

2004

# LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA



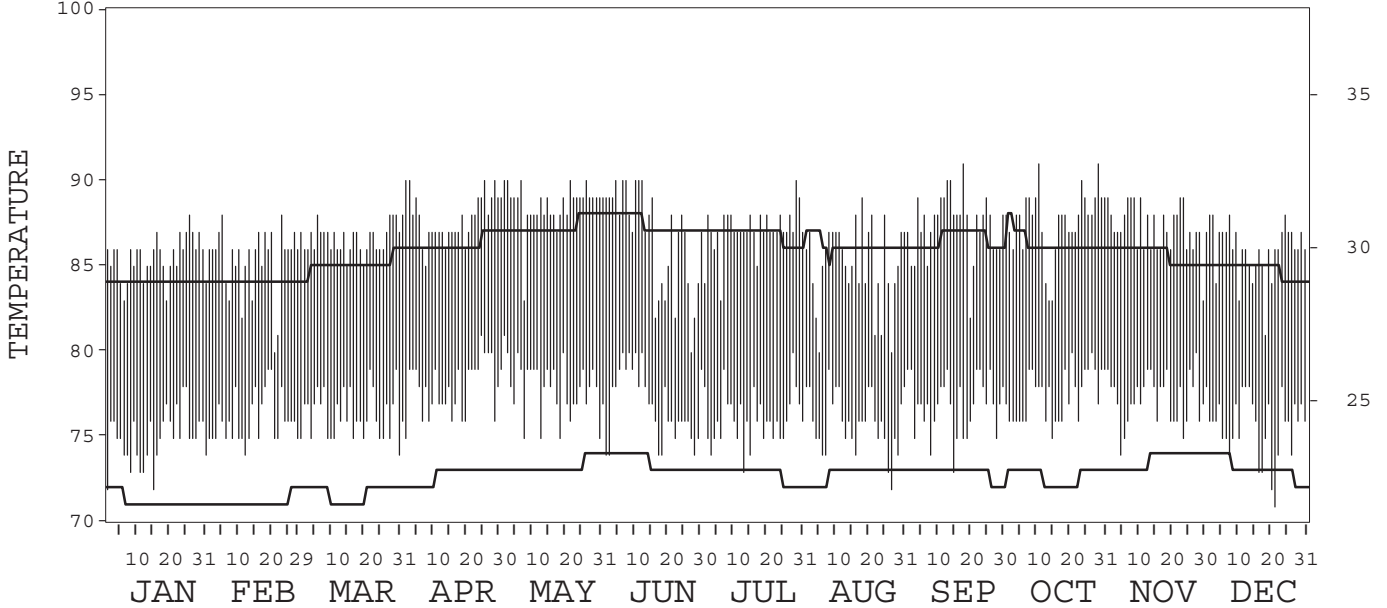
ISSN 0198-425X

Agana (Guam),  
PACIFIC (GUM)

## Daily Data

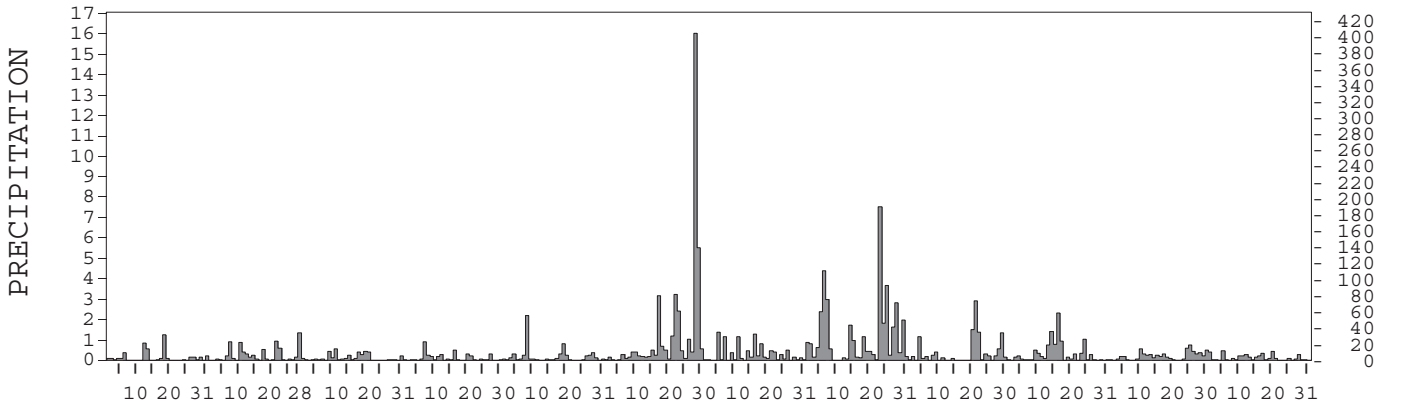
Fahrenheit

Celsius



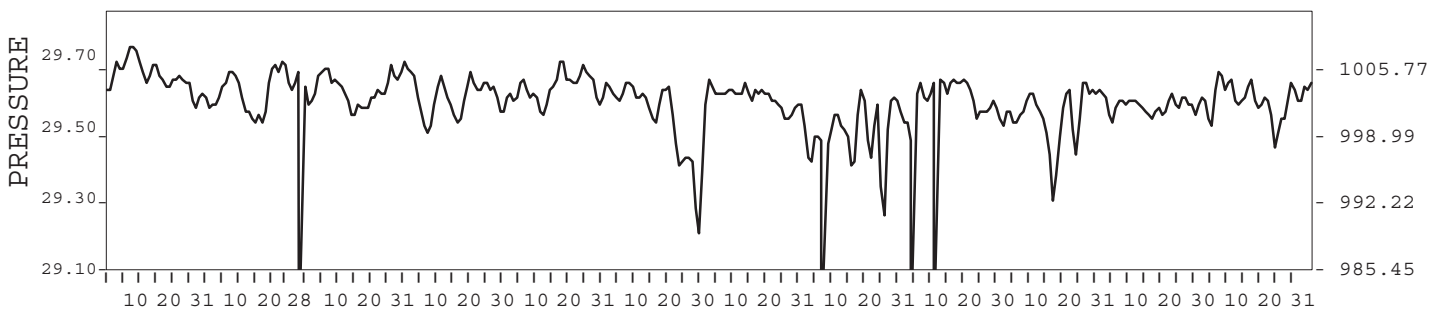
Inches

Millimeters



Inches of Mercury

Hectopascals



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*Thomas R. Karl*

NATIONAL  
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NATIONAL  
CLIMATIC DATA CENTER  
ASHEVILLE, NORTH CAROLINA

DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2004

## AGANA, PC (GUM)

LATITUDE: 13° 29' 01" N      LONGITUDE: 144° 47' 46" E      ELEVATION (FT): GRND: 247      BARO: 250      TIME ZONE: 150 E M (UTC - 10)      WBAN: 41415

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	85.5	85.4	86.6	87.8	88.6	86.7	87.1	85.1	87.4	87.7	87.3	86.0	86.8	
	HIGHEST DAILY MAXIMUM	88	88	88	90	90	90	90	89	91	91	89	88	91	
	DATE OF OCCURRENCE	26	23+	31+	28+	26+	12+	29	18	18	29+	24+	25+	OCT 29+	
	MEAN DAILY MINIMUM	75.0	76.1	76.4	78.0	77.9	76.9	76.1	75.9	76.9	77.5	77.3	75.7	76.6	
	LOWEST DAILY MINIMUM	72	74	74	75	75	74	74	72	73	75	74	71	71	
	DATE OF OCCURRENCE	15+	12	30	01	30+	28+	15+	27	15	15	05	22	DEC 22	
	AVERAGE DRY BULB	80.3	80.8	81.5	82.9	83.3	81.8	81.6	80.5	82.2	82.6	82.3	80.9	81.7	
	MEAN WET BULB	74.1		75.5	76.9	76.9	77.4	77.6			79.2	79.0	76.2		
	MEAN DEW POINT	71.7		72.9	74.5	74.3	75.5	76.1			78.2	77.9	74.3		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	4	5	6	1	0	3	3	0	0	0	22
	MAXIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MINIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM ≤ 0°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/C	HEATING DEGREE DAYS	0	0	0	0	0	0	0	0	0	0	0	0	0	
	COOLING DEGREE DAYS	483	465	520	543	574	511	525	489	522	551	523	497	6203	
RH	MEAN (PERCENT)	78	81	77	78	76	82	85	90	85	89	88	82	83	
	HOUR 04 LST	84	88	84	83	83	87	92	93	92	95	95	90	89	
	HOUR 10 LST	70	75	71	73	70	75	78	88	77	82	80	76	76	
	HOUR 16 LST	70	75	67	72	70	77	79	85	79	81	81	74	76	
	HOUR 22 LST	82	85	81	81	81	85	89	92	89	93	92	86	86	
S	PERCENT POSSIBLE SUNSHINE		40	64	46	55	30								
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	0	0	0	0	0	1	0	1	0	0	0	0	2	
	THUNDERSTORMS	0	1	0	0	1	6	8	10	10	5	4	0	45	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.64		29.60	29.58	29.61	29.52	29.57			29.53	29.55	29.58		
	MEAN SEA-LEVEL PRESS. (IN.)	29.88		29.85	29.82	29.85	29.76				29.80	29.82			
WINDS	RESULTANT SPEED (MPH)	8.0		1.3	4.9	2.7	5.3	1.1			4.0	3.9	1.2		
	RES. DIR. (TENS OF DEGS.)	09		16	08	27	29	32			07	08	08		
	MEAN SPEED (MPH)	12.4	13.3	12.3	11.6	10.8	10.1	6.4	10.2	6.0	7.8	9.8	12.2	10.2	
	PREVAIL. DIR. (TENS OF DEGS.)	05	06	08	08	08	08	08	17	08	05	08	07	08	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	29	32	31	31	31	47	25	52	32	28	36	30	52	
	DIR. (TENS OF DEGS.)	06	07	07	08	07	28	11	24	05	09	07	06	24	
	DATE OF OCCURRENCE	03	12	17	07	06	28	10	22	20	20	24	04	AUG 22	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	35	38	37	39	36	58	32	66	44	36	43	38	66	
DIR. (TENS OF DEGS.)	06	06	07	08	07	26	11	24	04	18	07	08	24		
DATE OF OCCURRENCE	03	12+	17	07	07+	28	10	23+	20	15	24	11	AUG 23+		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	4.17	6.94	3.42	3.38	5.51	38.03	10.11	37.32	10.85	9.87	6.46	3.27	139.33	
	GREATEST 24-HOUR (IN.)	1.24	1.42	0.61	1.07	2.37	18.80	1.38	9.05	3.48	2.29	1.15	0.45	18.80	
	DATE OF OCCURRENCE	18	27-28	17-18	06-07	06-07	27-28	04	22-23	20-21	15	24-25	04	JUN 27-28	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	18	22	23	22	25	29	26	28	19	26	25	24	287	
PRECIPITATION ≥ 0.10	8	12	9	9	11	23	17	25	15	15	19	11	174		
PRECIPITATION ≥ 1.00	1	1	0	0	1	7	4	11	5	3	0	0	33		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	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	
	GREATEST 24-HOUR (IN.)	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	
	DATE OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN.)	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NUMBER OF DAYS WITH:														
SNOWFALL ≥ 1.0	0	0	0	0	0	0	0	0	0	0	0	0	0		

# NORMALS, MEANS, AND EXTREMES

## AGANA, PC (GUM)

LATITUDE: 13° 29' 01" N      LONGITUDE: 144° 47' 46" E      ELEVATION (FT): GRND: 247      BARO: 250      TIME ZONE: 150 E M (UTC - 10)      WBAN: 41415

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	84.0	84.0	85.0	86.2	87.3	87.4	86.8	86.1	86.5	86.3	85.6	84.7	85.8
	MEAN DAILY MAXIMUM	46	83.9	83.9	84.7	86.1	87.0	87.1	86.5	86.1	86.2	86.0	85.4	84.5	85.6
	HIGHEST DAILY MAXIMUM	46	88	89	90	91	92	93	94	91	95	91	90	89	95
	YEAR OF OCCURRENCE		2004	2001	1989	2003	2001	1993	1983	1999	1957	2004	2003	2001	SEP 1957
	MEAN OF EXTREME MAXS.	46	86.0	86.1	87.1	88.1	89.5	89.6	89.7	89.1	89.1	88.8	87.9	86.6	88.1
	NORMAL DAILY MINIMUM	30	71.2	71.1	71.7	72.7	73.2	73.5	72.8	72.8	72.8	72.7	73.6	73.1	72.6
	MEAN DAILY MINIMUM	46	72.0	71.7	72.0	73.3	73.7	73.9	73.4	73.2	73.2	73.3	74.0	73.6	73.1
	LOWEST DAILY MINIMUM	46	56	59	54	59	62	63	64	63	61	64	62	61	54
	YEAR OF OCCURRENCE		1978	1959	1965	1965	1960	1983	1986	1983	1958	1987	1957	1980	MAR 1965
	MEAN OF EXTREME MINS.	46	64.8	65.4	65.7	67.9	68.5	69.4	69.7	69.6	68.8	68.7	69.0	67.5	67.9
	NORMAL DRY BULB	30	77.6	77.6	78.4	79.5	80.3	80.5	79.8	79.5	79.7	79.5	79.6	78.9	79.2
	MEAN DRY BULB	46	78.1	78.0	78.6	79.9	80.6	80.5	80.0	79.6	79.5	80.0	79.9	79.1	79.5
	MEAN WET BULB	19	74.6	73.8	74.3	75.5	76.6	77.2	77.2	77.2	77.2	77.3	77.0	75.8	76.1
	MEAN DEW POINT	19	72.4	71.5	71.5	73.1	74.1	75.1	75.6	75.8	75.7	75.7	75.2	73.7	74.1
NORMAL NO. DAYS WITH:															
MAXIMUM ≥ 90°	30	0.0	0.0	*	0.2	3.4	4.2	2.1	1.1	0.9	0.4	0.1	0.0	12.4	
MAXIMUM ≤ 32°	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	
MINIMUM ≤ 32°	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	
MINIMUM ≤ 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	
H/C	NORMAL HEATING DEG. DAYS	30	0	0	0	0	0	0	0	0	0	0	0	0	0
	NORMAL COOLING DEG. DAYS	30	390	350	414	435	473	463	458	449	439	449	439	431	5190
RH	NORMAL (PERCENT)														
	HOUR 04 LST	30	76	76	74	73	73	75	79	81	81	80	79	78	77
	HOUR 10 LST	30	75	73	72	71	72	74	78	80	80	80	79	78	76
	HOUR 22 LST	30	86	86	85	86	88	89	91	92	93	92	89	87	89
S	PERCENT POSSIBLE SUNSHINE	38	48	53	58	57	55	50	40	37	38	38	40	39	46
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	20	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8
	THUNDERSTORMS	20	0.7	0.1	0.0	0.6	1.1	3.1	6.0	6.8	8.1	4.1	2.6	0.3	33.5
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	21	5.7	6.0	5.3	5.7	5.8	6.4	6.8	7.0	6.6	6.7	5.8	5.8	6.1
	MIDNIGHT-MIDNIGHT (OKTAS)	4	4.8	4.8	3.7	5.0	4.9	5.8	6.8	6.4	5.9	6.1	4.9	4.8	5.3
	MEAN NO. DAYS WITH:														
CLEAR	21	3.1	2.1	2.9	1.2	0.9	0.7	0.3	0.1	0.2	0.4	2.3	2.4	16.6	
PARTLY CLOUDY	21	12.6	10.1	15.3	14.5	15.8	10.6	8.3	4.7	6.3	9.8	12.9	12.5	133.4	
CLOUDY	21	15.1	16.0	12.8	14.2	14.4	18.7	21.3	25.0	22.3	19.7	13.5	14.9	207.9	
PR	MEAN STATION PRESSURE (IN)	8	29.59	29.59	29.61	29.58	29.57	29.57	29.53	29.52	29.52	29.53	29.52	29.54	29.56
	MEAN SEA-LEVEL PRES. (IN)	20	29.87	29.89	29.90	29.87	29.86	29.85	29.83	29.80	29.81	29.82	29.82	29.85	29.85
WINDS	MEAN SPEED (MPH)	8	11.9	12.5	12.1	12.1	10.7	9.6	8.2	8.2	6.9	8.2	11.0	12.6	10.3
	PREVAIL. DIR (TENS OF DEGS)														
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	5	34	32	35	32	37	47	74	52	32	32	38	106	106
	DIR. (TENS OF DEGS)		05	07	07	09	07	28	22	24	05	31	06	27	27
	YEAR OF OCCURRENCE		2000	2004	2002	2003	2002	2004	2002	2004	2004	2003	2002	2002	DEC 2002
MAXIMUM 5-SECOND:															
SPEED (MPH)	5	41	38	40	41	44	58	90	66	44	38	59	117	117	
DIR. (TENS OF DEGS)		03	06	07	09	06	26	22	24	04	25	06	35	35	
YEAR OF OCCURRENCE		2000	2004	2002	2003	2002	2004	2002	2004	2004	2003	2002	2002	DEC 2002	
PRECIPITATION	NORMAL (IN)	30	5.58	5.11	4.24	4.16	6.39	6.28	11.66	16.17	13.69	11.88	9.34	6.11	100.61
	MAXIMUM MONTHLY (IN)	47	20.39	14.79	16.94	19.55	40.13	38.03	29.80	38.49	27.13	26.05	20.33	25.35	40.13
	YEAR OF OCCURRENCE		1976	1980	1971	1963	1976	2004	2002	1997	1982	1979	2003	2002	MAY 1976
	MINIMUM MONTHLY (IN)	47	1.17	0.67	0.59	0.50	0.64	0.80	4.74	3.87	5.95	6.63	2.08	2.17	0.50
	YEAR OF OCCURRENCE		1993	1960	1965	1965	1987	1983	1957	1965	1992	1976	1973	1992	APR 1965
	MAXIMUM IN 24 HOURS (IN)	47	11.09	9.24	3.55	6.37	27.00	18.80	10.44	15.36	7.48	12.07	7.26	20.59	27.00
	YEAR OF OCCURRENCE		1990	1980	1972	1974	1976	2004	2002	1992	1965	1986	1957	1997	MAY 1976
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	19.5	18.0	19.4	20.1	20.4	24.2	26.4	25.3	24.9	25.3	25.7	23.9	273.1	
PRECIPITATION ≥ 1.00	30	1.0	1.2	0.7	0.9	1.2	1.2	3.3	4.8	3.9	3.4	2.4	0.8	24.8	
SNOWFALL	NORMAL (IN)	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
	MAXIMUM MONTHLY (IN)	7	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
	YEAR OF OCCURRENCE														
	MAXIMUM IN 24 HOURS (IN)	47	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
	YEAR OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN)	45	0	0	0	0	0	0	0	0	0	0	0	0	0
YEAR OF OCCURRENCE															
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	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	

PRECIPITATION (inches) 2004 Agana (Guam), PC (GUM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	9.68	1.15	2.25	3.67	1.33	2.46	11.13	22.54	8.86	10.68	12.35	6.42	92.52
1976	20.39	13.56	9.04	4.37	40.13	6.40	13.38	24.40	10.79	6.63	7.91	8.91	165.91
1977	3.12	3.01	4.98	2.29	6.88	5.10	7.25	6.09	17.32	16.67	12.38	2.22	87.31
1978	2.44	4.99	0.85	2.65	3.48	7.89	8.91	19.63	10.01	10.49	14.10	4.80	90.24
1979	5.60	1.85	4.20	1.89	1.48	4.28	11.83	12.75	8.34	26.05	6.78	5.67	90.72
1980	2.07	14.79	3.42	2.92	8.60	7.96	10.93	9.42	24.34	12.02	7.76	6.14	110.37
1981	9.05	2.44	3.88	6.61	5.68	6.11	13.18	17.29	9.73	14.92	15.57	7.20	111.66
1982	2.92	8.77	2.46	0.99	6.35	8.77	13.61	6.32	27.13	11.86	9.34	6.33	104.85
1983	1.31	1.21	3.34	1.83	1.10	0.80	6.15	10.88	14.62	10.17	10.52	5.13	67.06
1984	3.19	4.19	4.02	1.56	3.10	6.69	6.58	24.05	17.41	9.40	12.93	5.89	99.01
1985	8.16	3.69	5.53	5.62	11.95	14.61	13.23	15.97	18.06	8.33	4.96	8.40	118.51
1986	2.01	8.71	5.60	8.36	7.77	9.08	17.41	24.87	8.02	19.71	6.05	12.43	130.02
1987	2.63	5.94	2.36	1.35	0.64	1.61	12.30	8.50	14.41	12.18	7.91	6.64	76.47
1988	8.71	1.30	1.50	2.95	2.33	7.93	14.37	9.21	10.67	14.56	5.54	4.33	83.40
1989	3.31	9.95	1.01	10.93	4.30	9.27	11.64	13.27	14.38	12.74	10.52	4.07	105.39
1990	17.01	3.72	2.64	2.52	4.95	6.28	14.49	17.25	22.00	8.46	16.41	7.35	123.08
1991	4.85	4.58	1.79	6.33	4.40	7.28	13.33	18.62	11.27	14.49	13.72	3.29	103.95
1992	9.81	1.75	2.28	2.57	6.23	3.40	10.08	38.13	5.95	15.01	12.91	2.17	110.29
1993	1.17	4.62	1.51	1.13	1.85	3.03	6.97	14.74	12.04	9.68	8.03	5.63	70.40
1994	5.22	2.83	4.70	3.29	7.42	4.19	14.35	9.23	21.39	12.12	4.40	7.56	96.70
1995	4.08	1.90	1.44	3.09	6.67	6.20	7.03	14.25	18.65	17.74	8.13	5.85	95.03
1996	11.86	7.21	3.40	5.14	3.28	5.34	16.40	12.48	19.38	9.37	16.05	7.30	117.21
1997	7.60	2.39	1.66	10.17	1.39	8.96	10.57	38.49	6.29	10.14	10.60	23.48	131.74
1998	1.99	1.22	0.97	1.51	1.05	4.52	5.38	4.44	16.44	9.64	6.78	3.94	57.88
1999	4.70	12.59	1.91	3.68	3.53	10.41	12.81	8.39	11.94	7.98	5.42	3.51	86.87
2000	2.79	4.92	4.03	1.65	7.44	4.74	6.16	18.62	12.63	11.40	5.16	8.85	88.39
2001	2.90	3.21	2.13	1.15	2.27	13.12	15.53	24.83	7.40	11.48	12.76	6.17	102.95
2002	8.46	5.55	3.05	1.34	6.32	7.13	29.80	20.53	17.19	7.02	6.94	25.35	138.68
2003	2.45	3.13	5.40	5.87	2.91	6.17	10.16	9.51	21.73	12.65	20.33	11.94	112.25
2004	4.17	6.94	3.42	3.38	5.51	38.03	10.11	37.32	10.85	9.87	6.46	3.27	139.33
POR= 48 YRS	0.46	0.51	0.41	0.30	0.53	1.45	1.52	2.34	1.47	1.11	1.11	1.19	12.40

WBAN : 41415

AVERAGE TEMPERATURE (°F) 2004 Agana (Guam), PC (GUM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	77.9	77.5	77.2	79.2	79.4	80.9	78.4	78.0	78.8	78.8	78.3	78.2	78.6
1976	76.1	76.6	77.4	78.4	79.1	79.5	79.4	79.0	78.6	79.5	78.8	77.6	78.3
1977	76.4	77.0	77.7	78.3	78.9	80.1	80.0	80.0	79.0	78.9	79.2	78.6	78.7
1978	76.7	76.6	78.1	79.8	81.0	79.9	79.7	79.1	79.7	79.7	78.9	78.1	78.9
1979	77.4	77.0	77.7	78.9	80.2	81.1	79.7	78.8	78.9	79.2	78.9	78.0	78.8
1980	76.4	77.4	77.6	79.3	79.5	79.7	79.6	80.2	79.4	79.8	80.4	78.0	78.9
1981	78.3	77.0	78.0	80.1	80.1	80.1	79.4	79.0	79.7	79.8	79.3	79.1	78.9
1982	77.4	76.8	77.4	78.7	79.6	79.7	78.8	78.6	78.6	77.5	78.5	77.3	78.2
1983	75.1	75.1	75.6	77.7	79.4	80.7	80.8	78.5	79.9	80.1	79.0	78.0	78.3
1984	76.8	76.2	77.6	79.1	79.9	79.4	78.8	78.1	78.4	79.6	78.9	78.6	78.5
1985	77.7	78.3	78.8	78.9	78.6	78.8	78.9	78.5	78.9	78.9	79.3	78.5	78.7
1986	78.1	76.9	78.5	79.5	79.3	79.9	79.0	79.7	79.4	79.5	80.1	78.2	79.0
1987	76.9	76.9	77.7	79.2	79.8	81.2	79.5	80.0	80.5	79.7	79.5	79.9	79.2
1988	78.8	78.5	79.8	79.9	81.0	79.9	79.4	79.9	79.7	79.4	80.1	79.8	79.7
1989	79.6	78.2	77.7	79.7	80.7	79.6	79.5	79.4	79.1	79.2	79.4	79.5	79.3
1990	78.7	78.2	78.2	79.5	80.6	80.9	80.2	79.6	79.2	79.9	79.5	78.6	79.4
1991	77.8	77.8	78.7	80.3	80.7	81.0	80.6	80.5	80.0	79.6	79.6	78.3	79.6
1992	78.0	77.5	78.7	78.8	79.8	81.4	80.5	79.4	80.6	80.0	79.6	78.8	79.4
1993	78.3	77.5	79.0	81.3	82.0	81.7	81.4	79.5	79.8	79.6	80.4	79.9	80.0
1994	78.6	78.3	79.8	81.0	81.4	81.7	80.0	80.1	79.6	78.6	79.4	78.0	79.7
1995	76.9	76.5	79.6	81.2	82.1	82.2	81.7	81.6	81.1	81.1	82.0	81.6	80.7
1996	80.1	79.6	80.7	81.4	82.9	83.2	82.0	81.7	81.1	82.1	81.1	81.2	81.4
1997	80.2	81.0	80.4	81.3	82.4	82.1	83.0	81.0	82.0	82.1	81.1	81.5	81.5
1998	80.8	80.2	79.7	81.7	83.0	82.8	83.0	82.4	81.2	82.6	82.7	82.3	81.9
1999	81.4	80.7	82.4	82.5	82.6	81.6	80.9	82.1	80.8	82.2	82.0	82.0	81.8
2000	79.9	80.8	81.8	82.8	82.6	82.3	81.5	81.1	80.4	81.8	83.0	82.0	81.7
2001	81.2	80.9	81.4	83.3	83.8	82.8	81.0	81.6	81.3	82.4	81.0	81.3	81.8
2002	80.2	80.2	81.8	81.9	83.1	83.6	81.6	81.7	81.5	82.4	82.5	80.6	81.8
2003	80.0	79.5	80.6	82.3	82.4	81.8	82.4	82.5	81.4	82.6	82.2	81.2	81.6
2004	80.3	80.8	81.5	82.9	83.3	81.8	81.6	80.5	82.2	82.6	82.3	80.9	81.7
POR= 48 YRS	78.1	78.0	78.6	80.0	80.7	80.6	79.9	79.8	79.6	80.1	79.9	79.2	79.5

HEATING DEGREE DAYS (base 65°F) 2004 Agana (Guam), PC (GUM)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1983-84	0	0	0	0	0	0	0	0	0	0	0	0	0
1984-85	0	0	0	0	0	0	0	0	0	0	0	0	0
1985-86	0	0	0	0	0	0	0	0	0	0	0	0	0
1986-87	0	0	0	0	0	0	0	0	0	0	0	0	0
1987-88	0	0	0	0	0	0	0	0	0	0	0	0	0
1988-89	0	0	0	0	0	0	0	0	0	0	0	0	0
1989-90	0	0	0	0	0	0	0	0	0	0	0	0	0
1990-91	0	0	0	0	0	0	0	0	0	0	0	0	0
1991-92	0	0	0	0	0	0	0	0	0	0	0	0	0
1992-93	0	0	0	0	0	0	0	0	0	0	0	0	0
1993-94	0	0	0	0	0	0	0	0	0	0	0	0	0
1994-95	0	0	0	0	0	0	0	0	0	0	0	0	0
1995-96	0	0	0	0	0	0	0	0	0	0	0	0	0
1996-97	0	0	0	0	0	0	0	0	0	0	0	0	0
1997-98	0	0	0	0	0	0	0	0	0	0	0	0	0
1998-99	0	0	0	0	0	0	0	0	0	0	0	0	0
1999-00	0	0	0	0	0	0	0	0	0	0	0	0	0
2000-01	0	0	0	0	0	0	0	0	0	0	0	0	0
2001-02	0	0	0	0	0	0	0	0	0	0	0	0	0
2002-03	0	0	0	0	0	0	0	0	0	0	0	0	0
2003-04	0	0	0	0	0	0	0	0	0	0	0	0	0
2004-	0	0	0	0	0	0	0	0	0	0	0	0	0

WBAN : 41415

COOLING DEGREE DAYS (base 65°F) 2004 Agana (Guam), PC (GUM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	409	357	383	434	454	487	422	409	422	435	405	418	5035
1976	350	346	392	411	445	442	454	444	414	456	421	398	4973
1977	363	341	401	405	438	459	474	474	428	442	435	424	5084
1978	368	329	413	451	504	454	466	445	449	463	421	413	5176
1979	391	344	403	423	480	491	461	435	425	447	422	408	5130
1980	358	367	397	434	456	445	457	476	437	465	466	412	5170
1981	416	342	410	410	475	461	454	440	448	467	437	442	5170
1982	393	335	390	420	459	446	432	430	414	393	412	389	4913
1983	320	289	337	386	451	480	494	425	455	474	427	411	4949
1984	374	333	396	428	467	437	433	413	408	461	424	429	5003
1985	401	378	436	424	430	423	437	425	427	436	434	427	5078
1986	416	338	425	439	448	454	440	464	437	457	457	415	5190
1987	373	338	399	432	462	496	455	470	474	464	441	468	5272
1988	434	396	467	454	504	455	454	471	449	457	461	464	5466
1989	460	376	401	448	495	446	456	456	428	450	440	456	5312
1990	434	379	417	440	493	485	480	460	431	469	440	431	5359
1991	403	364	431	465	497	489	494	489	456	458	443	422	5411
1992	411	370	430	420	466	497	488	453	475	475	444	437	5366
1993	418	356	442	498	534	507	514	458	454	459	470	469	5579
1994	432	379	465	489	517	507	471	475	443	429	436	408	5451
1995	374	331	459	493	535	523	523	525	504	508	519	522	5816
1996	475	428	493	498	561	551	534	521	492	536	490	509	6088
1997	478	453	482	495	548	521	567	502	517	537	491	517	6108
1998	497	435	464	505	566	539	564	544	492	552	537	543	6238
1999	515	447	546	533	550	502	500	539	481	540	515	533	6201
2000	469	465	527	540	554	525	520	506	470	531	546	531	6184
2001	509	452	516	555	588	540	504	521	496	547	489	513	6230
2002	479	431	526	515	567	566	520	523	501	546	533	491	6198
2003	472	412	490	525	547	512	546	545	499	555	522	512	6137
2004	483	465	520	543	574	511	525	489	522	551	523	497	6203

SNOWFALL (inches) 2004 Agana (Guam), PC (GUM)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1975-76	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
1976-77	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
1977-78	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
1978-79	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
1979-80	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
1980-81	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
1981-82	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
1982-83	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
1983-84	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
1984-85	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
1985-86	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
1986-87	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
1987-88	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
1988-89	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
1989-90	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
1990-91	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
1991-92	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
1992-93	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
1993-94	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
1994-95	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
1995-96	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
1996-97	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
1997-98	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
1998-99	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
1999-00	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
2000-01	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
2001-02	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
2002-03	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
2003-04	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
2004-	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
POR= 47 YRS	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

WBAN : 41415

REFERENCE NOTES :

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1971 - 2000). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65° F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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2004  
Agana (Guam) ,  
PACIFIC (GUM)

Guam is the largest and southernmost of the Mariana Islands. The Philippine Sea lies to the west and the Pacific Ocean to the east. The island is 28 miles long, 4 to 8 miles wide, and is oriented north northeast and south southwest. Located 1,500 miles east of Manila and 3,000 miles west of Honolulu, Guam serves as an important stopping place for aircraft and ships. It also has long been an important American military base. Outside of the activities of the Federal and Territorial governments, the most important single industry is agriculture.

Guam is shaped like a bow tie, and in correspondence with this shape, there are three topographic regions. The northern portion of the island is a limestone plateau that is bounded by steep cliffs that either fall directly to the sea or to narrow beaches. The surface of the plateau is 300 to 600 feet above sea level. The southern portion of the island is mountainous with several peaks that rise above 1,000 feet. The highest of these is Mount Lamlam which reaches 1,334 feet. The third major region, the narrow waist between the northern and southern regions, is quite low, generally less than 200 feet above sea level.

The National Weather Service station on Guam is located on the western side of the northern plateau. The ocean is 1 1/2 miles to the west, 9 miles to the north and east, and 5 miles to the southeast. The weather instruments at the station are well exposed in the center of an open field that is 40 acres in area. The trade winds reach the station after rising sharply up the 500-foot cliffs on the eastern side of the island and flowing 9 miles on an easy downslope grade across the surface of the northern plateau.

The climate of Guam is almost uniformly warm and humid throughout the year. Afternoon temperatures are typically in the middle or high 80s and

nighttime temperatures typically fall to the low 70s or high 60s. Relative humidity commonly ranges from around 65 to 75 percent in the afternoon to 85 to 100 percent at night. Though temperature and humidity vary only slightly throughout the year, rainfall and wind conditions vary markedly, and it is these latter variations that really define the seasons.

There are two primary seasons and two secondary seasons on Guam. The primary seasons are the four-month dry season, which extends from January through April, and the four-month rainy season which extends from mid-July to mid-November. The secondary seasons are May to mid-July and mid-November through December. These are transitional seasons that may be either rainy or dry depending upon the nature of the particular year. On the average, about 15 percent of the annual rainfall occurs during the dry season and 55 percent during the rainy season.

At all times of the year the dominant winds on Guam are the trade winds which blow from the east or northeast. The trades are strongest and most constant during the dry season, when wind speeds of 15 to 25 mph are very common. During the rainy season there is often a breakdown of the trades, and on some days the weather may be dominated by westerly-moving storm systems that bring heavy showers or steady, and sometimes torrential, rain. Occasionally there are typhoons, and these bring not only tremendous rains, but also violent winds that may cause a surge of water onto low-lying coastal areas. Typhoons have passed sufficiently close to Guam to produce high winds and heavy rains in every month, but their most frequent occurrence is during the latter half of the year.

# STATION LOCATION

Agana (Guam), PACIFIC

LOCATION	Occupied From	Occupied To	Airline Distances and Directions from previous Location	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATIC OBSERVING EQUIPMENT *	* TYPE  M = AMOS T = AUTOB S = ASOS W = AWOS  REMARKS	
						SEA LEVEL		GROUND										HYGRO THERMOMETER
						GROUND	SITE	WIND INSTRUMENT	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING GAUGE	RAINING GAUGE	8 INCH RAIN GAGE				
Weather Bureau Bldg. + Taguac, Guam  +Weather Service Bldg. (Effective 10/1970) GUAM INTL ARPT	9/15/56	01/11/00	NA	13°33'	144°50'	361	32	6	5	b18 g5	a4	c5 f	3 d e4 h	S	a. Installed 12/1/56. b. Installed 12/31/56. c. Installed 6/1/64. d. Removed 6/1/64. e. Installed 4/1/70. f. Removed 4/1970. g. Moved to ground 3/1/78. h. Removed 3/1978. ASOS Commissioned 01/11/2000 i. Ground Elevation			

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