

CHOTEAU

TETON COUNTY

The Choteau site is located about 12 miles southwest of Choteau at 47 44 36 N and 112 26 05 W (Site No. 125 Map II-1). Elevation at the site is 4,320 feet. This site was established by the Bureau of Reclamation as part of its Northern Great Plains Wind Energy Study. The Department of Natural Resources and Conservation assumed responsibility for monitoring winds at the site in October 1982.

Collection of wind data began on June 4, 1981 and continued until August 16, 1983. Data from the wind sensors were continuously recorded on cassette tape. These tapes were further processed by computer to yield hourly averages of wind speed, wind direction, the average cube of the hourly speed, and standard deviation of the hourly speed. In addition, the maximum and minimum instantaneous values of wind speed during each hour were recorded. Anemometer height was 10 meters.

Data recovery was good to excellent during most months; it ranged from 30.4 percent in January to 100.0 percent in May. Overall data recovery was 84.5 percent. When the site was decommissioned, the crossarm was found to be loose and probably wobbled ten to twenty degrees. This would have affected the data somewhat, particularly the data on wind direction.

Winds were monitored long enough to adequately represent the wind resource in this area during most parts of the year. The site was located towards the bottom of the Deep Creek drainage and so was somewhat protected from

the winds. The speeds recorded probably are lower than what would be found on the ridges to the north and south.

Average monthly wind speeds ranged from 7.3 miles per hour in January (probably not a representative value because of the low rate of data recovery for that month) to 12.2 miles per hour in December. Average annual wind speed was 10.1 miles per hour.

Average monthly wind power varied from 48.6 watts/m² in August to 237.7 watts/m² in December. Average annual wind power was 116.0 watts/m².

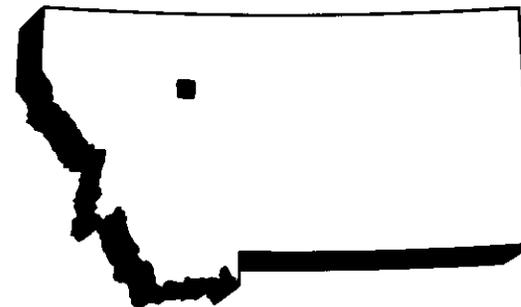


Table IV - 150
Monthly Wind Speed Distribution
TETON COUNTY - CHOTEAU

06/04/81 - 08/16/83

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
CALM	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.2	1.9	0.3	0.3	CALM
0.1-1.0	2.0	1.3	0.8	0.2	0.1	0.4	0.1	0.1	0.2	0.6	1.8	0.8	0.6	0.1- 0.4
1.1-2.0	10.6	4.9	3.0	1.5	1.7	2.4	1.6	1.6	1.6	1.1	2.4	3.3	2.4	0.5- 0.9
S 2.1-3.0	10.2	5.1	5.3	3.2	2.2	2.7	3.0	4.0	2.6	2.0	3.1	4.7	3.6	1.0- 1.3
P 3.1-4.0	10.2	6.5	8.0	7.1	4.5	8.0	7.2	6.6	6.4	6.0	4.7	7.6	6.7	1.4- 1.8
E 4.1-5.0	7.1	4.7	6.7	7.7	5.1	7.2	7.4	8.9	7.4	5.2	5.4	5.9	6.7	1.9- 2.2
E 5.1-6.0	9.9	6.8	9.8	10.1	9.6	11.0	12.8	13.2	10.5	7.4	7.7	5.7	9.8	2.3- 2.7
D 6.1-7.0	7.3	5.3	7.1	8.5	7.9	9.0	10.5	10.4	8.3	8.0	3.8	3.8	7.7	2.8- 3.1
7.1-8.0	7.5	5.6	7.3	9.6	9.7	9.9	11.1	12.8	9.4	7.4	7.3	5.3	8.9	3.2- 3.6
M 8.1-9.0	6.6	5.6	4.9	7.2	6.4	7.6	7.5	8.8	7.5	7.4	6.3	3.9	6.8	3.7- 4.0
I 9.1-10.0	4.4	4.9	6.9	7.4	7.1	6.9	8.5	9.6	8.1	6.9	6.7	5.9	7.2	4.1- 4.5
L 10.1-11.0	4.4	4.9	3.8	4.5	4.8	4.2	4.4	5.3	5.6	5.2	6.0	4.1	4.8	4.6- 4.9
E 11.1-12.0	5.5	5.9	5.0	4.2	5.6	5.8	5.2	4.6	6.5	6.6	6.4	5.2	5.5	5.0- 5.4
S 12.1-13.0	2.2	2.9	2.9	3.0	4.9	4.3	3.3	2.9	3.7	5.0	4.9	4.0	3.8	5.5- 5.8
/ 13.1-14.0	2.2	4.5	3.1	3.6	5.1	3.6	3.4	2.3	4.1	4.7	5.7	4.5	3.9	5.9- 6.3
H 14.1-15.0	2.0	3.0	3.4	2.7	2.6	2.3	2.2	1.8	2.4	4.3	3.1	3.5	2.7	6.4- 6.7
O 15.1-16.0	2.0	2.6	3.4	3.2	2.3	1.9	1.7	1.3	2.8	4.4	3.2	3.9	2.6	6.8- 7.2
U 16.1-17.0	1.1	3.6	3.2	2.9	2.6	3.1	2.4	1.2	2.4	2.9	3.9	4.5	2.8	7.3- 7.6
R 17.1-18.0	0.4	2.9	2.0	2.1	2.2	1.6	1.3	0.9	1.5	3.1	2.7	2.9	2.0	7.7- 8.0
18.1-19.0	0.2	2.9	1.8	1.7	2.7	1.0	1.6	1.0	1.9	2.3	2.8	2.2	1.9	8.1- 8.5
19.1-20.0	0.9	1.6	1.8	1.2	2.0	1.0	1.0	0.5	1.3	1.2	2.4	2.0	1.4	8.6- 8.9
20.1-25.0	1.1	8.4	6.0	6.3	6.6	4.0	3.1	1.9	3.6	5.7	5.7	7.8	5.0	9.0-11.2
25.1-30.0	1.3	3.3	2.9	1.3	2.8	1.8	0.6	0.3	1.2	1.1	1.5	3.6	1.8	11.3-13.4
30.1-35.0	0.2	1.3	0.7	0.3	1.2	0.3	0.1	0.1	0.5	0.8	0.4	2.1	0.7	13.5-15.6
35.1-40.0	0.2	0.8	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.9	0.2	15.7-17.9
>40.0	0.2	0.8	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.2	0.2	>17.9
AVERAGE														
SPEED (MPH)	7.3	11.6	10.2	10.1	11.1	9.5	9.0	8.3	9.7	11.0	10.7	12.2	10.1	
AVERAGE														
SPEED (M/SEC)	3.3	5.2	4.6	4.5	5.0	4.2	4.0	3.7	4.3	4.9	4.8	5.5	4.5	
AVERAGE														
WIND POWER														
(WATTS/M**2)	66.6	206.5	124.3	114.6	135.1	85.8	65.0	48.6	85.5	129.5	119.6	237.7	116.0	
PERCENT DATA														
RECOVERY	30.4	85.7	71.0	80.0	100.0	87.3	83.2	99.5	99.4	77.2	97.1	99.6	84.5	

ANEMOMETER HEIGHT = 10 METERS = 33 FEET
NUMBER OF OBSERVATIONS = 16303
PERCENTAGE DATA RECOVERY = 84.5

SOURCE: GEORESEARCH, INC.