

RONAN NINEPIPES

LAKE COUNTY

The Ronan Ninepipes monitoring site is located 5 miles south of Ronan at 47 27 35 N and 114 07 59 W (Site No. 66 on Map II-1). Elevation at the site is 3,020 feet. The site was established by the Montana Air Quality Bureau as part of the Flathead River Basin Environmental Impact Study.

Wind data from December 11, 1980 through February 26, 1982, were available for analysis. The data set contains hourly averages for wind speed and wind direction. These data were recorded by a data acquisition system that scanned each parameter several times per minute. Measurements were made by a Climatronics electronic anemometer and wind vane on a 10-meter tower.

The period of monitoring was long enough to adequately represent the wind resource at this location. Data recovery was good, ranging from 50.0 percent in September to 100.0 percent in February and May. Overall data recovery for the monitoring period was 91.8 percent. The site is located in the Flathead Valley, and the data are representative of a large area from Ronan to Saint Ignatius, with the exception of areas on the eastern side of the valley near the openings of canyons.

Average annual wind speed was 4.5 miles per hour. Average monthly wind speeds ranged from 3.3 miles per hour in November to 6.2 miles per hour in April.

Average monthly wind power varied from 6.2 watts/m² in August to 31.4 watts/m² in February and April. Average annual wind power was 17.0 watts/m².

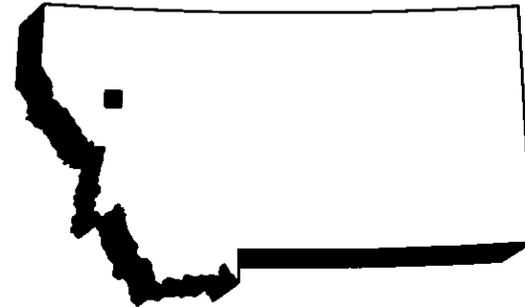


Table IV - 95
Monthly Wind Speed Distribution
LAKE COUNTY - RONAN NINEPIPES
12/11/80 - 02/26/82

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
CALM	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.5	0.2	CALM
0.1-1.0	11.1	3.4	3.0	0.6	3.2	2.0	3.4	3.1	2.2	4.0	5.5	6.1	4.6	0.1- 0.4
1.1-2.0	16.5	12.5	13.7	7.1	13.2	9.7	12.9	14.2	11.1	17.2	22.0	19.7	14.5	0.5- 0.9
S 2.1-3.0	27.4	21.1	26.9	15.6	24.1	18.8	28.8	31.0	24.4	29.1	28.5	21.8	24.5	1.0- 1.3
P 3.1-4.0	8.3	14.4	22.8	11.6	18.8	14.8	13.1	13.6	19.4	14.2	15.2	14.1	14.4	1.4- 1.8
E 4.1-5.0	11.9	10.8	13.3	12.3	16.7	13.6	13.9	16.0	18.9	10.0	13.0	11.5	13.0	1.9- 2.2
E 5.1-6.0	4.3	6.4	5.2	9.1	7.0	8.9	4.6	5.5	6.4	4.5	4.9	4.6	5.8	2.3- 2.7
D 6.1-7.0	4.9	5.1	4.2	9.5	5.8	10.2	5.9	7.2	8.9	8.1	3.2	4.4	6.0	2.8- 3.1
M 7.1-8.0	1.7	3.4	3.8	5.8	2.8	6.3	3.0	3.4	3.6	2.1	2.5	3.2	3.3	3.2- 3.6
I 8.1-9.0	2.4	4.0	3.0	6.5	3.0	6.5	3.1	2.7	2.8	4.2	1.4	1.9	3.3	3.7- 4.0
L 9.1-10.0	1.5	2.7	1.3	4.7	1.7	4.1	3.6	1.1	0.6	1.3	0.9	1.4	2.1	4.1- 4.5
E 10.1-11.0	1.9	2.9	0.7	6.4	1.1	2.6	3.0	1.3	1.1	2.3	1.0	1.4	2.2	4.6- 4.9
S 11.1-12.0	1.3	1.9	0.3	1.7	0.7	1.1	0.9	0.0	0.0	0.9	0.6	1.4	1.0	5.0- 5.4
/ 12.1-13.0	1.1	2.5	0.5	2.4	0.8	0.6	0.5	0.6	0.0	0.8	0.4	1.9	1.2	5.5- 5.8
H 13.1-14.0	0.9	1.6	0.5	1.7	0.5	0.4	0.9	0.0	0.3	0.0	0.0	0.9	0.8	5.9- 6.3
O 14.1-15.0	1.2	1.9	0.4	1.3	0.4	0.3	0.1	0.3	0.3	0.6	0.3	1.3	0.8	6.4- 6.7
U 15.1-16.0	0.7	1.2	0.3	1.1	0.0	0.1	0.4	0.0	0.0	0.2	0.1	1.2	0.6	6.8- 7.2
R 16.1-17.0	0.6	0.7	0.0	0.7	0.1	0.0	0.7	0.0	0.0	0.2	0.1	0.8	0.4	7.3- 7.6
17.1-18.0	0.5	1.2	0.1	1.0	0.0	0.0	0.3	0.0	0.0	0.4	0.0	1.0	0.5	7.7- 8.0
18.1-19.0	0.2	0.8	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.2	8.1- 8.5
19.1-20.0	0.3	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	8.6- 8.9
20.1-25.0	0.7	0.6	0.0	0.4	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.3	9.0-11.2
25.1-30.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3-13.4
30.1-35.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5-15.6
35.1-40.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7-17.9
>40.0	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	>17.9
AVERAGE SPEED (MPH)	4.2	5.4	3.8	6.2	4.1	4.9	4.5	3.8	4.0	4.0	3.3	4.4	4.5	
AVERAGE SPEED (M/SEC)	1.9	2.4	1.7	2.8	1.8	2.2	2.0	1.7	1.8	1.8	1.5	2.0	2.0	
AVERAGE WIND POWER (WATTS/M**2)	23.0	31.4	8.0	31.4	8.9	12.1	16.0	6.2	6.3	10.1	6.3	21.6	17.0	
PERCENT DATA RECOVERY	96.4	99.0	100.0	97.9	100.0	97.8	99.7	85.9	50.0	71.2	96.0	94.7	91.8	

ANEMOMETER HEIGHT = 10 METERS = 33 FEET
NUMBER OF OBSERVATIONS = 9759
PERCENTAGE DATA RECOVERY = 91.8

SOURCE: GEORESEARCH, INC.