

**Growing Degree Days:
A Compendium of Data for the
El Batan, Poza Rica, Tlaltizapan
and Toluca Experiment Stations**

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Introduction

The concept of "growing degree days" (GDD) is useful when maize growing periods are compared between locations or between seasons that differ markedly in temperature. When the length of the growing season is measured by GDD, maturities are standardized because GDD is a quantitative measure of ambient environmental heat available to support plant growth. The parameter is calculated as the average daily temperature, less a predetermined base temperature. Thus, on a day with an average temperature of 20°C and using a base temperature of 10°C, 10 growing degree days would be available for plant growth.

The length of the growing season measured as days to midsilks can vary greatly when temperature regimes are markedly different. The amount of calendar time required for a variety to reach midsilks would be better estimated from growing degree days. The use of long-term averages for growing degree days at a particular location would permit more accurate scheduling of nursery and seed increase plantings that have to be harvested at predetermined times. Additionally, GDDs provide a parameter for the comparison of environments at CIMMYT stations with other locations in the world.

This publication reports growing degree days for the four CIMMYT Experiment Stations: El Batán, Poza Rica, Tlaltizapan, and Toluca.

Data Description

Growing degree days were calculated from daily maximum and minimum temperature data and then summerized for consecutive ten day periods throughout each year. Periods were averaged over years and a standard deviation was calculated for each period. The 10-day totals were summed within years to produce annual totals.

An eleven year temperature data base was used for calculating growing degree days at three of the stations, El Batan, Poza Rica and Tlaltizapan. The temperature data base available for Toluca was nine years.

The growing degree days are calculated for base temperatures of 8°C, 10°C, and 12°C. Growing degree days have also been calculated with an adjustment made for a maximum temperature of 31°C. Data analysis at CIMMYT has indicated that 8°C is a reasonable base to use for high elevation genotypes. A base of 12°C is reasonable for tropical genotypes. An adjustment for temperatures in excess of 31°C results in a better estimate of GDDs for tropical genotypes. Thus, the GDDs reported in this publication were calculated in the following manner:

$$\begin{aligned} \text{Daily GDD} &= \text{Max. temp.}^\circ\text{C} + \text{Min. temp}^\circ\text{C} / 2.0 - \text{Base} \\ \text{Daily Adjusted GDD} &= [(\text{Max. temp.}^\circ\text{C} - 2 * \text{Max. temp.} \\ &\quad - 31.0) + \text{Min. temp.}^\circ\text{C}] / 2.0 \\ &\quad - \text{Base} \end{aligned}$$

Growing degree days for maize have been traditionally calculated using a base of 10°C. Consequently, base 10°C tables have been included for comparative purposes.

High and low temperature stress days were tabulated for each station. The low temperature stress was defined as any day with a minimum temperature of less than - 2.5°C. Thus, this table defines killing frosts. High temperature stress was defined as any day with a temperature in excess of 31.0°C. Tables were included only for those locations with stress days.

Organization of Tabular Data

El Batan:

- 3 Growing degree days; base 8°C and no maximum
- 4 Growing degree days; base 10°C and no maximum
- 5 Growing degree days; base 12°C and no maximum
- 6 Growing degree days; base 8°C and a 31°C maximum
- 7 Growing degree days; base 10°C and a 31°C maximum
- 8 Growing degree days; base 12°C and a 31°C maximum
- 9 Stress days; low temperature
- 10 Stress days; high temperature

Poza Rica:

- 11 Growing degree days; base 8°C and no maximum
- 12 Growing degree days; base 10°C and no maximum
- 13 Growing degree days; base 12°C and no maximum
- 14 Growing degree days; base 8°C and a 31°C maximum
- 15 Growing degree days; base 10°C and a 31°C maximum
- 16 Growing degree days; base 12°C and a 31°C maximum
- 17 Stress days; high temperature

Tlaltizapan:

- 18 Growing degree days; base 8°C and no maximum
- 19 Growing degree days; base 10°C and no maximum
- 20 Growing degree days; base 12°C and no maximum
- 21 Growing degree days; base 8°C and a 31°C maximum
- 22 Growing degree days; base 10°C and a 31°C maximum
- 23 Growing degree days; base 12°C and a 31°C maximum
- 24 Stress days; high temperature

Toluca:

- 25 Growing degree days; base 8°C and no maximum
- 26 Growing degree days; base 10°C and no maximum
- 27 Growing degree days; base 12°C and no maximum
- 28 Stress days; low temperature

TABLE 1. CROWING DEGREE DAYS SUMMARY FOR EL BATAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	38.3	30.8	30.2	21.8	36.0	40.2	27.5	20.2	15.7	43.3	43.6	31.6	9.6
2	11.0	33.7	14.9	20.7	26.7	19.2	31.2	36.3	13.9	41.0	32.9	25.6	10.2
3	21.3	33.7	29.5	19.9	46.3	41.4	48.7	29.6	12.3	45.1	10.6	30.7	13.6
4	30.0	39.8	47.3	23.6	40.3	34.1	55.2	24.4	43.1	36.8	42.9	37.9	9.6
5	33.8	37.0	37.0	30.3	35.2	66.1	49.3	47.7	31.1	51.2	20.9	39.9	12.5
6	58.8	29.4	40.9	22.1	39.8	50.4	48.6	46.5	56.9	50.5	18.7	42.0	13.5
7	64.8	52.5	59.8	68.0	58.8	62.6	54.0	62.3	64.6	43.5	46.8	57.9	7.8
8	74.3	46.4	67.8	67.7	81.1	51.0	61.8	76.3	56.7	80.1	41.6	64.1	13.7
9	87.8	71.8	78.8	67.0	83.3	76.5	81.8	75.6	57.8	87.5	59.3	75.2	10.3
10	60.8	65.2	91.3	63.3	63.5	84.2	84.5	85.8	81.3	97.9	62.1	76.3	13.5
11	80.8	73.7	89.9	75.7	53.8	99.5	85.2	65.0	74.1	94.4	71.3	78.5	13.3
12	102.5	74.0	93.2	81.8	60.4	85.5	83.2	73.4	95.7	89.7	95.8	85.0	12.3
13	92.0	81.3	99.4	80.6	83.4	100.1	82.0	88.5	92.0	87.1	114.8	91.0	10.4
14	85.5	90.7	82.8	77.6	92.8	102.8	88.0	105.8	91.4	94.3	119.0	93.7	11.7
15	98.5	81.3	82.2	88.7	91.6	90.2	91.6	102.2	97.6	107.1	95.3	93.3	7.9
16	83.0	89.3	83.5	74.4	74.8	102.4	105.7	95.3	113.0	95.8	94.5	92.0	12.4
17	92.3	79.8	88.8	84.9	94.5	87.1	75.1	84.4	88.4	91.6	97.2	87.6	6.4
18	86.0	70.6	77.4	82.4	80.8	91.3	86.5	94.3	71.1	94.3	96.2	84.6	9.1
19	76.8	78.1	70.4	86.1	81.8	76.3	94.8	83.9	80.8	84.9	92.7	82.4	7.2
20	71.3	59.4	71.9	85.6	74.2	84.6	84.6	92.2	76.9	85.6	89.2	79.6	9.7
21	73.5	73.3	69.5	69.9	83.2	78.4	80.5	91.6	80.7	76.0	82.6	78.1	6.6
22	73.8	75.5	77.9	76.3	82.0	75.0	73.0	83.1	76.8	74.3	80.1	77.1	3.4
23	71.3	79.5	82.7	74.1	82.6	82.6	82.4	88.9	83.5	77.5	85.6	81.0	5.1
24	69.5	80.5	73.1	77.4	85.4	85.0	76.6	81.8	85.0	75.2	90.6	80.0	6.3
25	78.5	68.1	73.2	76.1	84.6	80.3	81.5	92.6	88.9	74.7	89.8	80.7	7.7
26	81.0	56.9	77.5	81.5	85.8	82.3	82.3	85.0	84.5	80.9	92.0	80.9	8.8
27	78.3	70.9	52.4	85.8	77.7	78.2	55.5	74.0	71.9	75.3	80.3	72.7	10.2
28	72.2	56.2	59.6	81.7	79.8	90.5	38.5	63.7	73.6	81.1	75.0	70.2	14.7
29	76.3	52.1	66.3	70.3	62.5	56.9	49.8	63.3	75.2	80.0	78.4	66.4	10.6
30	59.5	56.1	57.4	68.5	77.5	58.4	68.7	91.0	72.8	54.4	62.2	66.0	11.1
31	65.8	57.1	62.3	61.3	63.5	68.4	66.7	61.3	63.7	44.6	60.3	61.3	6.4
32	38.6	40.4	30.0	35.2	49.3	61.6	47.1	42.4	37.3	48.9	57.9	44.4	9.6
33	39.8	44.5	31.5	56.2	54.2	58.0	47.5	45.8	25.8	56.4	49.0	46.2	10.5
34	36.3	30.9	38.9	58.2	49.0	65.3	35.0	41.2	47.6	46.4	55.4	45.8	10.7
35	11.8	36.0	16.3	49.5	42.2	62.5	49.6	44.7	39.3	42.9	47.7	40.2	14.7
36	8.8	31.1	21.8	45.9	24.4	44.1	38.1	24.0	33.2	12.7	33.8	28.9	11.9
37	10.3	19.2	11.5	24.3	27.5	20.1	18.9	9.8	24.9	24.9	16.4	18.9	6.3
TOTAL	2293.7	2146.2	2237.9	2313.8	2409.4	2592.4	2410.1	2473.2	2378.4	2527.1	2481.9	2387.6	131.8

TABLE 2. CROWING DEGREE DAYS SUMMARY FOR EL FATAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	18.3	11.0	11.2	4.5	16.0	21.5	11.3	6.4	4.2	23.3	23.9	13.8	7.3
2	5.0	13.6	6.9	6.5	9.0	4.3	11.6	16.7	1.6	21.0	16.9	10.3	6.2
3	6.5	13.8	11.5	5.5	26.3	21.4	28.6	11.6	3.1	25.1	1.7	14.1	9.8
4	12.8	19.8	27.3	6.4	20.3	18.9	35.2	7.4	23.1	17.6	22.8	19.2	8.4
5	15.3	17.2	17.7	10.5	15.7	46.1	29.3	27.7	13.4	31.2	7.6	21.0	11.3
6	38.8	15.1	20.9	10.0	19.8	30.4	28.6	26.5	36.9	30.5	6.5	24.0	10.5
7	44.8	33.5	39.8	48.0	38.8	42.6	34.0	42.3	44.6	23.9	26.8	38.1	7.7
8	54.3	26.4	47.8	47.7	61.1	34.0	41.8	56.3	36.7	60.1	25.3	44.7	12.8
9	67.8	51.9	58.8	47.0	63.3	56.5	61.8	55.6	37.8	67.5	39.3	55.2	10.3
10	40.8	45.2	71.3	43.3	43.5	64.2	64.5	65.8	61.3	77.9	42.1	56.3	13.5
11	60.8	53.7	69.9	55.7	33.8	79.5	65.2	45.0	54.1	74.4	51.3	58.5	12.3
12	82.5	54.0	73.2	61.8	40.4	65.5	63.2	53.4	75.7	69.7	75.8	65.0	12.3
13	72.0	61.3	79.4	60.6	63.4	80.1	62.0	68.5	72.0	67.1	94.8	71.0	10.4
14	65.5	70.7	62.8	57.6	72.8	82.8	68.0	85.8	71.4	74.3	99.0	73.7	11.7
15	78.5	61.3	62.2	68.7	71.6	70.2	71.6	82.2	77.6	87.1	75.3	73.3	7.9
16	63.0	69.3	63.5	54.4	54.9	82.4	85.7	75.3	93.0	75.8	74.5	72.0	12.4
17	72.3	59.8	68.8	64.9	74.5	67.1	55.1	64.4	68.4	71.6	77.2	67.6	6.4
18	66.0	50.6	57.4	62.4	60.9	71.3	66.5	74.3	51.1	74.3	76.2	64.6	9.1
19	56.8	58.1	50.4	66.1	61.8	56.3	74.8	63.9	60.8	64.9	72.7	62.4	7.2
20	51.3	39.4	51.9	65.6	54.2	64.6	64.6	72.2	56.9	65.6	69.2	59.6	9.7
21	53.5	53.3	49.5	49.9	63.2	58.4	60.5	71.6	60.7	56.0	62.6	58.1	6.6
22	53.8	55.5	57.9	56.3	62.0	55.0	53.0	63.1	56.8	54.3	60.1	57.1	3.4
23	51.3	59.5	62.7	54.1	62.6	62.6	62.4	68.9	63.5	57.5	65.6	61.0	5.1
24	49.5	60.5	53.1	57.4	65.4	65.0	56.6	61.9	65.0	55.2	70.6	60.0	6.3
25	58.5	48.1	53.2	56.1	64.6	60.3	61.5	72.6	68.9	54.7	69.8	60.7	7.7
26	61.0	36.9	57.5	61.5	65.9	62.3	62.3	65.1	64.5	60.9	72.0	60.9	8.8
27	58.3	50.9	32.4	65.8	57.7	58.2	36.0	54.0	51.9	55.3	60.3	52.8	10.1
28	52.2	36.2	39.6	61.7	59.9	70.5	18.5	43.7	53.6	61.1	55.0	50.2	14.7
29	56.3	32.6	46.3	50.4	42.5	37.3	29.8	43.3	55.2	60.0	58.4	46.5	10.4
30	39.5	36.1	37.4	48.5	57.5	38.4	48.7	71.0	52.8	34.4	43.8	46.2	11.1
31	45.8	37.1	42.3	41.9	43.5	48.4	46.7	41.3	43.7	26.5	40.3	41.6	5.9
32	18.6	22.6	13.6	19.0	29.3	41.6	27.3	22.4	19.3	29.5	37.9	25.5	8.6
33	19.8	25.4	12.1	36.8	34.2	38.0	27.5	25.8	8.1	36.3	31.1	26.8	10.1
34	17.8	15.7	19.1	38.2	29.0	45.3	17.0	21.2	27.6	26.4	35.4	26.6	9.7
35	1.5	16.0	3.0	29.6	23.1	42.5	29.6	24.7	19.3	23.9	27.7	21.9	11.8
36	0.0	12.0	3.7	25.9	9.3	24.1	19.3	11.5	13.1	2.0	13.8	12.2	8.5
37	1.0	7.2	0.8	12.3	17.5	10.1	8.8	2.0	14.9	14.9	7.1	8.8	5.8
TOTAL	1610.4	1431.0	1536.1	1612.0	1688.2	1877.0	1688.3	1764.6	1681.8	1811.0	1789.8	1680.9	129.4

TABLE 3. GROWING DEGREE DAYS SUMMARY FOR EL EATAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 12.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	1.8	0.3	1.0	0.3	1.7	5.8	2.2	0.9	0.0	5.2	9.6	2.6	3.0
2	2.5	1.5	0.4	0.2	0.0	0.0	0.5	2.3	0.0	2.7	3.8	1.3	1.4
3	0.5	0.7	1.1	0.0	7.8	5.3	10.0	1.9	0.3	6.4	0.0	3.1	3.6
4	1.8	3.3	8.6	1.3	4.2	7.5	16.0	0.6	6.7	5.0	8.0	5.7	4.4
5	4.5	6.6	5.5	1.9	2.0	28.3	10.9	9.0	2.2	11.6	1.5	7.6	7.7
6	18.8	3.3	4.2	3.4	4.8	14.0	11.3	10.8	16.9	11.0	1.0	9.0	6.0
7	24.8	16.5	19.8	28.0	19.3	24.5	15.3	22.7	24.6	8.8	10.7	19.5	6.1
8	34.3	6.4	27.8	27.7	41.1	18.5	21.8	36.3	17.6	40.1	11.9	25.7	11.5
9	47.8	31.9	38.8	27.0	43.3	37.4	41.8	35.6	17.7	47.5	19.3	35.3	10.3
10	20.8	25.2	51.3	25.1	25.3	44.2	44.5	45.8	41.3	57.9	22.1	36.7	13.2
11	40.8	33.7	49.9	35.7	17.0	59.5	45.2	25.0	34.1	54.4	31.3	38.8	12.7
12	62.5	34.0	53.2	41.8	20.9	45.5	43.2	33.4	55.7	49.7	55.8	45.0	12.1
13	52.0	41.3	59.4	40.6	43.4	60.1	42.0	48.5	52.0	47.1	74.8	51.0	10.4
14	45.5	50.7	42.8	37.6	52.8	62.8	48.0	65.8	51.4	54.3	79.0	53.7	11.7
15	58.5	41.3	42.2	48.7	51.6	50.2	51.6	62.2	57.6	67.1	55.3	53.3	7.9
16	43.0	49.3	43.5	34.4	34.9	62.4	65.7	55.3	73.0	55.8	54.5	52.0	12.4
17	52.3	39.8	48.8	44.9	54.5	47.1	35.1	44.4	48.4	51.6	57.2	47.6	6.4
18	46.0	30.6	37.4	42.4	40.9	51.3	46.5	54.3	31.1	54.3	56.2	44.6	9.1
19	36.8	38.1	30.4	46.1	41.8	36.3	54.8	43.9	40.8	44.9	52.7	42.4	7.2
20	31.3	20.8	31.9	45.6	34.2	44.6	44.7	52.2	36.9	45.5	49.2	39.7	9.4
21	33.5	33.3	29.5	29.9	43.2	38.4	40.5	51.6	40.7	36.0	42.6	38.1	6.6
22	33.8	35.5	37.9	36.3	42.0	35.0	33.0	43.1	36.8	34.3	40.1	37.1	3.4
23	31.3	39.5	42.7	34.1	42.6	42.6	42.4	48.9	43.5	37.9	45.6	41.0	5.0
24	29.5	40.5	33.1	37.4	45.4	45.0	36.6	41.9	45.0	35.2	50.6	40.0	6.3
25	38.5	28.6	33.2	36.1	44.6	40.3	41.5	52.6	48.9	34.7	49.8	40.8	7.6
26	41.0	20.9	37.5	41.5	45.9	42.3	42.3	45.1	44.5	40.9	52.0	41.2	7.7
27	38.3	31.7	17.8	45.8	37.7	38.2	19.8	34.0	33.9	35.3	40.3	33.9	8.4
28	32.2	18.3	20.8	41.7	39.9	50.5	4.1	23.7	33.6	41.1	35.0	31.0	13.2
29	36.3	15.7	26.3	30.4	25.1	19.6	9.9	23.3	35.2	40.0	38.4	27.3	9.8
30	19.5	16.3	18.8	29.5	37.5	18.4	28.7	51.0	32.8	15.4	27.0	26.8	10.8
31	25.8	17.1	22.3	25.9	24.9	28.4	27.5	21.3	23.7	9.8	20.3	22.4	5.3
32	3.0	9.8	3.4	3.8	12.2	21.6	10.6	5.1	6.3	12.2	17.9	9.6	6.1
33	3.0	7.6	1.8	20.1	14.2	18.0	13.4	6.3	0.6	16.3	13.9	10.5	6.9
34	4.0	2.4	5.0	18.2	10.2	25.3	3.6	2.3	9.7	10.1	15.4	9.7	7.4
35	0.0	2.0	0.0	12.3	6.5	22.7	11.4	8.3	3.9	7.2	10.0	7.7	6.6
36	0.0	1.7	0.0	10.8	0.3	8.2	5.1	3.1	0.8	0.0	0.0	2.7	3.8
37	0.0	0.7	0.0	3.3	7.4	2.1	0.9	0.0	4.9	6.0	1.6	2.4	2.6
TOTAL	995.1	796.3	927.3	989.3	1020.1	1201.0	1022.0	1111.5	1052.4	1132.9	1153.9	1036.5	114.0

TABLE 4. CROWING DEGREE DAYS SUMMARY FOR EL PATAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S												MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83			
1	38.3	30.8	30.2	21.8	36.0	40.2	27.5	20.2	15.7	43.3	43.6	31.6	9.6	
2	11.0	33.7	14.9	20.7	26.7	19.2	31.2	36.3	13.9	41.0	32.9	25.6	10.2	
3	21.3	33.7	29.5	19.9	46.3	41.4	48.7	29.6	12.3	45.1	10.6	30.7	13.6	
4	30.0	39.8	47.3	23.6	40.3	34.1	55.2	24.4	43.1	36.8	42.9	37.9	9.6	
5	33.8	37.0	37.0	30.3	35.2	66.1	49.3	47.7	31.1	51.2	20.9	39.9	12.5	
6	58.8	29.4	40.9	22.1	39.8	50.4	48.6	46.5	56.9	50.5	18.7	42.0	13.5	
7	64.8	52.5	57.8	68.0	58.8	62.6	54.0	62.3	64.6	43.5	46.8	57.8	7.8	
8	74.3	46.4	67.8	67.7	81.1	51.0	61.8	76.3	56.7	80.1	41.6	64.1	13.7	
9	87.8	71.8	78.8	67.0	83.3	76.5	81.8	75.6	57.8	87.5	59.3	75.2	10.3	
10	60.8	65.2	91.3	63.3	63.5	84.2	84.5	85.8	81.3	97.9	62.1	76.3	13.5	
11	80.8	73.7	89.9	75.7	53.8	99.5	85.2	65.0	74.1	94.4	71.3	78.5	13.3	
12	102.5	74.0	93.2	81.8	60.4	85.5	83.2	73.4	95.7	89.7	95.8	85.0	12.3	
13	92.0	81.3	99.4	80.6	83.4	100.1	82.0	88.5	92.0	87.1	112.3	90.8	9.9	
14	85.5	90.7	82.8	77.6	92.8	102.8	88.0	105.8	91.4	94.3	118.5	93.6	11.6	
15	98.5	81.3	82.2	88.7	91.6	90.2	91.6	102.2	97.6	107.1	95.1	93.2	7.9	
16	83.0	89.3	83.5	74.4	74.8	102.4	105.7	95.3	113.0	95.5	94.5	91.9	12.4	
17	92.3	79.8	88.8	84.9	94.5	87.1	75.1	84.4	88.4	91.6	97.2	87.6	6.4	
18	86.0	70.6	77.4	82.4	80.8	91.3	86.5	94.3	71.1	94.3	96.2	84.6	9.1	
19	76.8	78.1	70.4	86.1	81.8	76.3	93.5	83.9	80.8	84.9	92.7	82.3	7.0	
20	71.3	59.4	71.9	85.6	74.2	84.6	84.6	92.2	76.9	85.6	89.2	79.6	9.7	
21	73.5	73.3	69.5	69.9	83.2	78.4	80.5	91.6	80.7	76.0	82.6	78.1	6.6	
22	73.8	75.5	77.9	76.3	82.0	75.0	73.0	83.1	76.8	74.3	80.1	77.1	3.4	
23	71.3	79.5	82.7	74.1	82.6	82.6	82.4	88.9	83.5	77.5	85.6	81.0	5.1	
24	69.5	80.5	73.1	77.4	85.4	85.0	76.6	81.8	85.0	75.2	90.6	80.0	6.3	
25	78.5	68.1	73.2	76.1	84.6	80.3	81.5	92.6	88.9	74.7	89.8	80.7	7.7	
26	81.0	56.9	77.5	81.5	85.8	82.3	82.3	85.0	84.5	80.9	92.0	80.9	8.8	
27	78.3	70.9	52.4	85.8	77.7	78.2	55.5	74.0	71.9	75.3	80.3	72.7	10.2	
28	72.2	56.2	59.6	81.7	79.8	90.5	38.5	63.7	73.6	81.1	75.0	70.2	14.7	
29	76.3	52.1	66.3	70.3	62.5	56.9	49.8	63.3	75.2	80.0	78.4	66.4	10.6	
30	59.5	56.1	57.4	68.5	77.5	58.4	68.7	91.0	72.8	54.4	62.2	66.0	11.1	
31	65.8	57.1	62.3	61.3	63.5	68.4	66.7	61.3	63.7	44.6	60.3	61.3	6.4	
32	38.6	40.4	30.0	35.2	49.3	61.6	47.1	42.4	37.3	48.9	57.9	44.4	9.6	
33	39.8	44.5	31.5	56.2	54.2	58.0	47.5	45.8	25.8	56.4	49.0	46.2	10.5	
34	36.3	30.9	38.9	58.2	49.0	65.3	35.0	41.2	47.6	46.4	55.4	45.8	10.7	
35	11.8	36.0	16.3	49.5	42.2	62.5	49.6	44.7	39.3	42.9	47.7	40.2	14.7	
36	8.8	31.1	21.8	45.9	24.4	38.3	38.1	24.0	33.2	12.7	33.8	28.4	11.3	
37	10.3	19.2	11.5	24.3	27.5	20.1	18.9	9.8	24.9	24.9	16.4	18.9	6.3	
TOTAL	2293.7	2146.2	2235.9	2313.8	2409.4	2586.6	2408.8	2473.2	2378.4	2526.8	2478.7	2386.5	130.8	

TABLE 5. GROWING DEGREE DAYS SUMMARY FOR EL PATAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	18.3	11.0	11.2	4.5	16.0	21.5	11.3	6.4	4.2	23.3	23.9	13.8	7.3
2	5.0	13.6	6.9	6.5	9.0	4.3	11.6	16.7	1.6	21.0	16.9	10.3	6.2
3	6.5	13.8	11.5	5.5	26.3	21.4	28.6	11.6	3.1	25.1	1.7	14.1	9.8
4	12.8	19.8	27.3	6.4	20.3	18.9	35.2	7.4	23.1	17.6	22.8	19.2	8.4
5	15.3	17.2	17.7	10.5	15.7	46.1	29.3	27.7	13.4	31.2	7.6	21.0	11.3
6	38.8	15.1	20.9	10.0	19.8	30.4	28.6	26.5	36.9	30.5	6.5	24.0	10.5
7	44.8	33.5	37.8	48.0	38.8	42.6	34.0	42.3	44.6	23.9	26.8	37.9	7.7
8	54.3	26.4	47.8	47.7	61.1	34.0	41.8	56.3	36.7	60.1	25.3	44.7	12.8
9	67.8	51.9	58.8	47.0	63.3	56.5	61.8	55.6	37.8	67.5	39.3	55.2	10.3
10	40.8	45.2	71.3	43.3	43.5	64.2	64.5	65.8	61.3	77.9	42.1	56.3	13.5
11	60.8	53.7	69.9	55.7	33.8	79.5	65.2	45.0	54.1	74.4	51.3	58.5	13.3
12	82.5	54.0	73.2	61.8	40.4	65.5	63.2	53.4	75.7	69.7	75.8	65.0	12.3
13	72.0	61.3	79.4	60.6	63.4	80.1	62.0	68.5	72.0	67.1	92.3	70.8	9.9
14	65.5	70.7	62.8	57.6	72.8	82.8	68.0	85.8	71.4	74.3	98.5	73.6	11.6
15	78.5	61.3	62.2	68.7	71.6	70.2	71.6	82.2	77.6	87.1	75.1	73.2	7.9
16	63.0	69.3	63.5	54.4	54.9	82.4	85.7	75.3	93.0	75.5	74.5	71.9	12.4
17	72.3	59.8	68.8	64.9	74.5	67.1	55.1	64.4	68.4	71.6	77.2	67.6	6.4
18	66.0	50.6	57.4	62.4	60.9	71.3	66.5	74.3	51.1	74.3	76.2	64.6	9.1
19	56.8	58.1	50.4	66.1	61.8	56.3	73.5	63.9	60.8	64.9	72.7	62.3	7.0
20	51.3	39.4	51.9	65.6	54.2	64.6	64.6	72.2	56.9	65.6	69.2	59.6	9.7
21	53.5	53.3	49.5	49.9	63.2	58.4	60.5	71.6	60.7	56.0	62.6	58.1	6.6
22	53.8	55.5	57.9	56.3	62.0	55.0	53.0	63.1	56.8	54.3	60.1	57.1	3.4
23	51.3	59.5	62.7	54.1	62.6	62.6	62.4	68.9	63.5	57.5	65.6	61.0	5.1
24	49.5	60.5	53.1	57.4	65.4	65.0	56.6	61.9	65.0	55.2	70.6	60.0	6.3
25	58.5	48.1	53.2	56.1	64.6	60.3	61.5	72.6	68.9	54.7	69.8	60.7	7.7
26	61.0	36.9	57.5	61.5	65.9	62.3	62.3	65.1	64.5	60.9	72.0	60.9	8.8
27	58.3	50.9	32.4	65.8	57.7	58.2	36.0	54.0	51.9	55.3	60.3	52.8	10.1
28	52.2	36.2	39.6	61.7	59.9	70.5	18.5	43.7	53.6	61.1	55.0	50.2	14.7
29	56.3	32.6	46.3	50.4	42.5	37.3	29.8	43.3	55.2	60.0	58.4	46.5	10.4
30	39.5	36.1	37.4	48.5	57.5	38.4	48.7	71.0	52.8	34.4	43.8	46.2	11.1
31	45.8	37.1	42.3	41.9	43.5	48.4	46.7	41.3	43.7	26.5	40.3	41.6	5.9
32	18.6	22.6	13.6	19.0	29.3	41.6	27.3	22.4	19.3	29.5	37.9	25.5	8.6
33	19.8	25.4	12.1	36.8	34.2	38.0	27.5	25.8	8.1	36.3	31.1	26.8	10.1
34	17.8	15.7	19.1	38.2	29.0	45.3	17.0	21.2	27.6	26.4	35.4	26.6	9.7
35	1.5	16.0	3.0	29.6	23.1	42.5	29.6	24.7	19.3	23.9	27.7	21.9	11.8
36	0.0	12.0	3.7	25.9	9.3	18.3	19.3	11.5	13.1	2.0	13.8	11.7	7.8
37	1.0	7.2	0.8	12.3	17.5	10.1	8.8	2.0	14.9	14.9	7.1	8.8	5.8
TOTAL	1610.4	1431.0	1534.1	1612.0	1688.2	1871.2	1687.0	1764.6	1681.8	1810.7	1786.6	1679.8	128.5

TABLE 6. GROWING DEGREE DAYS SUMMARY FOR EI PATAN.

8

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 12.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	1.8	0.3	1.0	0.3	1.7	5.8	2.2	0.9	0.0	5.2	9.6	2.6	3.0
2	2.5	1.5	0.4	0.2	0.0	0.0	0.5	2.3	0.0	2.7	3.8	1.3	1.4
3	0.5	0.7	1.1	0.0	7.8	5.3	10.0	1.9	0.3	6.4	0.0	3.1	3.6
4	1.8	3.3	8.6	1.3	4.2	7.5	16.0	0.6	6.7	5.0	8.0	5.7	4.4
5	4.5	6.6	5.5	1.9	2.0	28.3	10.9	9.0	2.2	11.6	1.5	7.6	7.7
6	18.8	3.3	4.2	3.4	4.8	14.0	11.3	10.8	16.9	11.0	1.0	9.0	6.0
7	24.8	16.5	17.8	28.0	19.3	24.5	15.3	22.7	24.6	8.8	10.7	19.3	6.2
8	34.3	6.4	27.8	27.7	41.1	18.5	21.8	36.3	17.6	40.1	11.9	25.7	11.5
9	47.8	31.9	38.8	27.0	43.3	37.4	41.8	35.6	17.7	47.5	19.3	35.3	10.3
10	20.8	25.2	51.3	25.1	25.3	44.2	44.5	45.8	41.3	57.9	22.1	36.7	13.2
11	40.8	33.7	49.9	35.7	17.0	59.5	45.2	25.0	34.1	54.4	31.3	38.8	12.7
12	62.5	34.0	53.2	41.8	20.9	45.5	43.2	33.4	55.7	49.7	55.8	45.0	12.1
13	52.0	41.3	59.4	40.6	43.4	60.1	42.0	48.5	52.0	47.1	72.3	50.8	9.9
14	45.5	50.7	42.8	37.6	52.8	62.8	48.0	65.8	51.4	54.3	78.5	53.6	11.6
15	58.5	41.3	42.2	48.7	51.6	50.2	51.6	62.2	57.6	67.1	55.1	53.2	7.9
16	43.0	49.3	43.5	34.4	34.9	62.4	65.7	55.3	73.0	55.5	54.5	51.9	12.4
17	52.3	39.8	48.8	44.9	54.5	47.1	35.1	44.4	48.4	51.6	57.2	47.6	6.4
18	46.0	30.6	37.4	42.4	40.9	51.3	46.5	54.3	31.1	54.3	56.2	44.6	9.1
19	36.8	38.1	30.4	46.1	41.8	36.3	53.5	43.9	40.8	44.9	52.7	42.3	7.0
20	31.3	20.8	31.9	45.6	34.2	44.6	44.7	52.2	36.9	45.5	49.2	39.7	9.4
21	33.5	33.3	29.5	29.9	43.2	38.4	40.5	51.6	40.7	36.0	42.6	38.1	6.6
22	33.8	35.5	37.9	36.3	42.0	35.0	33.0	43.1	36.8	34.3	40.1	37.1	3.4
23	31.3	39.5	42.7	34.1	42.6	42.6	42.4	48.9	43.5	37.9	45.6	41.0	5.0
24	29.5	40.5	33.1	37.4	45.4	45.0	36.6	41.9	45.0	35.2	50.6	40.0	6.3
25	38.5	28.6	33.2	36.1	44.6	40.3	41.5	52.6	48.9	34.7	49.8	40.8	7.6
26	41.0	20.9	37.5	41.5	45.9	42.3	42.3	45.1	44.5	40.9	52.0	41.2	7.7
27	38.3	31.7	17.8	45.8	37.7	38.2	19.8	34.0	33.9	35.3	40.3	33.9	8.4
28	32.2	18.3	20.8	41.7	39.9	50.5	4.1	23.7	33.6	41.1	35.0	31.0	13.2
29	36.3	15.7	26.3	30.4	25.1	19.6	9.9	23.3	35.2	40.0	38.4	27.3	9.8
30	19.5	16.3	18.8	29.5	37.5	18.4	28.7	51.0	32.8	15.4	27.0	26.8	10.8
31	25.8	17.1	22.3	25.9	24.9	28.4	27.5	21.3	23.7	9.8	20.3	22.4	5.3
32	3.0	9.8	3.4	3.8	12.2	21.6	10.6	5.1	6.3	12.2	17.9	9.6	6.1
33	3.0	7.6	1.8	20.1	14.2	18.0	13.4	6.3	0.6	16.3	13.9	10.5	6.9
34	4.0	2.4	5.0	18.2	10.2	25.3	3.6	2.3	9.7	10.1	15.4	9.7	7.4
35	0.0	2.0	0.0	12.3	6.5	22.7	11.4	8.3	3.9	7.2	10.0	7.7	6.6
36	0.0	1.7	0.0	10.8	0.3	2.4	5.1	3.1	0.8	0.0	0.0	2.2	3.3
37	0.0	0.7	0.0	3.3	7.4	2.1	0.9	0.0	4.9	6.0	1.6	2.4	2.6
TOTAL	995.1	796.3	925.3	989.3	1020.1	1195.2	1020.7	1111.5	1052.4	1132.6	1150.7	1035.4	113.1

TABLE 7. SUMMARY OF STRESS DAYS RECEIVED AT EI EATAN.

THE DAILY DATA WERE SUMMARIZED BY 10 DAY PERIODS. THE NUMBER OF DAYS WITH TEMPERATURES UNDER -2.5 WERE RECORDED IN EACH PERIOD.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	0.0	0.0	0.0	0.0	2.0	0.0	2.0	2.0	5.0	0.0	0.0	1.0	1.6
2	5.0	0.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0
3	3.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	5.0	0.0	6.0	1.4	2.2
4	2.0	0.0	0.0	0.0	0.0	1.0	0.0	2.0	0.0	0.0	1.0	0.5	0.8
5	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.5	1.2
6	0.0	3.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	1.1	2.0
7	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.6
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.3
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.1	0.3
32	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	0.0	0.7	1.6
33	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.5	1.5
34	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6
35	1.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6
36	3.0	0.0	0.0	0.0	2.0	0.0	0.0	4.0	0.0	6.0	0.0	1.4	2.1
37	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	1.0	0.5	0.8
6 TOTAL	14.0	9.0	14.0	11.0	4.0	1.0	3.0	10.0	17.0	8.0	15.0	9.6	5.3

TABLE 8. SUMMARY OF STRESS DAYS RECEIVED AT EL EATAN.

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THE DAILY DATA WERE SUMMARIZED BY 10 DAY PERIODS. THE NUMBER OF DAYS WITH TEMPERATURES OVER 31.0 WERE RECORDED IN EACH PERIOD.

PERIOD	Y E A R S											MEAN	SD	
	73	74	75	76	77	78	79	80	81	82	83			
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.3	0.9
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.1	0.3
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.1	0.3
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.1	0.3
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.3
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	5.0	0.8	1.5	

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TABLE 9. CFCWING DECREE DAYS SUMMARY FOR POZA RICA.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	119.8	118.8	126.8	84.8	106.5	111.2	64.5	107.4	106.1	124.7	88.4	105.3	19.1
2	82.3	149.0	93.7	104.1	67.3	106.2	90.4	139.6	76.5	98.1	94.1	100.1	24.8
3	95.3	132.0	128.5	96.3	102.2	82.2	108.5	119.4	96.9	146.9	111.3	110.8	19.2
4	110.5	127.0	147.3	112.7	89.0	93.0	101.2	95.6	116.5	95.7	127.1	110.5	18.0
5	99.8	124.4	145.0	153.0	92.7	100.5	100.3	89.4	98.4	127.4	106.6	112.5	21.6
6	118.5	111.3	120.5	104.5	131.8	100.5	122.3	126.0	139.1	126.5	124.5	120.5	11.4
7	175.3	157.4	156.0	171.8	110.2	115.8	124.1	124.7	135.9	118.3	142.2	139.2	22.9
8	169.3	167.5	165.3	155.4	155.5	121.3	143.7	151.3	133.2	181.7	135.9	152.7	18.0
9	176.0	155.4	176.8	165.0	162.7	136.3	164.2	168.1	152.9	167.4	143.6	160.7	12.7
10	137.8	176.2	173.2	154.7	159.2	164.2	172.2	176.1	171.8	202.5	152.9	167.3	16.7
11	175.8	173.7	176.8	176.0	164.4	166.0	187.8	137.9	164.8	190.8	140.1	168.5	16.9
12	195.3	181.8	200.9	184.3	162.1	180.8	178.5	159.3	185.6	166.4	180.3	179.5	12.9
13	204.8	194.4	217.7	166.0	194.4	205.5	185.3	195.2	198.4	175.4	195.4	193.8	14.3
14	177.0	205.2	201.9	177.8	189.1	207.9	158.1	225.7	192.8	199.8	209.9	195.0	18.8
15	222.5	194.9	211.8	198.1	198.6	205.6	193.5	212.1	208.3	195.7	199.5	203.7	9.1
16	195.8	212.6	200.4	194.4	187.7	195.5	207.8	204.8	205.4	214.9	206.8	202.4	8.4
17	217.8	182.0	206.5	195.0	198.4	186.4	178.2	201.3	198.6	204.8	205.3	197.6	11.7
18	181.0	176.5	190.0	187.9	189.8	189.2	195.3	195.8	191.0	211.1	224.2	193.8	13.4
19	190.3	179.4	181.7	178.6	187.3	187.6	197.4	201.1	193.7	190.9	207.9	190.5	9.1
20	197.5	178.4	193.4	186.8	177.6	191.7	204.5	199.5	186.3	189.7	195.3	190.9	8.4
21	188.5	186.0	188.8	175.8	191.4	183.2	207.4	211.8	199.9	187.4	187.3	191.6	10.6
22	195.8	199.0	195.4	188.4	198.2	190.0	188.2	197.7	209.5	194.6	189.3	195.1	6.3
23	183.8	200.8	192.1	183.0	193.4	190.2	189.8	209.8	197.9	198.7	198.1	194.3	7.8
24	178.8	194.1	185.6	174.3	202.5	189.2	184.8	199.3	188.9	192.8	194.5	189.5	8.4
25	192.8	188.4	187.0	179.0	200.9	186.1	193.9	190.5	197.6	191.2	204.3	192.0	7.2
26	203.0	189.2	177.4	179.4	196.0	195.5	176.7	189.9	198.2	198.6	189.7	190.3	9.1
27	196.5	182.9	165.3	188.9	194.0	178.9	161.6	187.7	170.5	173.9	181.2	180.1	11.4
28	186.5	156.8	157.1	183.2	189.9	182.1	164.1	182.4	184.6	186.7	179.3	177.5	12.2
29	184.0	159.9	170.9	130.0	157.4	154.7	181.6	170.8	200.8	171.0	175.4	168.8	18.4
30	158.3	156.3	163.4	138.0	163.2	156.6	166.2	170.1	153.9	144.2	169.2	158.1	10.0
31	175.0	179.0	160.3	129.6	157.8	154.8	155.3	130.5	148.4	146.4	156.9	154.0	15.4
32	171.0	129.8	139.7	105.5	121.3	152.5	122.3	144.6	133.4	128.5	158.6	137.0	18.8
33	171.8	145.7	108.3	100.1	166.7	154.3	124.6	99.6	111.5	147.2	137.4	133.4	26.1
34	134.5	91.7	137.2	80.4	143.2	150.9	88.9	104.6	152.4	132.8	153.4	124.5	27.7
35	114.8	129.0	131.9	98.2	127.4	94.9	126.6	127.1	138.7	104.8	138.5	121.1	15.5
36	89.3	129.8	99.1	80.3	106.6	125.4	98.2	106.1	107.7	114.5	87.3	104.0	15.4
37	83.5	76.0	43.9	60.6	68.0	61.3	57.0	58.2	71.1	43.4	21.8	58.6	17.3
TOTAL	6049.3	5991.6	6016.6	5521.1	5803.2	5747.3	5664.3	5909.9	5916.4	5984.6	5912.9	5865.2	164.4

TABLE 10. GROWING DEGREE DAYS SUMMARY FOR POZA RICA.

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THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	99.8	98.8	106.8	64.8	86.5	91.2	47.9	87.4	86.1	104.7	68.4	85.6	18.4
2	62.3	129.0	75.2	84.1	47.3	86.2	70.4	119.6	56.5	78.1	74.1	80.2	24.7
3	75.3	112.0	108.5	76.3	82.2	62.2	88.5	99.4	76.9	126.9	91.3	90.8	19.2
4	90.5	107.0	127.3	92.7	69.0	73.0	81.2	75.6	96.5	75.7	107.1	90.5	18.0
5	79.8	104.4	125.0	133.0	72.7	80.5	80.3	69.4	78.4	107.4	86.6	92.5	21.6
6	98.5	91.3	100.5	84.5	111.8	80.5	102.3	106.0	119.1	106.5	104.5	100.5	11.4
7	155.3	137.4	136.0	151.8	90.2	95.8	104.1	104.7	115.9	98.3	122.2	119.2	22.9
8	149.3	147.5	145.3	135.4	135.5	101.3	123.7	131.3	113.2	161.7	115.9	132.7	18.0
9	156.0	135.4	156.8	145.0	142.7	116.3	144.2	148.1	132.9	147.4	123.6	140.7	12.7
10	117.8	156.2	153.2	134.7	139.2	144.2	152.2	156.1	151.8	182.5	133.0	147.3	16.7
11	155.8	153.7	156.8	156.0	144.4	146.0	167.8	117.9	144.8	170.8	120.1	148.5	16.9
12	175.3	161.8	180.9	164.3	142.1	160.9	158.5	139.3	165.6	146.4	160.3	159.5	12.9
13	184.8	174.4	197.7	146.0	174.4	185.5	165.3	175.2	178.4	155.4	175.4	173.8	14.3
14	157.0	185.2	181.9	157.8	169.1	187.9	138.1	205.7	172.8	179.8	189.9	175.0	18.8
15	202.5	174.9	191.8	178.1	178.6	185.6	173.5	192.1	188.3	175.7	179.5	183.7	9.1
16	175.8	192.7	180.4	174.4	167.7	175.5	187.8	184.8	185.4	194.9	186.8	182.4	8.4
17	197.8	162.0	186.5	175.0	178.4	166.4	158.2	181.3	178.6	184.8	185.3	177.6	11.7
18	161.0	156.5	170.0	167.9	169.8	169.2	175.3	175.8	171.0	191.1	204.2	173.8	13.4
19	170.3	159.4	161.7	158.6	167.3	167.6	177.4	181.1	173.7	170.9	187.9	170.5	9.1
20	177.5	158.4	173.4	166.8	157.6	171.7	184.5	179.6	166.3	169.7	175.3	170.9	8.4
21	168.5	166.0	168.8	155.8	171.4	163.2	187.4	191.8	179.9	167.4	167.3	171.6	10.6
22	175.8	179.0	175.4	168.4	178.2	170.0	168.2	177.7	189.5	174.6	169.3	175.1	6.3
23	163.8	180.8	172.1	163.0	173.4	170.2	169.8	189.8	177.9	178.7	178.1	174.3	7.8
24	158.8	174.1	165.6	154.3	182.5	169.2	164.8	179.3	168.9	172.8	174.5	169.5	8.4
25	172.8	168.4	167.0	159.0	180.9	166.1	173.9	170.5	177.6	171.2	184.4	172.0	7.2
26	183.0	169.2	157.4	159.4	176.0	175.5	156.7	169.9	178.2	178.6	169.7	170.3	9.1
27	176.5	162.9	145.3	168.9	174.0	158.9	141.6	167.7	150.5	153.9	161.2	160.1	11.4
28	166.5	136.8	137.1	163.2	169.9	162.1	144.1	162.4	164.6	166.7	159.3	157.5	12.2
29	164.0	139.9	150.9	110.0	137.4	134.7	161.6	150.8	180.8	151.0	155.4	148.8	18.4
30	138.3	136.3	143.5	118.0	143.2	136.7	146.2	150.1	133.9	124.2	149.2	138.1	10.0
31	155.0	159.0	140.3	109.6	137.8	134.8	135.3	110.5	128.5	126.4	136.9	134.0	15.4
32	151.0	109.8	119.7	85.5	101.3	132.5	102.3	124.6	113.4	108.5	138.6	117.0	18.8
33	151.8	125.7	88.3	80.1	146.7	134.3	104.6	79.6	91.5	127.2	117.4	113.4	26.1
34	114.5	71.7	117.2	62.5	123.2	130.9	68.9	84.6	132.4	112.8	133.4	104.7	27.4
35	94.8	109.0	111.9	78.2	107.4	75.8	106.6	107.1	118.7	84.8	118.5	101.1	15.4
36	69.3	109.8	79.1	60.4	86.6	105.4	78.2	86.1	87.7	94.5	69.6	84.2	15.1
37	71.5	64.0	31.9	48.6	58.0	51.3	47.0	46.2	61.1	33.4	16.5	48.1	16.0
TOTAL	5317.3	5259.6	5286.1	4791.2	5073.2	5018.3	4937.7	5177.9	5186.4	5254.6	5189.9	5135.6	163.7

TABLE 11. GROWING DEGREE DAYS SUMMARY FOR POZA RICA.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 12.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A P S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	79.8	78.8	86.8	44.8	66.5	71.2	34.7	67.4	66.1	84.7	48.4	66.3	17.0
2	45.8	109.0	57.2	64.1	28.6	66.2	50.4	99.6	36.5	59.8	54.1	61.0	24.3
3	56.0	92.0	88.5	56.3	62.2	42.2	68.5	79.4	56.9	106.9	71.3	70.9	19.1
4	70.5	87.0	107.3	72.7	49.0	53.0	61.2	56.6	76.5	56.2	87.1	70.6	17.9
5	59.8	84.5	105.0	113.0	52.7	60.5	60.5	49.4	58.7	87.4	66.6	72.5	21.0
6	78.5	71.3	80.5	64.5	91.8	60.5	82.3	86.0	59.1	86.5	84.5	80.5	11.4
7	135.3	117.4	116.0	131.8	70.2	75.8	84.1	86.4	95.9	78.3	102.2	99.4	22.8
8	129.3	127.5	125.3	115.4	115.5	81.3	103.7	111.3	93.2	141.7	95.9	112.7	18.0
9	136.0	115.4	136.8	125.0	122.7	96.3	124.2	128.1	112.9	127.4	103.6	120.7	12.7
10	97.8	136.2	133.2	114.7	119.2	124.2	132.2	136.1	131.8	162.5	113.0	127.3	16.7
11	135.8	133.7	136.8	136.0	124.4	126.0	147.8	97.9	124.8	150.8	100.1	128.5	16.9
12	155.3	141.8	160.8	144.3	122.1	140.9	138.5	119.3	145.6	126.4	140.3	139.5	12.9
13	164.8	154.4	177.7	126.0	154.4	165.5	145.3	155.2	158.4	135.4	155.4	153.8	14.3
14	137.0	165.2	162.0	137.8	149.1	167.9	118.1	185.7	152.9	159.8	169.9	155.0	18.8
15	182.5	154.9	171.8	158.1	158.6	165.6	153.5	172.1	168.3	155.7	159.5	163.7	9.1
16	155.8	172.7	160.4	154.4	147.7	155.5	167.8	164.8	165.4	174.9	166.8	162.4	8.4
17	177.8	142.0	166.5	155.0	158.4	146.4	138.2	161.3	158.6	164.8	165.3	157.6	11.7
18	141.0	136.5	149.9	147.9	149.8	149.2	155.3	155.8	151.0	171.1	184.2	153.8	13.4
19	150.3	139.4	141.7	138.6	147.3	147.6	157.4	161.1	153.7	150.9	167.9	150.5	9.1
20	157.5	138.4	153.4	146.8	137.6	151.7	164.5	159.6	146.3	149.6	155.3	150.9	8.4
21	148.5	146.0	148.8	135.8	151.4	143.2	167.4	171.8	159.9	147.4	147.3	151.6	10.6
22	155.8	159.0	155.4	148.4	158.2	150.0	148.2	157.7	169.5	154.6	149.3	155.1	6.3
23	143.8	160.8	152.1	143.0	153.4	150.2	149.8	169.8	157.9	158.7	158.1	154.3	7.8
24	138.8	154.1	145.6	134.3	162.5	149.2	144.8	159.3	148.9	152.8	154.5	149.5	8.4
25	152.8	148.4	147.0	139.0	160.9	146.1	154.0	150.5	157.7	151.2	164.4	152.0	7.2
26	163.0	149.2	137.4	139.4	156.0	155.5	136.7	149.9	158.2	158.6	149.7	150.3	9.1
27	156.5	142.9	125.3	148.9	154.0	139.0	121.6	147.7	130.5	133.9	141.2	140.1	11.4
28	146.5	116.8	117.1	143.2	149.9	142.1	124.1	142.4	144.6	146.7	139.3	137.5	12.2
29	144.0	119.9	130.9	90.0	117.4	114.7	141.6	130.8	160.8	131.0	135.4	128.8	18.4
30	118.3	116.3	123.5	98.0	123.2	116.7	126.2	130.1	113.9	104.2	129.2	118.1	10.0
31	135.0	139.0	120.3	89.6	117.8	114.8	115.3	90.5	108.5	106.4	116.9	114.0	15.4
32	131.0	89.8	99.7	65.5	81.3	112.5	82.3	104.6	93.4	88.5	118.6	97.0	18.8
33	131.8	105.7	68.3	60.1	126.7	114.3	84.6	59.6	71.5	107.2	97.4	93.4	26.1
34	94.5	51.7	97.2	46.5	103.2	110.9	48.9	64.6	112.4	92.8	113.4	85.1	26.8
35	74.8	89.0	91.9	58.2	87.4	58.4	86.6	87.1	98.7	64.8	98.5	81.4	15.0
36	50.0	89.8	59.1	40.6	67.3	85.4	58.2	66.1	67.7	74.5	53.6	64.7	14.7
37	59.5	52.0	20.9	36.6	48.0	41.3	37.0	34.2	51.1	23.4	12.5	37.8	14.5
TOTAL	4590.3	4527.6	4557.2	4063.4	4345.2	4290.9	4214.8	4448.7	4456.6	4526.8	4469.9	4408.3	162.9

TABIE 12. GROWING DEGREE DAYS SUMMARY FOR POZA RICA.

14

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S												MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83			
1	119.8	116.8	126.8	84.8	105.2	111.2	64.5	107.4	106.1	122.1	88.4	104.8	18.7	
2	82.3	149.0	93.7	104.1	67.3	106.2	90.4	139.3	76.5	97.7	94.1	100.0	24.7	
3	95.3	132.0	128.5	96.3	102.2	82.2	105.4	119.4	96.9	146.9	111.3	110.6	19.3	
4	110.5	126.5	147.3	112.7	89.0	93.0	101.2	95.6	116.5	95.2	127.1	110.4	18.0	
5	99.8	124.4	142.5	153.0	92.7	100.5	100.3	88.0	95.9	126.5	106.6	111.8	21.5	
6	118.5	111.3	117.5	104.5	125.2	99.9	120.3	123.0	139.1	126.5	124.5	119.1	10.9	
7	166.3	156.9	154.0	169.2	109.5	115.8	124.1	122.1	133.9	116.0	135.8	136.7	21.5	
8	151.3	160.0	158.3	152.6	142.8	116.2	142.5	142.3	131.2	171.2	130.6	145.4	15.6	
9	159.5	150.4	148.8	157.4	151.9	136.3	158.0	155.2	146.2	162.5	138.1	151.3	8.5	
10	133.3	138.0	156.1	147.4	142.2	163.2	164.1	159.0	160.0	172.2	128.4	151.2	14.2	
11	157.8	156.8	166.8	169.1	160.8	153.9	166.8	127.9	163.3	166.2	129.5	156.3	14.4	
12	157.8	172.1	169.4	176.0	159.7	170.9	166.3	148.3	175.8	159.7	159.0	165.0	8.8	
13	168.3	181.6	160.2	156.7	171.6	150.4	165.8	168.5	178.4	173.8	165.9	167.4	9.2	
14	162.5	168.5	172.6	156.5	178.7	168.1	152.6	170.8	166.8	179.6	169.4	167.8	8.2	
15	157.5	172.6	173.2	174.3	179.0	167.9	175.5	166.4	177.8	178.8	169.4	172.0	6.4	
16	177.8	167.4	169.1	163.4	163.2	174.5	178.3	175.4	178.2	178.4	174.3	172.7	5.9	
17	179.8	169.4	170.1	172.5	169.8	166.6	163.6	160.7	178.7	171.2	160.7	169.3	6.3	
18	173.5	173.8	179.3	172.1	181.6	174.4	170.1	179.4	180.5	169.0	159.8	173.9	6.3	
19	183.3	177.9	176.1	175.3	176.8	172.6	170.8	167.4	177.6	170.8	164.9	174.0	5.2	
20	180.5	176.9	177.7	179.4	172.0	168.2	165.1	167.3	177.9	173.3	179.7	174.3	5.5	
21	179.0	176.6	170.9	171.0	176.5	173.7	161.2	160.5	176.9	171.0	175.8	172.1	6.2	
22	179.3	177.6	170.1	164.1	165.7	167.2	168.5	169.8	186.6	167.7	174.3	171.9	6.8	
23	180.3	173.9	176.1	165.5	175.9	173.5	178.3	171.6	172.7	166.2	173.4	173.4	4.5	
24	175.8	167.3	174.1	170.2	175.0	170.4	171.1	171.3	174.9	167.4	170.4	171.6	3.0	
25	178.3	169.3	172.0	168.2	175.1	173.4	176.7	175.7	176.6	165.6	162.6	172.1	5.1	
26	177.5	164.8	176.4	169.1	171.3	173.0	171.2	175.1	172.9	168.2	176.0	172.3	3.9	
27	176.5	179.2	155.8	172.8	176.8	169.7	159.3	174.1	163.8	168.2	171.1	169.7	7.5	
28	173.5	150.8	151.0	167.9	176.1	175.2	150.8	172.0	177.3	164.8	168.9	166.2	10.5	
29	178.5	159.2	166.9	130.0	145.2	153.7	167.1	164.7	177.6	159.6	164.5	160.6	14.0	
30	158.3	156.3	159.8	137.8	161.2	156.6	153.0	158.8	151.5	144.2	162.7	154.6	7.6	
31	170.5	175.2	159.8	129.6	153.4	154.8	153.8	124.5	147.4	144.5	155.7	151.7	15.2	
32	168.0	129.8	138.7	105.5	120.0	152.5	120.3	143.9	132.9	128.5	154.4	135.8	18.0	
33	169.8	145.7	108.3	100.1	166.7	153.8	123.4	99.6	111.5	146.9	134.0	132.7	25.8	
34	128.0	91.7	137.2	80.2	142.2	148.1	88.9	104.6	149.9	132.8	152.5	123.3	26.9	
35	114.8	129.0	131.9	98.2	127.4	94.6	126.6	127.1	138.7	104.8	137.5	120.9	15.5	
36	89.3	129.8	99.1	80.3	106.6	125.4	98.2	106.1	107.7	114.5	87.3	104.0	15.4	
37	83.5	76.0	43.9	60.6	68.0	61.3	57.0	58.2	68.1	43.4	19.5	58.1	17.6	
TOTAL	5615.3	5633.9	5579.3	5247.7	5423.3	5368.1	5270.4	5340.0	5543.3	5515.1	5357.5	5444.9	138.4	

TABLE 13. GFCWING DEGREE DAYS SUMMARY FOR POZA RICA.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	99.8	96.8	106.8	64.8	85.2	91.2	47.9	87.4	86.1	102.1	68.4	85.1	18.0
2	62.3	129.0	75.2	84.1	47.3	86.2	70.4	119.3	56.5	77.7	74.1	80.2	24.7
3	75.3	112.0	108.5	76.3	82.2	62.2	85.4	99.4	76.9	126.9	91.3	90.6	19.3
4	90.5	106.5	127.3	92.7	69.0	73.0	81.2	75.6	96.5	75.2	107.1	90.4	18.0
5	79.8	104.4	122.5	133.0	72.7	80.5	80.3	68.0	75.9	106.5	86.6	91.8	21.5
6	98.5	91.3	97.5	84.5	105.2	79.9	100.4	103.0	119.1	106.5	104.5	99.1	10.9
7	146.3	136.9	134.0	149.2	89.5	95.8	104.1	102.1	113.9	96.0	115.8	116.7	21.5
8	131.3	140.0	138.3	132.6	122.8	96.2	122.5	122.3	111.2	151.2	110.6	125.4	15.6
9	139.5	130.4	128.8	137.4	131.9	116.3	138.0	135.2	126.2	142.4	118.1	131.3	8.5
10	113.3	118.0	136.1	127.4	122.2	143.2	144.1	139.0	140.0	152.2	108.4	131.2	14.2
11	137.8	136.8	146.9	149.2	140.8	133.9	146.8	107.9	143.3	146.2	109.5	136.3	14.4
12	137.8	152.1	149.4	156.0	139.7	150.9	146.3	128.3	155.8	139.7	139.0	145.0	8.8
13	148.3	161.6	140.2	136.7	151.6	130.4	145.8	148.5	158.4	153.8	145.9	147.4	9.2
14	142.5	148.5	152.6	136.5	158.7	148.1	132.6	150.8	146.8	159.6	149.4	147.8	8.2
15	137.5	152.6	153.2	154.3	159.0	147.9	155.5	146.4	157.8	158.8	149.4	152.0	6.4
16	157.8	147.4	149.1	143.4	143.2	154.5	158.3	155.4	158.2	158.4	154.3	152.7	5.9
17	159.8	149.4	150.1	152.5	149.8	146.6	143.6	140.7	158.7	151.2	140.7	149.3	6.3
18	153.5	153.8	159.3	152.1	161.6	154.4	150.1	159.4	160.5	149.0	139.8	153.9	6.3
19	163.3	157.9	156.1	155.3	156.8	152.6	150.8	147.4	157.6	150.8	144.9	153.9	5.2
20	160.5	156.9	157.7	159.4	152.0	148.2	145.1	147.3	157.9	153.3	159.7	154.3	5.5
21	159.0	156.6	150.9	151.0	156.5	153.7	141.2	140.5	156.9	151.0	155.8	152.1	6.2
22	159.3	157.6	150.1	144.1	145.8	147.2	148.5	149.8	166.6	147.7	154.4	151.9	6.8
23	160.3	153.9	156.1	145.5	155.9	153.5	158.3	151.6	152.7	146.2	153.4	153.4	4.5
24	155.8	147.3	154.1	150.2	155.0	150.4	151.1	151.3	154.9	147.4	150.4	151.6	3.0
25	158.3	149.3	152.0	148.2	155.1	153.4	156.7	155.7	156.6	145.6	142.6	152.1	5.1
26	157.5	144.8	156.4	149.1	151.3	152.9	151.2	155.1	152.9	148.2	156.0	152.3	3.9
27	156.5	159.2	135.8	152.8	156.8	149.7	139.3	154.1	143.8	148.2	151.1	149.7	7.5
28	153.5	130.8	131.0	147.9	156.2	155.2	130.8	152.0	157.3	144.8	148.9	146.2	10.5
29	158.5	139.2	146.9	110.0	125.2	133.7	147.1	144.7	157.6	139.6	144.5	140.6	14.0
30	138.3	136.3	139.8	117.8	141.2	136.7	133.0	138.8	131.5	124.2	142.7	134.6	7.6
31	150.5	155.2	139.8	109.6	133.4	134.8	133.8	104.5	127.5	124.5	135.7	131.7	15.2
32	148.0	109.8	118.7	85.5	100.0	132.5	100.3	123.9	112.9	108.5	134.4	115.8	18.0
33	149.8	125.7	88.3	80.1	146.7	133.8	103.4	79.6	91.5	126.9	114.0	112.7	25.8
34	108.0	71.7	117.2	62.3	122.2	128.1	68.9	84.6	129.9	112.8	132.5	103.4	26.6
35	94.8	109.0	111.9	78.2	107.4	75.5	106.6	107.1	118.7	84.8	117.5	101.0	15.3
36	69.3	109.8	79.1	60.4	86.6	105.4	78.2	86.1	87.7	94.5	69.6	84.2	15.1
37	71.5	64.0	31.9	48.6	58.0	51.3	47.0	46.2	58.1	33.4	14.3	47.6	16.2
TOTAL	4883.3	4901.9	4848.8	4517.8	4693.3	4639.0	4543.8	4608.0	4813.3	4785.1	4634.5	4715.3	137.1

TABLE 14. GROWING DEGREE DAYS SUMMARY FOR POZA RICA.

16

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 12.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	79.8	76.9	86.8	44.8	65.2	71.2	34.7	67.4	66.1	82.1	48.4	65.7	16.6
2	45.8	109.0	57.2	64.1	28.6	66.2	50.4	99.3	36.5	59.4	54.1	60.9	24.2
3	56.0	92.0	88.5	56.3	62.2	42.2	65.4	79.4	56.9	106.9	71.3	70.6	19.2
4	70.5	86.5	107.3	72.7	49.0	53.0	61.2	56.6	76.5	55.7	87.1	70.5	17.8
5	59.8	84.5	102.5	113.0	52.7	60.5	60.5	48.0	56.2	86.5	66.6	71.9	21.5
6	78.5	71.3	77.5	64.5	85.2	59.9	80.4	83.0	99.1	86.5	84.5	79.1	10.9
7	126.3	116.9	114.0	129.2	69.5	75.8	84.1	83.8	93.9	76.0	95.8	96.8	21.4
8	111.3	120.0	118.3	112.6	102.8	76.2	102.5	102.3	91.2	131.2	90.6	105.4	15.6
9	119.5	110.4	108.8	117.4	111.9	96.3	118.0	115.2	106.2	122.5	98.1	111.3	8.5
10	93.3	98.0	116.2	107.4	102.2	123.2	124.1	119.0	120.0	132.2	88.4	111.2	14.2
11	117.8	116.8	126.9	129.2	120.8	113.9	126.8	87.9	123.3	126.2	89.5	116.3	14.4
12	117.8	132.1	129.4	136.0	119.7	131.0	126.3	108.3	135.8	119.7	119.0	125.0	8.8
13	128.3	141.6	120.2	116.7	131.6	110.4	125.8	128.5	138.4	133.8	125.9	127.4	9.2
14	122.5	128.5	132.6	116.5	138.7	128.1	112.6	130.8	126.8	139.6	129.4	127.8	8.2
15	117.5	132.6	133.2	134.3	139.0	127.9	135.5	126.3	137.8	138.8	129.4	132.0	6.4
16	137.8	127.3	129.1	123.4	123.2	134.5	138.3	135.4	138.2	138.4	134.3	132.7	5.9
17	139.8	129.4	130.1	132.5	129.8	126.6	123.6	120.7	138.7	131.2	120.7	129.3	6.3
18	133.5	133.8	139.3	132.1	141.6	134.4	130.1	139.4	140.5	129.0	119.8	133.9	6.3
19	143.3	137.9	136.1	135.3	136.8	132.6	130.8	127.5	137.6	130.8	125.0	134.0	5.2
20	140.5	136.9	137.7	139.4	132.0	128.2	125.1	127.3	137.9	133.3	139.7	134.3	5.5
21	139.0	136.6	130.9	131.0	136.5	133.7	121.2	120.5	136.9	131.0	135.8	132.1	6.2
22	139.3	137.6	130.2	124.1	125.8	127.2	128.5	129.8	146.6	127.7	134.4	131.9	6.8
23	140.3	133.9	136.1	125.5	135.9	133.5	138.3	131.6	132.7	126.2	133.4	133.4	4.5
24	135.8	127.3	134.1	130.2	135.0	130.4	131.1	131.3	134.9	127.4	130.4	131.6	3.0
25	138.3	129.3	132.0	128.2	135.1	133.4	136.7	135.7	136.6	125.6	122.6	132.1	5.1
26	137.5	124.8	136.4	129.1	131.3	133.0	131.2	135.1	132.9	128.2	136.0	132.3	3.9
27	136.5	139.2	115.8	132.8	136.8	129.7	119.3	134.1	123.8	128.2	131.1	129.7	7.5
28	133.5	110.8	111.0	127.9	136.2	135.2	110.8	132.0	137.3	124.8	128.9	126.2	10.5
29	138.5	119.2	126.9	90.0	105.2	113.7	127.1	124.7	137.6	119.6	124.5	120.6	14.0
30	118.3	116.3	119.8	97.8	121.2	116.7	113.0	118.8	111.5	104.2	122.7	114.6	7.6
31	130.5	135.2	119.8	89.6	113.4	114.8	113.8	84.5	107.5	104.5	115.7	111.7	15.2
32	128.0	89.8	98.7	65.5	80.0	112.5	80.3	103.9	92.9	88.5	114.4	95.8	18.0
33	129.8	105.7	68.3	60.1	126.7	113.8	83.4	59.6	71.5	106.9	94.0	92.7	25.8
34	88.0	51.7	97.2	46.3	102.2	108.1	48.9	64.6	109.9	92.8	112.5	83.8	26.0
35	74.8	89.0	91.9	58.2	87.4	58.1	86.6	87.1	98.7	64.8	97.5	81.3	14.9
36	50.0	89.8	59.1	40.6	67.3	85.4	58.2	66.1	67.7	74.5	53.6	64.7	14.7
37	59.5	52.0	20.9	36.6	48.0	41.3	37.0	34.2	48.1	23.4	10.3	37.4	14.7
TOTAL	4156.3	4169.9	4119.7	3790.0	3965.3	3911.6	3820.9	3878.8	4083.5	4057.3	3914.5	3988.0	135.5

TABLE 15. SUMMARY OF STRESS DAYS RECEIVED AT PCZA RICA.

THE DAILY DATA WERE SUMMARIZED BY 10 DAY PERIODS. THE NUMBER OF DAYS WITH TEMPERATURES OVER 31.0 WERE RECORDED IN EACH PERIOD.

PERIOD	Y E A P S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.3	0.5
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.2	0.4
3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.2	0.6
4	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.2	0.4
5	0.0	0.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.5	0.7
6	0.0	0.0	1.0	0.0	2.0	1.0	2.0	1.0	0.0	0.0	0.0	0.6	0.8
7	3.0	1.0	1.0	2.0	1.0	0.0	0.0	4.0	1.0	2.0	1.0	1.5	1.2
8	6.0	5.0	2.0	2.0	5.0	2.0	1.0	4.0	2.0	6.0	3.0	3.5	1.8
9	4.0	3.0	8.0	4.0	4.0	0.0	4.0	5.0	4.0	4.0	2.0	3.8	1.9
10	3.0	7.0	5.0	3.0	5.0	1.0	6.0	6.0	5.0	10.0	5.0	5.1	2.3
11	5.0	6.0	6.0	4.0	4.0	4.0	8.0	2.0	2.0	8.0	3.0	4.7	2.1
12	7.0	6.0	9.0	8.0	2.0	6.0	6.0	3.0	6.0	3.0	8.0	5.8	2.3
13	8.0	8.0	10.0	4.0	10.0	9.0	8.0	8.0	9.0	4.0	9.0	7.9	2.1
14	4.0	9.0	9.0	6.0	7.0	10.0	4.0	10.0	7.0	9.0	9.0	7.6	2.2
15	10.0	9.0	10.0	9.0	9.0	10.0	6.0	10.0	8.0	6.0	8.0	8.6	1.5
16	7.0	9.0	6.0	10.0	10.0	9.0	10.0	10.0	10.0	10.0	8.0	9.0	1.4
17	9.0	6.0	10.0	9.0	9.0	9.0	7.0	10.0	6.0	10.0	10.0	8.6	1.6
18	3.0	2.0	10.0	8.0	6.0	6.0	9.0	9.0	7.0	10.0	10.0	7.3	2.8
19	5.0	3.0	5.0	4.0	8.0	9.0	10.0	10.0	7.0	8.0	9.0	7.1	2.5
20	9.0	2.0	8.0	5.0	5.0	10.0	10.0	10.0	6.0	9.0	10.0	7.6	2.7
21	7.0	8.0	9.0	5.0	9.0	6.0	10.0	10.0	9.0	9.0	6.0	8.0	1.7
22	8.0	10.0	10.0	10.0	10.0	9.0	8.0	9.0	10.0	10.0	8.0	9.3	0.9
23	3.0	10.0	10.0	8.0	10.0	8.0	8.0	9.0	9.0	10.0	9.0	8.5	2.0
24	3.0	10.0	8.0	5.0	10.0	9.0	8.0	10.0	6.0	9.0	10.0	8.0	2.4
25	7.0	8.0	6.0	6.0	9.0	7.0	9.0	7.0	7.0	10.0	10.0	7.8	1.5
26	9.0	8.0	1.0	5.0	10.0	9.0	4.0	8.0	10.0	10.0	8.0	7.5	2.9
27	9.0	4.0	4.0	9.0	8.0	5.0	2.0	5.0	6.0	5.0	6.0	5.7	2.2
28	8.0	2.0	2.0	6.0	9.0	8.0	10.0	6.0	5.0	9.0	7.0	6.5	2.7
29	5.0	3.0	3.0	0.0	5.0	2.0	9.0	6.0	10.0	4.0	7.0	4.9	3.0
30	0.0	0.0	3.0	1.0	3.0	0.0	6.0	3.0	2.0	0.0	6.0	2.2	2.3
31	4.0	5.0	1.0	0.0	5.0	0.0	1.0	2.0	1.0	2.0	2.0	2.1	1.8
32	4.0	0.0	2.0	0.0	1.0	0.0	1.0	2.0	1.0	0.0	3.0	1.3	1.3
33	4.0	0.0	0.0	0.0	0.0	1.0	2.0	0.0	0.0	1.0	2.0	0.9	1.3
34	2.0	0.0	0.0	1.0	1.0	2.0	0.0	0.0	2.0	0.0	1.0	0.8	0.9
35	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.2	0.4
36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.2	0.4
TOTAL	156.0	146.0	161.0	134.0	178.0	153.0	171.0	181.0	160.0	182.0	182.0	164.0	16.2
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TABLE 16. GROWING DEGREE DAYS SUMMARY FOR TLAITZAPAN.

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THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	125.5	119.0	114.9	104.1	111.2	110.7	103.2	109.3	103.8	122.3	118.9	113.0	7.7
2	106.0	122.3	99.1	108.9	112.7	91.6	110.7	121.6	108.5	125.5	116.8	111.2	10.2
3	104.5	121.2	120.2	108.2	140.3	112.4	129.4	118.3	94.4	125.3	89.0	114.8	15.1
4	117.5	132.9	131.7	121.2	131.7	111.6	141.4	112.6	130.8	122.1	110.2	124.0	10.4
5	130.5	131.8	123.4	109.4	134.8	111.2	145.0	135.5	125.5	142.1	102.2	126.5	13.8
6	155.0	132.9	134.2	95.2	137.9	123.0	142.0	140.1	147.8	147.0	100.5	132.3	19.1
7	157.0	141.4	156.2	115.7	143.7	128.6	144.4	146.8	168.2	136.3	120.9	141.7	15.8
8	167.0	145.1	135.9	164.9	159.0	121.9	159.9	172.9	162.2	162.4	123.1	152.2	17.9
9	164.0	126.4	133.9	165.8	171.4	164.9	169.0	164.4	129.1	172.8	140.8	154.8	18.2
10	161.5	162.3	173.4	162.2	171.8	165.8	180.1	179.1	178.6	185.8	147.4	169.8	11.2
11	179.5	187.5	175.8	178.7	157.1	170.5	177.3	174.9	175.6	183.5	157.9	174.4	9.5
12	194.5	186.7	170.1	180.7	165.5	169.9	177.4	179.1	184.5	178.8	173.1	178.2	8.4
13	201.5	171.9	192.9	179.2	176.9	171.7	167.1	188.4	177.8	186.7	189.4	182.1	10.5
14	194.0	192.6	177.1	170.9	179.6	190.3	182.3	200.2	195.1	188.0	195.2	187.7	9.1
15	198.0	180.9	173.5	188.8	171.4	188.0	185.3	191.1	192.4	194.5	191.7	186.9	8.4
16	187.0	184.8	167.0	189.3	170.8	171.6	190.8	193.4	185.7	184.8	195.0	183.6	9.6
17	184.5	172.6	163.3	181.7	165.2	168.2	185.2	203.3	170.3	186.9	189.1	179.1	12.2
18	160.0	160.0	160.3	176.6	150.8	169.0	195.1	173.6	170.0	180.6	187.3	171.2	13.2
19	164.0	156.6	151.1	171.3	158.4	166.0	183.4	167.6	157.5	162.0	177.8	165.0	9.6
20	168.0	145.7	158.7	159.7	151.9	173.3	167.1	174.2	164.9	169.1	169.0	163.8	8.9
21	165.0	157.8	151.3	159.0	151.9	162.1	168.5	172.5	166.6	160.6	168.5	162.1	6.9
22	161.5	164.1	156.7	163.2	156.8	159.5	162.3	164.1	158.6	169.8	170.2	162.4	4.6
23	164.0	161.8	153.6	166.2	156.3	161.5	164.0	169.2	167.8	168.8	163.8	163.4	4.9
24	155.5	157.8	150.5	158.1	156.2	164.4	163.4	160.8	164.4	164.1	165.9	160.1	4.8
25	170.0	158.3	155.4	162.4	151.2	164.2	165.4	161.9	160.8	176.0	170.3	163.2	7.1
26	162.0	148.3	153.7	169.3	150.5	163.8	167.0	162.2	166.3	166.5	164.6	161.3	7.1
27	157.5	152.2	146.3	165.3	151.7	159.6	146.7	161.9	161.7	164.1	162.1	157.2	6.8
28	153.0	141.2	143.3	168.7	150.1	162.8	132.2	157.1	165.0	171.0	160.7	155.0	12.3
29	159.0	130.9	156.6	145.7	141.6	146.6	137.8	145.7	161.6	160.9	156.7	149.4	10.3
30	147.0	135.6	135.7	156.1	144.8	146.4	158.0	168.6	146.9	149.4	155.9	149.5	9.7
31	144.0	148.3	142.6	149.3	139.6	151.9	135.3	155.2	152.1	134.1	149.9	145.6	7.1
32	123.5	133.1	126.2	117.2	114.5	137.2	134.7	126.8	132.3	116.3	145.8	127.9	9.8
33	125.0	130.6	118.9	136.0	124.0	143.0	132.3	135.1	102.5	132.4	141.2	129.2	11.4
34	117.5	105.2	120.4	133.8	116.9	145.5	130.2	137.5	125.3	125.3	146.4	127.6	12.6
35	102.0	117.4	104.2	127.3	119.6	132.0	134.4	130.4	119.8	131.4	134.8	123.0	11.6
36	98.0	116.4	111.3	134.2	89.7	123.7	126.7	113.7	117.4	91.3	119.4	112.9	14.4
37	55.5	71.5	50.7	74.9	57.7	59.0	59.9	63.0	65.1	59.6	55.9	61.1	7.1
TOTAL	5579.5	5404.3	5289.5	5518.9	5334.6	5462.6	5654.2	5731.4	5556.1	5697.4	5526.3	5523.1	142.5

TABLE 17. CPOWING DEGREE DAYS SUMMARY FOR TIALTIZAPAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	105.5	99.0	94.9	84.1	91.2	90.7	83.2	89.3	83.8	102.3	98.9	93.0	7.7
2	86.0	102.3	79.1	88.9	92.7	71.6	90.7	101.6	88.5	105.5	96.8	91.2	10.2
3	84.5	101.2	100.2	88.2	120.3	92.4	109.4	98.3	74.4	105.3	69.0	94.8	15.1
4	97.5	112.8	111.7	101.2	111.7	91.6	121.4	92.6	110.8	102.1	90.2	104.0	10.4
5	110.5	111.8	103.4	89.4	114.8	91.2	125.0	115.5	105.5	122.1	82.2	106.5	13.8
6	135.0	112.9	114.2	75.2	117.9	103.0	122.0	120.1	127.8	127.0	80.5	112.3	19.1
7	137.0	121.4	136.2	95.7	123.7	108.6	124.4	126.8	148.2	116.3	100.9	121.7	15.8
8	147.0	125.1	116.0	144.9	139.0	101.9	139.9	152.9	142.2	142.4	103.1	132.2	17.9
9	144.0	106.4	113.9	145.8	151.4	144.9	149.0	144.4	109.1	152.8	120.8	134.8	18.2
10	141.5	142.3	153.4	142.2	151.8	145.8	160.1	159.1	158.6	165.8	127.4	149.8	11.2
11	159.5	167.5	155.8	158.7	137.1	150.4	157.4	154.9	155.6	163.5	137.9	154.4	9.5
12	174.5	166.7	150.1	160.7	145.5	149.9	157.4	159.1	164.5	158.8	153.1	158.2	8.4
13	181.5	151.8	172.9	159.2	156.9	151.7	147.1	168.4	157.8	166.7	169.4	162.1	10.5
14	174.0	172.6	157.1	150.9	159.6	170.3	162.3	180.2	175.1	168.0	175.2	167.7	9.1
15	178.0	160.9	153.5	168.8	151.4	168.0	165.3	171.1	172.4	174.5	171.7	166.9	8.4
16	167.0	164.8	147.0	169.3	150.8	151.6	170.8	173.4	165.7	164.8	175.0	163.6	9.6
17	164.5	152.6	143.3	161.7	145.2	148.2	165.2	183.3	150.3	166.9	169.1	159.1	12.2
18	140.0	140.0	140.3	156.6	130.8	149.0	175.1	153.6	150.0	160.6	167.3	151.2	13.2
19	144.0	136.6	131.1	151.3	138.4	146.0	163.4	147.6	137.5	142.0	157.8	145.0	9.6
20	148.0	125.7	138.7	139.7	131.9	153.3	147.1	154.2	144.9	149.1	149.0	143.8	8.9
21	145.0	137.8	131.3	139.0	131.9	142.1	148.5	152.5	146.6	140.6	148.5	142.1	6.9
22	141.5	144.1	136.7	143.2	136.8	139.5	142.3	144.1	138.6	149.8	150.2	142.4	4.6
23	144.0	141.9	133.6	146.2	136.3	141.5	144.0	149.2	147.8	148.8	143.8	143.4	4.9
24	135.5	137.8	130.5	138.1	136.2	144.4	143.4	140.8	144.4	144.1	145.9	140.1	4.8
25	150.0	138.3	135.4	142.4	131.2	144.2	145.4	141.9	140.8	156.0	150.3	143.2	7.1
26	142.0	128.3	133.7	149.3	130.5	143.8	147.0	142.2	146.3	146.5	144.6	141.3	7.1
27	137.5	132.2	126.3	145.3	131.7	139.6	126.7	141.9	141.7	144.1	142.1	137.2	6.8
28	133.0	121.2	123.3	148.7	130.1	142.8	112.2	137.1	145.0	151.0	140.7	135.0	12.3
29	139.0	110.9	136.6	125.7	121.6	126.6	117.8	125.7	141.6	140.9	136.7	129.4	10.3
30	127.0	115.6	115.7	136.1	124.8	126.4	138.0	148.6	126.9	129.4	135.9	129.5	9.7
31	124.0	128.3	122.6	129.3	119.6	131.9	115.3	135.2	132.1	114.1	129.9	125.6	7.1
32	103.5	113.1	106.2	97.2	94.5	117.2	114.7	106.8	112.3	96.3	125.8	107.9	9.8
33	105.0	110.6	98.9	116.0	104.0	123.0	112.3	115.1	82.5	112.4	121.2	109.2	11.4
34	97.5	85.2	100.4	113.8	96.9	125.5	110.2	117.5	105.3	105.3	126.4	107.6	12.6
35	82.0	97.4	84.2	107.3	99.6	112.0	114.4	110.4	99.8	111.4	114.8	103.0	11.6
36	78.0	96.4	91.3	114.2	69.7	103.7	106.7	93.7	97.4	71.3	99.4	92.9	14.4
37	45.5	59.5	38.7	62.9	47.7	49.0	49.9	51.0	55.1	49.6	45.9	50.4	6.7
TOTAL	4849.5	4672.3	4557.5	4786.9	4604.6	4732.6	4924.2	4999.4	4826.1	4967.4	4796.3	4792.4	142.7

TABLE 18. GROWING DEGREE DAYS SUMMARY FOR TLALTIZAPAN.

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THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 12.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	85.5	79.0	74.9	64.1	71.2	70.7	63.2	69.3	63.8	82.3	78.9	73.0	7.7
2	66.0	82.3	59.1	68.9	72.7	51.6	70.7	81.6	68.5	85.5	76.8	71.2	10.2
3	64.5	81.2	80.2	68.2	100.3	72.4	89.4	78.3	54.4	85.3	49.0	74.8	15.1
4	77.5	92.8	91.7	81.2	91.7	71.6	101.4	72.6	90.8	82.1	70.2	84.0	10.4
5	90.5	91.8	83.4	69.4	94.8	71.2	105.0	95.5	85.5	102.1	62.2	86.5	13.8
6	115.0	92.9	94.2	55.2	97.9	83.0	102.0	100.1	107.8	107.0	60.5	92.3	19.1
7	117.0	101.4	116.2	75.7	103.7	88.6	104.4	106.8	128.2	96.3	80.9	101.7	15.8
8	127.0	105.1	96.0	124.9	119.0	81.9	119.9	132.9	122.2	122.4	83.1	112.2	17.9
9	124.0	86.4	93.9	125.8	131.4	124.9	129.0	124.4	89.1	132.8	100.8	114.8	18.2
10	121.5	122.3	133.5	122.2	131.8	125.8	140.1	139.1	138.6	145.8	107.4	129.8	11.2
11	139.5	147.5	135.8	138.7	117.2	130.5	137.4	134.9	135.6	143.5	117.9	134.4	9.5
12	154.5	146.7	130.1	140.7	125.5	129.9	137.4	139.1	144.5	138.8	133.1	138.2	8.4
13	161.5	131.9	152.9	139.2	136.9	131.7	127.1	148.4	137.8	146.7	149.4	142.1	10.5
14	154.0	152.6	137.1	130.9	139.6	150.3	142.3	160.2	155.1	148.0	155.2	147.7	9.1
15	158.0	140.9	133.4	148.8	131.4	148.0	145.3	151.1	152.4	154.5	151.7	146.9	8.4
16	147.0	144.8	127.0	149.3	130.8	131.6	150.8	153.4	145.7	144.8	155.0	143.6	9.6
17	144.5	132.6	123.3	141.7	125.2	128.2	145.2	163.3	130.3	146.9	149.1	139.1	12.2
18	120.0	120.0	120.3	136.6	110.8	129.0	155.1	133.6	130.0	140.6	147.3	131.2	13.2
19	124.0	116.6	111.1	131.3	118.4	126.0	143.4	127.6	117.5	122.0	137.8	125.0	9.6
20	128.0	105.7	118.7	119.7	111.9	133.3	127.1	134.2	124.9	129.1	129.0	123.8	8.9
21	125.0	117.8	111.3	119.0	111.8	122.1	128.5	132.5	126.6	120.6	128.5	122.1	6.9
22	121.5	124.1	116.7	123.2	116.8	119.5	122.3	124.1	118.6	129.8	130.2	122.4	4.6
23	124.0	121.9	113.6	126.2	116.3	121.5	124.0	129.2	127.8	128.8	123.8	123.4	4.9
24	115.5	117.8	110.5	118.1	116.2	124.4	123.4	120.8	124.4	124.1	125.9	120.1	4.8
25	130.0	118.3	115.4	122.4	111.2	124.2	125.4	121.9	120.8	135.9	130.3	123.2	7.1
26	122.0	108.3	113.7	129.3	110.5	123.8	127.0	122.2	126.3	126.5	124.6	121.3	7.1
27	117.5	112.2	106.3	125.3	111.7	119.6	106.7	121.9	121.7	124.1	122.1	117.2	6.8
28	113.0	101.2	103.3	128.7	110.1	122.8	92.2	117.1	125.0	131.0	120.7	115.0	12.3
29	119.0	90.9	116.6	105.7	101.6	106.6	97.8	105.7	121.6	121.0	116.7	109.4	10.3
30	107.0	95.6	95.7	116.1	104.8	106.4	118.0	128.6	106.9	109.4	115.9	109.5	9.7
31	104.0	108.3	102.6	109.3	99.6	111.9	95.3	115.2	112.1	94.1	109.9	105.6	7.1
32	83.5	93.1	86.2	77.2	74.5	97.2	94.7	86.8	92.3	76.3	105.8	87.9	9.8
33	85.0	90.6	78.9	96.0	84.0	103.0	92.3	95.1	62.5	92.4	101.2	89.2	11.4
34	77.5	65.2	80.4	93.8	76.9	105.5	90.2	97.5	85.3	85.3	106.4	87.6	12.6
35	62.0	77.4	64.2	87.3	79.6	92.0	94.4	90.4	79.8	91.4	94.8	83.0	11.6
36	58.0	76.4	71.3	94.2	49.7	83.7	86.7	73.7	77.4	51.3	79.4	72.9	14.4
37	35.5	47.5	26.7	50.9	37.7	39.0	39.9	39.0	45.1	39.6	35.9	39.7	6.5
TOTAL	4119.5	3940.3	3825.4	4054.9	3874.6	4002.6	4194.2	4267.4	4096.1	4237.4	4066.3	4061.7	142.9

TABLE 19. GROWING DEGREE DAYS SUMMARY FOR TIALIZAPAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S										MEAN	SD	
	73	74	75	76	77	78	79	80	81	82			83
1	117.5	114.0	114.9	103.9	106.1	106.0	102.3	108.7	103.6	119.1	117.8	110.4	6.4
2	106.0	117.5	99.1	108.1	111.7	91.6	110.7	117.8	108.5	123.1	116.8	110.1	9.1
3	101.5	116.2	119.3	107.4	133.7	108.8	124.3	118.3	94.4	120.1	89.0	112.1	13.3
4	103.5	118.7	125.0	118.9	123.7	105.0	131.7	111.2	126.2	119.8	108.3	117.4	9.3
5	122.5	112.3	112.6	102.4	128.2	105.9	136.9	129.1	121.5	120.8	101.8	117.6	11.6
6	128.0	114.2	111.9	89.4	121.9	111.1	130.0	132.0	127.3	135.7	99.9	118.3	14.5
7	113.0	120.8	121.2	111.1	120.2	107.4	129.7	124.2	123.6	122.8	98.7	117.5	9.0
8	122.0	120.9	126.1	127.7	110.0	102.1	132.4	130.8	126.5	128.3	111.2	121.6	9.8
9	110.0	103.2	132.5	125.8	130.7	128.5	124.4	127.1	109.2	131.0	110.4	121.1	10.7
10	124.5	115.1	131.6	134.7	135.3	125.1	130.2	127.9	121.5	123.3	119.0	126.2	6.4
11	138.5	136.1	129.5	141.1	142.6	123.7	135.7	137.4	148.4	136.3	118.6	135.2	8.5
12	129.5	131.3	145.6	139.3	136.0	123.0	137.5	142.4	140.2	140.0	116.8	134.7	8.7
13	138.5	124.2	134.7	136.3	138.4	123.7	122.1	141.6	133.9	144.2	132.9	133.7	7.4
14	158.0	122.0	142.3	138.1	147.3	136.6	144.9	145.0	139.3	154.1	137.2	142.2	9.6
15	136.0	142.4	153.2	142.2	151.3	149.1	159.5	158.1	156.9	169.0	148.8	151.5	9.3
16	155.0	155.0	160.7	146.5	152.8	161.4	162.9	147.6	165.0	149.7	139.2	154.2	8.0
17	158.5	156.0	154.7	157.9	161.2	160.9	154.6	149.5	167.8	153.5	156.7	157.4	4.8
18	158.0	158.3	157.5	157.6	149.0	167.6	155.7	162.8	166.9	163.7	164.8	160.2	5.5
19	164.0	156.0	146.6	163.1	153.8	159.4	162.6	159.3	156.3	158.6	163.1	158.4	5.2
20	154.0	145.5	157.1	159.1	145.7	161.2	158.7	154.9	160.3	164.1	163.1	156.7	6.3
21	154.0	155.7	151.1	154.2	148.7	160.0	163.9	168.1	159.8	157.2	157.1	157.2	5.6
22	161.5	153.5	154.9	151.2	147.2	154.3	160.2	163.7	153.8	150.8	162.9	155.8	5.5
23	163.0	151.8	151.8	149.5	146.0	160.9	157.7	164.2	163.2	155.4	160.2	156.7	6.2
24	154.5	144.3	149.6	158.1	151.8	163.8	157.4	159.6	164.4	152.3	161.0	156.1	6.2
25	164.0	146.0	155.4	157.4	150.2	161.6	164.8	158.5	156.3	145.1	163.8	156.6	7.0
26	159.0	145.7	152.6	156.9	147.0	162.6	166.4	162.2	165.7	164.1	161.1	158.5	7.2
27	154.5	152.0	144.1	162.1	144.7	159.0	146.7	160.7	160.1	159.1	156.1	154.4	6.7
28	152.0	139.8	138.9	163.5	143.4	162.2	131.1	157.1	162.9	158.7	156.1	151.4	11.3
29	156.0	125.7	146.2	145.3	129.7	146.6	128.6	143.5	159.4	159.1	149.1	144.5	11.9
30	147.0	134.0	130.9	155.3	137.1	146.4	142.8	158.4	144.5	140.6	149.4	144.2	8.4
31	138.0	136.1	132.2	145.9	136.6	151.1	134.4	151.4	151.9	132.1	138.7	140.7	7.8
32	123.5	126.6	117.0	116.6	114.5	136.6	131.9	126.8	130.7	114.1	140.7	125.3	9.1
33	122.0	123.6	116.3	136.0	118.9	135.2	128.0	134.7	102.5	130.1	136.6	125.8	10.5
34	115.5	105.2	114.2	133.6	115.7	139.8	129.8	136.8	121.2	123.3	142.5	125.2	12.1
35	102.0	115.2	103.8	124.7	115.1	132.0	132.9	127.2	119.6	129.5	131.3	121.2	11.0
36	98.0	115.3	111.3	133.2	89.7	123.1	125.6	113.5	117.4	91.3	117.2	112.3	13.9
37	55.5	69.1	50.7	74.7	53.9	59.0	58.9	63.0	62.7	58.8	55.9	60.2	6.9
TOTAL	4958.5	4818.4	4896.3	5028.5	4889.1	5011.5	5107.1	5174.5	5092.6	5097.9	4952.8	5002.5	110.0

TABLE 20. GROWING DEGREE DAYS SUMMARY FOR TLALTIZAPAN.

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THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	97.5	94.0	94.9	83.9	86.1	86.0	82.3	88.7	83.6	99.1	97.8	90.4	6.4
2	86.0	97.5	79.1	88.1	91.7	71.6	90.7	97.8	88.5	103.1	96.8	90.1	9.1
3	81.5	96.2	99.3	87.4	113.7	88.8	104.3	98.3	74.4	100.1	69.0	92.1	13.3
4	83.5	98.7	105.0	98.9	103.7	85.0	111.7	91.2	106.2	99.8	88.3	97.4	9.3
5	102.5	92.3	92.6	82.4	108.2	85.9	116.9	109.1	101.5	100.8	81.8	97.6	11.6
6	108.0	94.2	91.9	69.4	101.9	91.1	110.0	112.0	107.3	115.7	79.9	98.3	14.5
7	93.0	100.8	101.2	91.1	100.2	87.4	109.7	104.2	103.6	102.8	78.7	97.5	9.0
8	102.0	100.9	106.1	107.7	90.0	82.1	112.4	110.8	106.5	108.3	91.2	101.6	9.8
9	90.0	83.2	112.5	105.8	110.7	108.5	104.4	107.1	89.2	111.0	90.4	101.1	10.7
10	104.5	95.1	111.6	114.7	115.3	105.1	110.2	107.9	101.5	103.3	99.0	106.2	6.4
11	118.5	116.1	109.5	121.1	122.7	103.7	115.7	117.4	128.4	116.3	98.6	115.2	8.5
12	109.5	111.3	125.6	119.3	116.0	103.0	117.5	122.5	120.2	120.0	96.8	114.7	8.8
13	118.5	104.2	114.7	116.3	118.4	103.7	102.1	121.6	113.9	124.2	112.9	113.7	7.4
14	138.0	102.0	122.3	118.1	127.3	116.6	124.9	125.0	119.3	134.1	117.2	122.2	9.6
15	116.0	122.4	133.1	122.2	131.3	129.1	139.5	138.1	136.9	149.0	128.8	131.5	9.3
16	135.0	135.0	140.7	126.5	132.8	141.4	142.9	127.6	145.0	129.7	119.2	134.2	8.0
17	138.5	136.0	134.7	137.9	141.2	140.9	134.6	129.5	147.8	133.5	136.7	137.4	4.8
18	138.0	138.3	137.5	137.6	129.0	147.6	135.7	142.8	146.9	143.7	144.8	140.2	5.5
19	144.0	136.0	126.6	143.1	133.8	139.4	142.6	139.3	136.3	138.6	143.1	138.4	5.2
20	134.0	125.5	137.1	139.1	125.7	141.2	138.7	134.9	140.3	144.1	143.1	136.7	6.3
21	134.0	135.7	131.1	134.2	128.7	140.0	143.9	148.1	139.8	137.2	137.1	137.2	5.6
22	141.5	133.5	134.9	131.2	127.2	134.3	140.2	143.7	133.8	130.8	142.9	135.8	5.5
23	143.0	131.8	131.8	129.4	126.0	140.9	137.7	144.2	143.2	135.4	140.2	136.7	6.2
24	134.5	124.3	129.6	138.1	131.8	143.8	137.4	139.6	144.4	132.3	141.0	136.1	6.2
25	144.0	126.0	135.4	137.4	130.2	141.6	144.8	138.5	136.3	125.1	143.9	136.6	7.0
26	139.0	125.7	132.6	136.9	127.0	142.6	146.4	142.2	145.7	144.1	141.1	138.5	7.2
27	134.5	132.0	124.1	142.1	124.7	139.0	126.7	140.7	140.1	139.1	136.1	134.4	6.7
28	132.0	119.8	118.9	143.5	123.4	142.2	111.1	137.1	142.9	138.7	136.1	131.4	11.3
29	136.0	105.7	126.2	125.3	109.7	126.6	108.6	123.5	139.4	139.1	129.1	124.5	11.9
30	127.0	114.0	110.9	135.3	117.1	126.4	122.8	138.4	124.5	120.6	129.4	124.2	8.4
31	118.0	116.1	112.2	125.9	116.6	131.1	114.4	131.4	131.9	112.1	118.7	120.7	7.8
32	103.5	106.6	97.0	96.6	94.5	116.6	111.9	106.8	110.7	94.1	120.7	105.3	9.1
33	102.0	103.6	96.3	116.0	98.9	115.2	108.0	114.7	82.5	110.1	116.6	105.8	10.5
34	95.5	85.2	94.2	113.6	95.7	119.8	109.8	116.8	101.2	103.3	122.5	105.2	12.1
35	82.0	95.2	83.8	104.7	95.1	112.0	112.9	107.2	99.6	109.5	111.3	101.2	11.0
36	78.0	95.3	91.3	113.2	69.7	103.1	105.6	93.5	97.4	71.3	97.2	92.3	13.9
37	45.5	57.1	38.7	62.7	43.9	49.0	48.9	51.0	52.7	48.8	45.9	49.4	6.5
TOTAL	4228.5	4086.4	4164.3	4296.5	4159.1	4281.5	4377.1	4442.5	4362.6	4368.0	4222.8	4271.7	110.2

TABLE 21. GROWING DEGREE DAYS SUMMARY FOR TLALTIZAPAN.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
THE BASE TEMPERATURE USED WAS 12.0. A MAXIMUM TEMPERATURE OF 31.0 C WAS ASSUMED.
THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S										MEAN	SD	
	73	74	75	76	77	78	79	80	81	82			83
1	77.5	74.0	74.9	63.9	66.1	66.0	62.3	68.7	63.6	79.1	77.8	70.4	6.4
2	66.0	77.5	59.1	68.1	71.7	51.6	70.7	77.8	68.5	83.1	76.8	70.1	9.1
3	61.5	76.2	79.3	67.4	93.7	68.8	84.3	78.3	54.4	80.1	49.0	72.1	13.3
4	63.5	78.7	85.0	78.9	83.7	65.0	91.7	71.2	86.2	79.8	68.3	77.4	9.3
5	82.5	72.3	72.6	62.4	88.2	65.9	96.9	89.1	81.5	80.8	61.8	77.6	11.6
6	88.0	74.2	71.9	49.4	81.9	71.1	90.0	91.9	87.3	95.7	59.9	78.3	14.5
7	73.0	80.8	81.2	71.1	80.2	67.4	89.7	84.2	83.6	82.8	58.7	77.5	9.0
8	82.0	80.9	86.1	87.7	70.0	62.1	92.4	90.8	86.5	88.3	71.2	81.6	9.8
9	70.0	63.2	92.5	85.8	90.7	88.5	84.4	87.1	69.2	91.0	70.4	81.1	10.7
10	84.5	75.1	91.6	94.7	95.3	85.1	90.2	87.9	81.5	83.3	79.0	86.2	6.4
11	98.5	96.1	89.5	101.1	102.7	83.7	95.7	97.4	108.4	96.3	78.6	95.2	8.5
12	89.5	91.3	105.6	99.3	96.0	83.0	97.5	102.5	100.2	100.0	76.8	94.7	8.7
13	98.5	84.2	94.7	96.3	98.4	83.7	82.1	101.6	93.9	104.2	92.9	93.7	7.4
14	118.0	82.0	102.3	98.1	107.3	96.6	104.9	105.0	99.3	114.1	97.2	102.2	9.6
15	96.0	102.4	113.2	102.2	111.3	109.1	119.5	118.1	116.9	129.0	108.8	111.5	9.3
16	115.0	115.0	120.7	106.5	112.8	121.4	122.9	107.6	125.0	109.7	99.2	114.2	8.0
17	118.5	116.0	114.7	117.9	121.2	120.9	114.6	109.5	127.8	113.5	116.7	117.4	4.8
18	118.0	118.3	117.5	117.6	109.0	127.6	115.7	122.8	126.9	123.7	124.8	120.2	5.5
19	124.0	116.0	106.6	123.1	113.8	119.4	122.6	119.3	116.3	118.6	123.1	118.4	5.2
20	114.0	105.5	117.1	119.1	105.7	121.2	118.7	114.9	120.3	124.1	123.1	116.7	6.3
21	114.0	115.7	111.1	114.2	108.7	120.0	123.9	128.1	119.8	117.2	117.1	117.2	5.6
22	121.5	113.5	114.9	111.2	107.2	114.3	120.2	123.7	113.8	110.8	122.9	115.8	5.5
23	123.0	111.8	111.8	109.5	106.0	120.9	117.7	124.2	123.2	115.4	120.2	116.7	6.2
24	114.5	104.3	109.6	118.1	111.8	123.8	117.4	119.6	124.4	112.3	121.0	116.1	6.2
25	124.0	106.0	115.4	117.4	110.2	121.6	124.8	118.5	116.3	105.1	123.9	116.6	7.0
26	119.0	105.7	112.6	116.9	107.0	122.6	126.4	122.2	125.7	124.1	121.1	118.5	7.2
27	114.5	112.0	104.1	122.1	104.7	119.0	106.7	120.7	120.1	119.1	116.1	114.4	6.7
28	112.0	99.8	98.9	123.5	103.4	122.2	91.1	117.1	122.9	118.7	116.1	111.4	11.3
29	116.0	85.7	106.2	105.3	89.7	106.6	88.6	103.5	119.4	119.1	109.1	104.5	11.9
30	107.0	94.0	90.9	115.3	97.1	106.4	102.8	118.4	104.5	100.6	109.4	104.2	8.4
31	98.0	96.1	92.2	105.9	96.6	111.1	94.4	111.4	111.9	92.1	98.7	100.7	7.8
32	83.5	86.6	77.0	76.6	74.5	96.6	91.9	86.8	90.7	74.1	100.7	85.3	9.1
33	82.0	83.6	76.3	96.0	78.9	95.2	88.0	94.7	62.5	90.1	96.6	85.8	10.5
34	75.5	65.2	74.2	93.6	75.7	99.8	89.8	96.8	81.2	83.3	102.5	85.2	12.1
35	62.0	75.2	63.8	84.7	75.1	92.0	92.9	87.2	79.6	89.5	91.3	81.2	11.0
36	58.0	75.3	71.3	93.2	49.7	83.1	85.6	73.5	77.4	51.3	77.2	72.3	13.9
37	35.5	45.1	26.7	50.7	33.9	39.0	38.9	39.0	42.7	38.8	35.9	38.7	6.2
TOTAL	3498.5	3354.4	3432.3	3564.5	3429.1	3551.5	3647.1	3710.5	3632.6	3638.0	3492.8	3541.0	110.3

TABLE 22. SUMMARY OF STRESS DAYS RECEIVED AT TLALTIZAPAN.

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THE DAILY DATA WERE SUMMARIZED BY 10 DAY PERIODS. THE NUMBER OF DAYS WITH TEMPERATURES OVER 31.0 WERE RECORDED IN EACH PERIOD.

PERIOD	Y E A R S											MEAN	SD
	73	74	75	76	77	78	79	80	81	82	83		
1	7.0	5.0	0.0	1.0	6.0	4.0	1.0	1.0	1.0	6.0	4.0	3.3	2.5
2	0.0	6.0	0.0	1.0	2.0	0.0	0.0	5.0	0.0	4.0	0.0	1.6	2.3
3	3.0	5.0	3.0	2.0	8.0	4.0	5.0	0.0	0.0	5.0	0.0	3.2	2.6
4	5.0	10.0	9.0	4.0	7.0	6.0	7.0	2.0	7.0	5.0	4.0	6.0	2.3
5	7.0	9.0	8.0	6.0	7.0	5.0	6.0	5.0	3.0	10.0	2.0	6.2	2.4
6	10.0	8.0	10.0	3.0	9.0	5.0	7.0	8.0	8.0	8.0	2.0	7.1	2.7
7	10.0	10.0	10.0	2.0	9.0	10.0	9.0	9.0	10.0	10.0	10.0	9.0	2.4
8	10.0	10.0	3.0	10.0	10.0	6.0	10.0	10.0	10.0	9.0	6.0	8.5	2.4
9	10.0	5.0	1.0	10.0	10.0	10.0	10.0	9.0	5.0	10.0	10.0	8.2	3.1
10	10.0	10.0	10.0	8.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.8	0.6
11	10.0	10.0	10.0	9.0	8.0	10.0	10.0	10.0	10.0	10.0	10.0	9.7	0.6
12	10.0	10.0	5.0	10.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0	9.5	1.5
13	10.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.9	0.3
14	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0	10.0	9.9	0.3
15	10.0	10.0	8.0	9.0	8.0	10.0	10.0	10.0	10.0	8.0	9.0	9.3	0.9
16	9.0	10.0	4.0	10.0	10.0	5.0	8.0	10.0	8.0	9.0	10.0	8.5	2.1
17	8.0	6.0	7.0	9.0	7.0	7.0	10.0	10.0	3.0	10.0	10.0	7.9	2.2
18	2.0	3.0	4.0	9.0	2.0	2.0	10.0	5.0	5.0	9.0	9.0	5.5	3.2
19	0.0	1.0	5.0	5.0	6.0	4.0	10.0	9.0	3.0	3.0	10.0	5.1	3.4
20	7.0	1.0	2.0	2.0	5.0	8.0	6.0	9.0	3.0	5.0	5.0	4.8	2.6
21	5.0	4.0	1.0	6.0	3.0	3.0	5.0	6.0	2.0	4.0	7.0	4.2	1.8
22	0.0	8.0	4.0	9.0	8.0	5.0	3.0	2.0	5.0	10.0	7.0	5.5	3.1
23	1.0	8.0	2.0	9.0	5.0	2.0	4.0	3.0	4.0	8.0	4.0	4.5	2.7
24	1.0	10.0	1.0	0.0	5.0	1.0	5.0	2.0	0.0	8.0	7.0	3.6	3.5
25	6.0	7.0	0.0	7.0	2.0	5.0	3.0	1.0	1.0	10.0	7.0	4.5	3.2
26	3.0	5.0	2.0	10.0	3.0	2.0	1.0	0.0	1.0	5.0	2.0	3.1	2.8
27	3.0	1.0	4.0	4.0	6.0	1.0	0.0	2.0	4.0	6.0	2.0	3.0	2.0
28	1.0	1.0	5.0	5.0	6.0	2.0	3.0	0.0	4.0	10.0	6.0	3.9	2.9
29	2.0	3.0	9.0	1.0	6.0	0.0	7.0	4.0	5.0	3.0	8.0	4.4	2.9
30	0.0	2.0	4.0	2.0	6.0	0.0	8.0	8.0	3.0	3.0	5.0	3.7	2.8
31	4.0	10.0	9.0	5.0	4.0	2.0	2.0	3.0	1.0	5.0	7.0	4.7	2.9
32	0.0	6.0	7.0	1.0	0.0	2.0	3.0	0.0	1.0	3.0	5.0	2.5	2.5
33	3.0	6.0	3.0	0.0	5.0	6.0	4.0	1.0	0.0	4.0	7.0	3.5	2.4
34	1.0	0.0	6.0	1.0	2.0	6.0	2.0	3.0	6.0	4.0	4.0	3.2	2.2
35	0.0	3.0	1.0	4.0	3.0	0.0	2.0	5.0	1.0	4.0	5.0	2.5	1.9
36	0.0	2.0	0.0	2.0	0.0	1.0	2.0	1.0	0.0	0.0	3.0	1.0	1.1
37	0.0	3.0	0.0	1.0	3.0	0.0	2.0	0.0	2.0	3.0	0.0	1.3	1.3
TOTAL	178.0	227.0	177.0	197.0	220.0	174.0	215.0	193.0	166.0	250.0	227.0	202.2	27.3

TABLE 23. GROWING DEGREE DAYS SUMMARY FOR TOLUCA.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 8.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S										MEAN	SD
	75	76	77	78	79	80	81	82	83			
1	2.0	0.8	1.5	5.0	6.5	0.0	4.0	1.0	0.8	2.4	2.2	
2	3.0	2.5	5.0	2.0	12.5	1.5	3.8	2.3	1.8	3.8	3.4	
3	11.8	0.0	19.0	14.5	7.0	7.1	4.0	2.3	0.0	7.3	6.6	
4	18.0	1.5	1.0	5.3	12.0	1.8	22.0	4.3	1.0	7.4	8.0	
5	8.8	5.5	4.3	11.8	21.0	11.8	20.5	7.0	0.0	10.1	7.1	
6	11.5	5.0	11.5	22.5	15.8	4.5	36.0	6.3	0.0	12.6	11.1	
7	26.3	12.0	20.5	12.0	7.8	16.3	43.0	8.3	0.8	16.3	12.5	
8	27.0	42.0	41.5	26.0	30.3	24.8	39.3	37.8	5.3	30.4	11.6	
9	33.3	33.8	47.0	42.5	41.8	21.8	20.8	37.8	2.0	31.2	14.1	
10	54.5	35.8	32.3	41.0	52.0	26.0	51.8	53.3	6.5	39.2	16.0	
11	53.5	46.3	26.3	48.0	47.0	12.3	59.3	47.0	11.5	39.0	17.7	
12	57.0	46.3	35.5	38.8	42.3	29.5	61.3	46.8	28.8	42.9	11.3	
13	67.5	48.8	49.0	51.0	34.8	38.5	59.0	44.3	58.3	50.1	10.3	
14	55.3	45.5	61.3	59.5	63.8	48.5	70.5	58.3	65.0	58.6	7.9	
15	65.3	60.8	69.5	56.8	68.3	49.0	65.3	60.1	45.5	60.0	8.3	
16	66.3	50.5	53.3	72.0	74.0	47.5	80.0	62.0	50.8	61.8	11.9	
17	70.5	67.5	72.3	63.5	63.3	42.0	80.5	54.3	52.5	62.9	11.7	
18	65.5	65.8	53.3	65.8	61.0	56.8	79.3	61.8	59.0	63.1	7.4	
19	52.5	67.3	59.3	51.3	56.5	49.3	71.0	44.3	53.5	56.1	8.6	
20	53.0	60.5	53.3	56.3	48.8	45.8	62.3	49.3	58.3	54.1	5.6	
21	48.8	45.3	53.0	64.3	61.0	48.8	65.8	44.0	43.8	52.7	8.8	
22	56.3	56.3	62.5	57.3	43.3	39.0	52.0	46.0	53.5	51.8	7.6	
23	51.3	50.3	59.0	65.0	47.5	52.8	70.5	44.3	46.5	54.1	8.9	
24	56.0	56.0	62.0	61.3	42.5	36.3	67.0	43.8	47.5	52.5	10.4	
25	60.8	49.3	68.0	58.3	53.3	46.0	62.3	40.8	49.8	54.3	8.7	
26	65.0	62.5	63.3	60.0	56.3	47.5	58.3	47.5	46.8	56.3	7.3	
27	47.0	65.8	55.3	58.3	39.0	44.8	52.8	42.5	44.8	50.0	8.6	
28	34.3	64.5	57.8	63.3	10.0	35.5	51.3	46.3	38.8	44.6	17.3	
29	50.5	50.0	43.5	55.0	16.8	33.0	45.3	40.8	32.8	40.8	11.8	
30	37.5	56.5	51.5	45.3	30.8	46.0	38.5	16.5	29.3	39.1	12.4	
31	31.3	45.3	43.5	51.0	27.0	22.5	38.8	2.8	12.3	30.5	16.0	
32	17.0	16.0	26.3	26.3	10.5	16.8	12.5	4.8	17.5	16.4	6.9	
33	4.5	31.8	25.0	25.3	7.3	23.5	0.0	1.8	8.5	14.2	12.1	
34	10.0	31.5	21.0	29.0	5.8	14.3	7.3	7.8	4.5	14.6	10.2	
35	1.0	19.0	12.3	23.0	8.3	24.5	2.8	4.3	4.8	11.1	9.0	
36	0.8	24.0	2.5	5.5	5.5	7.0	1.0	0.0	0.0	5.1	7.5	
37	0.0	13.3	8.5	0.0	0.0	2.0	1.5	0.0	0.0	2.8	4.8	
TOTAL	1374.0	1434.8	1431.0	1493.0	1230.5	1074.4	1560.5	1121.4	981.9	1300.1	204.6	

TABLE 24. GROWING DEGREE DAYS SUMMARY FOR TOLUCA.

THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 10.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S										MEAN	SD
	75	76	77	78	79	80	81	82	83			
1	0.0	0.0	0.0	0.0	4.5	0.0	0.5	0.0	0.0	0.6	1.5	
2	0.0	0.0	0.8	0.0	4.5	0.0	0.0	0.0	0.0	0.6	1.5	
3	1.0	0.0	5.0	0.5	0.3	3.0	0.0	0.0	0.0	1.1	1.8	
4	4.0	0.0	0.0	0.0	0.8	0.0	3.0	0.0	0.0	0.9	1.5	
5	0.8	0.5	0.0	2.5	8.8	2.0	7.0	0.0	0.0	2.4	3.3	
6	0.8	1.5	0.5	5.5	2.3	0.0	16.0	0.0	0.0	2.9	5.2	
7	7.3	1.5	5.0	3.5	0.0	4.3	23.0	0.8	0.0	5.0	7.2	
8	8.5	22.0	21.5	11.5	12.0	5.3	19.3	18.5	1.0	13.3	7.5	
9	15.3	14.5	31.0	22.5	22.0	4.0	2.8	17.8	0.0	14.4	10.4	
10	34.5	15.8	13.3	21.0	32.0	8.3	31.8	33.3	0.0	21.1	12.5	
11	33.5	26.3	9.3	28.0	27.0	1.0	39.3	27.0	3.3	21.6	13.6	
12	37.0	26.5	16.0	20.3	22.3	9.5	41.3	26.8	10.8	23.4	10.9	
13	47.5	28.8	29.0	31.0	14.8	18.5	39.0	24.3	38.3	30.1	10.3	
14	35.3	26.3	41.3	39.5	43.8	28.5	50.5	38.3	45.0	38.7	7.8	
15	45.3	40.8	49.5	36.8	48.3	29.0	47.3	40.1	25.8	40.3	8.5	
16	46.3	31.5	33.3	52.0	54.0	27.5	62.0	42.0	32.3	42.3	12.0	
17	50.5	47.5	52.3	43.5	43.3	22.0	60.5	34.3	32.5	42.9	11.7	
18	45.5	45.8	35.3	45.8	41.0	36.8	59.3	41.8	39.0	43.3	7.1	
19	32.5	47.3	39.3	31.3	36.5	29.3	51.0	24.3	33.5	36.1	8.6	
20	33.0	40.5	33.3	36.3	28.8	25.8	42.3	29.3	38.3	34.1	5.6	
21	28.8	25.8	33.0	44.3	41.0	28.8	45.8	24.0	23.8	32.8	8.7	
22	36.3	36.3	42.5	37.3	23.3	19.0	32.0	26.0	33.5	31.8	7.6	
23	31.3	30.3	39.0	45.0	27.5	32.8	50.5	24.3	26.5	34.1	8.9	
24	36.0	36.0	42.0	41.3	22.5	16.3	47.0	23.8	27.5	32.5	10.4	
25	40.8	29.3	48.0	38.3	33.3	26.0	42.3	22.5	29.8	34.4	8.4	
26	45.0	42.5	43.3	40.0	36.3	27.5	38.3	27.5	26.8	36.3	7.3	
27	27.0	45.8	35.3	38.3	22.0	24.8	32.8	22.5	24.8	30.3	8.2	
28	14.8	44.5	37.8	43.3	0.0	15.5	31.3	26.3	19.5	25.9	14.8	
29	30.5	30.0	23.5	35.0	1.8	15.3	25.3	20.8	12.8	21.6	10.4	
30	20.0	36.5	31.5	25.3	12.0	26.0	18.5	3.8	11.1	20.5	10.5	
31	13.5	26.3	24.5	31.0	11.0	5.5	18.8	0.0	1.5	14.7	11.2	
32	7.5	2.3	9.8	9.3	1.0	2.5	1.8	0.0	3.3	4.1	3.7	
33	0.0	16.0	7.8	5.8	0.5	5.0	0.0	0.0	0.0	3.9	5.5	
34	0.8	12.0	6.5	11.0	0.0	1.0	0.0	0.5	0.0	3.5	5.0	
35	0.0	5.3	1.0	4.8	0.0	4.5	0.0	0.5	0.0	1.8	2.3	
36	0.0	8.5	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.1	2.8	
37	0.0	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0	
TOTAL	810.3	846.8	841.0	880.8	678.5	505.8	979.5	620.4	540.1	744.8	164.5	

TABLE 25. GROWING DEGREE DAYS SUMMARY FOR TOLUCA.

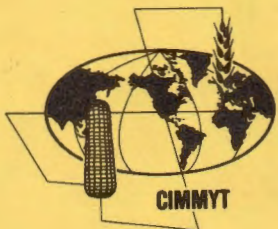
THE DAILY DATA WERE SUMMARIZED AS TOTALS FOR CONSECUTIVE 10 DAY PERIODS.
 THE BASE TEMPERATURE USED WAS 12.0. NO MAXIMUM TEMPERATURE WAS ASSUMED.
 THE MEAN AND STANDARD DEVIATION WERE CALCULATED FOR EACH PERIOD ACROSS YEARS.

PERIOD	Y E A R S										MEAN	SD
	75	76	77	78	79	80	81	82	83			
1	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.3	0.8	
2	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.2	
3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	3.8	0.0	3.0	0.0	0.0	0.8	1.5	
6	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.3	1.0	
7	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.8	2.3	
8	0.0	5.0	5.8	5.0	1.0	0.0	5.0	2.8	0.0	2.7	2.5	
9	1.8	3.0	15.8	6.0	6.8	0.0	0.0	3.3	0.0	4.1	5.1	
10	15.0	3.8	3.0	4.0	12.0	0.0	12.3	13.3	0.0	7.0	6.0	
11	14.0	7.8	0.5	11.0	8.8	0.0	19.3	8.3	0.0	7.7	6.7	
12	17.5	8.8	2.5	3.8	8.3	0.0	21.5	7.1	2.3	8.0	7.2	
13	27.8	10.8	9.8	11.5	1.5	3.3	19.0	7.8	19.0	12.3	8.3	
14	15.3	10.0	21.3	19.5	24.8	11.0	30.5	18.8	25.0	19.6	6.7	
15	25.5	21.0	29.5	16.8	28.3	9.5	29.3	21.6	10.0	21.3	7.8	
16	28.3	13.5	13.5	32.0	34.0	11.0	44.0	22.0	16.8	23.9	11.3	
17	30.5	28.0	32.3	23.5	23.8	8.0	40.5	14.3	12.5	23.7	10.5	
18	25.5	26.3	17.5	25.8	21.0	17.8	39.3	21.8	19.0	23.8	6.7	
19	12.5	27.3	19.3	13.3	16.5	11.5	31.0	6.5	13.5	16.8	7.9	
20	13.5	20.5	13.3	16.3	9.5	7.3	22.3	11.0	18.3	14.6	5.1	
21	9.8	11.3	13.8	24.3	21.0	8.8	25.8	6.0	6.0	14.1	7.7	
22	16.3	16.3	22.5	17.8	4.5	2.0	13.3	6.3	13.5	12.5	6.8	
23	14.5	10.5	19.0	25.0	8.8	13.3	30.5	4.5	6.5	14.7	8.7	
24	16.0	16.0	22.0	21.3	5.5	3.3	27.0	6.5	7.5	13.9	8.5	
25	20.8	12.0	28.0	18.3	13.3	9.8	22.3	4.8	10.0	15.4	7.4	
26	25.0	22.5	23.3	20.0	16.3	8.5	18.3	7.8	8.0	16.6	6.9	
27	13.0	25.8	15.8	18.3	8.0	7.3	13.8	6.0	7.3	12.8	6.5	
28	2.8	24.5	18.3	23.3	0.0	2.0	11.8	9.3	3.5	10.6	9.4	
29	11.5	12.5	8.3	15.0	0.0	3.0	6.5	3.5	1.8	6.9	5.3	
30	8.8	16.5	12.5	8.8	2.0	8.5	1.0	0.0	2.8	6.8	5.7	
31	3.0	12.8	11.3	12.5	2.0	0.0	3.8	0.0	0.0	5.0	5.5	
32	1.0	0.0	1.3	1.5	0.0	0.0	0.0	0.0	0.0	0.4	0.6	
33	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	
34	0.0	2.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	
35	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
36	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	
37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	369.3	375.0	380.3	395.0	284.0	145.5	500.5	212.6	203.1	318.4	114.1	

TABLE 26. SUMMARY OF STRESS DAYS RECEIVED AT TOLUCA.

THE DAILY DATA WERE SUMMARIZED BY 10 DAY PERIODS. THE NUMBER OF DAYS WITH TEMPERATURES UNDER -2.5 WERE RECORDED IN EACH PERIOD.

PERIOD	Y E A R S									MEAN	SD
	75	76	77	78	79	80	81	82	1990		
1	6.0	10.0	9.0	10.0	9.0	10.0	10.0	10.0	6.0	8.9	1.7
2	8.0	8.0	4.0	9.0	7.0	10.0	5.0	10.0	4.0	7.2	2.4
3	2.0	10.0	3.0	9.0	10.0	3.0	10.0	10.0	10.0	7.4	3.6
4	1.0	6.0	9.0	10.0	9.0	6.0	8.0	8.0	10.0	7.4	2.8
5	5.0	9.0	8.0	7.0	7.0	4.0	6.0	8.0	9.0	7.0	1.7
6	5.0	8.0	4.0	5.0	9.0	5.0	1.0	4.0	10.0	5.7	2.8
7	2.0	8.0	6.0	10.0	10.0	6.0	1.0	8.0	9.0	6.7	3.3
8	5.0	0.0	4.0	7.0	9.0	0.0	4.0	0.0	8.0	4.1	3.5
9	2.0	3.0	3.0	2.0	7.0	3.0	10.0	0.0	10.0	4.4	3.6
10	0.0	0.0	8.0	4.0	3.0	1.0	3.0	0.0	8.0	3.0	3.2
11	0.0	0.0	4.0	4.0	2.0	4.0	0.0	0.0	10.0	2.7	3.3
12	0.0	0.0	3.0	5.0	3.0	0.0	0.0	0.0	8.0	2.1	2.9
13	0.0	0.0	3.0	5.0	10.0	0.0	0.0	0.0	0.0	2.0	3.5
14	0.0	0.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0	0.3	0.7
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	3.0	0.4	1.0
17	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.3
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
28	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.7	2.0
29	0.0	0.0	2.0	0.0	5.0	0.0	0.0	0.0	0.0	0.8	1.7
30	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	1.3	1.6
31	0.0	0.0	3.0	1.0	1.0	0.0	0.0	10.0	3.0	2.0	3.2
32	5.0	1.0	4.0	6.0	0.0	6.0	5.0	10.0	3.0	4.4	3.0
33	7.0	0.0	5.0	8.0	5.0	5.0	10.0	9.0	4.0	5.9	3.0
34	6.0	0.0	5.0	3.0	4.0	9.0	6.0	6.0	5.0	4.9	2.5
35	10.0	2.0	5.0	3.0	1.0	7.0	7.0	6.0	10.0	5.7	3.2
36	10.0	0.0	10.0	10.0	5.0	9.0	9.0	10.0	10.0	8.1	3.4
37	5.0	0.0	5.0	5.0	5.0	6.0	5.0	4.0	5.0	4.4	1.7
TOTAL	82.0	65.0	109.0	127.0	133.0	94.0	100.0	116.0	145.0	107.9	25.5
\$											



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