Meteorology, weather, and climate

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It does <u>NOT</u> have to do with asteroids, but with hydrometeors, much smaller particles of water and ice. Weather refers to the specific state of the atmosphere at a given time and place.



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Average summer rainfall (mm)





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- Sut the climate of an area is more than just the average temperature or rainfall.
- It also includes the extremes of heat, cold, and precipitation.



				Clin	nate dat	ta for NY	C (2015)						[hide
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	56 (13)	43 (6)	62 (17)	80 (27)	88 (31)	90 (32)	96 (36)	95 (35)	97 (36)	78 (26)	74 (23)	72 (22)	97 (36)
Average high °F (°C)	36.1 (2.3)	32.1 (0.1)	45.3 (7.4)	62.6 (17)	78.4 (25.8)	78.5 (25.8)	85.9 (29.9)	86.9 (30.5)	82.6 (28.1)	65.4 (18.6)	59.3 (15.2)	56.3 (13.5)	64.1 (17.8)
Average low °F (°C)	23.6 (-4.7)	15.8 (–9)	30.9 (-0.6)	45.9 (7.7)	58.6 (14.8)	63.9 (17.7)	71.7 (22.1)	71.0 (21.7)	66.3 (19.1)	50.7 (10.4)	46.3 (7.9)	45.3 (7.4)	49.2 (9.6)
Record low °F (°C)	8 (–13)	2 (-17)	12 (–11)	32 (0)	48 (9)	50 (10)	64 (18)	63 (17)	56 (13)	35 (2)	32 (0)	34 (1)	2 (–17)
Average precipitation inches (mm)	5.23 (132.8)	2.04 (51.8)	4.72 (119.9)	2.08 (52.8)	1.86 (47.2)	4.79 (121.7)	3.98 (101.1)	2.35 (59.7)	3.28 (83.3)	3.91 (99.3)	2.01 (51.1)	4.72 (119.9)	40.97 (1,040.6)
Average snowfall inches (cm)	16.9 (42.9)	13.6 (34.5)	18.6 (47.2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	49.1 (124.7)
Average precipitation days (≥ 0.01 in)	10	9	14	9	4	14	8	6	5	8	7	15	109
Average snowy days (≥ 0.1 in)	6	7	4	0	0	0	0	0	0	0	0	0	17
					Sc	ource: NW	S ^{[1][2]}						

~ Climate information is useful for getting an idea about the typical weather conditions for a location.

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- For example, we might want to know if it will rain in Phoenix, Arizona on July 27. We can consult the climate record for Phoenix to see how much rain typically falls on July 27.

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- ~ To the right is a time series of the average daily Phoenix rainfall from 1958–2018.



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- For example, we might want to know if it will rain in Phoenix, Arizona on July 27. We can consult the climate record for Phoenix to see how much rain typically falls on $\begin{bmatrix} 14\\ 13\\ 12 \end{bmatrix}$

July 27.

To the right is a time series of the average daily Phoenix rainfall from 1958–2018.



PRE	ELIMI	NARY	LOC	CAL	CLIM	ATOLO	OGICAL	DATA	WS	FORM	1: F	-6)						
										STAT MONT YEAF LATI LONG	TION TH: R: TUD GITU	: E: DE:	PHOEN JULY 2019 33 2 112	NIX A2 25 N 1 W	Z			
	TEMPE	RATU	JRE I	IN F	:		PCPN:	5	NOW:	WIN	ID		SUNS	SHINE	SKY	ζ	:PK	WND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 мх	12 2MIN	13	14	15	16	17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	WX	SPD	DR
===													=====					
1	110	87	99	5	0	34	0.00	0.0	0	8.1	22	280	м	м	2		27	270
2	108	84	96	2	0	31	0.00	0.0	0	7.3	23	280	M	M	1		28	290
3	108	82	95	1	Ő	30	0.00	0.0	Ő	8.6	5 25	210	м	м	1		37	170
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	17	280	М	м	1		21	280
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	15	10	М	м	2		22	10
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	3 13	330	М	м	2		20	320
7	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	М	М	6		31	290
8	105	76	91	-4	0	26	0.00	0.0	0	9.3	3 22	290	М	м	2		27	300
9	105	76	91	-4	0	26	0.00	0.0	0	5.7	/ 13	300	М	м	1		20	290
10	111	84	98	3	0	33	0.00	0.0	0	7.3	3 17	280	М	м	3		23	290
11	114	90	102	7	0	37	0.00	0.0	0	13.4	31	270	М	м	6		40	280
12	112	91	102	7	0	37	0.00	0.0	0	6.6	5 22	330	М	М	8	3	27	360
13	110	92	101	6	0	36	0.00	0.0	0	9.9	22	270	M	M	5		30	290
14	109	92	101	6	0	36	0.00	0.0	0	8.4	21	280	M	M	6		27	280
15	114	89	102	/	0	37	0.00	0.0	0	/.8	8 18	260	M	M	2		24	270
10	106	89	102	2	0	3/	0.00	0.0	0	9.0	10	290	M	M	5		27	290
10	105	90	98	2	0	33	0.00	0.0	0	0.1	2 20	290	M	M	2		24	200
10	107	86	97	2	0	32	0.00	0.0	0	7.6	20	270	м	M	4		20	200
20	108	84	96	1	0	31	0.00	0.0	0	7.0	18	270	M	M	2		23	260
21	109	86	98	3	0	33	0.00	0.0	0	9.0	22	240	M	M	4		23	230
22	104	81	93	-2	Ő	28	т	0.0	Ő	9.8	37	140	м	м	7	378	49	150
23	107	83	95	0	0	30	0.00	0.0	0	6.1	15	80	м	м	7		18	180
24	102	80	91	-4	0	26	0.04	0.0	0	8.7	18	80	М	м	7	3	22	270
25	108	88	98	3	0	33	0.00	0.0	0	8.1	22	270	М	м	6		26	280
26	110	90	100	5	0	35	0.00	0.0	0	8.8	3 22	270	М	м	5		26	260
27	113	93	103	8	0	38	0.00	0.0	0	7.8	3 22	270	М	М	5		26	270
28	111	92	102	7	0	37	0.00	0.0	0	9.2	2 18	270	М	М	8		22	260
29	110	92	101	7	0	36	0.00	0.0	0	10.1	22	270	М	М	7		28	330
30	107	76	92	-2	0	27	0.13	0.0	0	9.5	5 30	110	М	М	7	13	40	100
31	97	76	87	-7	0	22	т	0.0	0	5.7	13	280	М	М	8	1	18	310
SM	3355	263	39 		0	990	0.17		0.0	254.3	-=== } -===		M		139			
AV	108.2	85.	1							8.2	PA	STST	M	м	4	1	MAX (MP	H)
								MISC	:	-> #	ŧ 37	140			2	# 4	49 15	0́
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PRE	ELIMI	NARY	IO0	CAL (CLIM	ATOLO	OGICAL	DATA	A (WS	FORM	I: F	-6)						
										STAT MONT YEAR LATI LONG	ION H: TUDI	: E: DE:	PHOEN JULY 2019 33 2 112	NIX A2 25 N 1 W	Z			
	LEWDE	RATU	JRE	IN F	:		PCPN:	5	SNOW:	WIN	ID		:SUNS	SHINE	SKY	ζ	:PK	WND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 мх :	12 2MTN	13	14	15	16	17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	wx	SPD	DR
1	110	87	99	5	0	34	0.00	0.0	0	8.1	22	280	М	М	2		27	270
2	108	84	96	2	0	31	0.00	0.0	0	7.3	23	280	М	м	1		28	290
3	108	82	95	1	0	30	0.00	0.0	0	8.6	25	210	М	м	1		37	170
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	17	280	М	м	1		21	280
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	15	10	М	м	2		22	10
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	13	330	М	м	2		20	320
7	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	М	м	6		31	290
8	105	76	91	-4	0	26	0.00	0.0	0	9.3	22	290	м	м	2		27	300
9	105	76	91	-4	0	26	0.00	0.0	0	5.7	13	300	М	М	1		20	290
10	111	84	98	3	0	33	0.00	0.0	0	7.3	17	280	М	M	3		23	290
11	114	90	102	7	0	37	0.00	0.0	0	13.4	31	270	М	M	6		40	280
12	112	91	102	7	0	37	0.00	0.0	0	6.6	22	330	M	M	8	3	27	360
13	110	92	101	6	0	36	0.00	0.0	0	9.9	22	270	M	M	5		30	290
14	109	92	101	6	0	36	0.00	0.0	0	8.4	21	280	M	M	6		27	280
15	114	89	102	7	0	37	0.00	0.0	0	7.8	18	260	M	M	2		24	270
16	115	89	102	7	0	37	0.00	0.0	0	9.0	23	290	M	M	3		27	290
1/	106	90	98	3	0	33	0.00	0.0	0	8./	18	290	M	M	5		24	300
18	107	86	97	2	0	32	0.00	0.0	0	8.3	20	270	M	M	4		28	280
19	108	80	97	2	0	32	0.00	0.0	0	7.0	20	270	M	M	0		25	280
20	108	84	90	1	0	27	0.00	0.0	0	/.9	10	2/0	M	M	2		23	200
21	109	00	90	2	0	22	0.00	0.0	0	9.9	22	140	M	M	4 7	270	27	230
22	104	02	93	-2	0	20	0 00	0.0	0	9.0	15	140	M	M	7	3/0	49	100
23	107	00	95	_1	0	26	0.00	0.0	0	0.1	10	00	M	M	7	3	22	270
24	102	00	00	-4	0	20	0.04	0.0	0	0./	22	270	M	M	6	3	22	270
25	110	00 00	100	5	0	32	0.00	0.0	0	ο.1 ο ο	22	270	M	M	5		20	260
27	113	93	103	2	0	38	0.00	0.0	0	7.9	22	270	M	M	5		20	270
28	111	92	102	7	0	37	0.00	0.0	0	9.2	18	270	M	M	8		20	260
29	110	92	101	7	ő	36	0.00	0.0	0	10.1	22	270	M	M	7		28	330
30	107	76	92	-2	ő	27	0.13	0.0	0	9.5	30	110	M	M	7	13	40	100
31	97	76	87	-7	0	22	Т	0.0	0	5.7	13	280	M	M	8	1	18	310
SM	3355	263	==== 39		0	990	0.17		0.0	254.3			==== М		139			
=== AV1	108.2	85	.1							8.2	FA	STST	м	===== М	-=== 4	 1	-==== MAX (MP	==== H)
								MISC		-> #	± 37	140				# 4	19 15	0

PRI	ELIMI	NARY	LOC	CAL	CLIM	ATOLO	GICAL	DATA	(WS	FORM	: F	-6)						
										STAT MONT YEAR LATI LONG	ION H: TUD	: E: DE:	PHOEN JULY 2019 33 2 112	NIX A2 25 N 1 W	z C			
	TEMPE	RATU	JRE	IN F	:	:	PCPN:	s	NOW:	WIN	D		SUNS	SHINE	SKI	ζ	:PK	WND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 мх	 12 2мтn	13	14	15	16	17	18
DY	МАХ	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	wx	SPD	DR
==:																		
1	110	87	99	5	0	34	0.00	0.0	0	8.1	22	280	М	М	2		27	270
2	108	84	96	2	0	31	0.00	0.0	0	7.3	23	280	M	М	1		28	290
3	108	82	95	1	0	30	0.00	0.0	0	8.6	25	210	M	M	1		37	170
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	17	280	M	M	1		21	280
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	15	10	M	M	2		22	10
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	13	330	M	M	2		20	320
	109	80	98	3	0	33	0.00	0.0	0	9.1	20	270	M	M	0		31	290
o o	105	76	91	-4	0	20	0.00	0.0	0	9.J 5.7	13	290	M	M	2		27	200
10	111	84	98		0	20	0.00	0.0	0	J./ 7 3	17	280	м	M	3		20	290
11	114	90	102	7	0	37	0.00	0.0	0	13.4	31	270	м	м	6		40	280
12	112	91	102	7	õ	37	0.00	0.0	0	6.6	22	330	м	м	8	3	27	360
13	110	92	101	6	Ő	36	0.00	0.0	Ő	9.9	22	270	м	м	5	5	30	290
14	109	92	101	6	Ő	36	0.00	0.0	Ő	8.4	21	280	м	м	6		27	280
15	114	89	102	7	0	37	0.00	0.0	0	7.8	18	260	М	М	2		24	270
16	115	89	102	7	0	37	0.00	0.0	0	9.0	23	290	М	м	3		27	290
17	106	90	98	3	0	33	0.00	0.0	0	8.7	18	290	М	м	5		24	300
18	107	86	97	2	0	32	0.00	0.0	0	8.3	20	270	М	м	4		28	280
19	108	86	97	2	0	32	0.00	0.0	0	7.6	20	270	М	м	6		25	280
20	108	84	96	1	0	31	0.00	0.0	0	7.9	18	270	М	М	2		23	260
21	109	86	98	3	0	33	0.00	0.0	0	9.9	22	240	М	м	4		27	230
22	104	81	93	-2	0	28	т	0.0	0	9.8	37	140	М	м	7	378	49	150
23	107	83	95	0	0	30	0.00	0.0	0	6.1	15	80	М	м	7	_	18	180
24	102	80	91	-4	0	26	0.04	0.0	0	8.7	18	80	М	м	7	3	22	270
25	108	88	98	3	0	33	0.00	0.0	0	8.1	22	270	M	M	6		26	280
26	110	90	100	5	0	35	0.00	0.0	0	8.8	22	270	M	M	5		26	260
27	113	93	103	8	0	38	0.00	0.0	0	/.8	10	270	M	M	5		26	2/0
28	110	92 02	102	7	0	3/	0.00	0.0	0	9.2	72	270	M	M	8 7		22	200
29	107	92 76	101	_2	0	30 27	0.00	0.0	0	10.1	22	2/0	M	M	7	12	28	100
31	97	76	87	-2 -7	0	22	т	0.0	0	5.7	13	280	M	M	8	1	18	310
SM	3355	263	 9		0	990	0.17		0.0	254.3			==== М		139			
AV	108.2	85.	1	:						8.2	FA	STST	 М	 M	 4		====== MAX (MP	==== H)
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PRE	ELIMI	NARY	C LO	CAL (CLIM	ATOLO	OGICAL	DAT	A (WS	FORM	1: F	-6)						
										STAT MONT YEAF LATI LONG	TION TH: R: TUD GITU	: E: DE:	PHOE1 JULY 2019 33 2 112	NIX A2 25 N 1 W	Z			
1	LEWDE	RATU	JRE I	IN F	:		PCPN:	5	SNOW:	WIN	1D		:SUNS	SHINE:	SK	Y	:PK V	ND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 мх	 12 2мтn	13	14	15	16	5 17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	wx	SPD	DR
===																		
1	110	87	99	5	0	34	0.00	0.0	0	8.1	22	280	М	М	2		27	270
2	108	84	96	2	0	31	0.00	0.0	0	7.3	3 23	280	М	м	1		28	290
3	108	82	95	1	0	30	0.00	0.0	0	8.6	5 25	210	М	м	1		37	170
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	7 17	280	М	М	1		21	280
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	15	10	М	м	2		22	10
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	3 13	330	M	M	2		20	320
7	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	M	M	6		31	290
8	105	76	91	-4	0	26	0.00	0.0	0	9.3	5 22	290	M	M	2		27	300
10	111	70	91	-4	0	20	0.00	0.0	0	D .1	1 1 J	200	M	M	2		20	290
11	114	04 QA	102	2 7	0	33	0.00	0.0	0	13 /) 1/ 1 31	200	M	M	5		23	290
12	112	91	102	7	0	37	0.00	0.0	0	6.6	5 22	330	M	M	8	3	27	360
13	110	92	101	6	õ	36	0.00	0.0	0	9.0	22	270	м	м	5	5	30	290
14	109	92	101	6	Ő	36	0.00	0.0	Ő	8.4	21	280	м	м	6		27	280
15	114	89	102	7	0	37	0.00	0.0	0	7.8	3 18	260	М	М	2		24	270
16	115	89	102	7	0	37	0.00	0.0	0	9.0	23	290	М	м	3		27	290
17	106	90	98	3	0	33	0.00	0.0	0	8.7	/ 18	290	М	м	5		24	300
18	107	86	97	2	0	32	0.00	0.0	0	8.3	3 20	270	М	М	4		28	280
19	108	86	97	2	0	32	0.00	0.0	0	7.6	5 20	270	М	м	6		25	280
20	108	84	96	1	0	31	0.00	0.0	0	7.9	18	270	М	М	2		23	260
21	109	86	98	3	0	33	0.00	0.0	0	9.9	22	240	М	м	4		27	230
22	104	81	93	-2	0	28	Т	0.0	0	9.8	3 37	140	M	M	7	378	3 49	150
23	107	83	95	0	0	30	0.00	0.0	0	6.1		80	M	M	7	2	18	180
24	102	80	91	-4	0	26	0.04	0.0	0	8.7	18	270	M	M	1	3	22	2/0
25	110	88	98	ک ج	0	33	0.00	0.0	0	Ø.]	22	270	M	M	0		26	280
20	113	90	103	2	0	35	0.00	0.0	0	7 9	22	270	M	M	5		20	200
28	111	92	102	7	0	37	0.00	0.0	0	9.2	22	270	M	M	8		20 22	260
29	110	92	101	7	ő	36	0.00	0.0	0	10.1	22	270	M	M	7		28	330
30	107	76	92	-2	ő	27	0.13	0.0	0	9.5	5 30	110	м	M	7	13	40	100
31	97	76	87	-7	0	22	Т	0.0	0	5.7	7 13	280	М	м	8	1	18	310
SM	3355	263	39 		0	990	0.17		0.0	254.3	3 		М		139			
AV1	108.2	85.	.1					MISC	2	8.2 -> #	2 FA # 37	STST 140	М	м	4	= #	MAX(MPH 49 150	H) 0
===																		

PR	ELIMI	INARY	Y LOO	CAL (CLIM	ATOLO	GICAL	DATA	A (WS	FORM	1: F	-6)						
										STAT MONT YEAH LATT LONG	TION TH: R: TUD GITU	: E: DE:	PHOEN JULY 2019 33 2 112	NIX A2 25 N 1 W	3			
	TEMPE	ERATU	JRE	IN F	:	:	PCPN:		SNOW:	win	1D		SUNS	SHINE:	SK	r 	:PK V	WND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 MX	12 2мтn	13	14	15	16	5 17	18
DY	мах	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	wx	SPD	DR
==:																		
1	110	87	99	5	0	34	0.00	0.0	0	8.1	22	280	м	м	2		27	270
2	108	84	96	2	0	31	0.00	0.0	0	7.3	3 23	280	М	м	1		28	290
3	108	82	95	1	0	30	0.00	0.0	0	8.6	5 25	210	М	м	1		37	170
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	7 17	280	М	м	1		21	280
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	l 15	10	М	м	2		22	10
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	3 13	330	М	м	2		20	320
7	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	М	М	6		31	290
8	105	76	91	-4	0	26	0.00	0.0	0	9.3	3 22	290	M	M	2		27	300
9	105	76	91	-4	0	26	0.00	0.0	0	5.3	/ 13	300	M	M	1		20	290
10		84	102	3	0	33	0.00	0.0	0	12	5 1/ 1 21	280	M	M	3		23	290
12	114	90	102	7	0	27	0.00	0.0	0	13.4	+ 31 : 22	270	M	M	0	2	40	280
13	112	91	102	6	0	36	0.00	0.0	0	0.0	22	270	M	M	5	3	27	200
14	109	92	101	6	0	36	0.00	0.0	0	8.4	22	280	M	м	6		27	290
15	114	89	102	7	ő	37	0.00	0.0	Ő	7.8	18	260	м	м	2		24	270
16	115	89	102	. 7	Ő	37	0.00	0.0	0	9.0	23	290	м	м	3		27	290
17	106	90	98	3	0	33	0.00	0.0	0	8.7	18	290	М	м	5		24	300
18	107	86	97	2	0	32	0.00	0.0	0	8.3	3 20	270	М	м	4		28	280
19	108	86	97	2	0	32	0.00	0.0	0	7.6	5 20	270	М	м	6		25	280
20	108	84	96	1	0	31	0.00	0.0	0	7.9	18	270	М	М	2		23	260
21	109	86	98	3	0	33	0.00	0.0	0	9.9	22	240	М	м	4		27	230
22	104	81	93	-2	0	28	т	0.0	0	9.8	3 37	140	М	м	7	378	3 49	150
23	107	83	95	0	0	30	0.00	0.0	0	6.1	L 15	80	М	М	7		18	180
24	102	80	91	-4	0	26	0.04	0.0	0	8.7	18	80	M	M	7	3	22	270
25	108	88	98	3	0	33	0.00	0.0	0	8.1	22	270	M	M	6		26	280
26	110	90	100	5	0	35	0.00	0.0	0	8.8	5 22	270	M	M	5		26	260
27	111	93	103	7	0	30	0.00	0.0	0	0.0	0 22 0 10	270	M	M	2		20	270
20	110	92	102	7	0	36	0.00	0.0	0	10 1	2 10	270	M	M	0		22	200
30	107	76	92	-2	0	27	0.13	0.0	0	9.5	5 30	110	M	M	7	13	20 40	100
31	97	76	87	-7	0	22	т	0.0	0	5.7	13	280	M	M	8	1	18	310
SM	3355	5 263	 39		0	990	0.17		0.0	254.3	==== }		===== М		139			
=== AV	108.2	2 85	•==== • 1							 8.2	==== ? FA	==== STST	===== М	-==== м	 4		MAX (MPI	 H)
								MISC	c	-> #	¥ 37	140	••		-	#	49 150	0
===:					=====													

PRI	ELIMI	NARY	Y LOO	CAL (CLIM	ATOLO	GICAL	DATA	A (WS	FORM	: F	-6)						
										STAT MONT YEAR LATI LONG	ION H: TUD	: E: DE:	PHOE1 JULY 2019 33 2 112	NIX A2 25 N 1 W	Z			
1	TEMPE	RATU	JRE I	IN F	:		PCPN	5	SNOW:	WIN	D		SUNS	SHINE	SKY	Z	:PK	WND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 мх	==== 12 2мтn	13	14	15	16	5 17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	WX	SPI	DR
	110	07				24	0.00			0 1		200			 2		 2 -	
1	100	0/	99	2	0	24	0.00	0.0	0	0.1 7 3	22	200	M	M	2		21	270
2	108	82	90	2	0	30	0.00	0.0	0	7.J	25	200	M	M	1		20	, 290 170
4	107	78	93	_2	0	28	0.00	0.0	0	7.7	23	280	M	м	1		21	280
5	105	79	92	-2	ő	20	0.00	0.0	ő	6.1	15	10	M	M	2		22	200
6	106	81	94	-1	ő	29	0.00	0.0	Ő	3.8	13	330	м	м	2		20	320
7	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	м	м	6		31	290
8	105	76	91	-4	Ő	26	0.00	0.0	Ő	9.3	22	290	м	м	2		27	/ 300
9	105	76	91	-4	0	26	0.00	0.0	0	5.7	13	300	М	м	1		20	290
10	111	84	98	3	0	33	0.00	0.0	0	7.3	17	280	М	м	3		23	3 290
11	114	90	102	7	0	37	0.00	0.0	0	13.4	31	270	М	м	6		40	280
12	112	91	102	7	0	37	0.00	0.0	0	6.6	22	330	М	м	8	3	27	360
13	110	92	101	6	0	36	0.00	0.0	0	9.9	22	270	М	М	5		30	290
14	109	92	101	6	0	36	0.00	0.0	0	8.4	21	280	М	м	6		27	280
15	114	89	102	7	0	37	0.00	0.0	0	7.8	18	260	М	М	2		24	270
16	115	89	102	7	0	37	0.00	0.0	0	9.0	23	290	М	м	3		27	290
17	106	90	98	3	0	33	0.00	0.0	0	8.7	18	290	М	М	5		24	300
18	107	86	97	2	0	32	0.00	0.0	0	8.3	20	270	M	M	4		28	3 280
19	108	86	97	2	0	32	0.00	0.0	0	7.6	20	270	M	M	6		25	5 280
20	108	84	96	1	0	31	0.00	0.0	0	/.9	18	270	M	M	2		23	260
21	109	01	98	3	0	33	0.00	0.0	0	9.9	22	240	M	M	4 7	270		230
22	104	63 01	22	-2	0	20		0.0	0	9.0 6 1	15	140	M	M	7	318	· 45	120
23	102	80	93	_4	0	26	0.04	0.0	0	8 7	19	80	M	м	7	з	20	, 100) 270
25	108	88	98		0	33	0.00	0.0	0	8.1	22	270	M	M	6	5	22	5 280
26	110	90	100	5	ő	35	0.00	0.0	0	8.8	22	270	M	M	5		26	5 260
27	113	93	103	8	ő	38	0.00	0.0	õ	7.8	22	270	м	м	5		26	5 270
28	111	92	102	7	Ő	37	0.00	0.0	Ō	9.2	18	270	м	м	8		22	2 2 6 0
29	110	92	101	7	0	36	0.00	0.0	0	10.1	22	270	М	м	7		28	330
30	107	76	92	-2	0	27	0.13	0.0	0	9.5	30	110	М	м	7	13	40) 100
31	97	76	87	-7	0	22	т	0.0	0	5.7	13	280	M	M	8	1	18	310
SM	3355	263	39		0	990	0.17		0.0 2	254.3			M		139			
AV1	108.2	85	.1					MISC	2	= 8.2 -> #	FA 37	STST 140	М	М	4	==	MAX(ME 49 15	чн) 50
===																-===		

PRE	ELIMI	NARY	C LOO	CAL (CLIM	ATOLO	GICAL	DATA	(WS	FORM	I: F	-6)						
										STAT MONT YEAR LATI LONG	ION H: TUD	: E: DE:	PHOEN JULY 2019 33 2 112	NIX AZ 25 N 1 W	2			
3	TEMPE	RATU	JRE :	IN F	:	:	PCPN:	S	NOW:	WIN	D		SUNS	SHINE:	SKY	č	:PK V	WND
1	2	3	4	5	6A	6B	7	8	9 127	10 AVG	11 МХ	==== 12 2мтn	13	14	15	16	17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	wx	SPD	DR
1	110	87	99	5	0	34	0.00	0.0	0	8.1	. 22	280	м	М	2		27	270
2	108	84	96	2	0	31	0.00	0.0	0	7.3	23	280	M	M	1		28	290
3	108	82	95	1	0	30	0.00	0.0	0	8.6	25	210	M	M	1		37	170
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	17	280	M	M	1		21	280
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	. 15	10	M	M	2		22	10
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	13	330	M	M	2		20	320
/	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	M	M	6		31	290
8	105	/6	91	-4	0	26	0.00	0.0	0	9.3	22	290	M	M	2		27	300
10	105	/6	91	-4	0	26	0.00	0.0	0	5./	13	300	M	M	1		20	290
10		84	98	3	0	33	0.00	0.0	0	1.3	1/	280	M	M	3		23	290
11	114	90	102	/	0	3/	0.00	0.0	0	13.4	16	270	M	M	6	2	40	280
12	112	91	102		0	37	0.00	0.0	0	6.6	22	330	M	M	8	3	27	360
10	100	92	101	0	0	20	0.00	0.0	0	9.9	22	2/0	M	M	2		20	290
14	114	92	101	07	0	20	0.00	0.0	0	8.4	21 10	280	M	M	2		27	280
15	114	09	102	7	0	37	0.00	0.0	0	0.0	10	200	M	M	2		24	270
17	106	09	102	2	0	37	0.00	0.0	0	9.0	10	290	M	M	5		27	290
18	107	86	90	2	0	33	0.00	0.0	0	0./ 23	20	290	м	M	4		24	280
10	102	86	97	2	0	32	0.00	0.0	0	7 6	20	270	M	M	6		20	280
20	108	84	96	2	0	31	0.00	0.0	0	7.0	18	270	M	M	2		23	260
21	109	86	98	י ג	0	33	0.00	0.0	0	9.9	22	240	M	M	2		23	230
22	104	81	93	-2	ő	28	л Т	0.0	0	9.8	37	140	м	M	7	378	49	150
23	107	83	95	0	õ	30	0.00	0.0	Ő	6.1	15	80	M	м	, 7	270	18	180
24	102	80	91	-4	õ	26	0.04	0.0	0	8.7	18	80	м	м	7	3	22	270
25	108	88	98	3	Ő	33	0.00	0.0	Ő	8.1	22	270	м	м	6	-	26	280
26	110	90	100	5	0	35	0.00	0.0	0	8.8	22	270	M	м	5		26	260
27	113	93	103	8	0	38	0.00	0.0	0	7.8	22	270	М	М	5		26	270
28	111	92	102	7	0	37	0.00	0.0	0	9.2	18	270	М	М	8		22	260
29	110	92	101	7	0	36	0.00	0.0	0	10.1	22	270	М	м	7		28	330
30	107	76	92	-2	0	27	0.13	0.0	0	9.5	30	110	М	М	7	13	40	100
31	97	76	87	-7	0	22	т	0.0	0	5.7	13	280	М	М	8	1	18	310
=== SM	3355	263	 39	====:	0	990	0.17		0.0	254.3			===== М		139			
=== AV1	L08.2	85.	. 1	:				MISC		===== 8.2 -> #	FA:	==== STST 140	 М	 М	4	==== ا # 4	MAX(MP) 49 15	==== H) O
===											====							



	TEMPE	RATU	JRE	IN F	:		PCPN:		SNOW:	WIN	1D		SUN	SHINE	: SK	Y	:PK	WND
1	2	3	4	5	6A	6В	7	8	9 127	10 AVG	11 MX	12 2мты	13	14	15	10	5 17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	WX	SPD	DR
====																		
1	104	77	91	-3	0	26	0.00	0.0	0	6.7	7 14	290	м	м	1		20	270
2	108	79	94	0	õ	29	0.00	0.0	Ő	7.5	5 21	280	м	M	1		26	270
3	110	82	96	2	0	31	0.00	0.0	0	9.4	22	290	м	м	1		26	270
4	107	87	97	2	0	32	0.00	0.0	0	6.1	16	280	м	м	4		20	280
5	115	88	102	7	0	37	0.00	0.0	0	7.7	29	110	м	м	4		36	100
6	111	94	103	8	0	38	0.00	0.0	0	12.8	3 24	140	М	м	4		35	110
7	113	91	102	7	0	37	0.00	0.0	0	5.8	3 21	10	М	М	5		25	360
8	111	90	101	6	0	36	0.00	0.0	0	6.7	25	160	М	М	7	78	32	180
9	107	74	91	-4	0	26	0.56	0.0	0	5.8	3 52	70	М	М	6	37	71	50
10	98	78	88	-7	0	23	0.09	0.0	0	6.2	2 31	120	М	М	7	3	41	150
11	101	79	90	-5	0	25	т	0.0	0	8.4	23	330	М	м	8	38	28	190
12	102	78	90	-5	0	25	0.00	0.0	0	6.1	23	330	М	М	7	3	32	340
13	106	86	96	1	0	31	0.00	0.0	0	7.9	22	360	М	М	8		31	360
14	103	87	95	0	0	30	0.00	0.0	0	8.2	22	10	М	М	8		29	10
15	100	88	94	-1	0	29	0.00	0.0	0	8.4	17	160	М	м	8		23	160
16	105	84	95	0	0	30	т	0.0	0	7.9	9 21	150	М	м	8		28	170
17	107	84	96	1	0	31	0.00	0.0	0	7.5	5 20	270	М	М	6		23	260
18	103	85	94	-1	0	29	0.00	0.0	0	9.4	20	260	М	М	5		24	270
19	106	87	97	2	0	32	0.00	0.0	0	12.2	2 20	270	М	м	5	3	24	260
20	109	91	100	5	0	35	0.00	0.0	0	9.5	5 17	270	М	М	6		25	220
21	102	79	91	-4	0	26	0.01	0.0	0	11.1	28	160	М	М	7	38	36	170
22	109	85	97	2	0	32	0.00	0.0	0	6.9	9 16	270	M	М	3		23	330
23	115	89	102	7	0	37	0.00	0.0	0	6.7	18	280	M	М	5		27	260
24	116	91	104	9	0	39	0.03	0.0	0	6.7	22	280	M	М	5	38	26	270
25	116	93	105	10	0	40	0.00	0.0	0	6.5	b 20	290	M	м	6		25	300
26		94	103	8	0	38	0.00	0.0	0	10.8	5 22	280	M	M	6		27	260
27	100	93	102	1	0	37	0.00	0.0	0	9.9	29	350	M	M	5		3/	240
20	105	09	99	1	0	20	0.00	0.0	0	0.5	10	220	M	M	0		25	170
29	100	04	95	2	0	21	0 01	0.0	0	9.1	1 27	230	M	M	07	27	25	7/0
30	107	02 g 2	90	1	0	30	U.UI T	0.0	0	7 3	2 1 9	160	M	M	5	57	45	160
31	107							=====		/•3	, 10	100		M =====			24	====
SM	3334	265	51		0	986	0.70		0.0	253.0)		м		174			
AV	107.6	======================================								8.2	FA	STST	м	м	6		MAX(MP	H)
								MISC	c	-> #	¥ 52	70			Ŭ	#	71 5	0
===		====			=====			====:				====			====	====		

	PRI	ELIMI	NARY	LOC	CAL (CLIM	TOLO	GICAL	DATA	A (WS	FORM	: F-	-6)						
											STAT MONT YEAR LATI LONG	ION H: : TUDI ITUI		PHOEN 2017 33 2 112	IIX AZ	i			
ID	5	TEMPE	RATU	JRE 1	IN F:	:	:	PCPN:	5	SNOW:	WIN	D		SUNS	HINE:	SKY	ŗ	:PK W	ND
==	====	=====										====	====						
8	T	2	3	4	5	6A	6B	1	8	9 1 2 7		TT MAX ,		13	14	15	10	17	18
R	рv	мах	мты	AVC	DED	нор	CDD	WTR	SNW		SPD	SPD	DTR	мти	PSBL.	5-5	wx	SPD	DR
===	===					=====	====		=====	======	=====	====	====	=====	=====	====	"AA	======	====
70	1	112	80	96	2	0	31	0.00	0.0	0	8.8	22	280	М	м	1		26	280
70	2	110	83	97	3	0	32	0.00	0.0	0	8.3	21	280	м	М	2		24	280
70	3	107	88	98	4	0	33	0.00	0.0	0	8.5	18	280	м	М	3		29	270
80	4	111	88	100	5	0	35	0.00	0.0	0	7.8	18	270	м	м	2		23	230
00	5	112	87	100	5	0	35	0.00	0.0	0	9.0	21	290	м	М	4		30	270
10	6	111	88	100	5	0	35	0.00	0.0	0	6.2	14	170	м	М	4		20	280
60	7	118	91	105	10	0	40	0.00	0.0	0	7.5	32	60	м	м	5	3	38	60
80	8	113	95	104	9	0	39	0.00	0.0	0	10.4	28	90	м	М	7		34	90
50	9	109	87	98	3	0	33	0.00	0.0	0	9.1	24	250	м	М	6		31	260
50	10	109	88	99	4	0	34	0.02	0.0	0	10.6	23	160	м	М	7	3	29	160
90	11	104	82	93	-2	0	28	0.01	0.0	0	9.0	21	80	м	М	7	3	25	120
40	12	108	85	97	2	0	32	0.00	0.0	0	7.7	18	280	м	М	4	8	25	270
60	13	109	87	98	3	0	33	0.00	0.0	0	8.7	26	170	м	М	4	78	36	170
10	14	108	86	97	2	0	32	0.00	0.0	0	9.5	29	340	м	М	6	78	36	350
60	15	109	87	98	3	0	33	т	0.0	0	7.3	30	340	м	М	6	3	44	340
70	16	104	74	89	-6	0	24	0.38	0.0	0	8.1	49	50	м	М	7	378	62	30
60	17	99	76	88	-7	0	23	0.05	0.0	0	7.8	18	80	М	М	7	3	23	80
70	18	103	79	91	-4	0	26	т	0.0	0	8.2	29	130	м	М	6	3	37	130
60	19	102	82	92	-3	0	27	0.00	0.0	0	8.3	25	270	м	М	7		31	250
20	20	103	83	93	-2	0	28	0.01	0.0	0	7.7	22	120	м	М	7	3	28	130
70	21	103	83	93	-2	0	28	0.01	0.0	0	8.1	28	60	м	М	5	3	34	70
30	22	106	83	95	0	0	30	0.00	0.0	0	6.9	31	360	м	М	6		41	360
60	23	103	76	90	-5	0	25	0.21	0.0	0	7.7	39	100	м	М	7	378	49	90
70	24	90	75	83	-12	0	18	0.18	0.0	0	5.8	20	70	м	М	8	1	22	70
00	25	102	80	91	-4	0	26	т	0.0	0	6.1	17	280	м	М	7		23	10
60	26	106	84	95	0	0	30	0.00	0.0	0	6.4	16	280	М	М	4		20	210
10	27	110	89	100	5	0	35	0.00	0.0	0	8.3	24	80	М	М	6		32	160
40	28	101	85	93	-2	0	28	Т	0.0	0	10.9	22	340	М	M	М		29	150
70	29	103	83	93	-1	0	28	0.02	0.0	0	6.5	32	320	М	м	8	3	42	320
30	30	99	80	90	-4	0	25	0.00	0.0	0	4.5	14	260	М	м	7		18	270
60	31	107	85	96	2	0	31	0.00	0.0	М	6.8	20	30	М	м	5		26	30
==	====			.===:															
	SM	3291	. 259	9		0	937	0.89		0.0 2	246.5			М		165			
==																		======	
	AV.	106.2	83.	8					NTC	-	8.0	F'A	STST	М	м	6	M	AX (MPE	1)
									M150		-> #	49	50				# 6	2 30	,
_																			

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)



1	LEWDE	RATU	JRE	IN F	:		PCPN:		SNOW:	WIN	ID		SUNS	SHINE	SK	Y	:PK	WND
1	2	3	4	5	6A	6в	7	8	9	10 AVC	11 MY	12 2MTN	13	14	15	16	5 17	18
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	s-s	WX	SPD	DR
====												====:						====
1	104	77	91	-3	0	26	0.00	0.0	0	6.7	14	290	м	м	1		20	270
2	108	79	94	0	ŏ	29	0.00	0.0	Ő	7.5	5 21	280	м	м	1		26	270
3	110	82	96	2	0	31	0.00	0.0	0	9.4	22	290	м	м	1		26	270
4	107	87	97	2	0	32	0.00	0.0	0	6.1	. 16	280	М	м	4		20	280
5	115	88	102	7	0	37	0.00	0.0	0	7.7	29	110	М	м	4		36	100
6	111	94	103	8	0	38	0.00	0.0	0	12.8	3 24	140	М	М	4		35	110
7	113	91	102	7	0	37	0.00	0.0	0	5.8	3 21	10	М	М	5		25	360
8	111	90	101	6	0	36	0.00	0.0	0	6.7	25	160	М	м	7	78	32	180
9	107	74	91	-4	0	26	0.56	0.0	0	5.8	52	70	М	М	6	37	71	50
10	98	78	88	-7	0	23	0.09	0.0	0	6.2	31	120	М	М	7	3	41	150
11	101	79	90	-5	0	25	т	0.0	0	8.4	23	330	М	М	8	38	28	190
12	102	78	90	-5	0	25	0.00	0.0	0	6.1	. 23	330	М	М	7	3	32	340
13	106	86	96	1	0	31	0.00	0.0	0	7.9	22	360	М	M	8		31	360
14	103	87	95	0	0	30	0.00	0.0	0	8.2	22	10	М	М	8		29	10
15	100	88	94	-1	0	29	0.00	0.0	0	8.4	17	160	М	М	8		23	160
16	105	84	95	0	0	30	т	0.0	0	7.9	21	150	М	м	8		28	170
17	107	84	96	1	0	31	0.00	0.0	0	7.5	5 20	270	М	М	6		23	260
18	103	85	94	-1	0	29	0.00	0.0	0	9.4	20	260	М	М	5		24	270
19	106	87	97	2	0	32	0.00	0.0	0	12.2	20	270	М	М	5	3	24	260
20	109	91	100	5	0	35	0.00	0.0	0	9.5	5 17	270	М	М	6		25	220
21	102	79	91	-4	0	26	0.01	0.0	0	11.1	. 28	160	М	М	7	38	36	170
22	109	85	97	2	0	32	0.00	0.0	0	6.9	16	270	М	М	3		23	330
23	115	89	102	7	0	37	0.00	0.0	0	6.7	18	280	М	М	5		27	260
24	116	91	104	9	0	39	0.03	0.0	0	6.7	22	280	М	м	5	38	26	270
25	116	93	105	10	0	40	0.00	0.0	0	6.5	5 20	290	М	М	6		25	300
26	111	94	103	8	0	38	0.00	0.0	0	10.8	3 22	280	М	М	6		27	260
27	100	93	102	7	0	37	0.00	0.0	0	9.9	29	350	M	M	6		37	240
28	105	01	99	4	0	20	0.00	0.0	0	0.5	10	220	M	M	0		33	170
29	100	04	95	2	0	21	0 01	0.0	0	9.1	. 10	230	M	M	07	27	25	1/0
30	107	83	90	1	0	30	U.UI	0.0	0	7 3	19	160	M	M	5	57	24	160
===	=====	====	====		=====	=====		=====				=====	=====		====:			====
SM	3334	265	51		0	986	0.70		0.0	253.0)		м		174			
AV1	107.6	85	.5					MISC		= 8.2 -> ≠	= ? FA # 52	STST	М	м	6		MAX (MP	———— Н) О
===								=====		- 7						====		

Climate is what you expect; weather is what you get!



PR	ELIMI	INARY	LOC	CAL (CLIM	ATOL	OGICAL	DATA	(WS	FORM	: F	-6)							
										STAT MONT YEAR LATI LONG	ION H: : TUDI ITUI	: E: DE:	PHOEN JULY 2019 33 2 112	NIX A2 25 N 1 W	5				
	TEMPE	RATU	JRE :	IN F	:		PCPN:	s	NOW:	WIN	D		:SUNS	SHINE:	SKY	č	:PK	WND	
1	2	3	4	5	6A	6B	7	8	9 127	10 NVC	11 MV	12 2MTN	13	14	15	16	17	18	
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD :	SPD	DIR	MIN	PSBL	s-s	WX	SPD	DR	
1	110	87	99	5	0	34	0.00	0.0	0	8.1	22	280	м	м	2		27	270	
2	108	84	96	2	0	31	0.00	0.0	0	7.3	23	280	М	М	1		28	290	
3	108	82	95	1	0	30	0.00	0.0	0	8.6	25	210	М	М	1		37	170	
4	107	78	93	-2	0	28	0.00	0.0	0	7.7	17	280	М	М	1		21	280	
5	105	79	92	-3	0	27	0.00	0.0	0	6.1	15	10	М	М	2		22	10	
6	106	81	94	-1	0	29	0.00	0.0	0	3.8	13	330	М	м	2		20	320	
7	109	86	98	3	0	33	0.00	0.0	0	9.1	26	270	М	М	6		31	290	
8	105	76	91	-4	0	26	0.00	0.0	0	9.3	22	290	M	м	2		27	300	
9	105	76	91	-4	0	26	0.00	0.0	0	5.7	13	300	M	м	1		20	290	
10	111	84	98	3	0	33	0.00	0.0	0	12 4	21	280	M	M	3		23	290	
12	112	90	102		0	27	0.00	0.0	0	13.4	22	270	M	M	0	2	40	260	
12	112	91	102		0	26	0.00	0.0	0	0.0	22	270	M	M	6	3	27	200	
14	100	92	101	6	0	36	0.00	0.0	0	9.9	21	220	м	M	6		27	290	
15	114	89	102	7	ő	37	0.00	0.0	ő	7.8	18	260	м	м	2		24	270	
16	115	89	102	7	ő	37	0.00	0.0	ő	9.0	23	290	м	м	3		27	290	
17	106	90	98	3	0	33	0.00	0.0	0	8.7	18	290	М	м	5		24	300	
18	107	86	97	2	0	32	0.00	0.0	0	8.3	20	270	М	м	4		28	280	
19	108	86	97	2	0	32	0.00	0.0	0	7.6	20	270	М	м	6		25	280	
20	108	84	96	1	0	31	0.00	0.0	0	7.9	18	270	М	М	2		23	260	
21	109	86	98	3	0	33	0.00	0.0	0	9.9	22	240	М	М	4		27	230	
22	104	81	93	-2	0	28	т	0.0	0	9.8	37	140	М	М	7	378	49	150	
23	107	83	95	0	0	30	0.00	0.0	0	6.1	15	80	М	М	7		18	180	
24	102	80	91	-4	0	26	0.04	0.0	0	8.7	18	80	М	М	7	3	22	270	
25	108	88	98	3	0	33	0.00	0.0	0	8.1	22	270	M	M	6		26	280	
27	113	93	103	8	0	38	0.00	0.0	0	7.8	22	270	М	м	5		26	270	٦
20	111	52	102	-	, c	37	0.00	0.0	0	3.2	10	270	P1	M	0		22	200	-
29	110	92	101	7	0	36	0.00	0.0	0	10.1	22	270	M	M	1	12	28	330	
30	10/	76	92	-2	0	2/	U.13 m	0.0	0	9.5	30	280	M	M	2	13	40	310	
==:	<i>51</i>			-/					=====	5.7		200	м =====	м =====			10	310	
SM	3355	263	9		0	990	0.17		0.0	254.3			M =====		139				
AV	108.2	85.	1							8.2	FAS	STST	М	м	4		MAX (MP	H)	
								MISC		-> #	37	140				#	49 15	0	

Weather observations

~ How do we get the information quantifying weather that goes into developing a location's climate?

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~ The first instruments to measure atmospheric quantities were developed in the 16th and 17th centuries by Galileo (early thermometer) and Torricelli (first barometer to measure pressure).



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GLASS BALLS WITH COLOURED LIQUID

METAL DISC WITH TEMPERATURE

LABEL

GLASS TUBE FILLED WITH SPECIAL LIOUIDS

LIQUID DENSITY VARIES WITH TEMPERATURE BULBS RISE OR FALL

INDICATING THE

~ These measurements were being taken on the ground, but it was obvious that a lot of interesting things that make up the weather were happening above the surface.

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Starting with Benjamin Franklin, instruments mounted on kites and balloons were used to investigate the atmosphere above the surface.



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~ Today, weather balloons called radiosondes play a significant role in studying the atmosphere. ~ Radiosondes are light-weight instrument packages and transmitters that are routinely launched across the globe.





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The radiosondes send information on temperature, humidity, pressure, wind speed and direction through the lowest ~15 km of the atmosphere. ~ Since World War II, airplanes have been key in exploring higher altitudes of the atmosphere (up to 30 km) and flying into specific weather phenomena.

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Air Force Reserve C-130





Some of the most spectacular observations of weather come from satellites and radar. Some of the most spectacular observations of weather come from satellites and radar.



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