

1999

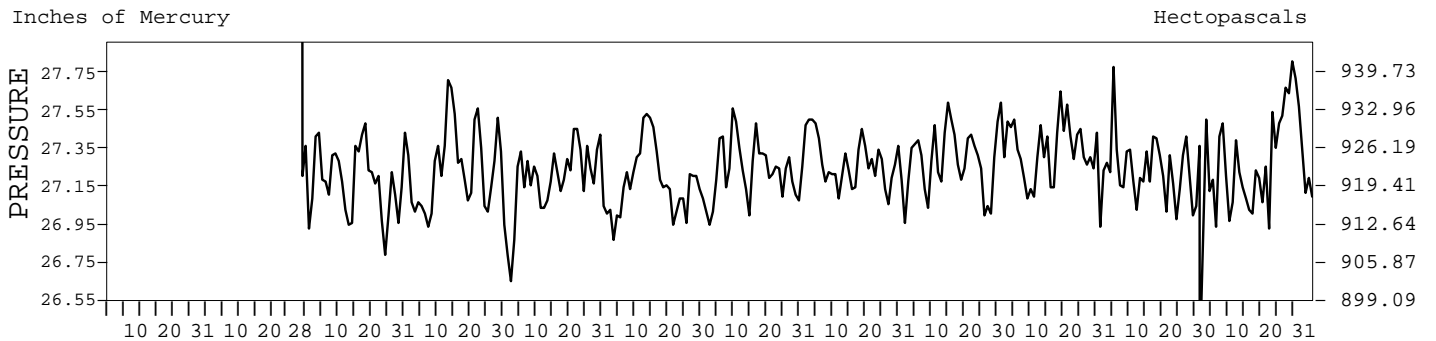
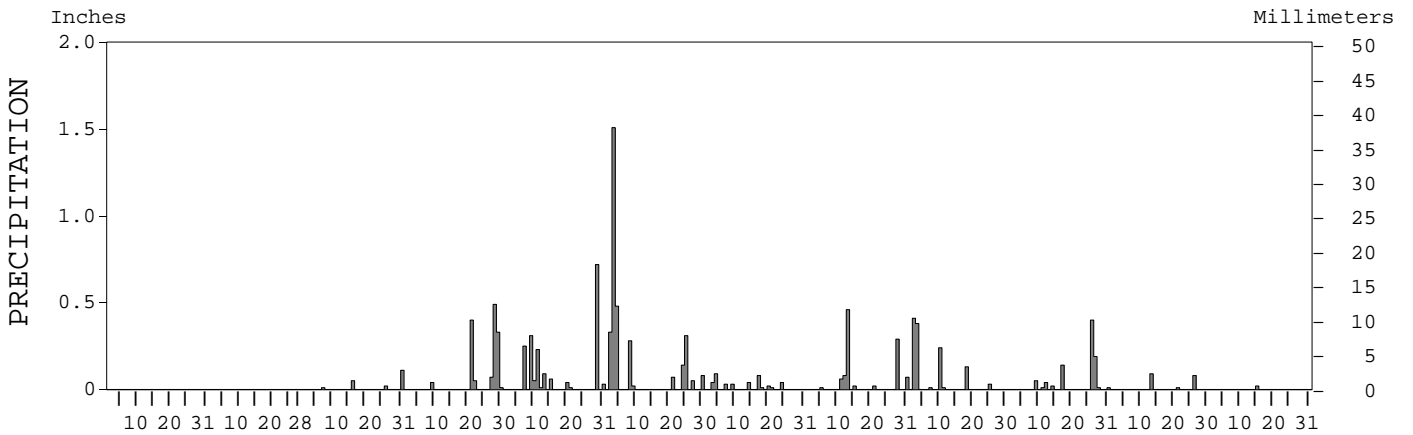
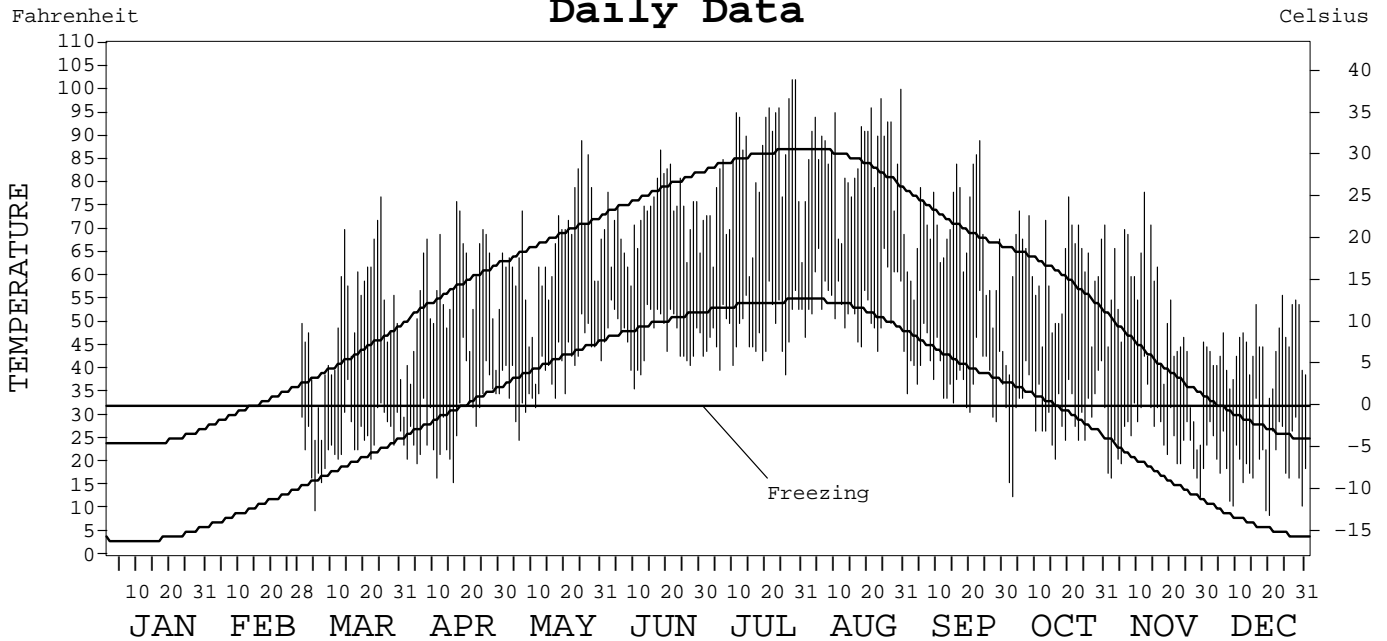
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-3008

HAVRE,
MONTANA (HVR)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE
 NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
 NATIONAL CLIMATIC DATA CENTER
 NATIONAL CLIMATIC DATA CENTER
 DIRECTOR NATIONAL CLIMATIC DATA CENTER
 ASHEVILLE, NORTH CAROLINA

METEOROLOGICAL DATA FOR 1999

HAVRE, MT (HVR)

LATITUDE: 48° 33' 34" N LONGITUDE: 109° 46' 48" W ELEVATION (FT): GRND: 2582 BARO: 2582 TIME ZONE: MOUNTAIN (UTC + 7) WBAN: 94012

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE ° F	MEAN DAILY MAXIMUM			50.4	56.2	65.3	73.1	82.7	85.6	68.4	60.8	50.6	43.9		
	HIGHEST DAILY MAXIMUM			77	76	89	87	102	100	89	77	78	56		
	DATE OF OCCURRENCE			25	17	25	18	29+	30	23	20	12	24		
	MEAN DAILY MINIMUM			25.0	29.2	39.6	47.1	48.3	54.0	39.6	30.8	25.7	20.8		
	LOWEST DAILY MINIMUM			10	16	25	36	39	44	29	13	13	9		
	DATE OF OCCURRENCE			05	16	06	10	26	31+	28	03	29	20		
	AVERAGE DRY BULB			37.7	42.7	52.5	60.1	65.5	69.8	54.0	45.8	38.2	32.4		
	MEAN WET BULB			31.7	36.7	44.9	52.7	53.9		45.4	38.5		28.1		
	MEAN DEW POINT			24.2	27.1	36.4	45.9	43.8		36.7	29.8		20.6		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°			0	0	0	0	11	14	0	0	0	0		
	MAXIMUM ≤ 32°			3	1	0	0	0	0	0	0	4	1		
MINIMUM ≤ 32°			29	19	4	0	0	0	4	18	27	30			
MINIMUM ≤ 0°			0	0	0	0	0	0	0	0	0	0			
H/C	HEATING DEGREE DAYS			841	660	389	153	85	17	333	586	799	1002		
	COOLING DEGREE DAYS			0	0	9	12	108	175	10	0	0	0		
RH	MEAN (PERCENT)			65	58	59	62	51	52	58	59	68	63		
	HOUR 05 LST			82	76	78	82	78	77	79	76	78	71		
	HOUR 11 LST			58	48	48	49	37	41	48	48	60	56		
	HOUR 17 LST			45	42	44	44	31	31	35	43	60	59		
	HOUR 23 LST			72	67	67	74	64	61	68	66	71	67		
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)			5	0	0	0	0	2	0	1	4	0		
	THUNDERSTORMS			1	2	2	12	7	6	1	0	0	0		
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.)			27.18	27.26	27.18	27.18	27.25	27.26	27.32	27.32		27.29		
	MEAN SEA-LEVEL PRESS. (IN.)				30.01	29.89	29.86	29.93			30.07		30.06		
WINDS	RESULTANT SPEED (MPH)			1.0	3.4	4.4	2.5	3.4	0.9	2.4	5.9		9.4		
	RES. DIR. (TENS OF DEGS.)			13	27	27	23	27	23	28	25		24		
	MEAN SPEED (MPH)			10.6	10.0	10.5	10.6	10.7	10.2	9.1	10.8	9.0	12.4		
	PREVAIL. DIR. (TENS OF DEGS.)			08	23	23	22	22	07	23	23	23	23		
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)			38	37	38	38	46	39	38	60	39	36		
	DIR. (TENS OF DEGS.)			27	31	28	28	29	25	33	27	23	32		
	DATE OF OCCURRENCE			26	14	07	25+	08	21	10	31	12	18		
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)			46	41	45	47	55	46	45	69	46	44		
DIR. (TENS OF DEGS.)			27	26	28	27	28	25	33	26	24	32			
DATE OF OCCURRENCE			26	06	07	25	22	21	10	31	12	18+			
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)			0.19	1.39	1.80	3.27	0.39	1.01	1.21	0.87	0.18	0.02		
	GREATEST 24-HOUR (IN.)			0.11	0.63	0.72	1.51	0.09	0.46	0.79	0.58	0.08	0.02		
	DATE OF OCCURRENCE			31	28-29	29	03	04	13	02-03	26-27	26	15		
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01			4	7	11	10	10	8	7	9	3	1		
PRECIPITATION ≥ 0.10			1	3	4	6	0	2	4	3	0	0			
PRECIPITATION ≥ 1.00			0	0	0	1	0	0	0	0	0	0			
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)							0.0	0.0	0.0	T				
	GREATEST 24-HOUR (IN.)							0.0	0.0	0.0	T				
	DATE OF OCCURRENCE										26+	0			
	MAXIMUM SNOW DEPTH (IN.)							0	0	0	0				
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0							0	0	0	0					

NORMALS, MEANS, AND EXTREMES

HAVRE, MT (HVR)

LATITUDE: 48° 33' 34" N LONGITUDE: 109° 46' 48" W ELEVATION (FT): GRND: 2582 BARO: 2582 TIME ZONE: MOUNTAIN (UTC + 7) WBAN: 94012

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	24.7	32.0	42.6	56.7	67.9	77.8	85.4	84.1	71.2	60.0	41.6	28.2	56.0
	MEAN DAILY MAXIMUM				50.4	56.2	65.3	73.1	82.7	85.6	68.4	60.8	50.6	43.9	
	HIGHEST DAILY MAXIMUM				77	76	89	87	102	100	89	77	78	56	
	YEAR OF OCCURRENCE				1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	
	MEAN OF EXTREME MAXS.	0			77.0	76.0	89.0	87.0	102.0	100.0	89.0	77.0	78.0	56.0	
	NORMAL DAILY MINIMUM	30	14.3	10.2	19.7	30.8	41.5	49.5	53.8	52.5	41.9	31.5	17.6	6.6	30.8
	MEAN DAILY MINIMUM	0			25.0	29.2	39.6	47.1	48.3	54.0	39.6	30.8	25.7	20.8	
	LOWEST DAILY MINIMUM	0			10	16	25	36	39	44	29	13	13	9	
	YEAR OF OCCURRENCE				1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	
	MEAN OF EXTREME MINS.	0			10.0	16.0	25.0	36.0	39.0	44.0	29.0	13.0	13.0	9.0	
	NORMAL DRY BULB	30	3.8	21.1	31.1	43.8	54.7	63.7	69.7	68.3	56.5	45.8	29.6	17.4	42.1
	MEAN DRY BULB				37.7	42.7	52.5	60.1	65.5	69.8	54.0	45.8	38.2	32.4	
	MEAN WET BULB				31.7	36.7	44.9	52.7	53.9		45.4	38.5		28.1	
	MEAN DEW POINT				24.2	27.1	36.4	45.9	43.8		36.7	29.8		20.6	
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°															
MAXIMUM ≤ 32°															
MINIMUM ≤ 32°															
MINIMUM ≤ 0°															
H/C	NORMAL HEATING DEG. DAYS	30	1572	1229	1051	636	325	117	18	70	296	595	1062	1476	8447
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	6	78	164	172	461	0	0	0	881
RH	NORMAL (PERCENT)														
	HOUR 05 LST														
	HOUR 11 LST														
	HOUR 17 LST														
	HOUR 23 LST														
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)				5.0	0.0	0.0	0.0	0.0	2.0	0.0	1.0	4.0	0.0	
	THUNDERSTORMS				1.0	2.0	2.0	12.0	7.0	6.0	1.0	0.0	0.0		
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH:														
	CLEAR														
	PARTLY CLOUDY														
	CLOUDY														
PR	MEAN STATION PRESSURE (IN)				27.18	27.26	27.18	27.18	27.25	27.26	27.32	27.32		27.29	
	MEAN SEA-LEVEL PRES. (IN)				30.01	29.89	29.86	29.93			30.07		30.06		
WINDS	MEAN SPEED (MPH)				10.6	10.0	10.5	10.6	10.7	10.2	9.1	10.8	9.0	12.4	
	PREVAIL. DIR (TENS OF DEGS)														
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)				38	37	38	38	46	39	38	60	39	36	
	DIR. (TENS OF DEGS)				27	31	28	28	29	25	33	27	23	32	
	YEAR OF OCCURRENCE				1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	
	MAXIMUM 5-SECOND:														
SPEED (MPH)				46	41	45	47	55	46	45	69	46	44		
DIR. (TENS OF DEGS)				27	26	28	27	28	25	33	26	24	32		
YEAR OF OCCURRENCE				1999	1999	1999	1999	1999	1999	1999	1999	1999	1999		
PRECIPITATION	NORMAL (IN)	30	0.53	0.36	0.66	0.94	1.66	1.76	1.40	1.23	1.18	0.53	0.38	0.53	11.16
	MAXIMUM MONTHLY (IN)	0			0.19	1.39	1.80	3.27	0.39	1.01	1.21	0.87	0.18	0.02	3.27
	YEAR OF OCCURRENCE				1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	JUN 1999
	MINIMUM MONTHLY (IN)	0													0.00
	YEAR OF OCCURRENCE														DEC
	MAXIMUM IN 24 HOURS (IN)	0			0.11	0.63	0.72	1.51	0.09	0.46	0.79	0.58	0.08	0.02	1.51
	YEAR OF OCCURRENCE				1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	JUN 1999
NORMAL NO. DAYS WITH:															
PRECIPITATION ≥ 0.01															
PRECIPITATION ≥ 1.00															
SNOWFALL	NORMAL (IN)														
	MAXIMUM MONTHLY (IN)														
	YEAR OF OCCURRENCE											T			
	MAXIMUM IN 24 HOURS (IN)														
	YEAR OF OCCURRENCE												T		
MAXIMUM SNOW DEPTH (IN)															
YEAR OF OCCURRENCE															
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0															

PRECIPITATION (inches) 1999 HAVRE, MT (HVR)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1999			0.19	1.39	1.80	3.27	0.39	1.01	1.21	0.87	0.18	0.02	
POR= 1 YRS	0.00	0.00	0.19	1.39	1.80	3.27	0.39	1.01	1.21	0.87	0.18	0.02	10.33

WBAN : 94012

AVERAGE TEMPERATURE (°F) 1999 HAVRE, MT (HVR)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1999			37.7	42.7	52.5	60.1	65.5	69.8	54.0	45.8	38.2	32.4	
POR= 1 YRS	.0	.0	37.7	42.7	52.5	60.1	65.5	69.8	54.0	45.8	38.2	32.4	41.6

HEATING DEGREE DAYS (base 65°F) 1999 HAVRE, MT (HVR)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1998-99 1999-	85	17	333	586	799	1002			841	660	389	153	

WBAN : 94012

COOLING DEGREE DAYS (base 65°F) 1999 HAVRE, MT (HVR)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1999			0	0	9	12	108	175	10	0	0	0	

SNOWFALL (inches) 1999 HAVRE, MT (HVR)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
POR=													

WBAN : 94012

REFERENCE NOTES :

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).

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).

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.

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.

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 EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.

1999
HAVRE,
MONTANA (HVR)

Havre, Montana, is located in a level valley formed by the Milk River, which courses through the city from west to east. Most of the city lies on the south side of the river. On the north side, hills rise abruptly to about 200 feet above the valley floor. The land mass north to the Canadian border is gently rolling and increases slightly in elevation. During winter months, frequent invasions of cold polar continental air move down across these rolling plains, bringing snow and sub-zero temperatures.

The Bearpaw Mountains extend from 15 to 30 miles south of Havre. Most of the peaks are from 4,000 to 5,000 feet above sea level, and several are above 6,000 feet. The highest is Old Baldy, 6,916 feet above sea level.

Winters are cold in the Havre area, but snow cover is seldom more than a few inches, and usually some ground is bare. Spells of mild weather do occur at least a few times each winter, arriving with sometimes fresh to strong southwest to west foehn winds. During winter months, rain rarely falls. Winter precipitation is almost always in the form of snow. The transition from winter to spring conditions is fairly rapid in the usual year, but cold snaps and snow can occur as late as early May or as early as September.

Summers are characterized by warm weather, seldom exceeding 95 degrees. Daytime warmest readings usually run from the 80s to the mid-90s during most of July and August, but summer relative humidities are seldom as high as 50 percent during afternoon hours. Summertime night temperatures are rarely oppressively warm. Most spring and summer precipitation falls as showers, but occasionally steady rains lasting several hours are observed in May and June, and again in September. Fall seasons are characterized by much clear weather, although cold snaps of a day or two, with some snow, can occur as early as mid-September.

STATION LOCATION

HAVRE, MONTANA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE											ACUOMPAHCHIE	* Type M = AMOS T = AUTOB S = ASOS W = AWOS	REMARKS
						SEA LEVEL	GROUND												
							WIND	EMERPHX	EMERPHX	EMERPHX	EMERPHX	EMERPHX	EMERPHX	EMERPHX	EMERPHX	EMERPHX			
City-County Airport	04/01/94	Present	NA	48°34'	109°47'	2582												S	ASOS Commissioned 04/01/94.

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

National Climatic Data Center
 151 Patton Avenue, Rm 120
 Asheville NC 28801-5001

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