19.0	18.9	28.8	26.6	27.2	23.5	20.6	19.8	26.0	24.2	24.7
December	20.8	19.5	25.3	14.1	12.5	12.7	15.7	13.6	13.2	23.0	21.3	19.6	17.1	15.3	13.8	21.5	20.0	19.2
Annual Average	24.7	23.8	27.2	20.9	19.2	19.6	22.6	20.4	21.1	30.8	29.3	29.6	23.5	22.3	21.6	26.6	25.8	25.7

*Data of Jericho refers to the period 1989-1995, and data of Gaza refers to the period 1988-1991

1991-1988

1995-1989

*

1998 1997 *1995-1975

:3

Table 3: Means of Minimum Air Temperatures in the Palestinian Territory by Month and Station Location, 1975-1995*, 1997, 1998

Degree

Unit in Centigrade

Month	Gaza			Hebron			Jerusalem			Jericho			Nablus			Tulkarm		
	1998	1997	1991-1988	1998	1997	1995-1975	1998	1997	1995-1975	1998	1997	1995-1989	1998	1997	1995-1975	1998	1997	1995-1975
January	10.3	11.4	6.4	4.7	6.5	4.0	4.2	8.6	6.1	8.6	8.5	7.4	7.1	8.5	7.2	8.4	8.4	7.7
February	11.4	9.1	6.9	5.1	2.4	4.1	4.8	4.6	7.1	8.9	5.9	7.8	7.8	4.4	8.0	9.1	7.1	7.9
March	11.9	10.7	9.6	5.1	4.4	6.1	5.0	6.6	8.8	10.4	9.2	10.0	7.7	7.0	9.6	9.3	7.5	9.1
April	15.8	14.3	11.2	11.9	7.8	10.2	12.1	10.0	11.7	15.9	13.1	14.1	13.3	10.3	12.3	14.4	10.3	11.8
May	18.6	17.8	14.5	14.7	15.8	13.2	15.2	17.3	15.1	19.7	18.4	18.4	16.0	16.1	15.1	17.2	15.0	14.1
June	21.6	21.2	17.5	15.8	16.3	15.7	16.5	18.5	17.5	21.7	22.2	20.8	18.0	18.5	17.2	20.0	18.6	17.4
July	23.2	23.5	20.8	19.3	17.9	17.1	20.2	20.0	18.7	23.3	23.6	22.6	21.0	20.5	19.0	21.8	21.9	20.3
August	25.0	23.2	21.9	20.1	16.4	17.2	21.1	18.0	18.7	26.2	23.2	23.3	21.6	19.5	19.1	24.6	21.4	20.6
September	22.7	21.6	19.8	18.4	15.1	16.2	19.2	17.0	17.7	23.3	22.6	21.7	20.6	17.5	18.4	21.6	19.9	19.5
October	20.4	19.5	16.2	15.7	15.5	13.9	16.3	17.5	16.2	19.1	18.7	18.9	17.4	16.7	16.2	19.0	17.5	16.3
November	17.4	16.0	12.8	13.1	12.5	9.9	13.4	14.6	12.3	15.8	14.5	13.6	14.6	13.0	13.1	16.0	14.7	12.4
December	12.7	12.7	10.2	7.9	7.8	6.3	7.7	9.9	7.8	11.7	10.7	9.4	10.4	9.2	8.2	12.5	10.5	9.2
Annual Average	17.6	16.8	14.0	12.7	11.5	11.2	13.0	13.6	13.1	17.1	15.9	15.7	14.6	13.4	13.6	16.2	14.4	13.9

*Data of Jericho refers to the period 1989-1995, and data of Gaza refers to the period 1988-1991

1991-1988

1995-1989

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1998-1967

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Table 4: Annual Rainfall in the Palestinian Territory by Station Location, 1967-1998

Unit in mm

غزة*	Jericho*	Salfit**	Azzoun**	Burqa**	Nablus*	Anabta**	Tulkarm*	Tubas**	Ya'bad**	Jenin*	Station	Year
410.5	106.8	-	288.8	-	-	273.4	461.0	-	484.2	406.0		1968-1967
435.3	150.1	-	804.6	-	-	901.5	1016.3	-	1068.1	608.0		1969-1968
189.1	62.5	-	546.2	-	-	681.7	632.4	320.8	691.8	482.0		1970-1969
436.1	158.0	-	619.9	542.4	603.0	507.7	564.4	351.3	635.1	371.0		1971-1970
436.9	227.2	-	609.4	630.4	620.0	565.8	610.7	504.3	625.0	341.0		1972-1971
373.7	96.0	985.8	351.6	750.2	406.0	-	430.0	288.0	391.4	517.0		1973-1972
543.9	258.9	725.1	557.6	1026.9	774.0	719.2	655.0	583.2	782.5	383.0		1974-1973
469.5	160.2	605.3	475.9	626.4	529.0	545.6	544.0	378.0	610.3	446.0		1975-1974
245.9	150.7	640.5	583.9	659.5	603.0	534.5	511.0	458.9	648.2	566.0		1976-1975
424.5	115.5	646.2	514.8	822.8	606.0	712.1	802.0	390.8	849.1	348.0		1977-1976
367.9	112.2	433.2	415.7	488.6	509.0	618.4	607.9	284.5	619.7	284.0		1978-1977
326.7	109.7	452.6	341.6	394.7	349.0	412.6	339.9	218.9	372.0	-		1979-1978
493.7	249.7	814.0	795.9	864.3	896.0	-	842.0	638.0	929.7	-		1980-1979
242.0	190.7	620.2	460.2	626.3	644.0	-	645.5	345.4	755.5	-		1981-1980
341.0	140.7	566.5	405.6	554.8	558.0	465.7	492.3	459.3	436.3	-		1982-1981
606.4	205.6	1063.5	759.1	826.5	1124.0	835.1	815.8	614.0	894.6	-		1983-1982
212.1	85.4	566.8	362.8	492.3	556.0	398.3	382.9	460.0	529.1	-		1984-1983
231.3	150.4	536.0	437.0	553.8	468.0	-	454.4	295.5	535.3	-		1985-1984
210.2	109.5	-	644.0	542.8	527.0	518.8	593.7	307.0	569.0	-		1986-1985
628.3	174.9	-	667.8	789.8	757.0	695.0	785.7	308.5	642.0	-		1987-1986
538.2	257.7	811.5	607.1	-	830.0	664.9	654.0	521.5	596.1	423.0		1988-1987
412.8	167.2	-	-	-	567.0	569.2	576.0	426.0	440.9	448.0		1989-1988
492.1	181.5	-	-	-	589.0	-	700.5	158.0	533.2	448.0		1990-1989
434.7	110.9	-	-	434.0	505.0	-	558.5	257.0	482.3	373.0		1991-1990
903.0	351.9	-	1217.3	1187.1	1388.0	-	1387.0	967.0	1312.3	1037.0		1992-1991
574.1	119.5	-	779.2	-	799.0	-	629.7	-	513.7	459.7		1993-1992
214.7	93.1	-	-	-	509.0	-	-	-	-	-		1994-1993
579.0	180.8	-	-	-	702.0	-	-	-	-	-		1995-1994
460.4	132.5	-	-	-	707.0	-	-	-	-	-		1996-1995
298.4	165.4	-	-	-	694.0	-	765.6	-	-	471.9		1997-1996
344.4	176.0	705.7	709.8	700.1	758.6	646.5	783.7	-	649.4	599.3		1998-1997
415.4	160.0	678.2	581.5	675.7	663.5	593.0	651.5	414.6	651.8	474.3	Annual Average	

Source:

* Meteorological Office, Ministry of Transport

** Palestinian Hydrology Group

(-): Data not available

: (-)

1998 1997 *1983-1969

:5

Table 5: Mean Relative Humidity in the West Bank by Month and Station Location, 1969-1983*, 1997, 1998

Month	Hebron			Jerusalem			Jericho			Nablus			Tulkarm			Meithalun		
	1998	1997	1983-1969	1998	1997	1992-1964**	1998	1997	1992-1969*	1998	1997	1983-1969	1998	1997	1983-1969	1998	1997	1983-1969
January	78	65	73	82	65	67	70	68	70	76	63	64	73	68	67	74	70	71
February	74	72	70	78	70	66	67	65	65	69	65	61	74	75	68	71	72	70
March	71	70	64	75	70	59	60	64	57	68	64	61	74	73	66	78	72	66
April	52	50	59	49	50	50	50	53	45	56	54	54	57	67	60	59	65	59
May	49	38	48	47	40	45	47	43	38	53	42	52	57	73	60	52	52	51
June	53	51	52	50	50	48	49	45	38	60	57	59	60	67	65	55	53	52
July	45	49	58	43	50	53	47	46	41	52	60	64	61	70	64	49	52	56
August	48	60	56	46	55	57	50	53	44	65	66	69	62	71	66	57	55	59
September	59	52	61	56	50	58	50	54	47	60	67	69	58	70	63	55	54	60
October	56	50	63	53	50	56	52	58	51	54	57	59	57	68	61	55	55	59
November	60	58	68	63	65	59	60	64	60	61	64	56	63	68	57	59	61	61
December	60	70	73	63	75	67	57	71	70	59	74	66	62	73	65	72	73	72
Annual Average	58	57	62	59	58	57	55	57	52	61	61	61	63	70	63	61	61	61

*Data of Jericho refers to the period 1969-1992, and data of Jerusalem refers to the period 1964-1992

1992-1964

2199-6919

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Source:

*Environmental profile for the West Bank, Jericho District. Applied Research Institute- Jerusalem

** Environmental profile for the West Bank, Jerusalem District. Applied Research Institute- Jerusalem

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1998 1997 1984-1973

:6

Table 6: Evaporation Quantity in the West Bank by Month and Station Location, 1973-1984, 1997, 1998

Unit mm

in

Month	Hebron			Jerusalem			Jericho			Nablus			Tulkarm			Meithalun		
	1998	1997	1984-1973	1998	1997	1992-1964**	1998	1997	1984-1973	1998	1997	1992-1970*	1998	1997	1984-1973	1998	1997	1984-1973
January	72.9	82.0	67.0	68.9	90.0	110.0	47.7	34.0	75.0	55.8	83.0	49.6	-	-	81.0	-	49.0	63.0
February	70.0	38.0	75.0	65.0	46.0	104.0	66.6	64.0	95.0	72.8	69.0	67.2	-	-	81.0	42.0	42.0	68.0
March	112.5	71.0	96.0	108.5	80.0	97.0	115.9	96.0	152.0	120.9	102.0	99.2	-	-	104.0	68.5	72.0	94.0
April	165.3	91.0	140.0	162.3	100.0	195.0	196.5	173.0	204.0	171.0	132.0	149.1	150.3	-	140.0	94.2	130.0	139.0
May	236.8	179.0	182.0	234.8	190.0	238.0	247.7	264.0	289.0	217.0	237.0	202.7	173.9	-	177.0	148.5	179.0	201.0
June	251.1	215.0	212.0	258.0	225.0	232.0	270.0	279.0	316.0	249.0	256.0	225.9	185.7	-	197.0	198.0	207.0	233.0
July	287.4	229.0	226.0	295.4	240.0	252.0	299.2	297.0	327.0	300.7	276.0	237.9	201.5	-	206.0	222.2	215.0	254.0
August	266.9	211.0	217.0	276.9	230.0	228.0	276.2	264.0	300.0	238.7	230.0	218.2	152.2	-	189.0	214.5	188.0	232.0
September	198.0	190.0	171.0	203.0	195.0	172.0	224.1	213.0	235.0	204.0	191.0	177.6	120.0	-	155.0	166.0	165.0	181.0
October	181.0	171.0	134.0	178.0	180.0	128.0	161.2	145.0	178.0	170.5	143.0	131.1	116.5	-	130.0	148.5	106.0	134.0
November	121.5	107.0	92.0	117.5	110.0	63.0	94.2	89.0	104.0	150.0	94.0	74.4	75.0	-	97.0	73.8	105.0	93.0
December	113.8	89.0	69.0	108.8	90.0	55.0	74.7	56.0	67.0	80.6	65.0	48.6	70.3	-	76.0	57.0	41.0	61.0
Total	2077.2	1673.0	1681.0	2077.1	1976.0	1874.0	2074.0	1974.0	2342.0	2031.0	1878.0	1681	1245.4	-	1633.0	1433.2	1499.0	1753.0

(-): Data not available

:(-)

Source:

*Environmental profile for the West Bank, Nablus District. Applied Research Institute- Jerusalem

** Environmental profile for the West Bank, Jerusalem District. Applied Research Institute- Jerusalem

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1998

:7

Table 7: Mean of Air Temperature in the Palestinian Territory by Month and Station Location, 1998

Unit in Centigrade Degree

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	14.2	7.8	7.2	7.6	13.9	10.2	13.0	9.6	12.2
February	14.9	8.8	8.4	9.1	15.2	11.2	13.8	10.2	12.8
March	15.8	9.0	9.0	9.8	16.8	11.6	14.5	11.3	14.5
April	20.2	21.8	16.4	17.4	23.5	18.2	20.2	17.1	20.1
May	21.7	19.7	19.4	20.6	27.2	21.2	23.0	20.6	23.8
June	24.4	21.6	21.0	22.4	29.6	23.1	25.3	24.0	25.9
July	26.5	23.4	24.1	25.6	31.3	25.8	27.6	26.2	28.1
August	28.4	24.8	25.2	26.6	33.2	26.8	29.2	28.0	30.2
September	26.4	23.0	22.8	24.1	30.4	25.2	27.1	25.1	28.2
October	24.0	-	20.0	21.2	26.6	22.4	24.5	21.0	24.8
November	20.8	-	16.8	17.8	22.3	19.1	21.0	17.8	21.1
December	16.8	-	11.0	11.7	17.4	13.8	17.0	13.1	16.6
Annual Average	21.2	17.8	16.8	17.8	24.0	19.1	21.4	18.6	21.5

(-): Data not available

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1998

:8

Table 8: Mean of Maximum Air Temperature in the Palestinian Territory by Month and Station Location, 1998

Unit in Centigrade Degree

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	18.0	11.2	9.6	11.1	19.2	13.2	17.6	14.2	16.1
February	18.4	13.0	11.8	13.4	21.4	14.6	18.6	15.6	17.2
March	19.6	13.9	12.9	14.6	23.3	15.4	19.7	17.1	18.9
April	24.7	23.1	20.8	22.6	31.1	23.2	26.4	24.3	25.8
May	24.8	26.4	24.2	26.0	34.6	26.5	28.8	28.3	29.4
June	27.1	29.0	26.2	28.2	37.4	28.2	30.6	30.5	30.9
July	29.8	30.9	28.9	30.9	39.3	30.7	33.5	33.1	33.3
August	31.9	32.8	30.2	32.2	40.2	32.1	33.9	34.5	34.9
September	30.0	29.6	27.1	29.0	37.5	29.8	32.6	32.3	33.3
October	27.6	-	24.2	26.0	34.1	27.3	30.0	28.5	30.4
November	24.2	-	20.4	22.1	28.8	23.5	26.0	24.9	26.5
December	20.8	-	14.1	15.7	23.0	17.1	21.5	18.0	21.5
Annual Average	24.7	23.3	20.9	22.6	30.8	23.5	26.6	25.1	26.5

(-): Data not available

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1998

:9

Table 9: Mean of Minimum Air Temperature in the Palestinian Territory by Month and Station Location, 1998

Unit in Centigrade Degree

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	10.3	4.5	4.7	4.2	8.6	7.1	8.4	4.9	8.3
February	11.4	4.6	5.1	4.8	8.9	7.8	9.1	4.7	8.5
March	11.9	4.1	5.1	5.0	10.4	7.7	9.3	5.5	10.1
April	15.8	20.5	11.9	12.1	15.9	13.3	14.4	9.9	14.4
May	18.6	13.0	14.7	15.2	19.7	16.0	17.2	12.9	18.2
June	21.6	14.1	15.8	16.5	21.7	18.0	20.0	17.4	20.9
July	23.2	15.9	19.3	20.2	23.3	21.0	21.8	19.2	22.9
August	25.0	16.8	20.1	21.1	26.2	21.6	24.6	21.5	25.5
September	22.7	16.4	18.4	19.2	23.3	20.6	21.6	17.9	23.0
October	20.4	-	15.7	16.3	19.1	17.4	19.0	13.5	19.2
November	17.4	-	13.1	13.4	15.8	14.6	16.0	10.7	15.7
December	12.7	-	7.9	7.7	11.7	10.4	12.5	8.2	11.6
Annual Average	17.6	12.2	12.7	13.0	17.1	14.6	16.2	12.2	16.5

(-): Data not available

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1998

:10

Table 10: Absolute Minimum Air Temperature in the Palestinian Territory by Month and Station Location, 1998

Unit in Centigrade Degree

Month	Station location								
	Gaza	Al Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	5.0	-0.5	-2.5	-3.0	3.4	0.0	3.0	1.0	2.0
February	8.6	2.0	1.0	0.6	4.4	2.0	6.0	-0.5	5.2
March	8.0	0.5	-2.0	-2.3	8.0	2.0	4.0	1.5	6.4
April	10.5	2.0	5.5	5.7	9.6	6.2	10.0	3.5	8.2
May	15.2	8.5	6.0	6.4	14.0	11.0	11.0	5.5	13.4
June	19.2	10.0	11.0	11.8	17.8	14.6	15.4	11.5	17.4
July	21.5	12.0	14.2	15.2	19.2	19.0	18.0	13.0	20.8
August	23.5	12.0	14.0	15.0	22.8	20.0	22.0	18.0	22.8
September	21.2	14.0	14.5	15.5	19.2	16.6	18.0	13.0	20.2
October	17.0	-	10.4	17.6	14.2	12.4	15.0	7.0	13.8
November	14.8	-	8.5	15.2	10.8	10.8	13.0	6.5	11.0
December	9.6	-	3.8	9.4	8.0	7.2	9.0	2.0	7.6

(-): Data not available

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1998

:11

Table 11: Absolute Maximum Air Temperature in the Palestinian Territory by Month and Station Location, 1998

Unit in Centigrade Degree

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	23.5	14.5	13.5	15.0	23.2	17.0	22.0	17.5	19.6
February	26.7	21.5	18.0	19.5	26.2	20.0	25.0	21.5	21.6
March	28.5	22.5	17.5	19.0	28.6	24.6	28.0	25.0	26.8
April	40.4	34.5	33.0	34.8	41.4	36.0	38.0	36.0	38.0
May	36.8	34.0	32.0	33.6	42.2	36.0	38.8	37.0	37.8
June	29.8	34.0	32.0	33.6	43.0	33.2	36.4	35.5	36.8
July	32.8	35.5	35.0	37.0	44.0	33.0	37.0	36.5	36.8
August	33.2	37.5	34.4	36.4	46.8	37.0	38.0	40.0	39.4
September	32.0	36.0	35.2	37.2	45.2	37.5	40.4	39.5	38.4
October	39.0	-	32.0	33.8	41.6	34.9	40.0	36.0	38.2
November	27.5	-	27.8	29.4	33.4	28.5	31.6	30.0	31.0
December	31.4	-	24.5	26.0	27.2	26.5	30.0	25.5	27.4

(-): Data not available

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1998

:12

Table 12: Rainfall Quantity in the Palestinian Territory by Month and Station Location, 1998

Unit in mm

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	86.2	115.4	114.0	106.0	33.8	148.2	199.3	170.1	115.3
February	38.1	74.2	56.0	35.5	17.3	91.9	58.3	93.0	73.0
March	74.6	116.4	115.7	136.0	37.7	244.5	190.1	189.8	144.1
April	0.0	4.3	0.0	1.5	0.0	5.0	6.4	13.9	16.7
May	2.3	2.2	2.0	0.0	0.2	7.8	5.3	35.7	4.0
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	0.0	0.0	1.6	5.0	1.8	0.0
October	9.0	-	7.8	1.4	0.0	1.6	3.5	0.0	0.0
November	6.1	-	16.0	5.0	0.0	1.7	3.0	0.9	0.0
December	24.8	-	16.7	16.8	1.1	54.5	60.4	54.1	34.9
Total	241.1	312.5	328.2	302.2	90.1	556.8	531.3	559.3	388.0

(-): Data not available

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1998

:13

Table 13: Number of Rainfall Days in the Palestinian Territory by Month and Station Location, 1998

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	10	9	11	8	12	18	17	19	14
February	7	8	9	8	6	10	8	9	8
March	7	11	12	8	12	14	13	12	14
April	0	3	0	1	0	3	4	2	2
May	2	2	2	0	1	7	2	2	3
June	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0
September	0	0	0	0	0	2	3	2	0
October	1	-	1	1	0	2	3	0	0
November	2	-	1	1	0	3	2	1	0
December	5	-	4	5	1	9	10	7	8
Total	34	33	40	32	32	68	62	54	49

(-): Data not available

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1998

:14

Table 14: Maximum Daily Rainfall in the Palestinian Territory by Month and Station Location, 1998

Unit in mm

Month	Station location								
	Gaza	Al' Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	30.0	40.0	31.0	35.5	13.7	42.3	69.0	40.0	24.0
February	21.0	21.2	16.4	9.2	4.8	32.6	23.5	27.1	18.7
March	25.9	43.6	28.4	66.8	21.1	76.2	55.5	45.6	31.8
April	0.0	2.3	0.0	1.5	0.0	3.8	2.7	12.1	15.4
May	2.0	1.2	1.4	0.0	0.2	3.5	3.0	34.2	2.0
June	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	0.0	0.0	0.9	3.0	1.0	0.0
October	9.0	-	7.8	1.4	0.0	1.6	3.0	0.0	0.0
November	6.1	-	16.0	5.0	0.0	1.5	2.2	0.9	0.0
December	24.8	-	6.3	10.7	1.1	14.9	16.9	16.5	9.9

(-): Data not available

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1998

:15

Table 15: Mean Relative Humidity in the Palestinian Territory by Month and Station Location, 1998

Month	Station location								
	Gaza	Al Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	66	-	78	82	70	76	73	74	78
February	69	-	74	78	67	69	74	71	73
March	64	-	71	75	60	68	74	78	67
April	67	-	52	49	50	56	57	59	60
May	73	-	49	47	47	53	57	52	54
June	77	-	53	50	49	60	60	55	59
July	76	-	45	43	47	52	61	49	59
August	75	-	48	46	50	65	62	57	64
September	65	-	59	56	50	60	58	55	57
October	66	-	56	53	52	54	57	55	55
November	72	-	60	63	60	61	63	59	64
December	62	-	60	63	57	59	62	72	65
Annual Average	69.3	-	58.8	58.8	54.9	61.1	63.2	61.3	62.9

(-): Data not available

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1998

:61

Table 16: Absolute Maximum Relative Humidity in the Palestinian Territory by Month and Station Location, 1998

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	81	-	100	-	97	91	85	89	91
February	77	-	99	-	98	92	87	91	88
March	76	-	100	-	96	91	89	88	90
April	81	-	90	-	93	88	83	91	82
May	87	-	88	-	87	90	88	91	81
June	85	-	81	-	84	74	68	67	70
July	83	-	75	-	82	72	79	66	68
August	83	-	78	-	82	74	72	69	69
September	78	-	83	-	84	76	69	68	67
October	77	-	90	-	96	77	66	75	69
November	89	-	92	-	93	79	72	76	76
December	80	-	98	-	96	87	86	90	88

(-): Data not available

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1998

:17

Table 17: Absolute Minimum Relative Humidity in the Palestinian Territory by Month and Station Location, 1998

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	51	-	40	-	25	50	45	52	64
February	56	-	38	-	21	52	51	49	54
March	31	-	33	-	20	34	42	32	45
April	26	-	20	-	11	16	22	39	30
May	53	-	21	-	10	18	35	21	26
June	59	-	26	-	16	28	37	35	23
July	71	-	18	-	11	24	43	31	43
August	68	-	21	-	18	40	56	36	48
September	56	-	16	-	10	15	34	27	32
October	28	-	14	-	13	79	28	9	20
November	47	-	32	-	25	34	36	33	37
December	42	-	26	-	25	30	34	40	38

(-): Data not available

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1998

:18

Table 18: Evaporation Quantity in the Palestinian Territory by Month and Station Location, 1998

Unit in mm

Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	80.0	-	72.9	68.9	47.7	55.8	-	-	54.5
February	77.0	-	70.0	65.0	66.6	72.8	-	42.0	72.8
March	117.8	-	112.5	108.5	115.9	120.9	-	68.5	111.3
April	156.0	-	165.3	162.3	196.5	171.0	150.3	94.2	163.2
May	178.6	-	236.8	234.8	247.7	217.0	173.9	148.5	226.3
June	190.8	-	251.1	258.0	270.0	249.0	185.7	198.0	250.8
July	207.7	-	287.4	295.4	299.2	300.7	201.5	222.2	287.1
August	182.9	-	266.9	276.9	276.2	238.7	152.2	214.5	260.4
September	165.0	-	198.0	203.0	224.1	204.0	120.0	166.0	221.7
October	127.1	-	181.0	178.0	161.2	170.5	116.5	148.5	170.2
November	96.0	-	121.5	117.5	94.2	105.0	75.0	73.8	104.4
December	93.0	-	113.8	108.8	74.7	80.6	70.3	57.0	83.7
Total	1671.9	-	2077.2	2077.1	2074.0	1986.0	1245.4	1433.2	2006.4

(-): Data not available

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1998

:19

Table 19: Mean Wind Speed in the Palestinian Territory by Month and Station Location, 1998

Unit in Km / hour

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Month	Station location								
	Gaza	Al'Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	12.1	-	6.9	6.8	2.1	5.1	3.9	3.5	3.2
February	12.1	-	4.4	4.1	2.8	4.9	3.9	2.5	3.4
March	17.1	-	4.3	4.2	4.1	5.9	3.9	3.8	4.5
April	14.3	-	3.9	3.8	4.2	5.6	3.6	3.4	3.6
May	12.0	-	3.5	3.4	4.5	6.0	3.4	3.2	4.3
June	10.6	-	3.9	3.7	4.5	6.7	3.6	3.2	5.0
July	7.0	-	4.2	4.0	4.3	7.0	3.7	3.0	5.6
August	5.0	-	6.9	6.8	3.9	6.6	3.0	4.5	4.9
September	7.7	-	6.6	6.4	3.4	5.8	3.1	2.4	4.0
October	6.4	-	5.7	5.7	2.4	4.7	3.0	2.9	3.1
November	7.0	-	5.4	5.3	1.7	4.1	3.5	2.6	2.7
December	10.0	-	6.6	6.4	2.7	3.9	4.0	2.6	3.5
Annual Average	10.1	-	5.2	5.1	3.4	5.5	3.6	3.1	4.0

(-): Data not available

:(-)

1998

:20

Table 20: Mean Sunshine Duration for Some Stations in the Palestinian Territory by Month and Station Location, 1998

Unit in hour / day

Month	Station location								
	Gaza	Al Arrub	Hebron	Jerusalem	Jericho	Nablus	Tulkarm	Meithaloun	Jenin
January	4.8	-	4.4	4.6	4.8	-	-	-	-
February	5.5	-	6.3	6.5	6.5	-	-	-	-
March	6.9	-	6.1	6.3	6.4	-	-	-	-
April	9.5	-	9.8	10.0	9.4	-	-	-	-
May	7.8	-	9.9	10.1	9.2	-	-	-	-
June	9.9	-	11.3	11.5	11.7	-	-	-	-
July	10.7	-	12.8	13.0	11.3	-	-	-	-
August	10.0	-	11.9	12.1	11.0	-	-	-	-
September	9.8	-	9.6	9.8	9.7	-	-	-	-
October	9.2	-	9.1	9.3	9.1	-	-	-	-
November	6.8	-	7.7	7.9	7.3	-	-	-	-
December	4.5	-	5.5	5.7	5.2	-	-	-	-
Annual Average	7.9	-	8.7	8.9	8.5	-	-	-	-

(-): Data not available

:(-)

1998

Table 21: Mean Atmospheric Pressure for Some Stations in Palestinian Territory by Month and Station Location, 1998

Unit in mbar

Month	Station location								
	Gaza	Arroub	Hebron	Jerusalem	Jericho	Nablus	Tulkrm	Maythaloun	Jenin
January	1016	-	902	-	-	957	-	-	1001
February	1017	-	903	-	-	957	-	-	1002
March	1017	-	901	-	-	955	-	-	999
April	1014	-	901	-	-	953	-	-	997
May	1012	-	901	-	-	952	-	-	996
June	1011	-	900	-	-	949	-	-	992
July	1006	-	897	-	-	946	-	-	990
August	1007	-	898	-	-	947	-	-	991
September	1011	-	901	-	-	951	-	-	995
October	1015	-	903	-	-	954	-	-	999
November	1016	-	903	-	-	955	-	-	1000
December	1019	-	904	-	-	956	-	-	1002

(-): Data not Available

:(-)



Palestinian Central Bureau of Statistics

Meteorological Conditions in the Palestinian Territory Annual Report 1998

October, 1999

PAGE NUMBERS OF ENGLISH TEXT ARE PRINTED IN SQUARE BRACKETS.
TABLES ARE PRINTED IN THE ARABIC ORDER (FROM RIGHT TO LEFT)

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Unofficial Translation

Unofficial Translation

Presidential Decree No. (19/1999)

On the Expansion of PCBS' Mandate and Scope of Operation

**The Chairman of the Executive Committee of the Palestine Liberation Organization,
President of the Palestinian National Authority,**

Upon reviewing the Statistics Law No. (31/1947) which is effective in Gaza Governorates, the Statistics Law No. (24/1950) which is effective in the West Bank Governorates, the Presidential Decree No. (163/1994) on the establishment of the Palestinian Bureau of Statistics and the Presidential Decree No. (4/1995) on the transformation of the Palestinian Bureau of Statistics into the Palestinian Central Bureau of Statistics,

We decree the following:

Article (1)

[... *This article has to do with the changing the title of PCBS as stated in Arabic, The English title is the same. The change is effective as of May 4th, 1999*]

Article (2)

The Palestinian Central Bureau of Statistics is requested to compile, tabulate, and disseminate statistics on *all* Palestinians wherever they reside.

Article (3)

The Palestinian Central Bureau of Statistics shall issue an annual statistical yearbook for Palestinian official statistics as of May 4th 1999.

Article (4)

All concerned parties, each in their respective field, shall enforce this decree as of the date of issue and publication in the official gazette.

Issued in Gaza City on June 24th 1999.

**Yaser Arafat
The President of the Executive Committee
of the Palestine Liberation Organization
President of the Palestinian National Authority**

Acknowledgment

The Palestinian Central Bureau of Statistics (PCBS) expresses its gratitude to the Palestinian Meteorological Office in the Ministry of Transport for their full cooperation in providing the data.

Financial and technical support for the Program of Environmental Statistics, is being provided by the Government of Norway through the Norwegian Agency for Development and Cooperation (NORAD). PCBS extends special thanks to the Government of Norway and NORAD for this support.

Preface

Meteorological statistics form one of the most important parts of the environmental statistics. In addition to its importance for studying and providing data on climatic changes, there is a strong relationship with the statistics of air quality and its pollution, energy statistics and water statistics. This implies availabilizing precise and comprehensive data for the climatic conditions in the Palestinian Territory.

PCBS established a special program for environment statistics, that aims at building and updating a comprehensive and accurate statistical database about all environmental subjects. This program aims to provide statistical data as a tool to control the environmental status in the Palestinian Territory.

This report is one of a series of expected reports to be published by the PCBS on the environment according to the Submaster Plan for the Environment Statistics Department. This report presents the most important indicators of meteorology provided by the Meteorological Office at the Ministry of Transport.

This report concentrates on the variables of rainfall, temperature, relative humidity, solar radiation, wind, pressure and the amount of evaporation.

PCBS hopes that the findings of this report will contribute to improve the environmental status and stop the random depletion of natural resources, as well as help the Palestinian policy-planner and decision-makers in development and planning processes.

October, 1999

**Hasan Abu-Libdeh, Ph.D.
President**

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Summary

1. Introduction:

This report provides statistical data on the main meteorological indicators in the Palestinian Territory, based on the administrative records from the Palestinian Ministry of Transport. It provides basic statistical aspects of meteorology, including rainfall, temperature, relative humidity, wind, evaporation solar radiation and pressure. A special questionnaire was designed to collect the data from the meteorological stations through the Ministry of Transport. The questionnaire covered the following items:

1. Rainfall: quantities and rainfall days.
2. Temperature: mean, maximum, minimum and absolute values.
3. Relative humidity: mean and absolute values.
4. Total amount of evaporation, wind speed, sunshine duration and pressure.

2. Concepts and Definitions:

Atmospheric Pressure (Barometric Pressure): It is defined as the weight of the air column laying on unit area at any point on the earth surface, measured in dyne/ cm² or Newton /m². Millibar (bar: pressure of 10⁶dyne/ cm²) is the common unit. It is measured by using barometer or barograph instruments. At sea level, the atmospheric pressure is 76 cm Hg or 1013.25 millibars.

Climate: Conditions of the atmosphere at a particular location (microclimate) or region over a long period of time. It is the long –term summation of atmospheric elements- such as solar radiation, temperature, humidity, precipitation type (frequency and amount), atmospheric pressure, and wind (speed and direction), and their variation.

Climatological Statistics: Statistics dealing with long – term weather conditions.

Evaporation: Transformation of liquid water to invisible gas, is known as water vapor by the effect of heat and the process is called evaporation. The rate of evaporation is defined as the size of liquid water that is evaporated from a unit area per unit time. It is expressed as the depth of water in (mm) that would be potentially lost during the time period (24 hour) from the total area.

Rain: Water falling from the atmosphere and deposited on land or water surfaces.

mm "Rain " 1 liter of water falling on 1 m² area.

Rain day: The day in which the quantity of rain is 0.01 inch or more.

Rain Season: The period from September in one year to May in the second year.

Relative Humidity: The percentage of the quantity of water vapor in the atmosphere to the quantity of vapor needed for saturated state.

Solar Radiation: The energy radiated from the sun to the earth surface. It is responsible for all climatic changes in the atmosphere. The intensity of radiation is measured by the actinometer and sunshine duration is measured by the sunshine recorder instrument (Kampel Stock).

Temperature: The degree of hotness or coldness of body or an environment. The temperature is measured by the thermometer; the unit is either Celsius or Fahrenheit.

Weather: Day-to-day or sometimes even instantaneous changes of atmospheric conditions over a given place or area. In contrast, climate encompasses the statistical ensemble of all weather conditions during along period of time over that place or area. Atmospheric conditions are measured by the meteorological parameters of air temperature, barometric pressure, wind velocity, humidity, clouds and precipitation.

Wind: The vertical movement of air between two places with different atmospheric pressures.

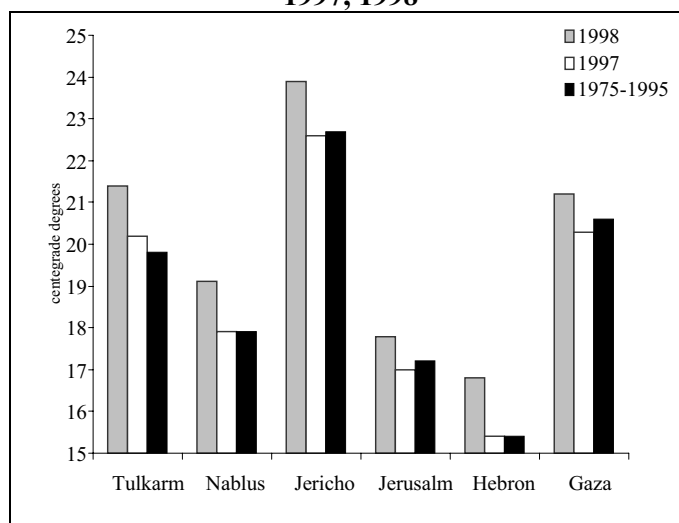
3. Main Findings:

This section presents the main findings of report, including the main indicators of the meteorological reality in the Palestinian Territory.

3.1 Temperature

The main findings of the time series indicate that the annual mean of air temperature over the period 1975-1995 is between 15.4 centigrade degrees in Hebron station, and 22.7 in Jericho station (1989-1995), while it is 20.6 in Gaza station (1988-1991). In 1997 the annual mean of air temperature is between 15.4 centigrade degrees in Hebron station and 22.6 in Jericho station. While the annual mean for 1998 ranges between 16.8 centigrade degrees in Hebron station and 24.0 in Jericho station.

Figure 1: Annual Mean of Air Temperature in the Palestinian Territory by Station Location, 1975-1995, 1997, 1998

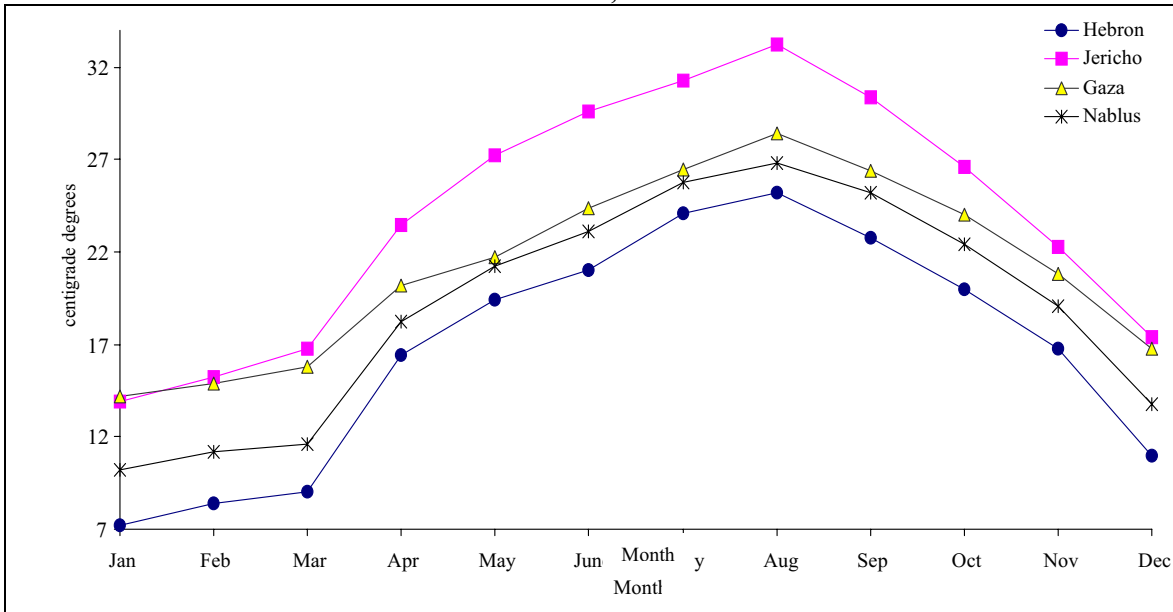


Data of Jericho refers to the period 1989-1995, and Gaza for the period 1988-1991

For the year 1998, the main findings indicate that January was the coldest month of the year, in which the lowest recorded monthly mean was 7.2 centigrade degrees in Hebron station. And

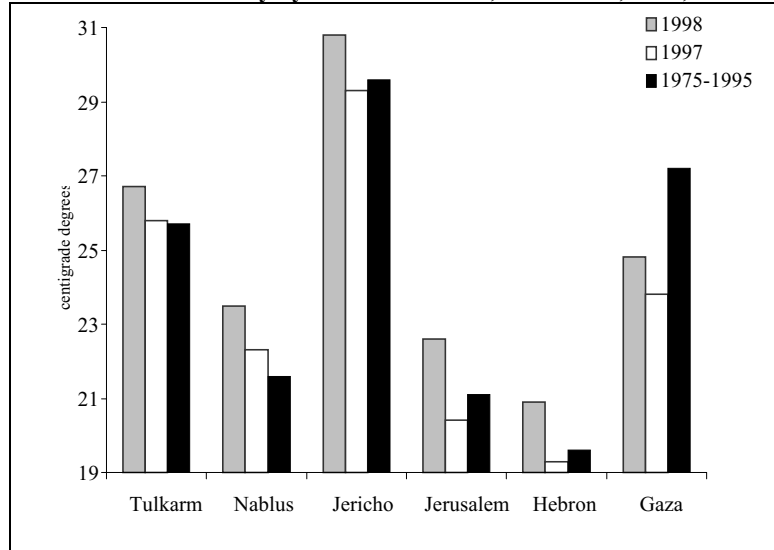
August was the hottest month of the year, in which the highest recorded monthly mean was 33.2 centigrade degrees in Jericho station.

Figure 2: Mean of Air Temperature in the Palestinian Territory by Month and Station Location, 1998



The main findings of the time series indicate that the annual mean of maximum air temperature over the period 1975-1995 is between 19.6 centigrade degrees in Hebron station, and 29.6 in Jericho station (1989-1995) while it is 27.2 in Gaza station (1988-1991). In 1997 the annual mean of maximum air temperature ranges between 19.2 centigrade degrees in Hebron station and 29.3 in Jericho station. While the annual mean reaches 20.9 centigrade degrees in Hebron station and 30.8 in Jericho station in 1998.

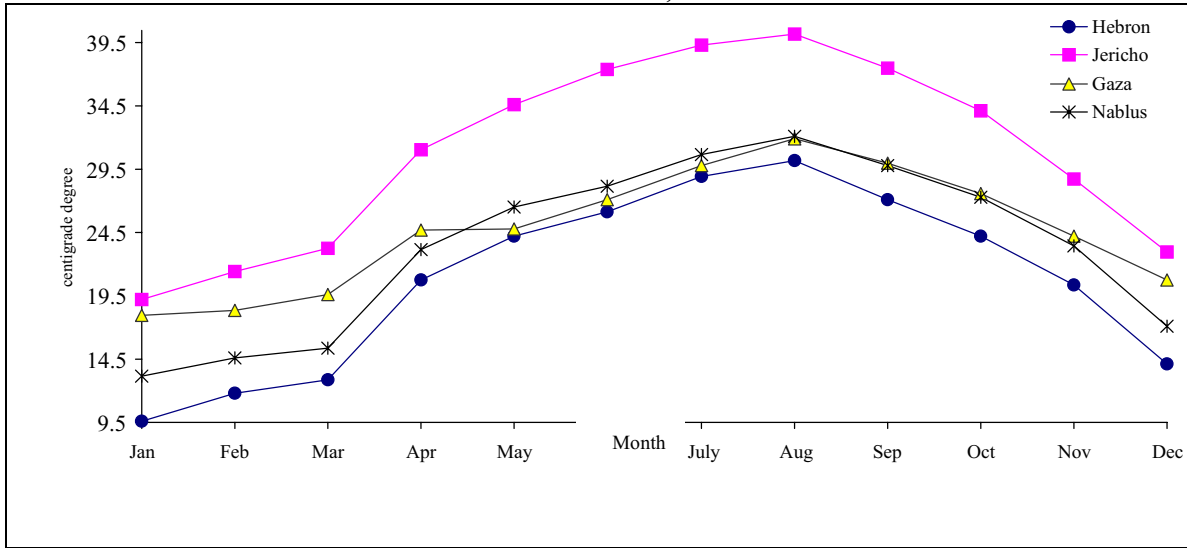
Figure 3: Annual Mean of Maximum Air Temperature in the Palestinian Territory by Station Location, 1975-1995, 1997, 1998



Data of Jericho refers to the period 1989-1995, and Gaza for the period 1988-1991

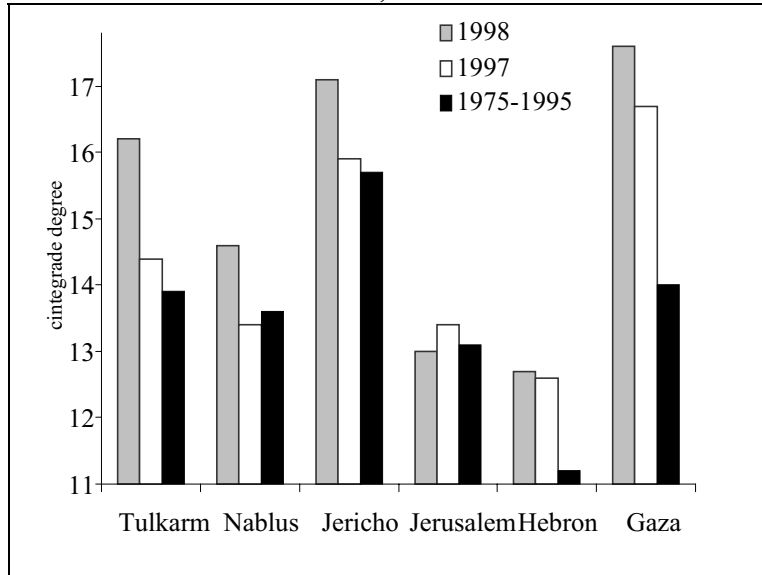
The data of 1998 indicates that the lowest value for the monthly mean of maximum air temperature was 9.6 centigrade degrees in Hebron station at January, while the highest value for the monthly mean of maximum air temperature was 40.2 centigrade degrees in Jericho station at August.

Figure 4: Mean of Maximum Air Temperature in the Palestinian Territory by Month and Station Location, 1998



The main findings of the time series indicate that the annual mean of minimum air temperature over the period 1975-1995 is between 11.2 centigrade degrees in Hebron station and 15.7 in Jericho station (1989-1995), and it is 14.0 in Gaza station (1988-1991). In 1997, the annual mean of minimum air temperature is between 11.5 centigrade degrees in Hebron station and 15.9 in Jericho station, and it is 16.8 in Gaza station. While the annual mean of minimum air temperature ranges between 12.7 centigrade degrees in Hebron station and 17.1 in Jericho station and it is 17.6 in Gaza station in 1998.

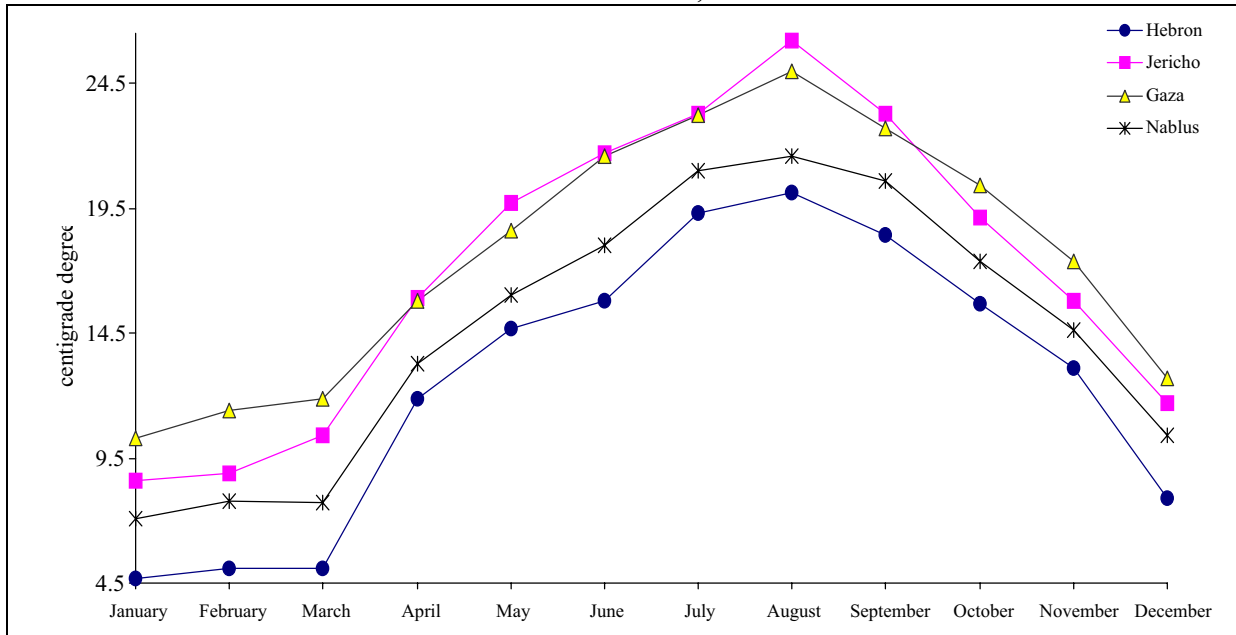
Figure 5: Annual Mean of Minimum Air Temperature in the Palestinian Territory by Station Location, 1975-1995, 1997, 1998



Data of Jericho refers to the period 1989-1995, and Gaza for the period 1988-1991

The data of 1998 indicates that the lowest monthly mean of minimum air temperature was 4.1 centigrade degrees in Al'Arrub station at March, but the highest monthly mean of minimum air temperature was 26.2 centigrade degrees in Jericho station at August.

Figure 6: Mean of Minimum Air Temperature in the Palestinian Territory by Month and Station Location, 1998

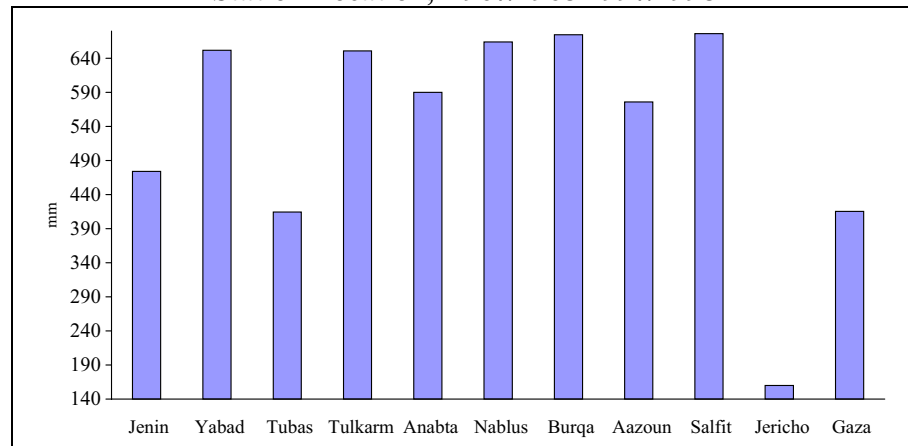


For absolute minimum air temperature in 1998, the lowest value was -3 centigrade degrees in Jerusalem station at January, but the highest value of absolute maximum air temperature was 46.8 in Jericho station at August.

3.2 Rainfall

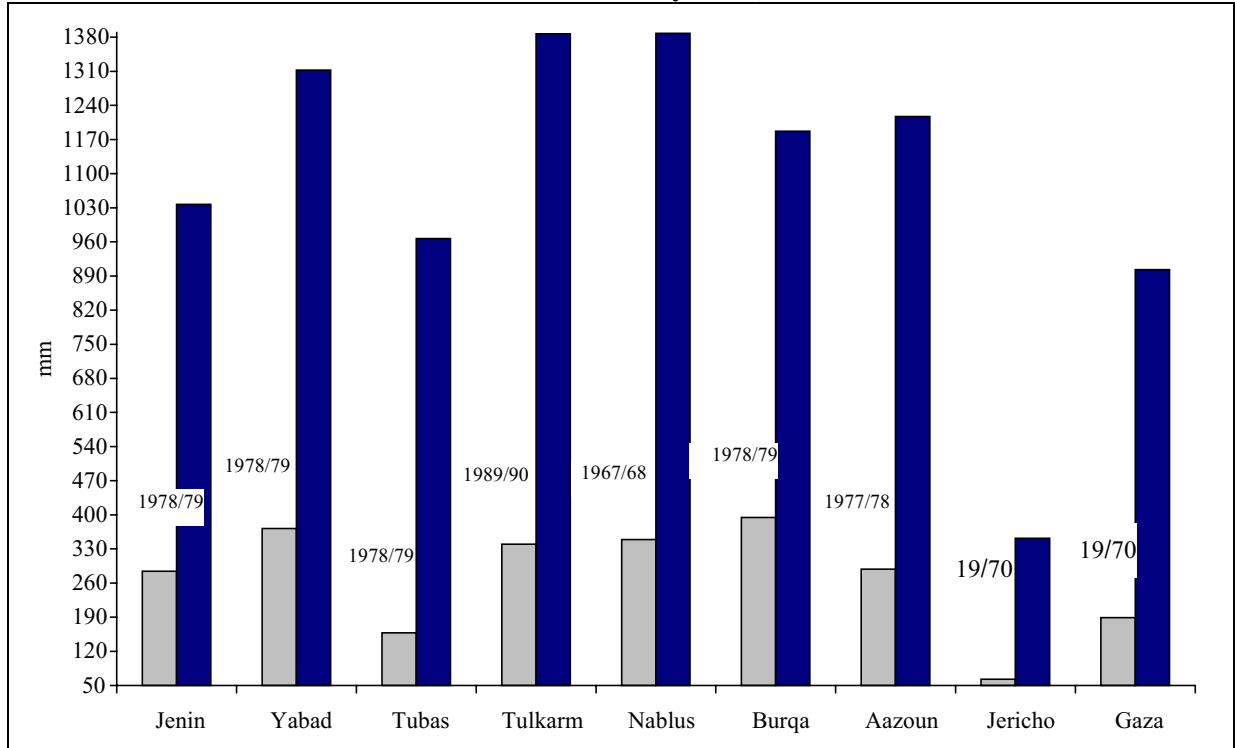
The main findings of the time series indicate that the annual mean of rainfall was between 160 mm in Jericho station, and 678 mm in Salfit station.

Figure 7: Annual Mean of Rainfall in the Palestinian Territory by Station Location, 1967/1968-1997/1998



Results show (Figure 8) that the rainfall year 1991/1992 has the highest quantity rainfall throughout the past thirty years, the quantity of rainfall ranges between 352 mm in Jericho station with an increase of 192 mm over the normal average, and 1388 mm in Nablus station with an increase of 720 mm over the normal average. It is clear from the results that for most of the stations the rainfall year 1978/1979 has the lowest quantity of rainfall throughout the past thirty years.

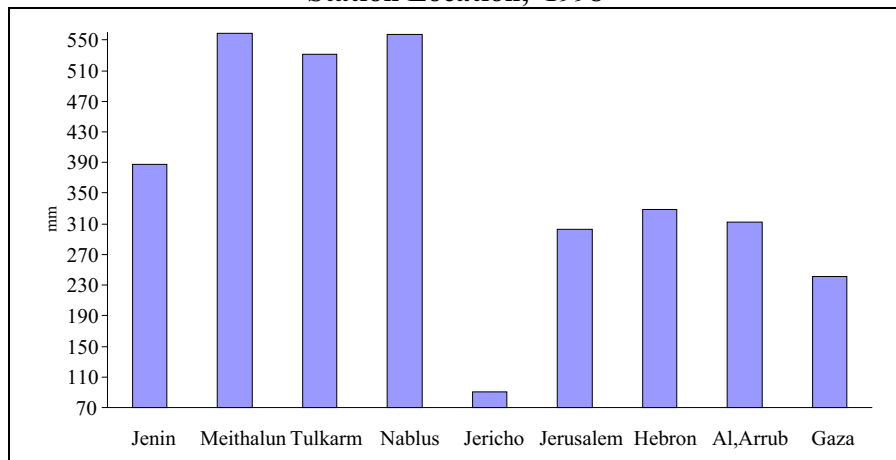
Figure 8: Minimum and Maximum* Quantity of Rainfall in the Palestinian Territory by Station Location and Rainy Year, 1967-1998



* The data of black columns refers to the rainy year 1991\1992

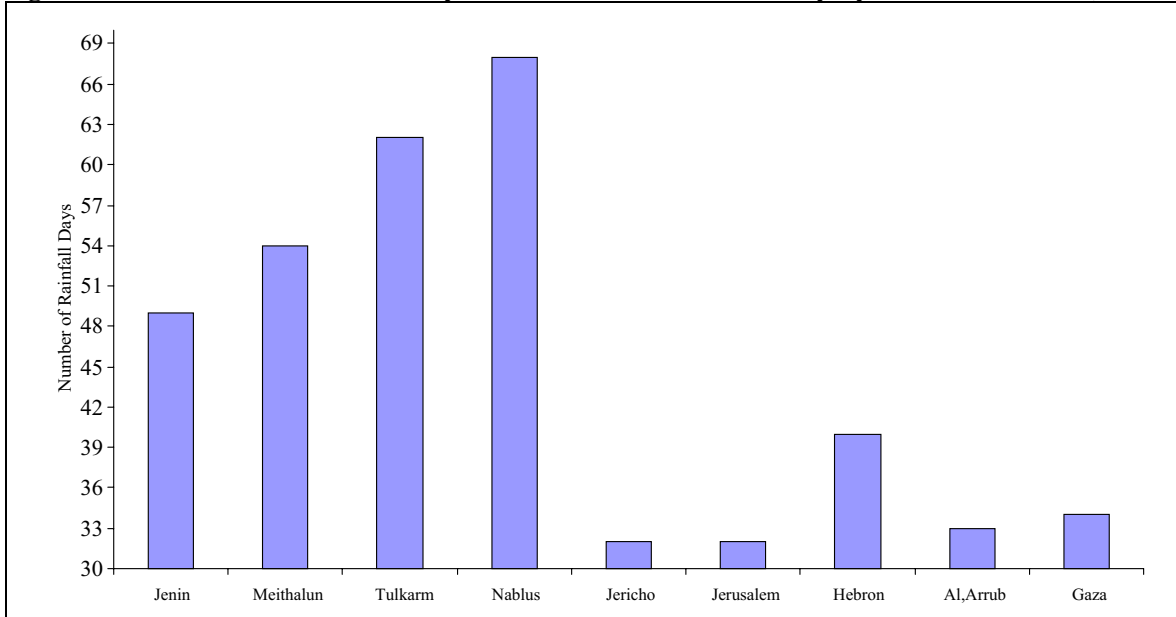
The data of 1998 indicates that March has the highest rainfall quantity, while the quantity of rainfall decreased in September. As in the summer months, the summer of 1998 has no rainfall. The quantities of rainfall ranges between 559 mm in Meithalun station and 90 mm in Jericho station.

Figure 9: Quantity of Annual Rainfall in the Palestinian Territory by Station Location, 1998



There is variation in the number of rainfall days in the stations, the highest number of rainfall days was 68 days in Nablus station. And the highest daily rainfall quantity was 76.2 mm in the same station.

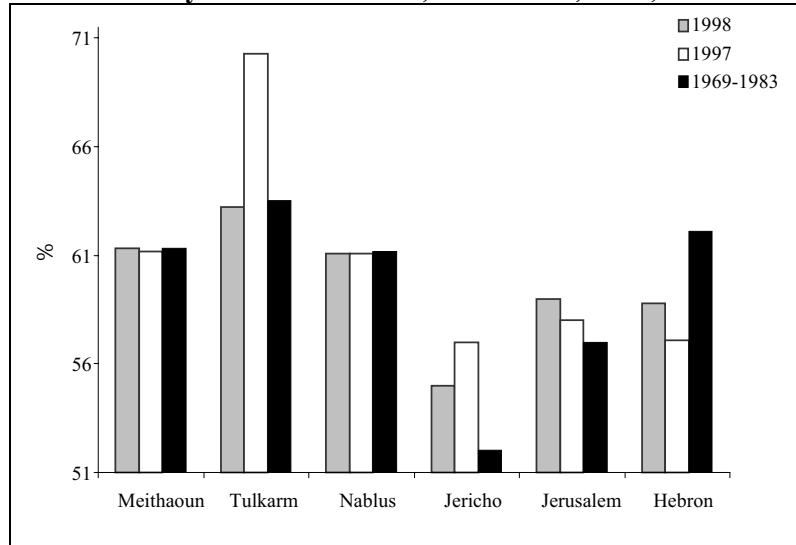
Figure 10: Number of Rainfall Days in the Palestinian Territory by Station Location, 1998



3.3 Relative Humidity

The main findings of the time series indicate that the annual mean of relative humidity over the period 1969-1983 was 61% in Nablus and Meithalun stations, while it approaches 63% in Tulkarm station. In 1997 the annual mean of relative humidity ranges between 57% in Hebron station and 70% in Tulkarm Station. While in 1998, the annual mean of relative humidity was between 54% in Jericho station and 63% in Tulkarm station.

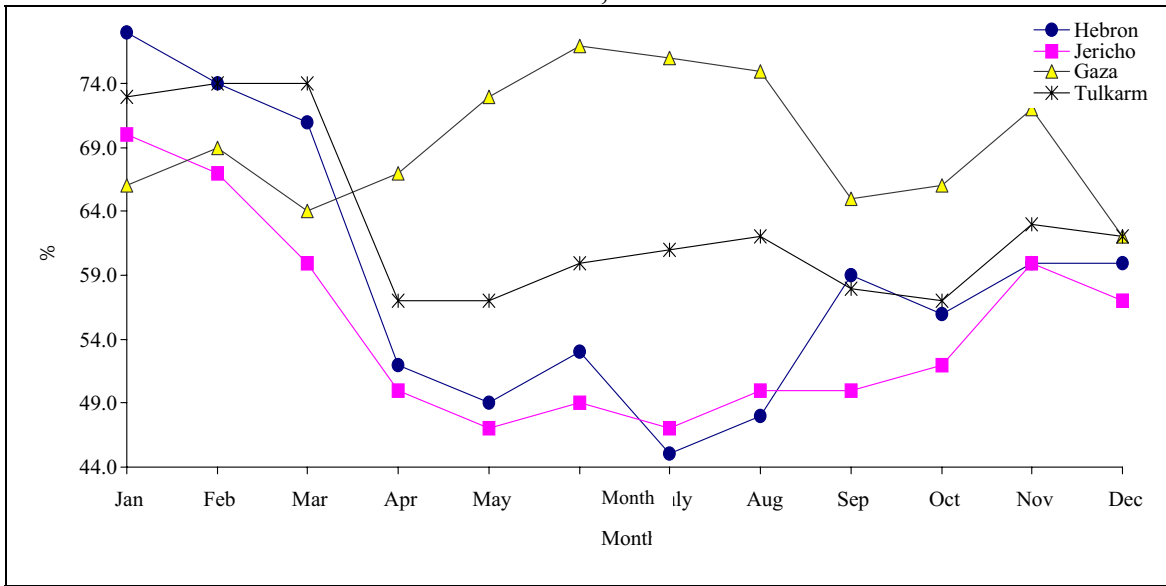
Figure 11: Annual Mean of Relative Humidity in the West Bank by Station Location, 1969-1983, 1997, 1998



Data of Jericho refers to the period 1969-1992, and Jerusalem for the period 1964-1992

The data of 1998 (Figure 12) indicates that the annual mean of relative humidity decreased in July to 54%, and increased in January to 74%. For the extreme maximum relative humidity, the highest value was 100% and registered for January and March in Hebron station, while the lowest value of the extreme minimum relative humidity was 11% in Jericho station in April and July.

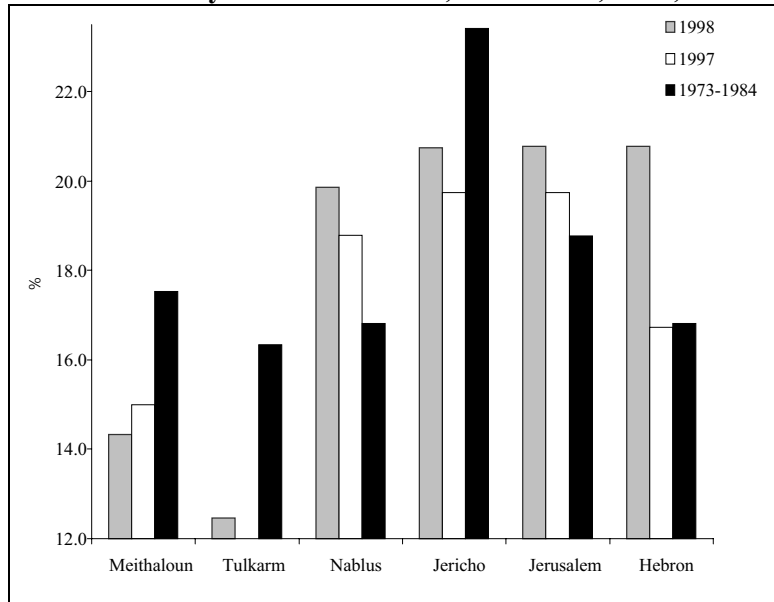
Figure 12: Mean of Relative Humidity in the Palestinian Territory by Month for some Stations, 1998



3.4 Evaporation

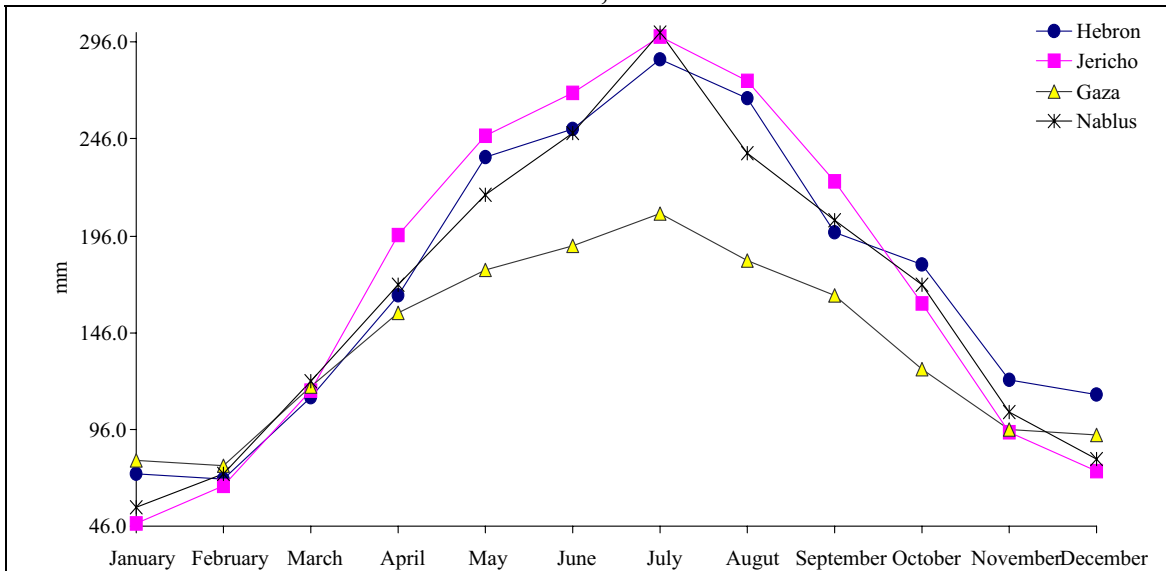
The main findings of the time series indicate that Tulkarm station has the lowest annual mean of evaporation over the period 1973-1984 as it approaches 1633 mm while Jericho station has the highest annual mean of evaporation, as it approaches 2342 mm for the same period. The data indicates that the annual quantities of evaporation in 1997 for most of the stations were lower than that of 1998, for 1997 the quantity of evaporation was between 1499 mm in Meithalun station and 1974 mm in Jericho station. But for 1998 the quantity of evaporation was between 1275 mm in Tulkarm station and 2077 mm in Hebron station.

Figure 13: Annual Mean of Evaporation Quantity in the West Bank by Station Location, 1973-1984, 1997, 1998



The data of 1998 (Figure 14) indicates that the annual mean of quantity of evaporation decrease in January to 63 mm, and increase in July to 262 mm. The highest quantity of evaporation was 300.7 mm in Nablus at July.

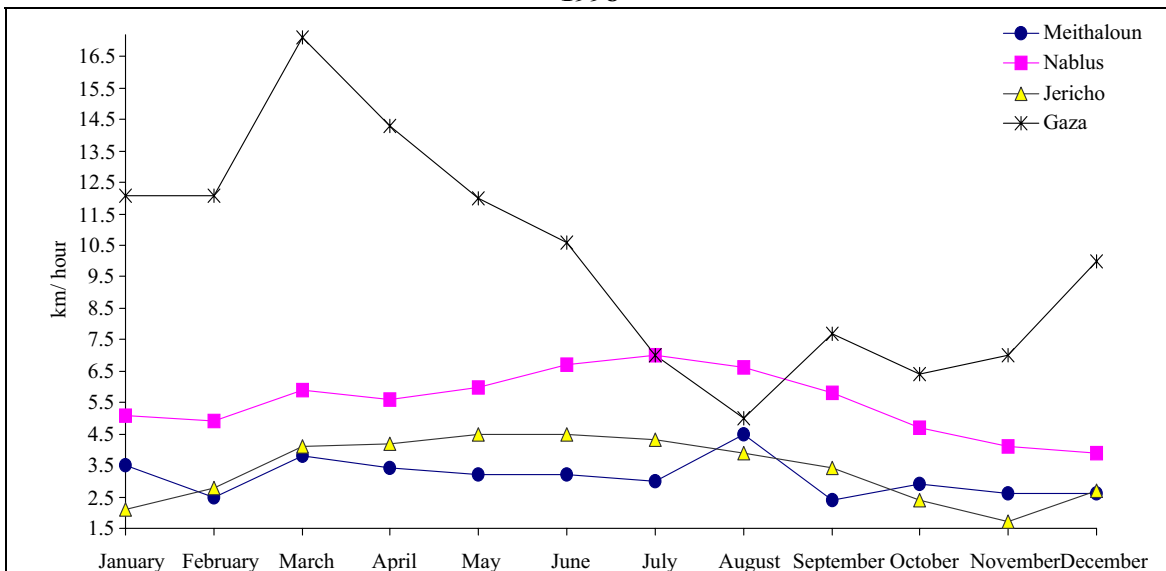
Figure 14: Quantity of Evaporation in the Palestinian Territory by Month for some Stations, 1998



3.5 Wind Speed

The data of 1998 indicates that the lowest annual mean of wind speed was 1.7 km\ hour in Jericho station in November, while the highest annual mean was 17.1 km\ hour in Gaza station in February.

Figure 15: Mean of Wind Speed in the Palestinian Territory by Month for some Stations, 1998

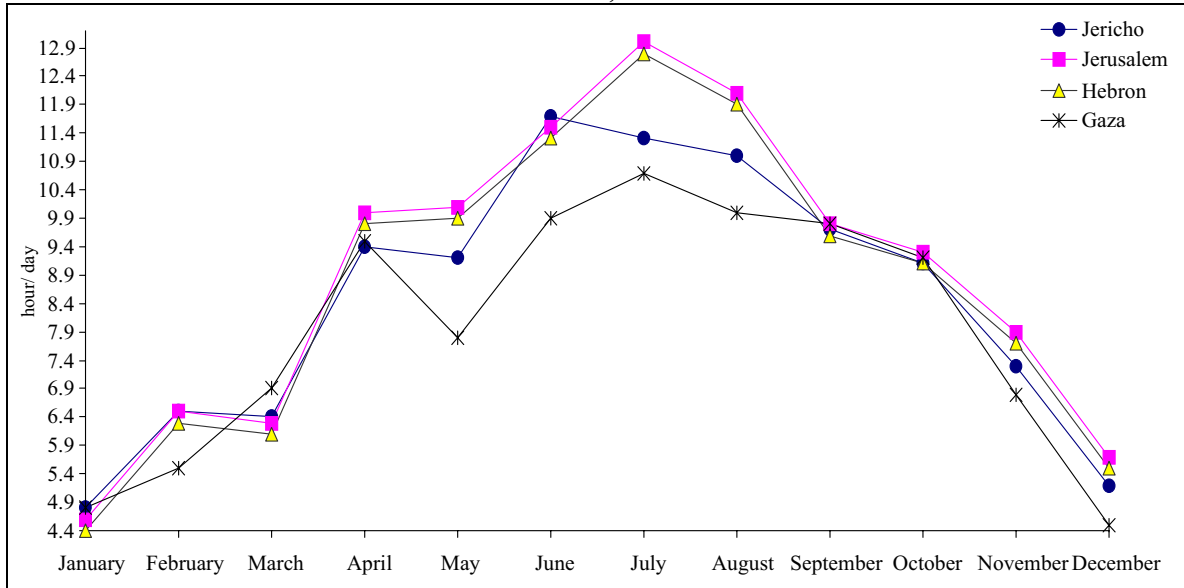


3.6 Sunshine Duration

The data of 1998 indicates that the mean duration of sunshine was between 7.9 and 8.9 hour/day in Jerusalem station. January is considered the month with the lowest sunshine duration with a value of 4.65 hour/ day, while July is the month with the highest sunshine duration with

a value of 11.95 hour / day. The highest duration mean of sunshine was registered at Jerusalem station for July with a value of 13 hour / day while the lowest was registered at Hebron station for June with a value of 4.4 hour/ day.

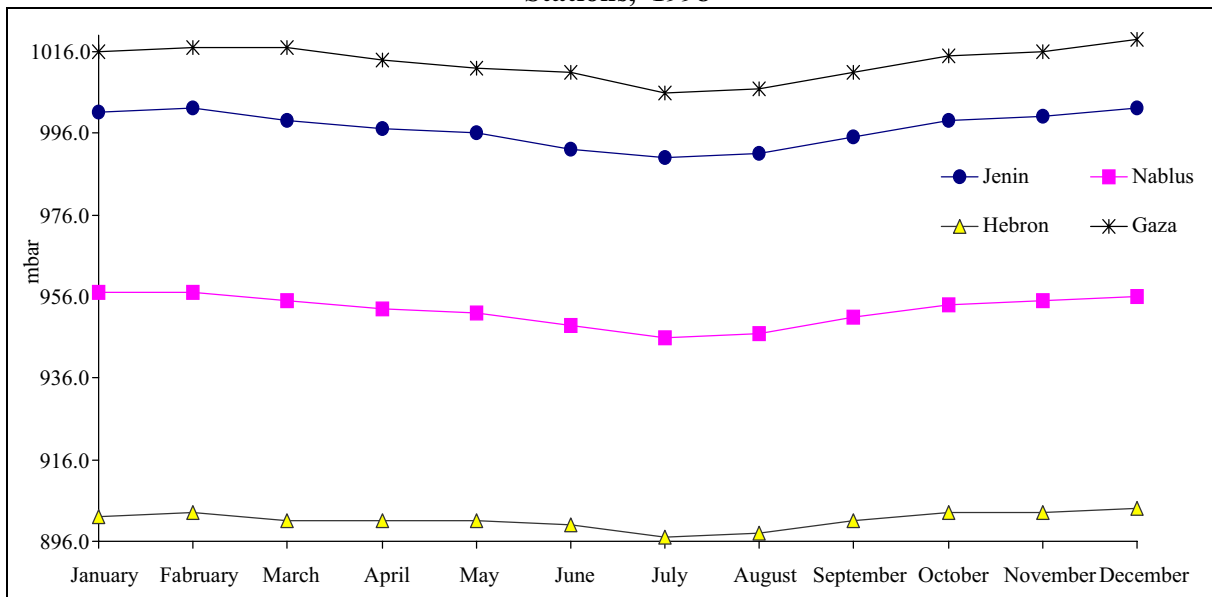
Figure 16: Mean of Sunshine Duration in the Palestinian Territory by month for some Stations, 1998



3.7 Atmospheric Pressure

The data of 1998 indicates that the highest mean of pressure was 1017 mbar in Gaza station at February and March, while the lowest was 897 mbar in Hebron station at July.

Figure 17: Mean of Atmospheric Pressure in the Palestinian Territory by Month for some Stations, 1998



4. Methodology:

4.1 Questionnaire:

A questionnaire was designed to collect the climatic data for the years 1997 and 1998. The questionnaire was designed to cover all the available climatic indicators. The questionnaire includes identification for the stations and the variables of rainfall, temperature, wind, evaporation, relative humidity, sunshine radiation, and pressure.

4.2 Data Collection:

The data was collected by the follow up of the Fieldwork Directorate and Meteorological Office in the Ministry of Transport. The questionnaires were filled from administrative records of the climatic stations. These stations are located in Jenin, Meithalun, Tulkarm, Nablus, Jericho, Jerusalem, Hebron, Al'Arrup, and Gaza. Some of rainfall data for the rain stations of Y'abad, Tubas, Anabta, Burqa, Aazoun, and Salfit, were collected from publication for the Palestinian Hydrology Group.

The methodology (in meteorological station) for measuring the different meteorological indicators was as following:

1. Measuring of temperature by using the Thermometer instrument.
2. Measuring of relative humidity by using the Hectometer instrument.
3. Measuring of wind speed by using the Anemometer instrument.
4. Measuring of sunshine duration by using the sunshine recorder (Kampel Stock) instrument.
5. Measuring of pressure by using the Parameter instrument.

The results of filling the questionnaires were as follows:

- The data of temperature and rainfall was completely filled for all stations.
- The data of relative humidity was not filled for Al'Arrub station, as there is no instrument.
- The data of quantity of evaporation was not filled for Al'Arrub station, as there is no instrument, there is some data gaps for Jerusalem station.
- The data of wind speed was not filled for Al'Arrub station, as the data is not available.
- The data of sunshine duration was not filled for Jenin, Meithalun, Tulkarm and Al'Arrub stations, as there are no instruments in these stations.
- The data of pressure was not filled for Meithalun, Tulkarm, Al'Arrub stations, as there are no instruments in these stations. For Jericho and Jerusalem Stations, the data was not available for this indicator.

4.3 Data processing:

This phase included the following activities:

- Checking the filled questionnaires.
- Developing a data entry program and implementing data entry.
- Post-data entry editing.
- Data cleaning.
- Tabulation of data.

5. Data Quality:

Two types of errors affected the quality of the report's data, sampling and non sampling errors. Sampling errors are measurable and very limited in this report, because the study covered all meteorological stations in the Palestinian Territory. The non-sampling errors could not be determined easily, due to the diversity of sources (e.g. the interviewers, respondents, editors, coders, data entry operators...etc). To minimize such errors data was edited before and after the entry process.

Special Technical Notes:

1. The data of Jerusalem station is estimated according to the data of an Israeli station.
2. There are data gaps for some indicators mostly due to the lack of instruments.
3. Available data of Al'Arrub station covered the months from January until September in 1998, since the station stopped working in October.
4. There are data gaps for time series.
5. Geographical distribution of stations may be not representative for all Palestinian Territory.

Comprehensiveness:

The main aim of publishing annual reports about climatic conditions is to create and update the time series data of the meteorological indicators in the Palestinian Territory. The report has no data about all meteorological indicators for the past years. The report mainly includes the meteorological data for 1998. The Meteorological Office in the Ministry of Transport is still in the establishing stage, so until now there is no Normal average for the Palestinian Territory. The available data does not cover all governorates of the Palestinian Territory, because there are no meteorological stations in all governorates of the Palestinian Territory.

References

1. United Nations, 1997. *Glossary of Environment Statistics. Series F, NO.67*. New York- USA.
2. Applied Research Institute, 1996. Environmental Profile for the West Bank, Nablus District, Jerusalem- Palestine.
3. Applied Research Institute, 1995. Environmental Profile for the West Bank, Jericho District, Jerusalem- Palestine.
4. Applied Research Institute, 1995. Environmental Profile for the West Bank, Jerusalem District, Jerusalem- Palestine.
5. Ministry of Transport, Meteorological Office, 1998. Palestine Climate Data Handbook, Hebron- Palestine.
6. Palestinian Hydrology Group, 1995. Analysis of Secondary Source Rainfall Data from the Northern West Bank, Jerusalem- Palestine.