

# Appendix H — Charts and Tables

## Temperature Conversion

In the formulas below, / means to divide, \* means to multiply, - means subtract, + means to add and = is equal. Tc = temperature in degrees Celsius, Tf = temperature in degrees Fahrenheit.

To convert a Fahrenheit temperature into Celsius:  $T_c = (5/9)*(T_f - 32)$

To convert a Celsius temperature into degrees Fahrenheit:  $T_f = ((9/5)*T_c) + 32$

to C	C or F	to F	to C	C or F	to F	to C	C or F	to F	to C	C or F	to F
-28.89	-20	-4	-6.67	20	68	15.56	60	140	37.78	100	212
-28.33	-19	-2.2	-6.11	21	69.8	16.11	61	141.8	38.33	101	213.8
-27.78	-18	-0.4	-5.56	22	71.6	16.67	62	143.6	38.89	102	215.6
-27.22	-17	1.4	-5	23	73.4	17.22	63	145.4	39.44	103	217.4
-26.67	-16	3.2	-4.44	24	75.2	17.78	64	147.2	40	104	219.2
-26.11	-15	5	-3.89	25	77	18.33	65	149	40.56	105	221
-25.56	-14	6.8	-3.33	26	78.8	18.89	66	150.8	41.11	106	222.8
-25	-13	8.6	-2.78	27	80.6	19.44	67	152.6	41.67	107	224.6
-24.44	-12	10.4	-2.22	28	82.4	20	68	154.4	42.22	108	226.4
-23.89	-11	12.2	-1.67	29	84.2	20.56	69	156.2	42.78	109	228.2
-23.33	-10	14	-1.11	30	86	21.11	70	158	43.33	110	230
-22.78	-9	15.8	-0.56	31	87.8	21.67	71	159.8	43.89	111	231.8
-22.22	-8	17.6	0	32	89.6	22.22	72	161.6	44.44	112	233.6
-21.67	-7	19.4	0.56	33	91.4	22.78	73	163.4	45	113	235.4
-21.11	-6	21.2	1.11	34	93.2	23.33	74	165.2	45.56	114	237.2
-20.56	-5	23	1.67	35	95	23.89	75	167	46.11	115	239
-20	-4	24.8	2.22	36	96.8	24.44	76	168.8	46.67	116	240.8
-19.44	-3	26.6	2.78	37	98.6	25	77	170.6	47.22	117	242.6
-18.89	-2	28.4	3.33	38	100.4	25.56	78	172.4	47.78	118	244.4
-18.33	-1	30.2	3.89	39	102.2	26.11	79	174.2	48.33	119	246.2
-17.78	0	32	4.44	40	104	26.67	80	176	48.89	120	248
-17.22	1	33.8	5	41	105.8	27.22	81	177.8	49.44	121	249.8
-16.67	2	35.6	5.56	42	107.6	27.78	82	179.6	50	122	251.6
-16.11	3	37.4	6.11	43	109.4	28.33	83	181.4	50.56	123	253.4
-15.56	4	39.2	6.67	44	111.2	28.89	84	183.2	51.11	124	255.2
-15	5	41	7.22	45	113	29.44	85	185	51.67	125	257
-14.44	6	42.8	7.78	46	114.8	30	86	186.8	52.22	126	258.8
-13.89	7	44.6	8.33	47	116.6	30.56	87	188.6	52.78	127	260.6
-13.33	8	46.4	8.89	48	118.4	31.11	88	190.4	53.33	128	262.4
-12.78	9	48.2	9.44	49	120.2	31.67	89	192.2	53.89	129	264.2
-12.22	10	50	10	50	122	32.22	90	194	54.44	130	266
-11.67	11	51.8	10.56	51	123.8	32.78	91	195.8	55	131	267.8
-11.11	12	53.6	11.11	52	125.6	33.33	92	197.6	55.56	132	269.6
-10.56	13	55.4	11.67	53	127.4	33.89	93	199.4	56.11	133	271.4
-10	14	57.2	12.22	54	129.2	34.44	94	201.2	56.67	134	273.2
-9.44	15	59	12.78	55	131	35	95	203	57.22	135	275
-8.89	16	60.8	13.33	56	132.8	35.56	96	204.8	57.78	136	276.8
-8.33	17	62.6	13.89	57	134.6	36.11	97	206.6	58.33	137	278.6
-7.78	18	64.4	14.44	58	136.4	36.67	98	208.4	58.89	138	280.4
-7.22	19	66.2	15	59	138.2	37.22	99	210.2	59.44	139	282.2

## Wind Speed Conversion

1 mph = 0.87 knots; 1 knot = 1.15 mph

to Kt	Kt or mph	to mph	to Kt	Kt or mph	to mph	to Kt	Kt or mph	to mph	to Kt	Kt or mph	to mph
1	1	1	23	26	30	44	51	59	66	76	87
2	2	2	23	27	31	45	52	60	67	77	89
3	3	3	24	28	32	46	53	61	68	78	90
3	4	5	25	29	33	47	54	62	69	79	91
4	5	6	26	30	35	48	55	63	70	80	92
5	6	7	27	31	36	49	56	64	70	81	93
6	7	8	28	32	37	50	57	66	71	82	94
7	8	9	29	33	38	50	58	67	72	83	96
8	9	10	30	34	39	51	59	68	73	84	97
9	10	12	30	35	40	52	60	69	74	85	98
10	11	13	31	36	41	53	61	70	75	86	99
10	12	14	32	37	43	54	62	71	76	87	100
11	13	15	33	38	44	55	63	72	76	88	101
12	14	16	34	39	45	56	64	74	77	89	102
13	15	17	35	40	46	56	65	75	78	90	104
14	16	18	36	41	47	57	66	76	79	91	105
15	17	20	36	42	48	58	67	77	80	92	106
16	18	21	37	43	49	59	68	78	81	93	107
17	19	22	38	44	51	60	69	79	82	94	108
17	20	23	39	45	52	61	70	81	83	95	109
18	21	24	40	46	53	62	71	82	83	96	110
19	22	25	41	47	54	63	72	83	84	97	112
20	23	26	42	48	55	63	73	84	85	98	113
21	24	28	43	49	56	64	74	85	86	99	114
22	25	29	43	50	58	65	75	86	87	100	115

## Beaufort Wind Scale

This scale is used to estimate wind speeds when no wind equipment is available.

Speed (mph)	Description - Visible Condition
0	Calm: Smoke rises vertically
1 - 4	Light air: Direction of wind shown by smoke but not by wind vanes
4 - 7	Light breeze: Felt on face; leaves rustle; ordinary wind vane moved by wind
8 - 12	Gentle breeze: Leaves and small twigs in constant motion; wind extends light flag
13 - 18	Moderate breeze: Raises dust and loose paper; small branches are moved
19 - 24	Fresh breeze: Small trees in leaf begin to sway; crested wavelets form on inland water
25 - 31	Strong breeze: Large branches in motion; telephone wires whistle; umbrellas used with difficulty
32 - 38	Moderate gale: Whole trees in motion; inconvenience in walking against wind
39 - 46	Fresh gale: Breaks twigs off trees; generally impedes progress
47 - 54	Strong gale: Slight structural damage occurs; chimney pots and slates removed
55 - 63	Whole gale: Trees uprooted; considerable structural damage occurs
64 - 72	Storm: Very rarely experienced; accompanied by widespread damage
73+	Hurricane: Devastation occurs

## Pressure Conversion

Standard Atmosphere conversion:

29.92 inches of mercury (Hg) = 1013.25 millibars

inches	millibars	inches	millibars	inches	millibars	inches	millibars	inches	millibars
28.50	965.1	29.00	982.1	29.50	999.0	30.00	1015.9	30.50	1032.8
28.51	965.5	29.01	982.4	29.51	999.3	30.01	1016.3	30.51	1033.2
28.52	965.8	29.02	982.7	29.52	999.7	30.02	1016.6	30.52	1033.5
28.53	966.1	29.03	983.1	29.53	1000.0	30.03	1016.9	30.53	1033.9
28.54	966.5	29.04	983.4	29.54	1000.3	30.04	1017.3	30.54	1034.2
28.55	966.8	29.05	983.7	29.55	1000.7	30.05	1017.6	30.55	1034.5
28.56	967.2	29.06	984.1	29.56	1001.0	30.06	1017.9	30.56	1034.9
28.57	967.5	29.07	984.4	29.57	1001.4	30.07	1018.3	30.57	1035.2
28.58	967.8	29.08	984.8	29.58	1001.7	30.08	1018.6	30.58	1035.6
28.59	968.2	29.09	985.1	29.59	1002.0	30.09	1019.0	30.59	1035.9
28.60	968.5	29.10	985.4	29.60	1002.4	30.10	1019.3	30.60	1036.2
28.61	968.8	29.11	985.8	29.61	1002.7	30.11	1019.6	30.61	1036.6
28.62	969.2	29.12	986.1	29.62	1003.0	30.12	1020.0	30.62	1036.9
28.63	969.5	29.13	986.5	29.63	1003.4	30.13	1020.3	30.63	1037.3
28.64	969.9	29.14	986.8	29.64	1003.7	30.14	1020.7	30.64	1037.6
28.65	970.2	29.15	987.1	29.65	1004.1	30.15	1021.0	30.65	1037.9
28.66	970.5	29.16	987.5	29.66	1004.4	30.16	1021.3	30.66	1038.3
28.67	970.9	29.17	987.8	29.67	1004.7	30.17	1021.7	30.67	1038.6
28.68	971.2	29.18	988.1	29.68	1005.1	30.18	1022.0	30.68	1038.9
28.69	971.6	29.19	988.5	29.69	1005.4	30.19	1022.4	30.69	1039.3
28.70	971.9	29.20	988.8	29.70	1005.8	30.20	1022.7	30.70	1039.6
28.71	972.2	29.21	989.2	29.71	1006.1	30.21	1023.0	30.71	1040.0
28.72	972.6	29.22	989.5	29.72	1006.4	30.22	1023.4	30.72	1040.3
28.73	972.9	29.23	989.8	29.73	1006.8	30.23	1023.7	30.73	1040.6
28.74	973.2	29.24	990.2	29.74	1007.1	30.24	1024.0	30.74	1041.0
28.75	973.6	29.25	990.5	29.75	1007.5	30.25	1024.4	30.75	1041.3
28.76	973.9	29.26	990.8	29.76	1007.8	30.26	1024.7	30.76	1041.6
28.77	974.3	29.27	991.2	29.77	1008.1	30.27	1025.1	30.77	1042.0
28.78	974.6	29.28	991.5	29.78	1008.5	30.28	1025.4	30.78	1042.3
28.79	974.9	29.29	991.9	29.79	1008.8	30.29	1025.7	30.79	1042.7
28.80	975.3	29.30	992.2	29.80	1009.1	30.30	1026.1	30.80	1043.0
28.81	975.6	29.31	992.6	29.81	1009.5	30.31	1026.4	30.81	1043.3
28.82	976.0	29.32	992.9	29.82	1009.8	30.32	1026.8	30.82	1043.7
28.83	976.3	29.33	993.2	29.83	1010.2	30.33	1027.1	30.83	1044.0
28.84	976.6	29.34	992.6	29.84	1010.5	30.34	1027.4	30.84	1044.4
28.85	977.0	29.35	993.9	29.85	1010.8	30.35	1027.8	30.85	1044.7
28.86	977.3	29.36	994.2	29.86	1011.2	30.36	1028.1	30.86	1045.0
28.87	977.7	29.37	994.6	29.87	1011.5	30.37	1028.4	30.87	1045.4
28.88	978.0	29.38	994.9	29.88	1011.9	30.38	1028.8	30.88	1045.7
28.89	978.3	29.39	995.3	29.89	1012.2	30.39	1029.1	30.89	1046.1
28.90	978.7	29.40	995.6	29.90	1012.5	30.40	1029.5	30.90	1046.4
28.91	979.0	29.41	995.9	29.91	1012.9	30.41	1029.8	30.91	1046.7
28.92	979.3	29.42	996.3	29.92	1013.2	30.42	1030.1	30.92	1047.1
28.93	979.7	29.43	996.6	29.93	1013.5	30.43	1030.5	30.93	1047.4
28.94	980.0	29.44	997.0	29.94	1013.9	30.44	1030.8	30.94	1047.7
28.95	980.4	29.45	997.3	29.95	1014.2	30.45	1031.2	30.95	1048.1
28.96	980.7	29.46	997.6	29.96	1014.6	30.46	1031.5	30.96	1048.4
28.97	981.0	29.47	998.0	29.97	1014.9	30.47	1031.8	30.97	1048.8
28.98	981.4	29.48	998.3	29.98	1015.2	30.48	1032.2	30.98	1049.1
28.99	981.7	29.49	998.6	29.99	1015.6	30.49	1032.5	30.99	1049.4

## Sunrise/Sunset Table and Tide Predictions for San Diego

Sunrise and Sunset Tables have been computed for any location by the U.S. Naval Observatory. Click on: [aa.usno.navy.mil/data/docs/RS\\_OneYear.html](http://aa.usno.navy.mil/data/docs/RS_OneYear.html)

The chart below shows the times of sunrise and sunset in San Diego for any year in Pacific Standard Time. Add one hour for daylight time (between the second Sunday in March and the first Sunday in November at 2 am).

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set
1	0651 1653	0644 1721	0617 1746	0537 1809	0502 1830	0442 1851	0444 1901	0502 1847	0523 1814	0543 1733	0606 1658	0633 1642
2	0651 1654	0643 1722	0615 1746	0536 1809	0501 1831	0441 1852	0445 1900	0503 1846	0524 1812	0543 1732	0607 1657	0634 1642
3	0651 1655	0642 1723	0614 1747	0534 1810	0500 1832	0441 1853	0445 1900	0504 1845	0524 1811	0544 1731	0608 1656	0634 1642
4	0651 1656	0641 1724	0613 1748	0533 1811	0459 1832	0441 1853	0445 1900	0504 1845	0525 1810	0545 1730	0609 1655	0635 1642
5	0652 1657	0641 1725	0612 1749	0532 1811	0458 1833	0441 1854	0446 1900	0505 1844	0526 1808	0545 1728	0610 1654	0636 1642
6	0652 1657	0640 1726	0611 1750	0530 1812	0457 1834	0440 1854	0446 1900	0506 1843	0526 1807	0546 1727	0610 1654	0637 1642
7	0652 1658	0639 1727	0609 1750	0529 1813	0456 1835	0440 1855	0447 1900	0506 1842	0527 1806	0547 1726	0611 1653	0638 1642
8	0652 1659	0638 1728	0608 1751	0528 1813	0455 1835	0440 1855	0447 1900	0507 1841	0528 1804	0547 1724	0612 1652	0638 1642
9	0652 1700	0637 1729	0607 1752	0527 1814	0454 1836	0440 1856	0448 1859	0508 1840	0528 1803	0548 1723	0613 1651	0639 1643
10	0652 1701	0637 1729	0606 1753	0525 1815	0454 1837	0440 1856	0448 1859	0508 1839	0529 1802	0549 1722	0614 1651	0640 1643
11	0652 1702	0636 1730	0604 1753	0524 1816	0453 1837	0440 1856	0449 1859	0509 1838	0530 1800	0550 1721	0615 1650	0641 1643
12	0652 1702	0635 1731	0603 1754	0523 1816	0452 1838	0440 1857	0450 1859	0510 1837	0530 1759	0550 1719	0616 1649	0641 1643
13	0651 1703	0634 1732	0602 1755	0522 1817	0451 1839	0440 1857	0450 1858	0510 1836	0531 1758	0551 1718	0617 1649	0642 1643
14	0651 1704	0633 1733	0600 1756	0521 1818	0451 1840	0440 1858	0451 1858	0511 1835	0531 1756	0552 1717	0618 1648	0643 1644
15	0651 1705	0632 1734	0559 1756	0519 1818	0450 1840	0440 1858	0451 1857	0512 1834	0532 1755	0552 1716	0618 1648	0643 1644
16	0651 1706	0631 1735	0558 1757	0518 1819	0449 1841	0440 1858	0452 1857	0513 1833	0533 1754	0553 1715	0619 1647	0644 1644

17	0651 1707	0630 1736	0557 1758	0517 1820	0449 1842	0440 1859	0452 1857	0513 1832	0533 1752	0554 1713	0620 1646	0645 1645
18	0650 1708	0629 1737	0555 1759	0516 1821	0448 1842	0440 1859	0453 1856	0514 1830	0534 1751	0555 1712	0621 1646	0645 1645
19	0650 1709	0628 1737	0554 1759	0515 1821	0447 1843	0441 1859	0454 1856	0515 1829	0535 1750	0555 1711	0622 1646	0646 1646
20	0650 1710	0627 1738	0553 1800	0513 1822	0447 1844	0441 1859	0454 1855	0515 1828	0535 1748	0556 1710	0623 1645	0646 1646
21	0649 1711	0626 1739	0551 1801	0512 1823	0446 1844	0441 1900	0455 1855	0516 1827	0536 1747	0557 1709	0624 1645	0647 1646
22	0649 1712	0625 1740	0550 1801	0511 1823	0446 1845	0441 1900	0456 1854	0517 1826	0537 1746	0558 1708	0625 1644	0647 1647
23	0649 1713	0624 1741	0549 1802	0510 1824	0445 1846	0441 1900	0456 1853	0517 1825	0537 1744	0559 1707	0626 1644	0648 1647
24	0648 1714	0622 1742	0547 1803	0509 1825	0445 1847	0442 1900	0457 1853	0518 1823	0538 1743	0559 1706	0627 1644	0648 1648
25	0648 1714	0621 1742	0546 1804	0508 1826	0444 1847	0442 1900	0458 1852	0519 1822	0539 1741	0600 1705	0627 1643	0649 1649
26	0647 1715	0620 1743	0545 1804	0507 1826	0444 1848	0442 1900	0458 1852	0519 1821	0539 1740	0601 1704	0628 1643	0649 1649
27	0647 1716	0619 1744	0543 1805	0506 1827	0443 1848	0443 1900	0459 1851	0520 1820	0540 1739	0602 1703	0629 1643	0649 1650
28	0646 1717	0618 1745	0542 1806	0505 1828	0443 1849	0443 1901	0500 1850	0520 1819	0541 1737	0603 1702	0630 1643	0650 1650
29	0645 1718		0541 1806	0504 1829	0443 1850	0443 1901	0500 1849	0521 1817	0541 1736	0604 1701	0631 1643	0650 1651
30	0645 1719		0540 1807	0503 1829	0442 1850	0444 1901	0501 1849	0522 1816	0542 1735	0604 1700	0632 1642	0650 1652
31	0644 1720		0538 1808		0442 1851		0502 1848	0522 1815		0605 1659		0651 1653

## Tide Predictions

Tide predictions for California and coastal locations throughout the country can be found on the National Ocean Service's web site: [co-ops.nos.noaa.gov/tide\\_pred.html](http://co-ops.nos.noaa.gov/tide_pred.html).

## Heat Index

The NWS has devised the Heat Index, sometimes called the “apparent temperature.” It is the temperature the body feels when the heat and humidity are combined. High relative humidity inhibits the evaporation of perspiration and hence the body’s ability to cool itself. For more information about the heat index: [www.nws.noaa.gov/om/heat/index.shtml](http://www.nws.noaa.gov/om/heat/index.shtml).

Note: Exposure to full sunshine can increase HI values by up to 15° F

HEAT INDEX °F													
Temp.	RELATIVE HUMIDITY (%)												
	40	45	50	55	60	65	70	75	80	85	90	95	100
110	136												
108	130	137											
106	124	130	137										
104	119	124	131	137									
102	114	119	124	130	137								
100	109	114	118	124	129	136							
98	105	109	113	117	123	128	134						
96	101	104	108	112	116	121	126	132					
94	97	100	103	106	110	114	119	124	129	135			
92	94	96	99	101	105	108	112	116	121	126	131		
90	91	93	95	97	100	103	106	109	113	117	122	127	132
88	88	89	91	93	95	98	100	103	106	110	113	117	121
86	85	87	88	89	91	93	95	97	100	102	105	108	112
84	83	84	85	86	88	89	90	92	94	96	98	100	103
82	81	82	83	84	84	85	86	88	89	90	91	93	95
80	80	80	81	81	82	82	83	84	84	85	86	86	87

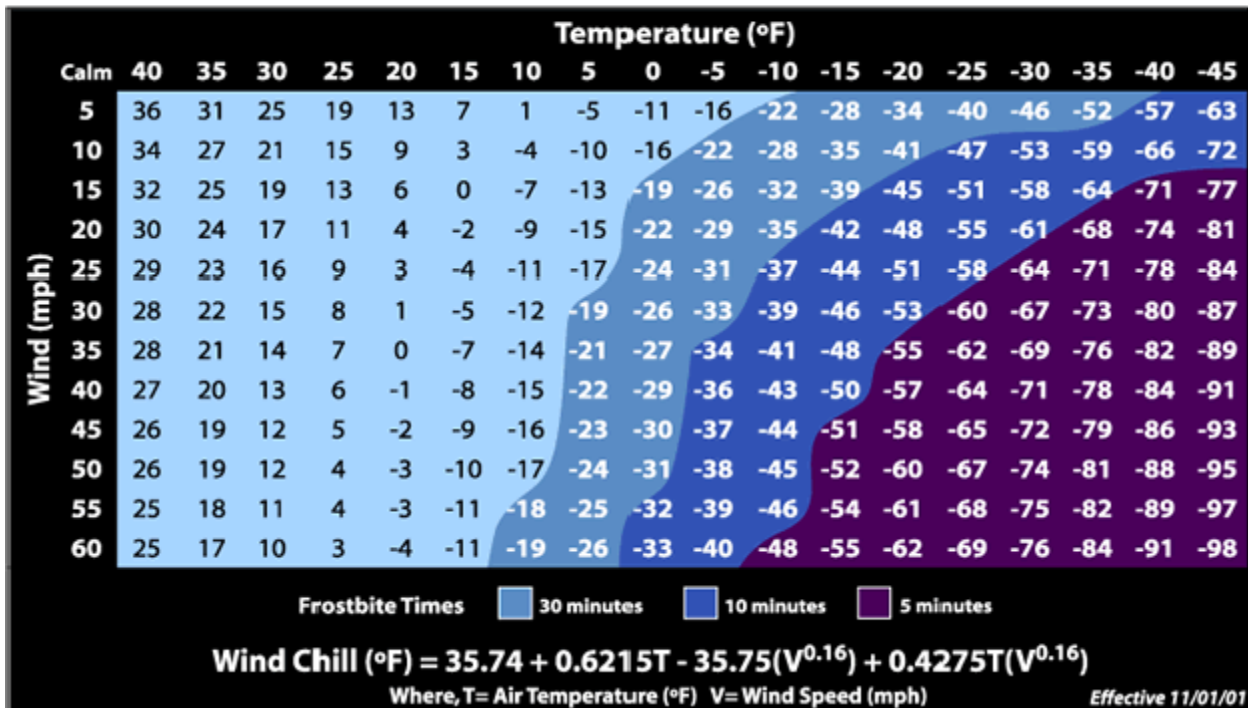
Category	Heat Index	Possible heat disorders for people in high risk groups
Extreme Danger	130°F or higher (54°C or higher)	Heat stroke or sunstroke likely.
Danger	105 - 129°F (41 - 54°C)	Sunstroke, muscle cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity.
Extreme Caution	90 - 105°F (32 - 41°C)	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Caution	80 - 90°F (27 - 32°C)	Fatigue possible with prolonged exposure and/or physical activity.

## Wind Chill

The wind chill temperature is how cold people and animals feel when outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, lowering skin temperature and eventually the internal body temperature. Therefore, the wind makes it *feel* much colder. See chart and calculation formula below. Inanimate objects, such as car radiators and water pipes will not cool below the actual air temperature. For more information about wind chill, click on: [www.nws.noaa.gov/om/windchill/index.shtml](http://www.nws.noaa.gov/om/windchill/index.shtml).



## Wind Chill Chart





## Ultraviolet Index

The Environmental Protection Agency (EPA) and the National Weather Service developed the Ultraviolet Index (UVI) to provide important information to help you plan your outdoor activities and prevent overexposure to the sun's rays.

The UV Index can range from 0 (at night) to 15 or 16 (in the tropics at high elevations under clear skies). UV radiation is greatest when the sun is highest in the sky and rapidly decreases as the sun approaches the horizon. The higher the UV Index, the greater the rate of skin-damaging (and eye damaging) UV radiation. Consequently, the higher the UV Index, the shorter the time it takes before skin damage occurs. For more information about the UVI, including forecast maps, click on:

[www.epa.gov/sunwise/uvindex.html](http://www.epa.gov/sunwise/uvindex.html), also see  
[www.cpc.ncep.noaa.gov/products/stratosphere/uv\\_index](http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index).

The UV index is categorized by the EPA as follows:

UVI	Exposure Level
0 1 2	Minimal
3 4	Low
5 6	Moderate
7 8 9	High
10 and greater	Very High

## Tropical Cyclones

### Common Definitions

<b>Tropical Depression</b>	<b>Tropical Storm</b>	<b>Hurricane</b>
<b>Wind speed less than 33 kt (39 mph)</b>	<b>Wind speed 34 to 63 kt (39-73 mph)</b>	<b>Wind speed greater than 63 kt (73 mph)</b>

### The Saffir-Simpson Hurricane Scale

The Saffir-Simpson Hurricane Scale is a 1-5 rating based on the hurricane's present intensity. This is used to give an estimate of the potential property damage and flooding expected along the coast from a hurricane landfall. Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf in the landfall region. Note that all winds are using the U.S. 1-minute average. For more information about hurricanes, click on: [www.nhc.noaa.gov](http://www.nhc.noaa.gov).

#### Category One Hurricane:

Winds 74-95 mph (64-82 kt or 119-153 km/hr). Storm surge generally 4-5 ft above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage. Hurricanes Allison of 1995 and Danny of 1997 were Category One hurricanes at peak intensity.

#### Category Two Hurricane:

Winds 96-110 mph (83-95 kt or 154-177 km/hr). Storm surge generally 6-8 feet above normal. Some roofing material, door, and window damage of buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane center. Small craft in unprotected anchorages break moorings. Hurricane Bonnie of 1998 was a Category Two hurricane when it hit the North Carolina coast, while Hurricane Georges of 1998 was a Category Two Hurricane when it hit the Florida Keys and the Mississippi Gulf Coast.

#### Category Three Hurricane:

Winds 111-130 mph (96-113 kt or 178-209 km/hr). Storm surge generally 9-12 ft above normal. Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the hurricane center. Flooding near the coast destroys smaller structures with larger structures damaged by battering of floating debris. Terrain continuously lower than 5 ft above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences with several blocks of the shoreline may be required. Hurricanes Roxanne of 1995 and Fran of 1996 were Category Three hurricanes at landfall on the Yucatan Peninsula of Mexico and in North Carolina, respectively.

#### Category Four Hurricane:

Winds 131-155 mph (114-135 kt or 210-249 km/hr). Storm surge generally 13-18 ft above normal. More extensive curtainwall failures with some complete roof structure failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the hurricane center. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km). Hurricane Luis of 1995 was a Category Four hurricane while moving over the Leeward Islands. Hurricanes Felix and Opal of 1995 also reached Category Four status at peak intensity.

#### Category Five Hurricane:

Winds greater than 155 mph (135 kt or 249 km/hr). Storm surge generally greater than 18 ft above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the hurricane center. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles (8-16 km) of the shoreline may be required. Hurricane Mitch of 1998 was a Category Five hurricane at peak intensity over the western Caribbean. Hurricane Gilbert of 1988 was a Category Five hurricane at peak intensity and is the strongest Atlantic tropical cyclone of record.

### **Tropical Cyclone Names**

Names have been given to tropical cyclones attaining tropical storm status by the National Hurricane Center since 1953. Currently, the name lists are maintained and updated by an international committee of the World Meteorological Organization. The lists featured only women's names until 1979. Since then, men's and women's names have been alternated. When a hurricane is particularly deadly or costly, the name is retired and a new name is chosen to replace it. These lists are recycled every six years (e.g., the 2004 list will be used again in 2010). For these lists and more information about the naming of tropical cyclones and hurricanes, click on: [www.nhc.noaa.gov/aboutnames.shtml](http://www.nhc.noaa.gov/aboutnames.shtml).

## Tornadoes - The Enhanced Fujita (EF) Scale

The original Fujita (F) Scale was developed in 1971 by T. Theodore Fujita of the University of Chicago. It is a scale that measures the severity of tornadoes based on extent of damage. In 2007 the NWS implemented the Enhanced Fujita Scale as an update. It continues to support and maintain the original tornado database.

For more information about tornadoes, click on: [www.spc.noaa.gov/faq/tornado](http://www.spc.noaa.gov/faq/tornado).

<b>EF - Scale</b>	<b>Wind Estimate* (3 second gust) (mph)</b>	<b>Typical Damage</b>
<b>EF0</b>	65-85	Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
<b>EF1</b>	86-110	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
<b>EF2</b>	111-135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
<b>EF3</b>	136-165	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
<b>EF4</b>	166-200	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
<b>EF5</b>	Over 200	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.

\* **IMPORTANT NOTE ABOUT EF-SCALE WINDS:** The Enhanced F-scale still is a set of wind estimates (not measurements) based on damage. Its uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to 28 indicators. These estimates vary with height and exposure. Important: The 3 second gust is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, "one minute mile" speed.

## Earthquake Magnitude Classes (based on the Richter Scale)

Although the National Weather Service has no earthquake responsibility, earthquake information can be relayed through the agency's communications networks. For more information on earthquakes, with a focus on Southern California, click on: [earthquake.usgs.gov/regional/sca](http://earthquake.usgs.gov/regional/sca).

<b>Classes</b>	<b>Magnitude</b>
Great	Greater than or equal to 8
Major	7 to 7.9
Strong	6 to 6.9
Moderate	5 to 5.9
Light	4 to 4.9
Minor	3 to 3.9
Micro	Less than 3

## Time Zone Conversions (UTC, GMT, Z) Conversions from UTC to US time zones:

\* = previous day

UTC (GMT)	PACIFIC Standard/Daylight	MOUNTAIN Standard/Daylight	CENTRAL Standard/Daylight	EASTERN Standard/Daylight
00	4 pm* / 5 pm*	5 pm* / 6 pm*	6 pm* / 7 pm*	7 pm* / 8 pm*
01	5 pm* / 6 pm*	6 pm* / 7 pm*	7 pm* / 8 pm*	8 pm* / 9 pm*
02	6 pm* / 7 pm*	7 pm* / 8 pm*	8 pm* / 9 pm*	9 pm* / 10 pm*
03	7 pm* / 8 pm*	8 pm* / 9 pm*	9 pm* / 10 pm*	10 pm* / 11 pm*
04	8 pm* / 9 pm*	9 pm* / 10 pm*	10 pm* / 11 pm*	11 pm* / 12 am
05	9 pm* / 10 pm*	10 pm* / 11 pm*	11 pm* / 12 am	12 mid / 1 am
06	10 pm* / 11 pm*	11 pm* / 12 am	12 mid / 1 am	1 am / 2 am
07	11 pm* / 12 am	12 mid / 1 am	1 am / 2 am	2 am / 3 am
08	12 mid / 1 am	1 am / 2 am	2 am / 3 am	3 am / 4 am
09	1 am / 2 am	2 am / 3 am	3 am / 4 am	4 am / 5 am
10	2 am / 3 am	3 am / 4 am	4 am / 5 am	5 am / 6 am
11	3 am / 4 am	4 am / 5 am	5 am / 6 am	6 am / 7 am
12	4 am / 5 am	5 am / 6 am	6 am / 7 am	7 am / 8 am
13	5 am / 6 am	6 am / 7 am	7 am / 8 am	8 am / 9 am
14	6 am / 7 am	7 am / 8 am	8 am / 9 am	9 am / 10 am
15	7 am / 8 am	8 am / 9 am	9 am / 10 am	10 am / 11 am
16	8 am / 9 am	9 am / 10 am	10 am / 11 am	11 am / 12 pm
17	9 am / 10 am	10 am / 11 am	11 am / 12 pm	12 pm / 1 pm
18	10 am / 11 am	11 am / 12 pm	12 pm / 1 pm	1 pm / 2 pm
19	11 am / 12 pm	12 pm / 1 pm	1 pm / 2 pm	2 pm / 3 pm
20	12 pm / 1 pm	1 pm / 2 pm	2 pm / 3 pm	3 pm / 4 pm
21	1 pm / 2 pm	2 pm / 3 pm	3 pm / 4 pm	4 pm / 5 pm
22	2 pm / 3 pm	3 pm / 4 pm	4 pm / 5 pm	5 pm / 6 pm
23	3 pm / 4 pm	4 pm / 5 pm	5 pm / 6 pm	6 pm / 7 pm