MINIMET

Useful information for wind measurements

Wind Speed Units And Conversions

1 metre per second (m/s, ms^{-1}) = 2.237 miles per hour (mph)
1 metre per second (m/s, ms^{-1}) = 1.9426 Knots (Kts)*
1 metre per second (m/s, ms^{-1}) = 3.60 kilometres per hour (kph)
1 Knot (Kts)* = 0.515 metres per second (m/s, ms^{-1})
1 Knot (Kts)* = 1.152 miles per hour (mph)
1 Knot (Kts)* = 1.85 kilometres per hour (kph)
1 mile per hour (mph) = 0.447 metres per second (m/s, ms^{-1})
1 mile per hour (mph) = 0.868 Knots (Kts)*
1 mile per hour (mph) = 1.61 kilometres per hour (kph)

Note: * *There are actually two slightly different flavours of "Knots"...*
A "Knot" is defined as "nautical-miles per hour", in the UK a "nautical mile" is defined as 6080 feet whereas it is defined as 1.852Km (or 6076.12 feet) internationally which means that 0.0639% should be added to "UK knots" to get "International Knots". The small difference is generally not significant.

Beaufort Wind Speed Scale

Calm = Force 0 = Less than 1 Knot
Light Air = Force 1 = 1 to 3 Knots
Light Breeze = Force 2 = 4 to 6 Knots
Gentle Breeze = Force 3 = 7 to 10 Knots
Moderate Breeze = Force 4 = 11 to 16 Knots
Fresh Breeze = Force 5 = 17 to 21 Knots
Strong Breeze = Force 6 = 22 to 27 Knots
Near Gale = Force 7 = 28 to 33 Knots
Gale = Force 8 = 34 to 40 Knots
Strong Gale = Force 9 = 41 to 47 Knots
Storm = Force 10 = 48 to 55 Knots
Violent Storm = Force 11 = 56 to 63 Knots
Hurricane = Force 12 = More than 64 Knots

Wind Direction vs. Wind Heading

There is sometimes confusion between the terms "**Wind Direction**" and "**Wind Heading**"...

"Wind Direction" *means* "the direction where the wind is coming from"

...whereas...

"Wind Heading" *means* "the direction where the wind is going to"

...for example...

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Useful information for wind measurements (continued)

In the case of a **northerly wind direction**, the wind is coming from the **north** and going to the **south**.

Wind direction and heading differ by 180 degrees.

INFORMATION TAKEN FROM THE VECTOR INSTRUMENTS WEBSITE SEPTEMBER 2004

WIND CONVERSION TABLE

Miles per Hour	Knots	Meters per Second	Feet per Second	Kilometers per Hour	Feet per Minute	Miles per Hour	Knots	Meters per Second	Feet per Second	Kilometers per Hour	Feet per Minute
1	0.9	0.4	1.5	1.6	88	51	44.3	22.8	74.8	82.1	4488
2	1.7	0.9	2.9	3.2	176	52	45.2	23.2	76.3	83.7	4576
3	2.6	1.3	4.4	4.8	264	53	46.0	23.7	77.7	85.3	4664
4	3.5	1.8	5.9	6.4	352	54	46.9	24.1	79.2	86.9	4752
5	4.3	2.2	7.3	8.0	440	55	47.8	24.6	80.7	88.5	4840
6	5.2	2.7	8.8	9.7	528	56	48.6	25.0	82.1	90.1	4928
7	6.1	3.1	10.3	11.3	616	57	49.5	25.5	83.6	91.7	5016
8	6.9	3.6	11.7	12.9	704	58	50.4	25.9	85.1	93.3	5104
9	7.8	4.0	13.2	14.5	792	59	51.2	26.4	86.5	95.0	5192
10	8.7	4.5	14.7	16.1	880	60	52.1	26.8	88.0	96.6	5280
11	9.6	4.9	16.1	17.7	968	61	53.0	27.3	89.5	98.2	5368
12	10.4	5.4	17.6	19.3	1056	62	53.8	27.7	90.0	99.8	5456
13	11.3	5.8	19.1	20.9	1144	63	54.7	28.2	92.4	101.4	5544
14	12.2	6.3	20.5	22.5	1232	64	55.6	28.6	93.9	103.0	5632
15	13.0	6.7	22.0	24.1	1320	65	56.4	29.1	95.3	104.6	5720
16	13.9	7.2	23.5	25.7	1408	66	57.3	29.5	96.8	106.2	5808
17	14.8	7.6	24.9	27.4	1496	67	58.2	30.0	98.3	107.8	5896
18	15.6	8.0	26.4	29.0	1584	68	59.1	30.4	99.7	109.4	5984
19	16.5	8.5	27.9	30.6	1672	69	59.9	30.8	101.2	111.0	6072
20	17.4	8.9	29.3	32.2	1760	70	60.8	31.3	102.7	112.7	6160
21	18.2	9.4	30.8	33.8	1848	71	61.7	31.7	104.1	114.3	6248
22	19.1	9.8	32.3	35.4	1936	72	62.5	32.2	105.6	115.9	6336
23	20.0	10.3	33.7	37.0	2024	73	63.4	32.6	107.1	117.5	6424
24	20.8	10.7	35.2	38.6	2112	74	64.3	33.1	108.5	119.1	6512
25	21.7	11.2	36.7	40.2	2200	75	65.1	33.5	110.0	120.7	6600
26	22.6	11.6	38.1	41.8	2288	76	66.0	34.0	111.5	122.3	6688
27	23.4	12.1	39.6	43.5	2376	77	66.9	34.4	112.9	123.9	6776
28	24.3	12.5	41.1	45.1	2464	78	67.7	34.9	114.4	125.5	6864
29	25.2	13.0	42.5	46.7	2552	79	68.6	35.3	115.9	127.1	6952
30	26.1	13.4	44.0	48.3	2640	80	69.5	35.8	117.3	128.7	7040
31	26.9	13.9	45.5	49.9	2728	81	70.3	36.2	118.8	130.4	7128
32	27.8	14.3	46.9	51.5	2816	82	71.2	36.7	120.3	132.0	7216
33	28.7	14.8	48.4	53.1	2904	83	72.1	37.1	121.7	133.6	7304
34	29.5	15.2	49.9	54.7	2992	84	72.9	37.6	123.2	135.2	7392
35	30.4	15.6	51.3	56.3	3080	85	73.8	38.0	124.7	136.8	7480
36	31.3	16.1	52.8	57.9	3168	86	74.7	38.4	126.1	138.4	7568
37	32.1	16.5	54.3	59.5	3256	87	75.5	38.9	127.6	140.0	7656
38	33.0	17.0	55.7	61.2	3344	88	76.4	39.3	129.1	141.6	7744
39	33.9	17.4	57.2	62.8	3432	89	77.3	39.8	130.5	143.2	7832
40	34.7	17.9	58.7	64.4	3520	90	78.2	40.2	132.0	144.8	7920
41	35.6	18.3	60.1	66.0	3608	91	79.0	40.7	133.5	146.5	8008
42	36.5	18.8	61.6	67.6	3696	92	79.9	41.1	134.9	148.1	8096
43	37.3	19.2	63.1	69.2	3784	93	80.8	41.6	136.4	149.7	8184
44	38.2	19.7	64.5	70.8	3872	94	81.6	42.0	137.9	151.3	8272
45	39.1	20.1	66.0	72.4	3960	95	82.5	42.5	139.3	152.9	8360
46	39.9	20.6	67.5	74.0	4048	96	83.4	42.9	140.8	154.5	8448
47	40.8	21.0	68.9	75.6	4136	97	84.2	43.4	142.3	156.1	8536
48	41.7	21.5	70.4	77.2	4224	98	85.1	43.8	143.7	157.7	8624
49	42.6	21.9	71.9	78.9	4312	99	86.0	44.3	145.2	159.3	8712
50	43.4	22.4	73.3	80.5	4400	100	86.8	44.7	146.7	160.9	8800

taken from Smithsonian Meteorological Tables

INFORMATION TAKEN FROM THE NOVALYNX WEBSITE SEPTEMBER 2004