U. S. DEPARTMENT OF COMMERCE, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
IN COOPERATION WITH THE OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
AND THE OHIO DEPARTMENT OF NATURAL RESOURCES - DIVISION OF WATER
CLIMATOGRAPHY OF THE UNITED STATES NO. 20-33-7R

LATITUDE 39° 08' N
LONGITUDE 83° 36' W
ELEV. (GROUND) 1090 Ft.

CLIMATOLOGICAL SUMMARY

STATION: Hillsboro, Ohio

MEANS AND EXTREMES FOR PERIOD 1894-1965

TEMPERATURE (°F)

MONTH	MEANS: DAILY MAXIMUM	MEANS: DAILY MINIMUM	MEANS: MONTHLY	EXTREMES: RECORD HIGHEST	YEAR	DAY	RECORD LOWEST	YEAR	DAY	MEAN DEGREE DAYS **	MEAN NUMBER OF DAYS: MAX. 90° AND ABOVE	MAX. 32° AND BELOW	MIN. 32° AND BELOW	MIN. 0° AND BELOW
JAN	40.0	21.9	30.9	76	50	25	-20*	63	25	1050.	0	7	25	2
FEB	41.3	22.3	31.8	74	50	15	-30	99	10	933.	0	6	22	1
MAR	52.1	31.1	41.6	85*	45	25	-6	43	4	723.	0	1	18	0
APR	63.4	40.3	51.8	94	96	18	11	23	1	402.	0	0	7	0
MAY	73.6	50.3	61.9	99	95	31	27*	47	10	155.	0	0	0	0
JUNE	81.7	59.0	70.3	103	95	3	37	45	5	23.	4	0	0	0
JULY	85.6	62.6	74.1	105	97	4	41	98	11	2.	8	0	0	0
AUG	84.2	61.0	72.6	103*	48	27	38	46	30	6.	6	0	0	0
SEPT	79.1	54.7	66.9	105	95	20	29	42	29	69.	3	0	0	0
OCT	67.8	43.4	55.6	95	97	15	11	52	21	307.	0	0	4	0
NOV	53.2	32.9	43.0	85*	95	7	-1	58	30	654.	0	0	15	0
DEC	41.5	24.3	32.9	71	51	31	-23	17	11	991.	0	6	24	1
YEAR	63.6	41.9	52.7	105	97	JULY 4	-30	99	FEB 10	5315.	21	20	115	4

PRECIPITATION TOTALS (INCHES)

MONTH	MEAN	GREATEST MONTHLY	YEAR	GREATEST DAILY	YEAR	DAY	SNOW, SLEET: MEAN	MAXIMUM MONTHLY	YEAR	GREATEST DAILY	YEAR	DAY	MEAN NUMBER OF DAYS: .01 or MORE	.10 or MORE	.50 or MORE	1.00 or MORE	MONTH
JAN	3.69	14.72	37	2.16	49	5	6.3	27.0	18	12.0	10	6	11	7	2.7	.6	JAN
FEB	2.87	7.00	9	2.40	45	26	5.5	25.0	10	10.0	10	17	9	6	1.8	.4	FEB
MAR	4.46	12.51	64	4.70	63	5	3.6	16.3	96	8.0	*54	1	11	8	2.8	.9	MAR
APR	3.87	8.15	20	3.41	48	12	.6	6.0	20	6.0	20	6	11	8	2.8	.7	APR
MAY	3.82	9.79	33	4.20	62	22	.0	3.0	23	2.0	23	9	10	7	2.6	.6	MAY
JUNE	4.11	9.14	57	3.48	11	18	.0						10	7	2.8	1.0	JUNE
JULY	4.27	9.86	65	7.20	65	23	.0						9	7	2.9	1.1	JULY
AUG	3.87	10.26	26	3.28	35	16	.0						8	6	2.8	1.0	AUG
SEPT	3.01	8.29	65	3.20	65	1	.0						6	5	2.0	.8	SEPT
OCT	2.44	6.17	5	2.78	45	2	.1	8.0	25	4.0	25	29	7	5	1.5	.4	OCT
NOV	2.97	7.35	27	2.24	57	19	1.5	12.5	50	11.0	58	29	8	6	1.9	.5	NOV
DEC	3.07	8.08	23	2.26	21	24	4.5	17.5	17	10.0	17	8	9	6	2.1	.6	DEC
YEAR	42.45	14.72	JAN 37	7.20	JULY 65	23	22.1	27.0	JAN 18	12.0	JAN 10	6	109	78	29.	9.	YEAR

** BASE 65° F *Also on earlier dates, months or years

NARRATIVE CLIMATOLOGICAL SUMMARY

Hillsboro is located near the center of Highland County among the hills of southwest Ohio. Although these hills represent a westward extension of the Appalachian foothills, this area lies just west of the unglaciated region which comprises much of southeast Ohio. Terrain within Highland County is gently rolling west of Hillsboro and mostly rugged and hilly east of this point. Within the county the elevation of the earth's surface above mean sea level varies from about 775 to 1290 feet. Valley areas to the east of Hillsboro are prone to extended periods of atmospheric stagnation. During such periods, the ability of the atmosphere to transport and diffuse pollutants emitted into the air is reduced.

The climate of Highland County is marked by large annual, daily, and day to day ranges of temperature. Such a climate is characteristic of interior areas the size of North America and is classified as continental. In the Hillsboro area, summers are moderately warm and humid with several days when temperatures climb into the nineties. Winters are reasonably cold and cloudy but days with subzero temperatures are rare. Weather changes occur every few days from the passing of cold or warm fronts and their associated centers of high and low pressures.

Relative humidity, the ratio between the amount of moisture in the air and the amount which could be present without condensation at the same temperature and pressure, is an important factor in human and animal comfort and in the growth and development of vegetation. Generally, humidity rises and falls inversely with the daily temperature and is lowest in summer and highest in winter. For the year, relative humidity averages about 80% at 1 and 7 AM, 55% at 1 PM, and 70% at 7 PM. Cloudiness is greatest in winter and least in summer. This seasonal variation in cloudiness is most clearly illustrated by the percentage of possible sunshine which is about 70% in July and 35% in December. The occurrence of fog that reduces visibility to less than 1/4 mile is most frequent during spring and summer. Such storms are usually associated with migrating thunderstorms.

Heating degree days (mean degree days) as shown in the above table are a measure of the departure of the average daily temperature from 65° F. When the average daily temperature is above 65° F. the degree day value for that day is zero. The daily totals are accumulated from July 1 through June 30. At any point during the year, the accumulated degree days can be used as an index of past temperature effect upon power consumption and fuel consumption for heating of homes and businesses.

The tornado, one of the most destructive of all atmospheric storms is characterized by a violently rotating column of air which is nearly always observable as a "funnel cloud". It frequently leaves great destruction along a narrow path and is usually accompanied by heavy rain and hail and often by lightning and thunder. Since 1900, five such storms have been reported in Highland County. Ohio averages about 10 tornadoes per year.

Hillsboro's normal average annual temperature is about two degrees below the average for southwest Ohio. In 8 of 10 years, the average annual temperature is in the 51.0-54.6° F range. On nights with clear skies and light winds there is often a large variation in observed surface temperatures within Highland County. This is especially true in the vicinity of hills. On such nights, the air near the tops of hills becomes cooler and denser than air at the same heights over the valleys. These air temperature and density differences cause the cool air to drain down the slopes and into the valleys. This drainage often results in large differences in surface temperatures between valley floors and the tops of hills. The daily range in temperature is usually greatest in late summer and early fall and least in winter. Annual extremes in temperature normally occur soon after June 21 and December 22. At Hillsboro, the highest temperature during the year is equal to or greater than 91° F in 9 of 10 years, 96° F in 5 of 10 years, and 101° F in 1 of 10 years. Lowest temperature during the year is equal to or less than 2° F in 9 of 10 years, -6° F in 5 of 10 years, and -16° F in 1 of 10 years.

Taking the number of days between the last freezing temperature (32° F) of spring and the first freezing temperature in fall as the crop-growing season, this season averages 171 days in the Hillsboro area. The growing season is longer than 193 days in 1 of 10 years and shorter than 149 days in 10% of the years. Similar information for other Highland County areas may differ significantly from the Hillsboro data due to the variations in topography within the county.

As is characteristic of continental climates, precipitation in the hillsboro area varies widely from year to year, however, it is normally abundant and well distributed throughout the year with fall being the driest season. In 1 of 5 years the annual precipitation is in the 40.17-44.01 inches range; in 4 of 5 years the total precipitation for the year is in the 33.08-52.54 inches range. Showers and thundershowers account for most of the rainfall during the growing season. Heavy rains of 2.4, 3.3, 4.0, 4.8, 5.4, and 6.0 inches in 24-hours can be expected to occur at least once in 2, 5, 10, 25, 50, and 100 years respectively. As is typical of much of Ohio, most precipitation during the winter months comes in the form of rain. Druing any year, snowfall may fluctuate widely from the means shown in the above table.

Evaporation is greatest during the warm months and is then most critical for agriculture. When evaporation greatly exceeds precipitation for prolonged periods a drought may occur. Since 1929, extended periods of moderate to extreme drought in southwest Ohio as determined from the Palmer Drought Severity Index have occurred during the 1930, 1934, 1936, 1941, 1944, 1951, 1953, 1954, 1960, 1964, and 1965 growing seasons. Longest extended period of moderate to extreme drought during the period 1929-1968 is 13 months (February 1934-February 1935).

PROBABILITY OF FREEZES OCCURRING AS LATE IN THE SPRING OR AS EARLY IN THE FALL AS DATES SHOWN IN THE FOLLOWING TABLE

PERCENT CHANCE OF LATER DATE IN SPRING	TEMPERATURE LEVELS 16°	20°	24°	28°	32°	36°
90	FEB 19	FEB 28	MAR 17	MAR 31	APR 13	APR 24
70	MAR 2	MAR 10	MAR 26	APR 8	APR 21	MAY 3
50	MAR 9	MAR 17	APR 1	APR 13	APR 26	MAY 10
30	MAR 16	MAR 24	APR 7	APR 18	MAY 2	MAY 16
10	MAR 26	APR 4	APR 16	APR 26	MAY 10	MAY 25
PERCENT CHANCE OF EARLIER DATE IN FALL						
10		OCT 31	OCT 21	OCT 10	SEPT 28	SEPT 18
30		NOV 10	OCT 30	OCT 19	OCT 8	SEPT 27
50		NOV 17	NOV 6	OCT 26	OCT 15	OCT 4
70		NOV 25	NOV 12	NOV 1	OCT 21	OCT 11
90		DEC 5	NOV 21	NOV 10	OCT 31	OCT 20

October 1969

Marvin E. Miller
ESSA Weather Bureau State Climatologist
Box 15307
Civic Center Station
Columbus, Ohio 43215

STATION HISTORY

DATE	LOCATION (From Post Office)	ELEVATION (Ft. MSL)	OBSERVER
9/1892-3/1901	3.0 miles ESE	850	J. N. Hogsett
4/1901-3/1908	Unknown	Unknown	J. A. Williams
3/1908-1/1914	0.4 mile ESE	1063	C. H. Rouch
1/1914-10/1914	1.5 miles NW	1063	W. E. Duckwall
11/1914-2/1917	2.0 miles N	Unknown	F. B. Bayhan
2/1917-1/1919	Unknown	Unknown	C. K. Duckwall
1/1919-11/1920	0.3 mile E	1130	Ruth Bayhan
11/1920-3/1959	1.0 mile SW	1020	F. F. Brouse
3/1959-5/1959	0.6 mile SE	1050	Thomas L. Knott
5/1959-3/1965	1.0 mile WSW	1050	Thomas L. Knott
3/1965-Present	4.5 miles S	1090	Thomas L. Knott

AVERAGE TEMPERATURE (° F)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNL
94	37.1	32.8	47.3	52.5	61.8	73.2	75.1	74.3	69.8	56.3	38.8	34.7	54.5
95	25.3	21.3	39.1	53.1	61.0	72.9	72.5	74.8	71.7	48.7	42.4	36.0	51.6
96	31.6	32.5	34.0	58.7	68.6	72.1	76.5	73.7	64.5	51.3	47.4	35.8	53.9
97	27.7	36.0	45.4	52.4	58.7	70.9	77.6	72.1	69.4	60.1	43.9	34.9	54.1
98	34.7	33.3	47.6	48.8	63.9	74.0	78.2	76.5	71.0	56.7	41.0	31.0	54.7
99	30.9	23.4	41.1	53.7	63.7	71.4	73.2	73.2	65.1	57.4	44.6	31.3	52.4
0	31.2	28.2	35.6	51.6	62.1	69.4	73.4	76.3	70.4	59.7	42.6	33.8	52.9
1	31.0	23.2	42.0	48.6	58.5	70.9	78.4	73.3	64.8	53.3	38.0	27.6	50.8
2	29.0	22.4	43.2	50.9	66.1	69.6	75.4	72.4	66.5	57.4	51.6	31.9	53.0
3	29.4	32.2	49.0	52.6	66.3	66.0	75.3	73.9	68.6	56.3	39.4	25.3	52.8
4	24.1	27.0	43.9	46.6	62.5	70.3	73.2	72.2	69.1	55.8	43.4	30.4	51.5
5	24.0	23.5	47.1	52.0	63.5	72.0	74.8	74.3	67.6	54.3	42.0	34.1	52.4
6	36.5	29.2	33.2	54.8	63.3	71.4	73.5	76.3	71.1	55.2	43.5	34.1	53.5
7	36.4	29.7	49.7	43.7	57.5	67.6	74.7	71.7	67.8	51.9	40.8	34.9	52.2
8	31.7	30.5	45.4	52.8	63.3	69.1	73.9	71.4	69.4	55.4	43.4	34.3	53.4
9	34.0	36.5	39.3	50.6	59.0	70.8	70.4	72.4	63.8	50.0	51.1	27.7	52.1
10	29.4	28.3	51.5	53.5	57.1	66.5	73.2	70.7	67.9	58.4	37.6	27.5	51.8
11	35.5	37.5	40.4	50.5	68.0	72.9	75.9	74.2	70.3	55.6	38.6	38.7	54.9
12	20.1	24.8	36.3	54.8	63.9	68.8	75.4	70.1	68.9	57.2	42.5	34.4	51.4
13	37.8	29.8	41.7	50.9	61.5	70.8	75.5	74.1	65.5	55.0	45.9	35.6	53.7
14	36.2	24.7	37.7	53.6	63.0	73.5	75.7	73.6	64.2	57.2	44.6	26.9	52.5
15	29.0	37.4	34.5	54.5	59.9	68.6	72.2	67.5	68.5	58.5	48.6	32.4	52.6
16	37.7	28.2	39.7	51.0	64.3	65.9	78.1	75.1	63.1	53.9	44.2	30.3	52.6
17	30.4	28.4	37.4	48.4	54.3	67.5	72.0	71.2	62.5	46.5	39.1	20.7	48.2
18	13.8	30.7	45.3	50.2	67.2	69.2	70.5	77.1	57.7	56.6	41.6	39.5	51.6
19	33.5	34.6	43.1	52.2	59.1	74.5	76.5	72.1	71.9	64.6	42.9	29.4	54.5
20	26.8	29.0	44.3	49.6	59.7	70.5	74.0	72.8	67.3	60.3	41.8	34.9	52.6
21	34.3	35.8	51.4	55.2	62.5	74.0	78.0	70.6	69.9	53.6	44.6	35.4	55.4
22	28.8	35.6	44.3	54.7	65.0	71.8	72.7	70.5	72.1	57.0	44.4	34.3	54.3
23	35.3	28.5	40.2	50.4	60.1	71.0	73.4	71.7	66.6	52.6	42.3	42.5	52.9
24	26.4	30.0	37.2	51.8	54.9	69.4	69.5	70.8	59.9	56.4	42.1	30.0	49.9
25	29.5	38.4	43.4	55.7	56.4	73.3	72.2	71.2	71.3	47.2	39.6	30.5	52.4
26	28.1	34.5	34.7	46.0	62.0	66.2	72.8	73.6	67.4	54.8	40.4	32.9	51.1
27	31.0	39.2	44.1	52.1	61.7	65.1	72.1	66.0	68.7	58.5	47.9	33.6	53.3
28	31.0	33.2	39.9	47.6	59.8	65.7	73.1	73.6	61.8	58.7	44.7	35.7	52.1
29	28.7	26.4	47.2	54.7	59.0	66.9	71.9	68.2	65.9	52.8	40.8	34.6	51.4
30	31.7	41.4	40.1	54.7	63.0	69.6	75.3	72.9	67.7	51.1	42.0	31.7	53.4
31	33.2	36.6	36.3	51.0	58.0	70.6	76.4	70.9	70.0	57.0	51.7	41.7	54.5
32	41.1	40.8	35.9	50.5	61.3	72.3	74.0	70.8	65.8	54.1	40.8	33.6	53.4
33	39.5	33.1	41.2	51.0	64.4	73.7	72.8	71.3	69.2	53.3	40.8	38.1	54.0
34	35.7	24.1	37.9	51.1	65.3	74.6	77.1	71.4	66.2	55.3	46.8	32.1	53.2
35	31.7	34.1	49.0	49.2	57.7	66.7	75.3	72.4	63.5	53.8	43.1	26.1	51.9
36	23.4	25.9	44.7	48.1	63.1	70.8	77.8	76.6	69.1	54.8	39.5	37.4	52.6
37	39.2	33.3	37.0	51.5	60.4	69.1	73.0	74.3	62.6	52.1	40.9	30.9	52.1
38	32.4	40.0	47.8	54.2	61.1	67.2	72.7	73.1	65.7	56.2	45.1	34.3	54.2
39	35.7	35.7	43.4	48.3	63.2	71.0	71.3	71.6	70.9	57.5	40.9	36.3	53.8
40	16.8	31.5	39.1	48.6	58.2	68.9	72.6	73.4	62.8	56.1	42.2	39.5	50.8
41	31.7	29.0	35.0	56.5	63.5	69.3	73.6	71.1	67.8	59.7	44.6	38.3	53.3
42	29.3	28.6	44.1	54.5	62.0	72.5	76.5	70.8	64.7	55.4	44.6	30.1	52.7
43	32.8	34.2	37.9	47.4	62.0	73.4	75.7	71.2	62.4	53.0	40.4	30.0	51.7
44	32.6	35.7	39.1	50.9	68.2	72.8	74.3	75.0	67.0	54.4	42.8	27.4	53.4
45	24.5	32.1	52.9	55.1	58.5	68.7	72.3	72.7	69.6	54.2	44.6	26.4	52.7
46	33.1	35.0	52.5	52.9	60.5	70.9	73.4	68.2	66.6	58.2	47.6	37.1	54.7
47	36.8	23.3	35.8	54.3	60.3	69.5	70.7	78.3	68.3	62.4	41.3	34.2	52.9
48	22.8	34.7	46.8	57.9	61.0	71.7	75.6	73.5	68.5	51.6	47.0	36.0	53.9
49	37.9	39.1	43.3	50.3	64.7	74.2	78.4	73.4	61.8	60.0	43.5	37.2	55.3
50	41.5	34.8	39.7	48.5	63.6	69.5	72.2	69.0	64.1	58.8	38.2	27.0	52.3
51	34.2	32.5	41.7	50.0	62.5	70.0	73.4	72.3	64.4	57.2	36.9	33.0	52.4
52	36.5	35.6	40.3	52.3	60.8	74.6	75.8	71.6	64.2	49.5	43.5	34.8	53.3
53	35.9	36.2	43.2	48.5	67.2	73.6	75.2	74.5	68.5	60.4	46.0	34.8	55.3
54	34.3	41.6	40.5	59.2	58.2	72.1	74.9	72.1	69.7	57.7	43.0	33.4	54.8
55	29.9	34.1	43.8	57.5	64.3	66.4	77.0	76.2	69.8	55.5	40.3	31.7	53.9
56	28.5	37.4	41.7	50.5	62.0	70.5	73.1	72.8	63.8	59.5	43.1	42.0	53.7
57	27.8	38.6	42.1	54.8	63.4	71.5	74.6	73.3	67.2	52.1	44.0	38.5	54.0
58	29.2	25.2	37.6	53.3	61.9	67.5	73.6	71.2	66.1	55.1	46.0	26.7	51.1
59	29.5	36.4	40.3	53.4	66.4	70.3	73.8	74.9	68.9	55.4	40.0	37.0	53.9
60	33.4	29.6	28.5	56.0	58.7	68.7	71.6	73.9	68.4	55.2	44.1	24.7	51.1
61	24.1	35.7	43.3	44.8	56.3	67.4	72.6	72.4	70.0	56.8	42.4	30.9	51.4
62	25.6	30.1	37.4	48.9	68.4	70.8	72.6	72.5	62.8	56.5	41.5	27.9	51.3
63	20.3	22.8	43.8	53.4	59.7	70.3	72.4	70.0	65.0	63.1	45.9	21.1	50.7
64	30.5	29.0	40.7	53.5	65.0	72.8	75.0	72.4	67.3	53.8	47.2	33.9	53.5
65	29.1	28.0	35.8	51.7	68.1	70.7	71.8	70.8	67.3	52.3	43.8	36.7	52.2
66	**23.4**	**29.5**	**43.0**	**49.9**	**58.2**	**70.4**	**74.9**	**71.6**	**63.1**	**50.8**	**43.2**	**31.2**	**50.8**
67	**34.0**	**26.4**	**42.3**	**53.4**	**56.8**	**70.3**	**70.6**	**68.4**	**61.3**	**52.4**	**37.7**	**34.5**	**50.7**
68	**23.1**	**24.5**	**41.6**	**52.9**	**57.5**	**68.8**	**73.0**	**73.1**	**65.8**	**54.3**	**43.5**	**30.9**	**50.8**
69	**27.1**	**31.4**	**35.3**	**51.8**									

TOTAL PRECIPITATION (INCHES)

YR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNL
94	2.05	3.24	2.50	2.60	2.29	2.86	.62	1.26	1.91	1.62	1.11	3.38	25.44
95	5.27	.50	1.70	2.78	1.02	2.51	2.27	2.76	.45	1.20	2.95	3.49	26.90
96	1.42	1.94	3.95	1.35	2.22	4.75	5.14	3.52	4.38	1.38	4.58	1.09	35.72
97	1.93	5.14	5.75	3.40	3.56	1.25	5.00	4.57	.42	.73	6.69	2.61	41.05
98	8.15	2.03	5.50	1.80	3.09	2.24	6.00	2.64	2.97	3.32	3.94	3.32	45.00
99	2.95	2.70	5.75	1.48	4.04	6.09	2.73	3.31	2.60	1.89	1.81	3.39	38.74
0	2.60	2.71	2.05	1.27	2.92	2.35	4.82	3.64	2.11	1.75	5.80	1.51	33.53
1	1.10	.91	2.03	3.90	3.29	2.69	2.35	1.76	.69	.47	.91	3.81	23.91
2	2.80	.36	2.75	2.17	4.32	8.30	2.02	.46	4.34	2.69	3.81	4.27	38.29
3	2.25	4.54	4.79	3.21	4.30	4.69	1.27	.84	1.71	2.20	1.26	2.00	33.06
4	2.93	2.18	7.19	3.45	3.64	2.49	1.57	2.85	.83	1.29	.40	3.58	32.40
5	1.23	1.81	2.75	3.38	7.88	4.25	1.78	3.44	2.17	6.17	2.40	2.60	39.86
6	3.57	1.25	5.18	2.14	3.43	3.26	6.50	5.03	3.62	1.72	3.00	4.92	43.62
7	8.17	.97	6.19	3.59	3.23	5.75	5.06	4.77	4.34	3.44	2.77	3.45	51.73
8	1.81	5.93	4.18	4.46	6.34	2.20	3.30	1.19	.56	1.49	1.89	2.95	36.30
9	3.07	7.00	3.17	5.38	4.95	6.69	5.78	4.30	2.24	2.77	2.43	2.51	50.29
10	5.49	6.46	.04	2.85	4.32	6.49	7.22	3.15	3.83	2.95	2.59	3.36	48.75
11	4.70	2.64	3.05	5.05	1.63	7.58	.97	5.41	5.82	5.13	3.69	6.54	52.21
12	2.35	3.11	7.10	3.36	3.95	2.18	9.32	5.76	3.78	1.70	1.17	2.02	45.80
13	7.88	2.04	9.01	5.39	3.03	3.70	2.86	1.82	3.27	3.42	4.76	1.32	48.50
14	2.01	4.75	3.00	3.17	2.47	1.40	2.96	5.50	.88	3.62	1.87	5.50	37.13
15	2.35	2.11	1.50	1.45	3.28	4.80	5.09	9.90	5.85	3.75	4.10	2.12	46.30
16	5.40	.84	4.35	2.18	5.01	5.26	2.47	8.63	2.97	2.65	1.53	3.12	44.41
17	3.68	1.24	4.51	3.73	4.42	4.13	3.27	5.13	.48	3.28	.37	1.64	35.88
18	5.66	2.12	3.64	3.32	3.66	6.24	1.73	3.50	2.48	2.98	2.57	4.48	42.38
19	2.19	.70	3.35	2.26	3.65	3.79	3.24	1.68	2.35	5.90	4.32	1.43	34.86
20	2.36	.50	4.15	8.15	4.48	2.17	2.37	5.63	3.61	.92	1.83	1.53	37.70
21	1.79	2.32	7.52	2.93	2.64	2.08	2.35	6.79	5.24	1.40	6.73	5.43	47.22
22	2.35	2.27	7.08	5.46	4.85	3.46	8.45	3.05	1.37	1.99	1.47	3.65	45.45
23	4.74	2.80	4.58	5.16	3.96	3.02	3.20	5.52	2.08	1.58	2.58	8.08	47.30
24	4.67	2.07	4.65	3.83	3.40	6.15	2.82	3.18	6.59	.28	1.69	3.68	43.01
25	2.39	3.01	3.69	4.13	2.55	1.68	5.43	3.42	3.00	5.89	5.29	.46	40.94
26	2.98	4.31	3.41	4.65	2.09	3.85	5.45	10.26	5.83	4.88	1.70	2.66	52.07
27	5.91	2.68	4.23	6.39	5.12	4.27	6.10	3.57	.97	1.53	7.35	4.66	52.78
28	2.39	3.25	2.14	4.32	.97	8.19	3.93	1.94	.93	2.12	3.18	2.37	35.73
29	5.27	2.52	2.99	3.96	7.27	4.99	6.62	2.48	3.46	3.88	4.64	3.12	51.20
30	4.86	3.50	3.35	3.18	.90	1.96	2.76	2.36	4.35	.70	1.70	1.49	31.11
31	1.31	2.62	3.08	5.55	4.34	3.35	7.31	7.11	7.61	2.71	3.02	4.97	52.98
32	6.59	2.09	4.51	3.22	1.12	6.18	7.46	3.31	3.54	3.28	3.20	3.99	48.49
33	2.89	1.87	8.10	4.62	9.79	2.36	2.08	6.05	3.31	2.34	1.55	4.89	49.85
34	1.86	1.02	3.19	1.75	.62	6.37	4.46	4.73	4.14	.47	1.54	1.71	31.86
35	3.87	2.32	7.16	3.23	6.96	5.98	6.69	7.87	2.77	2.70	3.48	2.53	55.56
36	1.89	3.00	3.47	4.20	1.74	2.20	.64	4.31	2.33	4.12	3.29	3.51	34.70
37	14.72	2.08	1.55	4.09	3.91	5.47	1.69	5.99	3.71	3.65	1.61	5.01	53.48
38	2.42	2.95	6.24	2.08	6.26	4.34	7.45	3.23	4.21	.26	2.99	1.56	43.99
39	3.57	5.82	6.42	7.38	1.84	6.62	4.07	3.35	.89	2.21	1.63	2.07	45.87
40	1.70	4.19	3.82	7.22	7.09	6.73	.54	4.35	2.13	1.30	4.62	2.58	46.27
41	2.82	.93	1.21	2.12	1.95	8.84	5.46	3.20	4.20	4.08	2.06	1.88	38.75
42	1.80	3.40	3.25	3.50	3.12	7.87	4.53	3.09	2.91	2.11	4.99	5.27	45.84
43	1.52	2.11	7.21	3.36	6.27	3.04	7.17	2.11	1.17	1.33	1.03	1.67	37.99
44	.85	4.00	5.84	3.81	2.03	.59	.99	5.77	2.33	.53	3.00	4.09	33.83
45	2.25	6.11	11.12	3.43	4.43	3.96	4.51	5.08	3.84	4.06	4.65	2.12	55.56
46	1.33	4.41	5.34	2.92	5.30	4.80	5.30	2.24	3.95	2.74	4.54	2.85	45.72
47	6.45	.81	1.44	8.00	5.28	4.58	2.63	5.73	4.16	1.32	2.61	1.88	44.89
48	2.75	4.03	6.47	7.54	3.19	2.78	2.73	1.56	2.14	2.29	5.33	3.87	44.68
49	8.30	3.57	4.02	2.83	1.38	5.53	2.93	3.35	1.61	1.98	1.63	3.95	41.08
50	11.25	5.41	2.33	4.92	3.87	4.41	4.99	3.49	6.11	2.09	5.46	1.74	56.07
51	6.59	4.35	4.81	3.15	3.12	2.65	.53	1.45	3.44	1.39	4.39	5.97	41.84
52	6.09	2.37	4.79	3.57	2.84	2.26	2.86	4.42	3.97	1.57	1.50	2.34	38.58
53	4.99	1.27	3.43	3.66	5.65	2.28	3.68	1.14	.55	.93	1.58	2.72	31.88
54	3.14	1.95	4.54	3.23	2.93	2.83	9.80	6.72	1.40	5.94	1.68	3.43	47.59
55	1.85	6.33	5.91	2.58	3.01	3.38	3.22	1.10	4.40	3.45	2.69	.94	38.86
56	1.51	4.95	4.78	5.05	4.77	2.95	8.00	2.45	4.01	1.78	2.69	3.07	46.01
57	3.46	3.42	1.99	6.22	4.09	9.14	2.03	.77	3.69	2.54	5.79	6.13	49.27
58	3.02	.64	1.52	6.04	4.42	5.80	8.47	6.06	5.05	1.89	2.88	1.22	47.01
59	5.64	3.08	3.21	3.52	3.45	2.07	7.75	3.00	1.14	4.86	3.39	3.23	44.34
60	3.08	4.05	1.26	1.08	4.87	3.17	3.74	3.65	2.53	1.65	2.74	1.74	33.56
61	2.50	2.43	4.79	5.88	5.96	3.30	5.35	3.91	.88	1.70	3.13	2.85	42.68
62	4.36	5.35	4.48	1.87	8.67	1.11	7.50	1.04	3.96	3.76	3.19	1.80	47.09
63	1.39	.74	11.53	2.82	4.21	3.46	4.47	5.30	1.13	.03	1.30	1.01	37.39
64	2.56	2.27	12.51	7.90	1.24	4.25	2.12	3.01	1.43	.96	3.05	5.00	46.30
65	3.05	2.89	3.50	5.13	1.81	1.71	9.86	3.90	8.29	3.40	1.11	.44	45.09
66	**5.13**	**2.65**	**1.69**	**5.36**	**2.61**	**1.47**	**8.20**	**2.10**	**3.14**	**1.97**	**3.65**	**3.37**	**41.34**
67	**.61**	**1.37**	**3.88**	**3.09**	**5.86**	**.85**	**5.77**	**.94**	**2.97**	**3.32**	**3.84**	**3.18**	**35.68**
68	**1.62**	**.65**	**4.95**	**3.59**	**10.05**	**1.16**	**3.93**	**1.95**	**2.42**	**1.27**	**3.21**	**3.49**	**38.29**
69	**3.76**	**.82**	**1.75**	**4.05**									