

1998

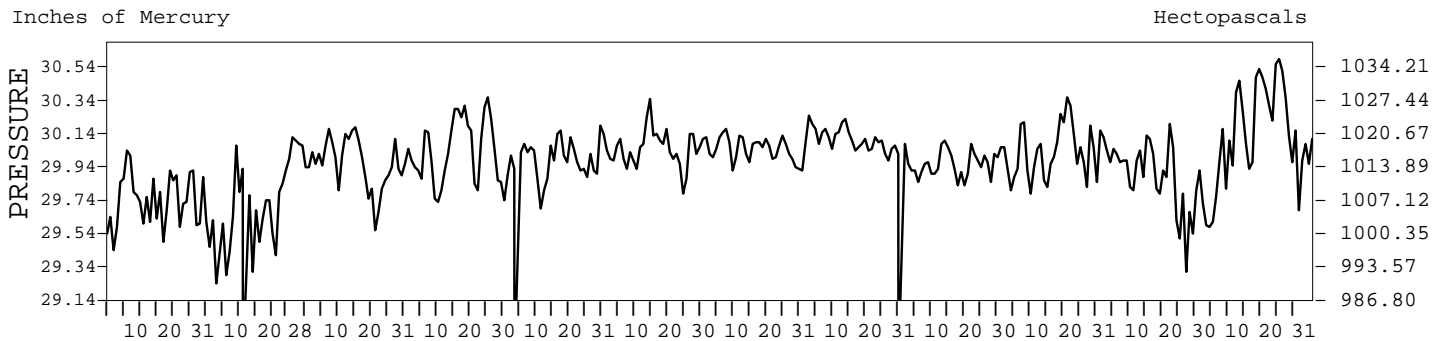
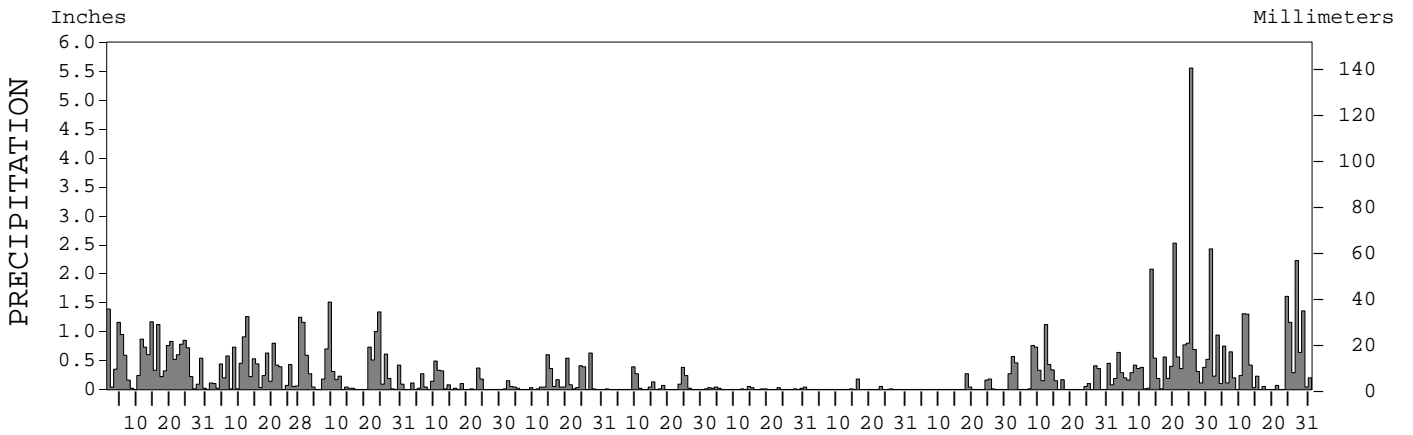
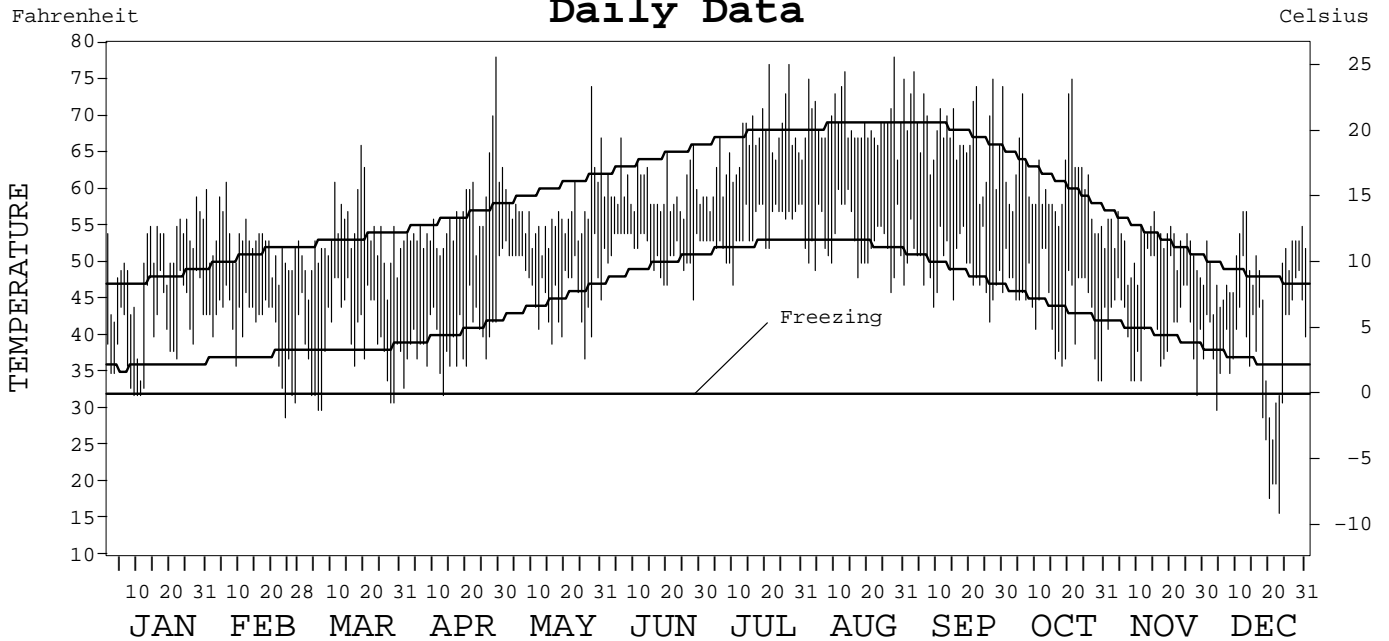
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-4101

ASTORIA,
OREGON (AST)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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 ASHEVILLE, NORTH CAROLINA

METEOROLOGICAL DATA FOR 1998

ASTORIA, OR (AST)

LATITUDE: 46° 09' 29" N LONGITUDE: 123° 52' 39" W ELEVATION (FT): GRND: 8 BARO: 13 TIME ZONE: PACIFIC (UTC+ 8) WBAN: 94224

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE ° F	MEAN DAILY MAXIMUM	50.6	52.5	53.4	56.7	57.3	60.1	65.7	69.5	67.7	60.6	52.5	46.8	57.8	
	HIGHEST DAILY MAXIMUM	60	61	66	78	74	67	77	78	76	75	57	57	78	
	DATE OF OCCURRENCE	31	06	19	29	28	06	27+	28	03	21	15+	13+	AUG 28	
	MEAN DAILY MINIMUM	40.8	40.9	39.6	39.6	46.6	51.4	54.4	52.9	49.4	44.1	41.9	37.0	44.9	
	LOWEST DAILY MINIMUM	32	29	30	32	37	45	47	46	42	34	32	16	16	
	DATE OF OCCURRENCE	11+	24	07+	13	26	28	10	27	26	30+	28	23	DEC 23	
	AVERAGE DRY BULB	45.7	46.7	46.5	48.2	52.0	55.8	60.1	61.2	58.6	52.4	47.2	41.9	51.4	
	MEAN WET BULB	43.7			45.2		53.7			55.7	49.9	46.4	40.6		
	MEAN DEW POINT	41.6			42.3		52.3			53.9	47.5	44.7	37.5		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MAXIMUM ≤ 32°	0	0	0	0	0	0	0	0	0	0	0	4	4	4
	MINIMUM ≤ 32°	3	3	6	1	0	0	0	0	0	0	1	8	22	22
MINIMUM ≤ 0°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/C	HEATING DEGREE DAYS	589	503	567	500	396	272	149	112	189	385	526	709	4897	
	COOLING DEGREE DAYS	0	0	0	0	0	0	2	3	0	0	0	0	5	
RH	MEAN (PERCENT)	87	83	88	82	88	90	92	86	88	85	90	83	87	
	HOUR 04 LST	90	87	96	94	96	96	98	96	96	91	92	79	93	
	HOUR 10 LST	87	85	85	74	86	87	90	80	84	82	89	84	84	
	HOUR 16 LST	85	74	76	68	78	83	83	74	74	74	88	83	78	
	HOUR 22 LST	87	86	94	90	92	93	95	94	97	91	91	88	92	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	2	1	3	2	2	1	5	4	10	4	3	2	39	
	THUNDERSTORMS	3	1	0	2	0	0	0	0	0	1	4	2	13	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.74		29.96	30.04		30.05	30.05		29.96	30.03	29.85	30.16		
	MEAN SEA-LEVEL PRESS. (IN.)	29.76		29.98	30.06		30.07	30.07		29.98	30.05	29.87	30.18		
WINDS	RESULTANT SPEED (MPH)	4.6		1.1	2.0		5.5	4.8		3.7	2.5	6.2	4.3		
	RES. DIR. (TENS OF DEGS.)	16		19	27		28	27		29	16	18	18		
	MEAN SPEED (MPH)	9.9	8.6	6.6	6.5	7.2	7.2	7.1	7.7	7.0	6.3	9.3	10.2	7.8	
	PREVAIL. DIR. (TENS OF DEGS.)	11	12	11	13	28	27	23	31	31	13	19	08	31	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	40	31	32	28	24	25	23	24	24	28	44	37	44	
	DIR. (TENS OF DEGS.)	24	19	19	22	21	30	18	31	31	18	18	19	18	
	DATE OF OCCURRENCE	14	12	23	10	29	15	14	12	04	08	24+	25+	NOV 24+	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	51	47	48	38	32	29	31	28	28	39	63	59	63	
DIR. (TENS OF DEGS.)	19	16	19	22	22	29	21	31	22	17	19	20	19		
DATE OF OCCURRENCE	24+	12	23	10	29	15	14	12	17+	08	24	25	NOV 24		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	16.20	10.52	10.23	2.49	3.75	1.67	0.33	0.25	0.66	6.86	19.60	16.59	89.15	
	GREATEST 24-HOUR (IN.)	1.50	1.32	1.88	0.62	0.63	0.65	0.08	0.18	0.32	1.29	5.56	2.45	5.56	
	DATE OF OCCURRENCE	13-14	12-13	08-09	10-11	27	09-10	14-15	16	24-25	12-13	25	01-02	NOV 25	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	29	27	23	15	23	12	14	4	5	18	30	24	224	
PRECIPITATION ≥ 0.10	24	20	16	9	8	5	0	1	3	16	26	20	148		
PRECIPITATION ≥ 1.00	4	2	4	0	0	0	0	0	0	1	3	7	21		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)														
	GREATEST 24-HOUR (IN.)														
	DATE OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN.)														
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0															

NORMALS, MEANS, AND EXTREMES

ASTORIA, OR (AST)

LATITUDE: 46° 09' 29" N LONGITUDE: 123° 52' 39" W ELEVATION (FT): GRND: 8 BARO: 13 TIME ZONE: PACIFIC (UTC+ 8) WBAN: 94224

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	47.8	51.0	53.2	56.0	60.1	64.1	67.5	68.8	67.8	61.1	53.5	48.2	58.3
	MEAN DAILY MAXIMUM	44	47.9	51.0	53.0	55.8	60.3	64.0	67.6	68.8	67.6	61.2	53.4	48.5	58.3
	HIGHEST DAILY MAXIMUM	44	67	72	73	83	87	93	100	96	95	85	71	64	100
	YEAR OF OCCURRENCE		1986	1996	1994	1987	1985	1955	1961	1981	1972	1987	1970	1980	JUL 1961
	MEAN OF EXTREME MAXS.	45	57.7	61.4	64.5	70.2	76.2	77.7	80.9	80.9	83.4	74.9	62.8	57.5	70.7
	NORMAL DAILY MINIMUM	30	35.9	37.3	38.1	40.3	44.8	49.5	52.4	52.6	49.0	44.0	40.2	36.6	43.4
	MEAN DAILY MINIMUM	44	36.1	37.4	37.8	40.4	44.8	49.6	52.4	52.7	49.2	44.1	39.8	36.7	43.4
	LOWEST DAILY MINIMUM	44	11	9	22	29	30	37	39	39	33	26	15	6	6
	YEAR OF OCCURRENCE		1980	1989	1971	1968	1954	1980	1971	1973	1983	1971	1955	1990	DEC 1990
	MEAN OF EXTREME MINS.	45	23.0	25.9	28.0	31.6	35.6	41.8	44.7	44.8	39.6	33.6	28.5	25.0	33.5
	NORMAL DRY BULB	30	41.9	44.2	45.7	48.2	52.5	56.9	60.0	60.7	58.4	52.6	46.9	42.4	50.9
	MEAN DRY BULB	45	42.0	44.2	45.4	48.1	52.6	56.8	60.0	60.8	58.5	52.6	46.7	42.7	50.9
	MEAN WET BULB	42	40.0	41.6	42.5	45.0	49.1	53.2	56.1	56.8	54.8	49.9	44.6	40.9	47.9
	MEAN DEW POINT	42	37.1	38.5	39.3	41.7	46.1	50.4	53.4	54.4	52.2	47.4	42.1	38.3	45.1
NORMAL NO. DAYS WITH:	MAXIMUM $\geq 90^\circ$	30	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.4
	MAXIMUM $\leq 32^\circ$	30	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	1.8
	MINIMUM $\leq 32^\circ$	30	9.5	6.5	5.7	2.1	0.1	0.0	0.0	0.0	0.0	0.5	4.2	8.7	37.3
	MINIMUM $\leq 0^\circ$	30	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
H/C	NORMAL HEATING DEG. DAYS	30	716	582	598	504	388	243	157	141	201	384	543	701	5158
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	0	0	0	8	0	0	0	0	8
RH	NORMAL (PERCENT)	30	83	82	81	80	80	80	80	82	81	83	83	84	82
	HOUR 04 LST	30	86	87	87	88	89	89	89	91	90	89	87	86	88
	HOUR 10 LST	30	84	82	79	74	74	75	75	77	75	81	83	84	79
	HOUR 16 LST	30	77	74	70	69	69	70	69	70	69	72	77	80	72
	HOUR 22 LST	30	84	85	85	84	84	85	86	87	87	88	86	86	86
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH: HEAVY FOG (VISBY $\leq 1/4$ MI)	44	3.7	2.9	2.6	2.1	1.5	1.4	2.2	4.0	5.8	6.6	4.0	3.7	40.5
	THUNDERSTORMS	44	0.8	0.3	0.4	0.6	0.3	0.3	0.4	0.3	0.8	1.0	1.3	0.9	7.4
CLOUDINESS	MEAN: SUNRISE-SUNSET (OKTAS)	1	7.2	8.4	7.6	8.8	7.2	6.4	6.8	4.8	5.6	5.6	5.6	8.0	6.8
	MIDNIGHT-MIDNIGHT (OKTAS)	1	7.2	8.8	8.0	7.2	7.2	7.2	6.8	4.8	5.6	5.6	9.2	8.0	7.1
	MEAN NO. DAYS WITH: CLEAR	1	5.0	5.5			7.5	2.0	5.0	6.0	1.0	2.0	1.0	3.0	
	PARTLY CLOUDY	1	8.0	4.5		5.0	5.5	7.0	9.0	6.0	2.0	4.0	2.0	2.0	
1	15.0	15.0	2.0	19.0	14.5	12.0	10.0	8.0	2.0	5.0	8.0	3.0	113.5		
PR	MEAN STATION PRESSURE (IN)	25	30.03	30.01	29.98	30.05	30.05	30.06	30.07	30.03	30.02	30.04	30.00	30.05	30.03
	MEAN SEA-LEVEL PRES. (IN)	42	30.04	30.04	30.03	30.07	30.08	30.07	30.09	30.06	30.04	30.05	30.03	30.05	30.05
WINDS	MEAN SPEED (MPH)	29	9.2	8.8	8.6	8.5	8.3	8.6	8.6	7.9	7.4	7.4	8.7	8.9	8.4
	PREVAIL.DIR (TENS OF DEGS)	16	09	09	18	12	30	31	31	31	12	12	09	09	12
	MAXIMUM 2-MINUTE: SPEED (MPH)	4	43	36	45	43	30	30	25	26	36	40	44	46	46
	DIR. (TENS OF DEGS)		18	02	18	01	01	01	30	19	17	01	18	18	18
	YEAR OF OCCURRENCE		1997	1996	1997	1996	1994	1994	1996	1997	1997	1994	1998	1996	DEC 1996
	MAXIMUM 5-SECOND: SPEED (MPH)	4	64	54	58	61	44	45	31	33	53	67	63	67	67
DIR. (TENS OF DEGS)		18	01	02	01	01	01	21	21	17	01	19	01	01	
YEAR OF OCCURRENCE		1997	1996	1994	1996	1994	1994	1998	1997	1997	1994	1998	1994	DEC 1994	
PRECIPITATION	NORMAL (IN)	30	10.00	7.59	7.07	4.60	3.02	2.40	1.15	1.33	2.91	5.73	10.05	10.55	66.40
	MAXIMUM MONTHLY (IN)	44	18.94	21.89	15.31	10.07	6.60	5.48	4.39	5.22	7.27	12.56	19.60	20.38	21.89
	YEAR OF OCCURRENCE		1954	1961	1997	1996	1960	1954	1983	1968	1997	1975	1998	1996	FEB 1961
	MINIMUM MONTHLY (IN)	44	0.69	1.35	0.93	1.33	0.37	0.55	0.01	0.08	0.04	0.52	1.45	2.67	0.01
	YEAR OF OCCURRENCE		1985	1993	1965	1956	1982	1992	1960	1970	1975	1987	1976	1985	JUL 1960
	MAXIMUM IN 24 HOURS (IN)	44	5.14	3.39	2.66	3.00	1.82	2.42	1.98	1.65	2.63	3.71	5.56	3.61	5.56
	YEAR OF OCCURRENCE		1990	1996	1997	1996	1979	1968	1974	1997	1997	1982	1998	1974	NOV 1998
NORMAL NO. DAYS WITH: PRECIPITATION ≥ 0.01	30	21.5	19.0	20.6	18.0	15.0	12.2	7.6	7.7	10.1	15.1	21.0	22.2	190.0	
PRECIPITATION ≥ 1.00	30	2.6	1.6	1.3	0.5	0.3	0.3	0.1	0.1	0.4	1.3	2.6	3.3	14.4	
SNOWFALL	NORMAL (IN)	30	2.2	0.4	0.4	0.*	T	0.0	0.0	0.0	0.0	T	0.2	1.4	4.6
	MAXIMUM MONTHLY (IN)	42	26.3	4.0	6.7	1.1	T	T	0.0	0.0	T	T	4.6	19.0	26.3
	YEAR OF OCCURRENCE		1969	1962	1966	1975	1991	1989			1972	1992	1985	1964	JAN 1969
	MAXIMUM IN 24 HOURS (IN)	42	10.8	4.0	5.9	1.0	T	T	0.0	0.0	T	T	4.3	7.2	10.8
	YEAR OF OCCURRENCE		1971	1962	1960	1975	1991	1989			1972	1992	1985	1964	JAN 1971
	MAXIMUM SNOW DEPTH (IN)	41	18	4	5	T	0	0	0	0	0	0	2	5	18
	YEAR OF OCCURRENCE		1969	1969	1960	1975							1955	1985	JAN 1969
NORMAL NO. DAYS WITH: SNOWFALL ≥ 1.0	30	0.6	0.1	0.2	0.*	0.0	0.0	0.0	0.0	0.0	0.0	0.*	0.4	1.3	

PRECIPITATION (inches) 1998 ASTORIA, OR (AST)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	12.02	5.67	3.16	3.84	3.92	3.63	0.56	0.62	6.55	5.28	5.77	11.69	62.71
1970	14.46	5.29	4.28	7.74	1.92	1.19	0.31	0.08	3.65	5.80	9.86	15.93	70.51
1971	16.69	6.67	9.96	4.09	2.30	2.97	1.55	1.14	4.65	6.34	9.08	13.83	79.27
1972	10.62	8.58	10.04	6.82	1.22	0.92	2.01	0.37	4.72	1.96	6.90	13.28	67.44
1973	5.72	2.60	5.71	2.38	3.16	4.26	0.07	0.46	4.19	5.92	14.93	15.75	65.15
1974	12.47	8.38	10.73	4.88	4.37	2.33	4.20	0.29	0.67	1.85	8.95	13.84	72.96
1975	15.21	8.03	5.66	3.90	2.41	1.99	0.22	2.82	0.04	12.56	12.28	15.66	80.78
1976	11.67	7.86	7.17	3.55	2.20	1.27	2.46	2.55	1.58	2.96	1.45	4.20	48.92
1977	3.20	5.22	9.74	1.65	6.00	1.36	0.44	3.85	5.44	4.38	12.37	14.34	67.99
1978	8.66	5.43	4.40	6.35	4.75	3.07	0.90	2.61	6.93	1.01	8.43	4.99	57.53
1979	3.83	11.76	4.52	4.38	4.19	1.82	0.92	0.81	4.35	8.46	7.87	13.18	66.09
1980	7.21	9.60	6.31	4.85	1.45	1.57	0.64	1.24	2.51	2.79	12.02	12.44	62.63
1981	2.63	8.69	5.80	7.30	2.97	5.47	1.06	0.62	2.77	8.67	10.66	11.80	68.44
1982	13.98	10.87	7.19	6.52	0.37	1.22	0.75	0.63	3.72	8.31	9.62	12.14	75.32
1983	13.52	8.66	8.84	4.26	3.59	4.53	4.39	1.14	1.83	1.87	16.75	9.44	78.82
1984	6.60	8.34	5.90	5.02	5.34	3.90	0.05	0.52	3.16	8.10	15.19	6.51	68.63
1985	0.69	4.09	7.00	2.95	1.90	3.09	0.78	1.11	3.23	8.11	5.96	2.67	41.58
1986	11.19	8.93	6.11	3.58	3.30	0.94	1.69	0.14	3.62	5.45	11.42	7.34	63.71
1987	10.38	5.08	8.52	3.02	3.97	0.65	1.10	0.16	0.95	0.52	4.33	8.85	47.53
1988	6.57	3.60	7.86	3.99	4.09	3.50	0.96	0.88	1.23	2.14	13.06	7.32	55.20
1989	8.20	6.61	10.09	2.27	3.01	2.58	1.64	0.84	0.50	5.30	6.73	7.40	55.17
1990	16.09	11.83	5.15	4.44	4.00	3.47	0.54	1.57	0.67	8.44	11.28	5.11	72.59
1991	6.76	8.57	5.65	9.47	2.68	1.86	0.33	2.31	0.07	2.44	10.53	6.60	57.27
1992	9.34	5.69	1.19	7.49	0.52	0.55	0.24	0.77	2.66	4.10	10.11	5.99	48.65
1993	6.27	1.35	6.93	9.01	4.74	3.70	1.81	0.57	0.12	2.23	6.68	9.59	53.00
1994	6.81	11.34	6.48	4.31	2.52	2.27	0.81	1.49	2.83	9.52	12.56	14.84	75.78
1995	10.59	5.94	8.76	5.80	2.14	2.63	0.64	1.95	2.19	7.14	17.47	11.26	76.51
1996	9.08	14.52	4.70	10.07	3.96	1.38	1.92	0.71	3.34	11.14	11.51	20.38	92.71
1997	12.74	3.95	15.31	6.62	3.61	4.53	1.35	2.90	7.27	11.56	7.65	7.99	85.48
1998	16.20	10.52	10.23	2.49	3.75	1.67	0.33	0.25	0.66	6.86	19.60	16.59	89.15
POR= 45 YRS	10.17	7.75	7.27	5.08	2.96	2.53	1.11	1.35	2.78	6.25	10.49	10.75	68.49

WBAN : 94224

AVERAGE TEMPERATURE (°F) 1998 ASTORIA, OR (AST)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	34.3	40.3	44.3	46.8	53.5	59.6	58.6	58.7	57.2	51.0	46.5	44.1	49.6
1970	41.8	46.3	44.9	45.3	51.4	56.6	59.3	60.2	56.0	51.0	47.1	40.8	50.1
1971	40.7	42.2	42.0	46.5	51.4	54.6	59.4	62.4	57.9	51.3	46.8	41.2	49.7
1972	40.0	43.2	47.8	46.6	54.7	58.3	62.2	63.4	57.6	52.3	47.3	38.6	51.0
1973	40.5	44.3	44.4	48.9	53.4	56.6	59.7	57.6	57.9	51.2	44.3	45.2	50.3
1974	38.9	42.0	44.7	48.0	50.5	56.1	59.3	62.1	60.9	51.9	48.0	45.6	50.7
1975	42.9	43.1	43.8	44.9	52.8	55.6	60.7	59.7	59.2	50.9	46.2	44.7	50.4
1976	44.1	42.6	43.7	48.7	52.8	55.9	61.1	61.7	60.8	53.2	48.0	43.5	51.3
1977	39.9	46.8	44.6	48.9	50.2	56.8	58.7	62.7	57.0	51.7	44.6	43.9	50.5
1978	44.0	46.0	47.0	48.8	52.3	59.4	60.9	61.5	58.1	54.3	41.7	37.6	51.0
1979	35.3	41.8	47.3	49.2	53.8	56.8	62.4	61.8	61.4	55.0	46.9	47.4	51.6
1980	38.7	46.4	44.8	49.5	52.3	55.4	60.7	58.8	58.9	55.0	50.1	47.5	51.5
1981	48.2	46.6	48.1	49.5	53.4	57.7	60.4	62.4	59.1	52.7	49.0	45.3	52.7
1982	41.7	44.0	45.2	46.8	52.2	57.8	59.3	61.3	59.7	55.5	46.6	43.5	51.1
1983	47.3	50.2	50.9	50.2	55.7	59.8	61.2	61.7	56.5	50.4	48.6	37.9	52.5
1984	43.5	45.4	48.4	46.7	50.8	55.6	59.6	59.9	58.4	50.3	46.7	39.6	50.4
1985	39.3	40.3	42.8	48.4	52.5	56.8	60.6	59.4	56.2	50.7	39.2	39.3	48.8
1986	46.9	44.1	49.3	47.5	52.8	58.4	58.7	61.1	55.7	54.9	47.9	44.4	51.8
1987	43.7	46.3	48.0	50.4	55.0	57.4	59.2	60.4	58.4	54.5	49.6	40.9	52.0
1988	41.8	45.8	45.4	48.9	52.5	55.7	59.9	59.2	56.6	55.5	47.4	43.3	51.0
1989	42.1	37.1	45.1	51.5	53.1	58.7	59.8	60.5	60.4	52.8	49.2	44.0	51.2
1990	44.7	43.1	47.6	50.3	52.9	57.6	62.3	62.7	60.8	51.1	47.8	36.9	51.5
1991	41.3	48.0	43.3	46.8	50.8	54.5	59.6	59.7	60.6	51.2	47.3	44.5	50.6
1992	45.2	48.3	49.0	50.9	54.8	58.6	60.7	60.6	56.3	52.6	46.3	40.7	52.0
1993	38.9	41.9	47.4	49.2	56.2	57.5	59.0	60.7	56.6	54.1	42.3	42.7	50.5
1994	45.1	42.1	48.1	50.0	53.8	56.5	59.6	61.7	60.3	50.3	41.9	42.4	51.0
1995	46.3	46.1	46.3	48.3	53.8	57.3	61.8	59.7	61.3	52.9	50.5	45.2	52.5
1996	42.4	44.0	46.5	50.4	51.1	56.5	60.5	60.3	56.8	51.7	45.7	43.6	50.8
1997	43.6	43.8	45.9	48.9	56.8	58.1	61.4	63.9	61.9	52.7	50.2	43.9	52.6
1998	45.7	46.7	46.5	48.2	52.0	55.8	60.1	61.2	58.6	52.4	47.2	41.9	51.4
POR= 45 YRS	42.1	44.2	45.4	48.1	52.6	56.9	60.0	60.7	58.5	52.6	46.7	42.7	50.9

HEATING DEGREE DAYS (base 65°F) 1998 ASTORIA, OR (AST)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	193	188	226	423	551	637	710	518	617	584	416	250	5313
1970-71	170	142	264	428	531	743	746	632	703	549	415	310	5633
1971-72	165	85	212	420	538	728	768	623	526	545	313	196	5119
1972-73	99	65	230	388	525	810	755	574	635	473	357	246	5157
1973-74	164	225	213	421	614	611	803	639	623	503	445	257	5518
1974-75	174	97	130	398	502	596	678	606	653	598	373	273	5078
1975-76	133	155	183	429	558	624	642	640	651	483	374	269	5141
1976-77	117	105	128	361	503	660	774	504	628	475	453	238	4946
1977-78	190	82	231	403	606	646	643	524	551	482	389	161	4908
1978-79	125	110	202	324	693	843	910	641	543	467	338	243	5439
1979-80	91	92	111	305	537	540	807	529	617	459	388	279	4755
1980-81	140	186	183	309	439	533	513	507	518	458	354	211	4351
1981-82	139	107	173	372	474	604	714	581	610	538	391	212	4915
1982-83	171	112	152	288	546	661	543	407	430	438	282	149	4179
1983-84	109	98	249	445	485	834	658	559	509	541	433	276	5196
1984-85	160	155	199	452	542	780	788	686	683	493	383	252	5573
1985-86	131	172	259	438	769	788	551	577	481	520	373	194	5253
1986-87	188	120	273	308	505	635	654	517	519	431	306	229	4685
1987-88	171	139	194	321	455	741	713	552	601	476	382	273	5018
1988-89	159	173	250	289	520	663	703	773	612	399	363	199	5103
1989-90	157	135	150	371	464	643	621	606	533	435	365	221	4701
1990-91	82	74	127	424	510	863	727	469	667	537	435	309	5224
1991-92	170	155	147	420	523	631	607	479	491	416	309	188	4536
1992-93	129	144	253	379	555	747	803	641	541	469	268	218	5147
1993-94	182	144	247	331	674	688	611	634	516	440	340	249	5056
1994-95	164	93	144	447	686	697	573	520	569	493	338	239	4963
1995-96	98	155	114	365	423	606	692	600	563	432	424	248	4720
1996-97	137	136	240	408	573	656	659	588	584	477	252	201	4911
1997-98	106	46	99	374	437	649	589	503	567	500	396	272	4538
1998-	149	112	189	385	526	709							

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COOLING DEGREE DAYS (base 65°F) 1998 ASTORIA, OR (AST)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0	0	0	0	1	4	0	0	0	0	0	0	5
1970	0	0	0	0	0	7	0	0	1	0	0	0	8
1971	0	0	0	0	0	2	0	11	4	2	0	0	19
1972	0	0	0	0	0	1	19	23	16	0	0	0	59
1973	0	0	0	0	0	0	6	0	7	0	0	0	13
1974	0	0	0	0	0	0	5	11	13	0	0	0	29
1975	0	0	0	0	1	0	5	0	17	0	0	0	23
1976	0	0	0	0	0	3	4	8	8	1	0	0	24
1977	0	0	0	0	0	0	0	18	0	0	0	0	18
1978	0	0	0	0	0	0	6	8	0	0	0	0	14
1979	0	0	0	0	0	0	15	0	11	1	0	0	27
1980	0	0	0	0	0	0	13	0	7	8	0	0	28
1981	0	0	0	0	0	0	4	36	2	0	0	0	42
1982	0	0	0	0	0	6	0	4	1	1	0	0	12
1983	0	0	0	0	0	0	0	4	1	0	0	0	5
1984	0	0	0	0	0	0	3	1	5	0	0	0	9
1985	0	0	0	0	3	11	1	6	0	0	0	0	21
1986	0	0	0	0	2	0	0	5	0	0	0	0	7
1987	0	0	0	0	2	5	0	5	5	3	0	0	20
1988	0	0	0	0	0	0	10	3	6	0	0	0	19
1989	0	0	0	1	0	15	0	1	17	0	0	0	34
1990	0	0	0	0	0	5	5	12	10	0	0	0	32
1991	0	0	0	0	0	0	7	0	24	1	0	0	32
1992	0	0	0	0	0	6	1	18	1	0	0	0	26
1993	0	0	0	0	2	0	0	16	2	0	0	0	20
1994	0	0	0	0	0	0	4	1	9	0	0	0	14
1995	0	0	0	0	0	16	8	0	13	0	0	0	37
1996	0	0	0	0	0	1	8	0	0	3	0	0	12
1997	0	0	0	0	5	0	0	18	13	0	0	0	36
1998	0	0	0	0	0	0	2	3	0	0	0	0	5

SNOWFALL (inches) 1998 ASTORIA, OR (AST)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	T
1970-71	0.0	0.0	0.0	T	T	1.8	16.1	0.2	1.5	0.2	T	0.0	19.8
1971-72	0.0	0.0	0.0	T	0.0	3.4	1.7	T	T	0.2	0.0	0.0	5.3
1972-73	0.0	0.0	T	0.0	0.0	5.4	T	0.0	T	T	T	0.0	5.4
1973-74	0.0	0.0	0.0	0.0	T	T	0.4	T	1.7	0.0	T	0.0	2.1
1974-75	0.0	0.0	0.0	0.0	T	T	0.3	0.2	T	1.1	T	0.0	1.6
1975-76	0.0	0.0	0.0	T	1.1	T	T	0.1	T	T	0.0	0.0	1.2
1976-77	0.0	0.0	0.0	0.0	0.0	T	T	T	T	0.0	T	0.0	T
1977-78	0.0	0.0	0.0	0.0	0.1	T	T	T	0.0	T	0.0	0.0	0.1
1978-79	0.0	0.0	0.0	T	0.1	2.5	0.3	T	T	T	0.0	0.0	2.9
1979-80	0.0	0.0	0.0	T	0.3	0.2	0.5	1.7	0.5	T	0.0	0.0	3.2
1980-81	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	T	0.0	0.0	T
1981-82	0.0	0.0	0.0	0.0	T	T	6.1	T	T	T	0.0	0.0	6.1
1982-83	0.0	0.0	0.0	0.0	T	0.0	T	0.0	T	T	T	0.0	T
1983-84	0.0	0.0	0.0	0.0	T	T	0.0	T	T	T	T	0.0	T
1984-85	0.0	0.0	0.0	T	T	T	0.0	1.1	T	T	T	0.0	1.1
1985-86	0.0	0.0	0.0	0.0	4.6	0.4	T	T	T	T	0.0	0.0	5.0
1986-87	0.0	0.0	0.0	0.0	T	0.0	T	0.0	T	T	0.0	0.0	T
1987-88	0.0	0.0	0.0	0.0	T	T	T	0.0	T	T	0.0	0.0	T
1988-89	0.0	0.0	0.0	0.0	T	T	T	1.5	T	T	T	T	1.5
1989-90	0.0	0.0	0.0	T	T	0.0	T	1.8	T	T	0.0	0.0	1.8
1990-91	0.0	0.0	0.0	0.0	T	1.4	0.0	0.0	T	T	T	0.0	1.4
1991-92	0.0	0.0	0.0	0.0	T	0.0	T	T	0.0	T	0.0	0.0	T
1992-93	0.0	0.0	0.0	T	0.0	T	5.2	3.4	0.0	0.0	0.0	0.0	8.6
1993-94	0.0	0.0	0.0	0.0	T	0.0	T	T	T	T	0.0	0.0	T
1994-95	0.0	0.0	0.0	T	T	0.6	T	T	T	0.0	0.0	0.0	0.6
1995-96	0.0	0.0	0.0	0.0	0.0	T	0.2	T	T	T	T	T	T
1996-97													
1997-98													
1998-													
POR= 44 YRS	0.0	0.0	T	T	0.2	1.1	2.1	0.4	0.5	T	T	T	4.3

WBAN : 94224

REFERENCE NOTES:

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1961 - 1990). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65° F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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1998
ASTORIA,
OREGON (AST)

Astoria is ringed by low mountains on the north, east, and south. On the west, the area is open to the Pacific Ocean at the mouth of the Columbia River. North of the station, 8 to 12 miles distant, the Washington hills rise to 1,000 to 1,200 feet. Maximum visibility is 19 miles north-northeastward to the Willapa Hills. East-northeastward 2 to 4 miles, the Astoria hills rise to 600 feet. East-southeastward 4 to 14 miles, consecutively, rise other ridges of the Coast Ranges, and southeastward is the most prominent landmark, Saddle Mountain, 3,283 feet high. Forests cover most of the uplands. From Seaside northward to the south bank of the Columbia are 18 miles of sandy beaches, and a 2 to 3 mile wide stretch of dune lands.

The airport sits by the south bank of the Columbia estuary, west of Youngs Bay, on the flood plain or tidal flats. Low dikes prevent flooding and increase the bog-like characteristics of the area. When air temperature falls below water temperature, fog forms easily, or rolls in from the ocean, river, or bay. This usually begins from late afternoon to early morning, and may persist well into the following day. During the summer months, sea breezes commonly blow up the river by noon and stop the diurnal rise in temperature. In winter, cold air may funnel down the Columbia from the interior.

Weather hazards occasionally occur. For flying, the greatest are fog and gales. Even with moderate surface velocities, wind and turbulence at 800 feet may be severe enough to upset a heavy plane. Even in fair weather, wind and wave may combine to produce a type of breaker known as the widow-maker and swamp a boat. Heavy rains inundate lowlands, and high tides aggravated by gales may push seawater across highways or up beaches. Rains may cause earthslides, mostly in highway cuts. Lightning strikes are rare. Showers of ice pellets may briefly whiten the ground during many of the months. Occasionally in winter there may be rather brief periods of freezing temperatures, with snow or ice.

The climate is generally healthful, except for dampness and a lack of sunshine in winter. Heat waves are uncommon and usually brief. Soil leaching necessitates supplementary mineral diets for both animals and plants.

STATION LOCATION

ASTORIA, OREGON

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										* Type	REMARKS	
						SEA LEVEL	GROUND											
							WIND	EXPOSED	ROOF	SHOULDER	RAIL	WIRE	8	H	A			E
<u>COOPERATIVE</u>																		
Pythian Building	12/1/83	2/28/97	NA	46° 11'	123°50'	15	60	39									Third order station.	
Savings Bank Building	11/9/10	7/18/16	Unk	46° 11'	123°50'	16	10	64									Top of building 60 feet above ground.	
530 Bond Street	7/19/16	11/26/17	Unk	46° 11'	123°50'	24	11										Roof of one-story building.	
Kinney Building 510 Commercial Street	1/15/18	5/11/19	Unk	46° 11'	123°50'	36	12										Instruments on 3rd story balcony	
Exchange St., near 12th	6/26/30	8/1/42	Unk	46° 11'	123°50'	10	18	14									Instruments were located in vacant city lot.	
212 Harrison Avenue	11/5/45	1/1/61	app. 0.5 mi. W	46° 11'	123°50'	220	22											
<u>AIRPORT</u>																		
Clatsop Airport 3 miles SW of Post Office Building	11/15/46	1/15/53	NA	46° 09'	123°53'		67	5	4				4	4			SAWRS station.	
Clatsop County Airport	1/15/53	2/11/76	No Change	46° 09'	123°53'	8	c20	46	6	5			a4	4	b4		Weather Bureau Station established. a - Shielded 11/18/60. b - Commissioned 545 feet NE of thermometer site 10/7/64. c - Effective 10/7/64.	
National Weather Service Building Clatsop County Airport+	2/11/76	Present	400 ft. S	46° 09'	123°53'	8	d20	5	5	NA	5	5	4	d4 e4 f4	NA		d - Not moved 2/11/76. e - Type change 10/25/79. f - Type change 10/4/85.	
+ - Port of Astoria Airport effective 7/24/84.															S		ASOS commissioned 03/01/93	

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.
INQUIRIES/COMMENTS CALL: (828) 271-4800

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