Washington Department of Ecology
Air Quality Program

Documentation of Natural Event Due to High Winds
September 25, 1997
Walla Walla, Washington

03-02-004
April, 2003

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September 25, 1997
Walla Walla, Washington

Prepared by:

Washington State Department of Ecology
Air Quality Program

April 2003

If you have special accommodation needs or require this document in alternative format, please contact Judy Beitel at (360) 407-6878 (voice) or 711 or 1-800-833-6388 (TTY).

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Summary

On September 25, 1997, the PM_{10} monitor in Walla Walla, Washington recorded an exceedance of the primary, 24-hour National Ambient Air Quality Standard (NAAQS) for PM_{10} (particulate matter having a nominal aerodynamic diameter less than or equal to 10 microns). The Air Quality Program has determined this exceedance was due to emissions caused by high winds in the area. This determination is made under the guidelines of EPA's Natural Event Policy (NEP), issued in June of 1996. The NEP applies to exceedances of the PM_{10} NAAQS due to uncontrollable, natural events. Three types of natural events are identified in the NEP including high wind events. Ecology staff has flagged the data point from that day as having been caused by high winds. This document is forwarded to EPA in support of that flag.

Background

Prior to the 1990 Clean Air Act Amendments, the Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events (Exceptional Events Guideline) and Appendix K to 40 CFR, part 50, were issued by EPA to address, in part, the situation where natural sources strongly influence an area's PM_{10} air quality. To avoid imposing potentially unreasonable State Implementation Plan (SIP) requirements on such areas, EPA provided for the exclusion of certain natural source data from nonattainment determinations if the data were shown to be influenced by uncontrollable events caused by natural sources of particulate matter. The guideline contains EPA's guidance for how states should treat PM_{10} air quality data that may be eligible for the adjustments authorized under Section 2.4 of Appendix K.

The Clean Air Act Amendments of 1990 contained a new section, Section 188(f) which provides EPA with discretionary statutory authority to waive either a specific attainment date or certain planning requirements for PM_{10} nonattainment areas that are impacted significantly by nonanthropogenic sources. The EPA stated in subsequent serious PM_{10} area guidance documents that it interprets the section 188(f) waiver provision to say that the data exclusion policy contained in Appendix K and the procedures described in the exceptional events guideline no longer apply.

In June of 1996, EPA issued the Natural Events Policy (NEP). This policy states that EPA now believes it is appropriate to again exclude PM_{10} air quality data that are attributable to uncontrollable, natural events from the decisions regarding an area's nonattainment status.

PART 1 THE NATURAL EVENT POLICY

Description of Policy

The NEP sets forth procedures for protecting public health in areas where the PM_{10} NAAQS are violated due to uncontrollable, natural events. It addresses PM_{10} NAAQS violations caused by natural events in areas designated unclassifiable or attainment. It also addresses certain reclassification and redesignation questions for PM_{10} nonattainment areas. The policy applies at

the time the state determines a PM_{10} NAAQS has been violated due to natural events and addresses what should be done to protect public health. The policy provides that EPA will:

1. exercise its discretion under section 107(d)(3) not to redesignate areas as nonattainment if the State develops and implements a plan to respond to the health impacts of natural events; and,
2. redesignate nonattainment areas as attainment by applying Appendix K, on a case-by-case basis, to discount data in circumstances where an area would attain but for exceedances that result from uncontrollable, natural events.

The NEP was based on the following policy principles.

1. Protection of public health is the highest priority of Federal, State, and local air pollution control agencies.
2. The public must be informed whenever the air quality in an area is unhealthy.
3. All valid ambient air quality data should be submitted to the EPA Aerometric Information Retrieval System (AIRS) and made available for public access.
4. State and local agencies must take appropriate reasonable measures to safeguard public health regardless of the source of PM_{10} emissions.
5. Emission controls should be applied to sources that contribute to exceedances of the PM_{10} NAAQS when those controls will result in fewer violations of the standards.

The NEP applies to three categories of natural events: (1) volcanic and seismic activity, (2) wildland fires and (3) high wind events. If other significant categories of natural events are identified, they will be added to the policy in the future.

The NEP states that ambient PM_{10} concentrations due to dust raised by unusually high winds will be treated as due to uncontrollable natural events when the dust originated from:

1. nonanthropogenic sources, or
2. anthropogenic sources controlled with Best Available Control Measures (BACM).

BACM must be implemented for contributing anthropogenic sources for which it has been defined within 3 years after either the first NAAQS violation attributed to high wind events or from the date of this policy. For anthropogenic sources for which BACM are undefined, implementation should be "as expeditious as practicable."

The conditions that create high wind events vary from area to area dependent on soil type, precipitation levels, wind conditions and other factors. Therefore, the State must determine the unusually high wind conditions that will overcome BACM in each region or subregion of the State.

Documentation

For values to be considered as caused by natural events, states must submit the resultant ambient air quality data to the EPA Aerometric Information Retrieval System (AIRS) with the appropriate flag. States must support this flag with documentation establishing a clear, causal relationship between the measured exceedance(s) and the natural event(s). The type and amount of documentation provided for each event should be sufficient to demonstrate that the natural

event occurred and that it impacted a particular monitoring site in such a way as to cause the PM_{10} concentrations measured.

A copy of this documentation is to be forwarded to EPA's Region 10 office. The State is also responsible for making the documentation of natural events and their impact on measured air quality available to the public for review. The Air Quality Program intends to make this documentation available to the public by reference through their annual air quality report.

Natural Event Action Plan

The major responsibility of the states under the NEP is the development and implementation of a Natural Events Action Plan (NEAP). The NEAP has two purposes. First is the development of procedures for taking appropriate, reasonable measures to safeguard public health when natural events occur. Second is to assure that emission controls are applied to anthropogenic sources that contribute to exceedances of the PM_{10} NAAQS when those controls will result in fewer violations of the standards. All appropriate stakeholders are to be involved in the development and implementation of the NEAP.

The Air Quality Program has developed a regional NEAP for the Columbia Plateau, including Walla Walla County. This effort involved Ecology headquarters and regional agency staff, local air quality agencies, EPA, agricultural agencies, growers from the area and state, local health officials and other stakeholders.

PART 2 DOCUMENTATION OF NATURAL EVENT

Ecology is submitting the following documentation of conditions in the Walla Walla area which caused the exceedance on September 25, 1997. This documentation verifies the exceedance was due to emission of soils caused by high, south-southeast winds that advected particulate matter into the Walla Walla area. This documentation includes:

1. Summaries of PM levels recorded during September 1997 at the Walla Walla monitoring sites.
2. Documentation and a description of meteorological conditions in the area during September 1997.

Background

PM_{10} monitoring: The maps in Appendix A show that the PM_{10} monitor is located in an urban setting, at the Walla Walla fire station. It is a neighborhood-scale, Special Purpose Monitor (SPM) in Ecology's PM_{10} monitoring network. The SPM sites are established to determine representative PM_{10} concentrations in areas with high population density.

Three other exceedances of the 24-hour PM_{10} NAAQS have been recorded at Walla Walla since monitoring began. All three occurred during high wind conditions on 09/25/89 (211 μ/m^3), 09/21/91 (184 μ/m^3), and 10/21/91(518 μ/m^3). Table 1 clearly

shows that the exceedances on 10/21/91 and 09/25/89 were wind blown dust events with regional impacts.

Table 1 - PM_{10} data for selected historical windblown dust events.

Date:	Walla Walla	Kennewick	Wallula	Pendleton	Spokane	Coeur D'Alene
09/25/89	211 μ/m^3	175 μ/m^3	104 μ/m^3	NA	487 μ/m^3	441 μ/m^3
09/21/91	184 μ/m^3	22 μ/m^3	NA	34 μ/m^3	NA	NA
10/21/91	518 μ/m^3	1035 μ/m^3	751 μ/m^3	220 μ/m^3	351 μ/m^3	460 μ/m^3

Area Description: The City of Walla Walla is the county seat and is one of four incorporated cities in Walla Walla county. The city has a population of approximately 30,000 while the county population is approximately 55,000. Walla Walla sits in a basin, bounded by the Blue Mountains to the east and south and the hills rising up to Eureka Flat to the north and west. This basin extends south from Walla Walla and includes the area around Milton-Freewater, Oregon.

Area conditions: Bordering Oregon state, Walla Walla county lies roughly on the eastern fringe of the Columbia Plateau. It is mostly an agricultural area with the majority of croplands planted in wheat and barley. These cereal crops are usually grown as a winter crop, i.e., they are planted in the fall and harvested late the next summer. This crop rotation leaves much of the land harvested and/or being tilled in August and September. Thus large tracts of land are bare and very susceptible to wind erosion during this time period.

Oregon's Umatilla and Morrow counties lie to the south and southwest of Walla Walla county.

Walla Walla PM_{10} Data

The PM_{10} monitor in Walla Walla has operated since 1986. Currently operating on a one in three day schedule, it operated on a one in six day schedule in 1997. The 1997 monitoring data is presented as Appendix A. The average PM_{10} concentration was 31 μ/m^3. Monthly 24-hour maxima ranged from a low of 16 μ/m^3 in March and April to a high of 65 μ/m^3 in August. Figure 1 shows that the 155 μ/m^3 monitored on September 25, 1997, stands out as exceptionally high. It was the only monitored exceedance on the PM_{10} NAAQS for the year. The other high values were 87 μ/m^3 and 105 μ/m^3, both in the month of August. August is typically a dry time of year when higher PM concentrations can be expected because of the greater ease raising dust.

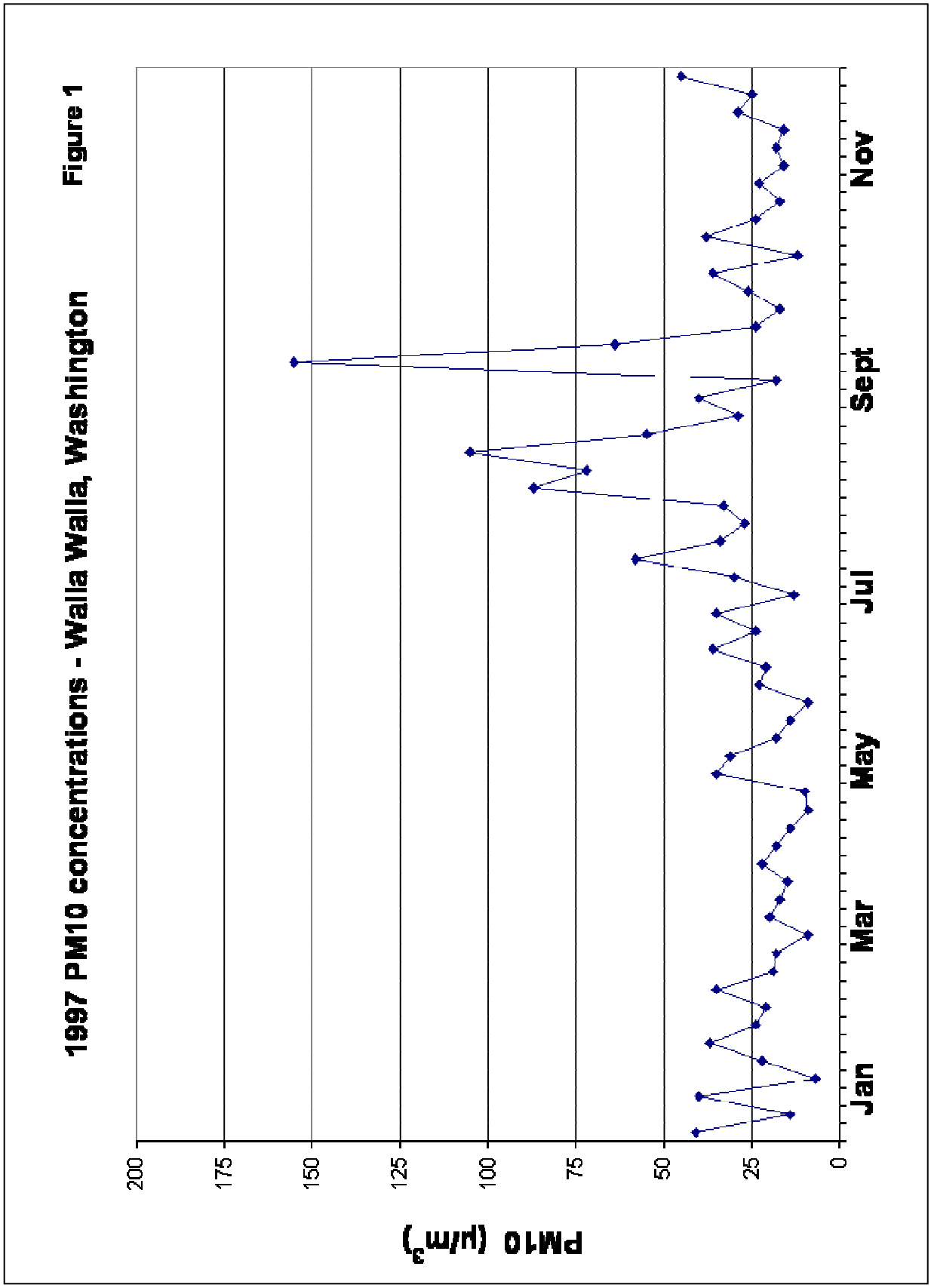


Figure 1
1997 PM10 concentrations - Walla Walla, Washington
PM10 (µg/m³)
200
175
150
125
100
75
50
25
0
Jan
Mar
May
Jul
Sept
Nov

Meteorological Conditions

The following discussion summarizes meteorological conditions in the Walla Walla area during September 1997. The summary is based on National Weather Service meteorological data reported from Walla Walla Regional Airport and Pendleton Municipal Airport and can be found in (Appendix B) along with additional supporting meteorological data.

Daily Average Wind Speeds: Figure 2 presents daily average and daily maximum sustained wind speeds at Walla Walla during September. Average winds during the month were generally between 5 and 10 miles per hour (mph). During three periods, the average winds rose above 15 mph. On September 25 and 26 average daily winds were highest for the month at 16.8 and 17.3 mph, respectively.

Maximum Sustained Wind Speeds: Figure 2 also presents the maximum sustained wind speeds for each day[1]. On September 25, 26 and 27, these speeds were the highest for the month peaking at 31.1 mph the evening of September 25.

Hourly Average Wind Speeds: Figures 3 and 4 present the hourly average wind speeds for the second half of September, at Pendleton and Walla Walla. The afternoon and evening of September 25 are summarized in Table 1.

Hourly wind speeds were relatively high on September 16 and 17. They then dropped and remained fairly calm until September 25. At 3:00 p.m. on September 25, the wind speed at Walla Walla was 11 mph. In one hour it more than doubled to reach 23 mph by 4:00 p.m. The winds dropped for a few hours before jumping dramatically from 10 mph at 8:00 p.m. to 31 mph at 8:30 p.m. Gusts of 39 mph accompanied the winds for the next several hours. Hourly speeds continue high through September 26 and most of September 27. By 5:00 p.m. the wind speed dropped to 9 mph. Hourly wind speeds remained low for the remainder of the month except for a four-hour period on September 30.

Pendleton experienced conditions very similar to those in Walla Walla though just a few hours earlier. Again, hourly wind speeds were relatively high on September 15 and 16. At 1:00 p.m. on September 25, the hourly average wind speed was 5 mph jumping to 17 mph by 2:00 p.m. The winds continued to increase until reaching a peak of 29 mph, with gusts of 40 mph, at 5:00 p.m. Hourly speeds continue high through September 26 and most of September 27, until 3:00 p.m. when they drop to 9 mph. Hourly wind speeds remained low for the remainder of the month.

[1] Maximum sustained wind speed is the highest wind speed sustained over a two minute period for the period of record – in this case 24 hours.

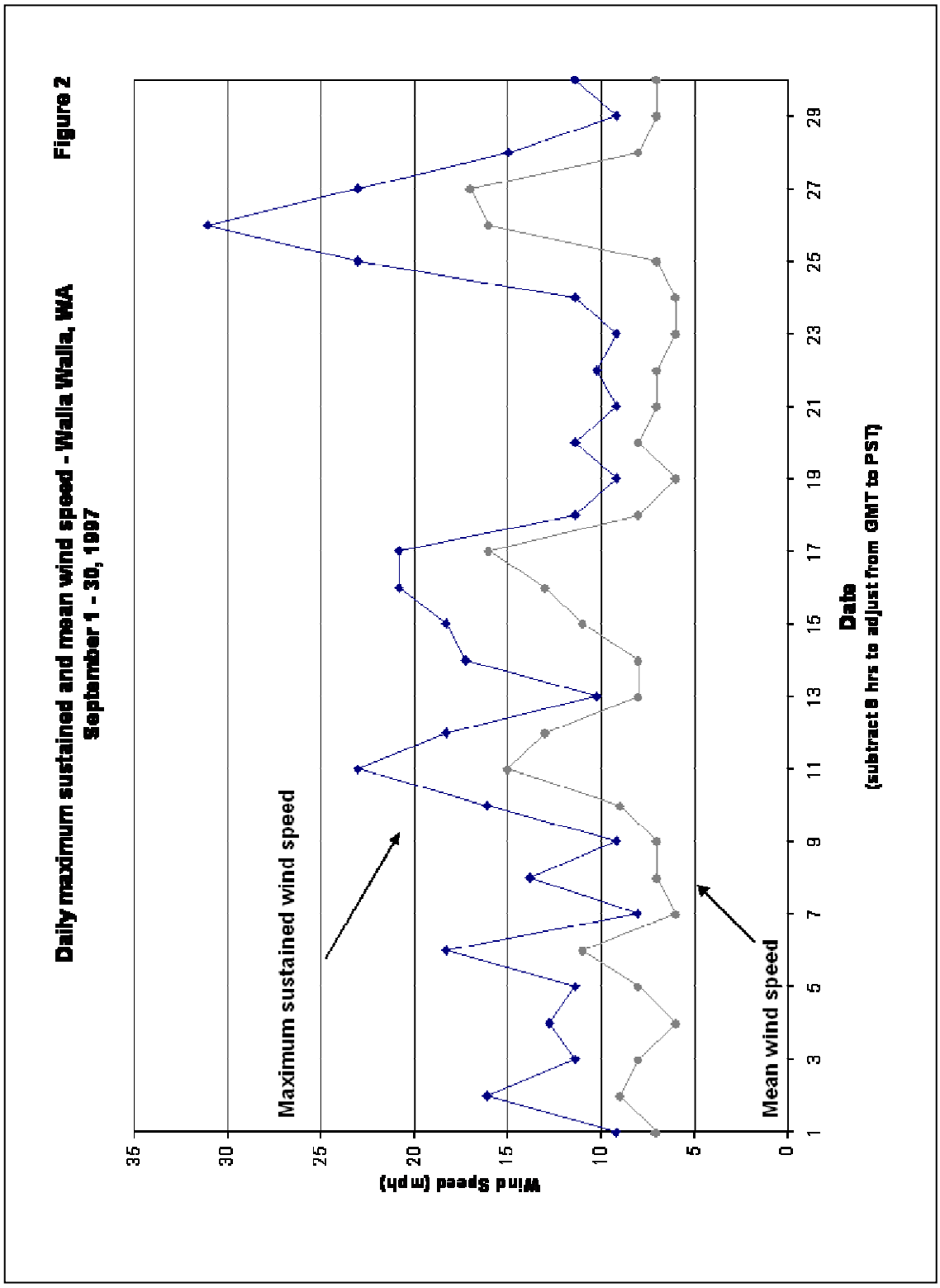


Figure 2
Daily maximum sustained and mean wind speed - Walla Walla, WA
September 1 - 30, 1997
Maximum sustained wind speed
Mean wind speed
Wind Speed (mph)
0
5
10
15
20
25
30
35
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
Date
(subtract 8 hrs to adjust from GMT to PST)

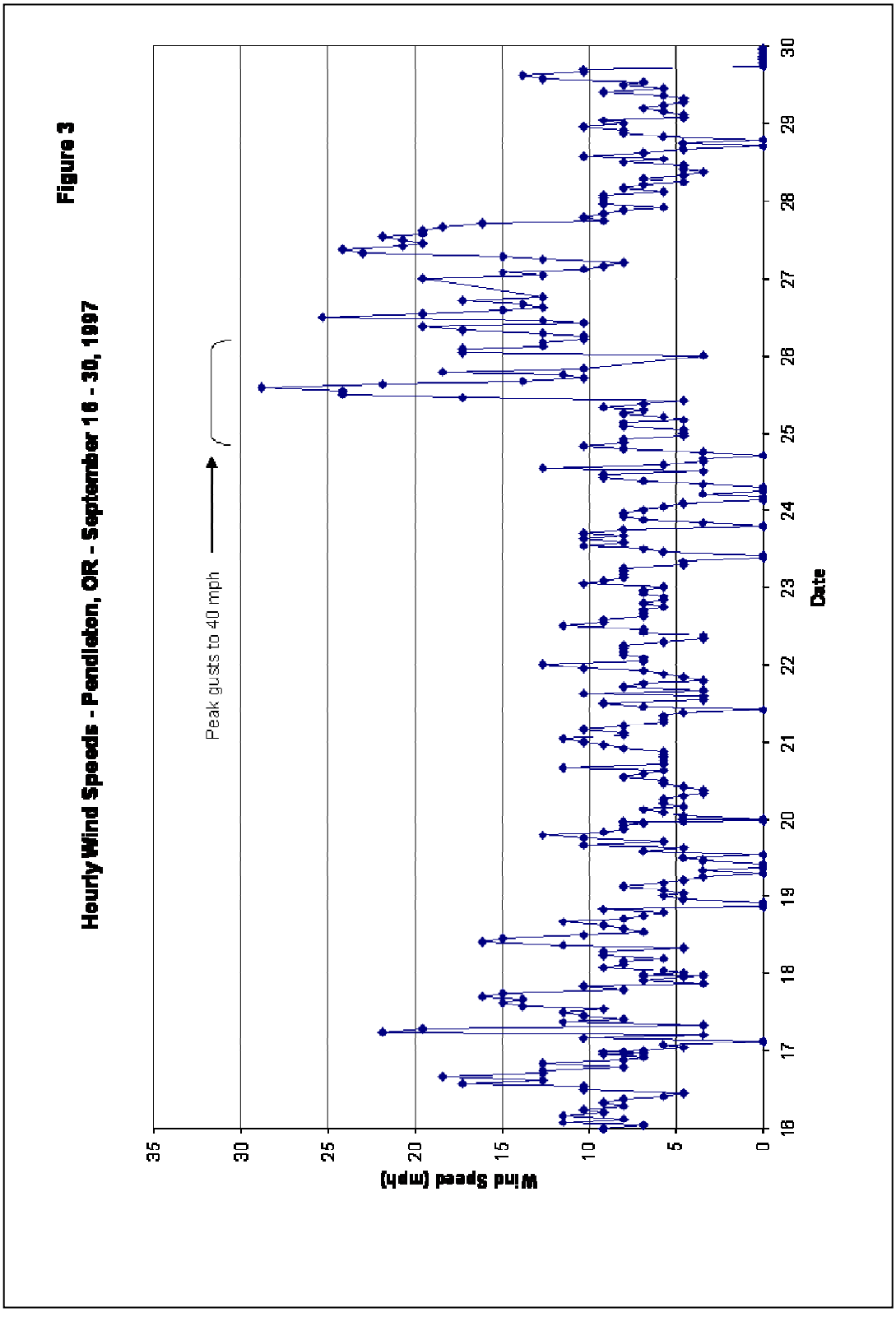


Figure 3
Hourly Wind Speeds - Pendleton, OR - September 16 - 30, 1997
Peak gusts to 40 mph
Wind Speed (mph)
0
5
10
15
20
25
30
35
Date
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

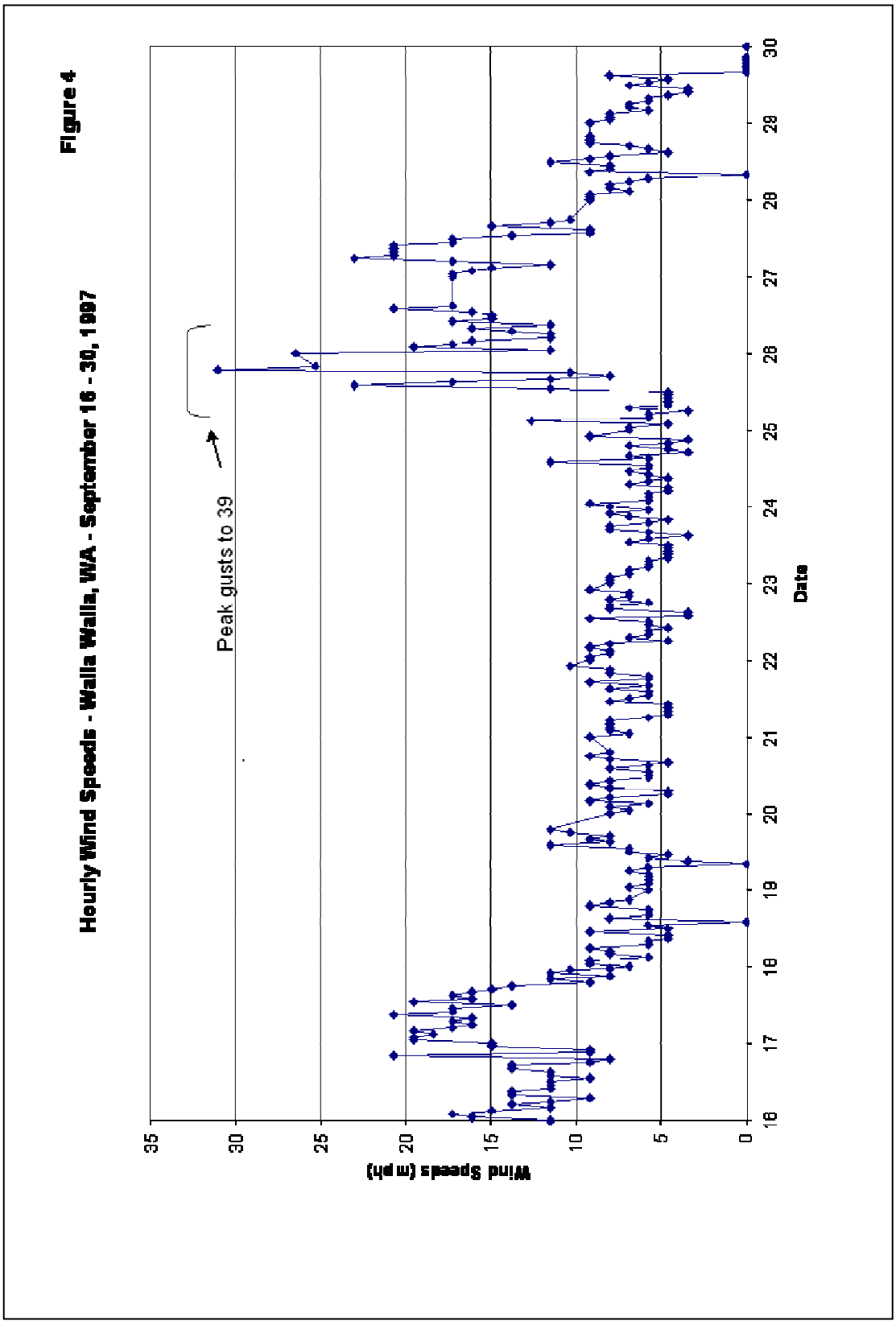


Figure 4
Hourly Wind Speeds - Walla Walla, WA - September 16 - 30, 1997
Peak gusts to 39
Wind Speeds (mph)
Date
0
5
10
15
20
25
30
35
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

Table 2 – High Winds at Pendleton, OR and Walla Walla , WA September 25, 1997

Pendleton					Walla Walla			
Time	Dir.	Wind speed (mph)	Gusts (mph)		Time	Dir.	Wind speed (mph)	Gusts (mph)
12:56 p.m.	NA	5	NA		12:50 p.m.	W	5	NA
1:56 p.m.	E	17	NA		1:50 p.m.	SW	5	NA
2:56 p.m.	SSE	24	31		2:50 p.m.	SSW	11	NA
3:56 p.m.	SSE	24	32		3:50 p.m.	S	23	NA
4:56 p.m.	SSE	29	40		4:50 p.m.	S	17	NA
5:56 p.m.	SSE	22	28		5:50 p.m.	SSE	11	NA
6:56 p.m.	SE	14	NA		6:50 p.m.	SE	8	NA
7:56 p.m.	SSE	10	19		7:50 p.m.	SSE	10	NA
8:56 p.m.	SE	11	NA		8:35 p.m.	SE	31	39
9:56 p.m.	W	18	NA		8:50 p.m.	SSE	25	39
NA	NA	NA	NA		9:50 p.m.	SSE	26	39

Wind Direction: Highly variable during most of the month, wind direction for Walla Walla is presented in Figures 5 and 6. During the first half of the month wind direction changed often but came primarily from the east and southwest. Winds were also variable during the second half of the month though the direction did not change as frequently. At 2:00 p.m. on September 25 the wind blew from the south-southwest, shifting by 4:00 p.m. to blow directly from the south. By 6:00 p.m. wind direction shifted again, blowing from the south-southeast from where it continued to blow for several hours delivering the highest wind of the month. At Pendleton, the higher winds were consistently from the south-southeast from 3:00 p.m. on September 25 until about 9:00 p.m.

Precipitation Data: Tables 3 summarizes precipitation data from several meteorological sites in the greater Walla Walla, Washington area. These sites are operated by the National Weather Service (Pendleton), Washington State University's (WSU) Public Agricultural Weather System or PAWS, (Touchet and Walla Walla) and the United States Bureau of Reclamation's AGRIMET system (Hermiston and Echo). They are generally located in an arc ranging from south, southwest to west, upwind of Walla Walla, Washington, with respect to the direction of the prevailing high winds on September 25, 1997. None of the sites are greater than about 30 miles from Walla Walla, Washington. A map showing the location of each site is found in Appendix B.

Four of the five stations report no precipitation 72 hours prior to the natural event. Two stations report no precipitation for as much as seven days prior, and the Echo station reports no precipitation 15 days prior to the natural event. Thus, conditions were dry in the area.

Table 3 - Precipitation data prior to Natural Event due to high winds, September 25, 1997

STATION:	Prec. 72 hrs prior to event	Date:	Date of most recent prec. prior to event	Amount	# Days w/no prec. prior to event
Pendleton	0	NA	9.17.97	.32	8
Hermiston (HRMO)	0	NA	9.21.97	.01	3
Echo	0	NA	9.10.97	.01	15
Touchet	0	NA	9.18.97	.04	7
Walla Walla	.07	9.23.97 9.24.97	9.22.97	.03	0

Additional Information:

EPA AIRS monitoring data shows PM_{10} concentrations were also high at Kennewick and Wallula on September 25, 1997. The 24-hour PM_{10} concentrations were 136 μ/m^3 and 127 μ/m^3, respectively. The data is presented in Appendix A.

Findings:

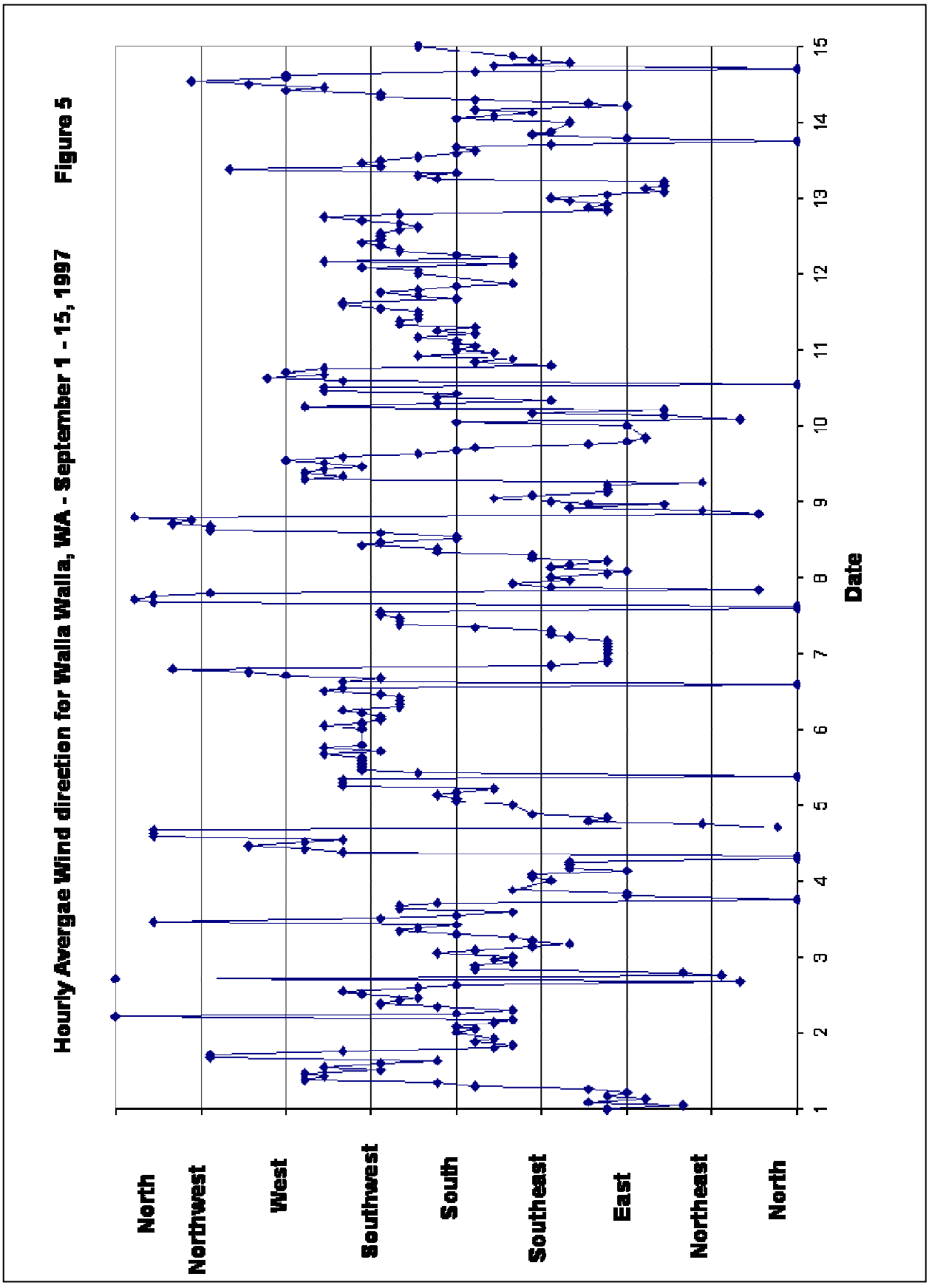
PM_{10} concentrations were high at Kennewick, Wallula and Walla Walla on September 25, 1997. The Pendleton and Walla Walla meteorological data corroborate one another and clearly identify sustained wind speeds and gusts sufficient to generate dust. Lack of precipitation throughout the area (Table 2), well beyond 72 hours prior to the high winds, indicates that soils were susceptible to entrainment by high winds.

Conclusion:

Based on this information, the Air Quality Program has determined that the exceedance recorded at Walla Walla on September 25, 1997 was due to a natural event with sub-regional impacts. Specifically that the PM_{10} level recorded was caused by high winds from the south-southeast that began on September 25 and continued through September 26 and 27. The high wind speeds and uniform wind direction are evidence that a storm system moved through the area during this period.

This windstorm occurred when much of the area was being tilled to prepare for planting after harvest and when soil moisture is low after the summer months. This combination of high winds and bare, dry soil caused the emission of particulate matter.

Based on this determination, the Air Quality Program has flagged this data point in AIRS as being due to a high wind event. We request that EPA add a second flag indicating your concurrence. A Natural Event Action Plan has been developed as required under the NEP. This NEAP includes a program to identify and implement BACM in the Columbia Plateau, including Walla Walla County.


Hourly Avergae Wind direction for Walla Walla, WA - September 1 - 15, 1997
Figure 5
North
Northwest
West
Southwest
South
Southeast
East
Northeast
North
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Date

Appendix A

PM_{10} Data
Walla Walla, Washington

(81102) PM10 TOTAL 0-10UM CAS NUMBER:

STATE (53): WASHINGTON
YEAR: 1997

0SITE-ID: 53-071-0005 POC: 1
COUNTY (071): WALLA WALLA
CITY (75775): WALLA WALLA
SITE ADDRESS: FIRE STATION/200 S 12TH
SUPPORT AGENCY (001): WASHINGTON STATE DEPARTMENT OF ECOLOGY
SITE COMMENTS: DOE SITE #3692007A01
MONITOR COMMENTS:
MONITOR TYPE (3): OTHER
UNITS (001): UG/CU METER (25 C)
AQCR (230): SOUTH CENTRAL WASHINGTON
URBAN-AREA (0000):NOT IN AN URBAN AREA
LAND USE (2): COMMERCIAL
LOCATION SETTING (2): SUBURBAN
MINIMUM DETECTABLE: 4
REPORTING ORGANIZATION (001): WASHINGTON STATE DEPARTMENT OF
COLLECTION AND ANALYSIS METHOD (063): HI-VOL-SA/GMW1200 GRAVIMETRIC

LATITUDE: 46:03:39 N
LONGITUDE:118:20:54 W
UTM ZONE: 11
UTM-NORTHING: 5101472
UTM-EASTING: 395707
ELEVATION-MSL: 30 M
PROBE HEIGHT: 5 M
INTERVAL: 7

DAY	JAN	EX	FEB	EX	MAR	EX	APR	EX	MAY	EX	JUN	EX	JUL	EX	AUG	EX	SEP	EX	OCT	EX	NOV	EX	DEC	EX
1	-		-		-		-		-		-		-		-		55		64		-		-	
2	-		-		-		-		-		-		-		27		-		-		-		-	
3	-		37		-		-		-		9		35		-		-		-		-		-	
4	41		-		-		15		10		-		-		-		-		-		-		-	
5	-		-		-		-		-		-		-		-		-		-		-		-	
6	-		-		-		-		-		-		-		-		-		-		38		18	
7	-		-		-		-		-		-		-		-		29		24		-		-	
8	-		-		-		-		-		-		-		33		-		-		-		-	
9	-		24		-		-		-		23		13		-		-		-		-		-	
10	14		-		-		22		35		-		-		-		-		-		-		-	
11	-		-		-		-		-		-		-		-		-		-		-		-	
12	-		-		-		-		-		-		-		-		-		-		24		16	
13	-		-		18		-		-		-		-		-		40		17		-		-	
14	-		-		-		-		-		-		-		87		-		-		-		-	
15	-		21		-		-		-		21		30		-		-		-		-		-	
16	40		-		-		18		31		-		-		-		-		-		-		-	
17	-		-		9		-		-		-		-		-		-		-		-		-	
18	-		-		-		-		-		-		-		-		-		-		17		29	
19	-		-		-		-		-		-		-		-		18		26		-		-	
20	-		-		-		-		-		-		-		72		-		-		-		-	
21	-		35		-		-		-		36		58		-		-		-		-		-	
22	7		-		-		14		18		-		-		-		-		-		-		-	
23	-		-		20		-		-		-		-		-		-		-		-		-	
24	-		-		-		-		-		-		-		-		-		-		23		25	
25	-		-		-		-		-		-		-		-		155	A	36		-		-	
26	-		-		-		-		-		-		-		105		-		-		-		-	
27	-		19		-		-		-		24		34		-		-		-		-		-	
28	22		-		-		9		14		-		-		-		-		-		-		-	
29	-		-		17		-		-		-		-		-		-		-		-		-	
30	-		-		-		-		-		-		-		-		-		-		16		45	
31	-		-		-		-		-		-		-		-		-		12		-		-	
0 NBR OBS:	5		5		4		5		5		5		5		5		5		6		5		5	
MAX VALUE:	41		37		20		22		35		36		58		105		155		64		38		45	
ARITH MEAN:	25		27		16		16		22		23		34		65		59		30		24		27	

0 NBR OBS: 60 MAX VALUE 155 ARITH MEAN: 31
0 <ARITHMETIC MEAN VALUE IS SIMPLE AVERAGE OF VALUES (NOT BASED ON APPENDIX K OF 40 CFR PART 50)>
1

1

DATE: 07/09/01 EPA AEROMETRIC INFORMATION RETRIEVAL SYSTEM (AIRS) PAGE 1
AMP350 AIR QUALITY SUBSYSTEM
RAW DATA REPORT - 24 HOUR

(81102) PM10 TOTAL 0-10UM CAS NUMBER:

STATE (53): WASHINGTON
YEAR: 1997

0SITE-ID: 53-005-0002 POC: 1
COUNTY (005): BENTON
CITY (35275): KENNEWICK
SITE ADDRESS: KENNEWICK VSC/5929 W METALINE
SUPPORT AGENCY (001): WASHINGTON STATE DEPARTMENT OF ECOLOGY
SITE COMMENTS:
MONITOR COMMENTS:
MONITOR TYPE (2): SLAMS
UNITS (001): UG/CU METER (25 C)
AQCR (230): SOUTH CENTRAL WASHINGTON
URBAN-AREA (6740):RICHLAND-KENNEWICK-PASCO, WA
LAND USE (1): RESIDENTIAL
LOCATION SETTING (1): URBAN AND CENTER CIT
MINIMUM DETECTABLE: 4
REPORTING ORGANIZATION (001): WASHINGTON STATE DEPARTMENT OF
COLLECTION AND ANALYSIS METHOD (063): HI-VOL-SA/GMW1200 GRAVIMETRIC

LATITUDE: 46:13:07 N
LONGITUDE:119:12:20 W
UTM ZONE: 11
UTM-NORTHING: 5120514
UTM-EASTING: 329896
ELEVATION-MSL: 155 M
PROBE HEIGHT: 9 M
INTERVAL: 7

DAY	JAN	EX	FEB	EX	MAR	EX	APR	EX	MAY	EX	JUN	EX	JUL	EX	AUG	EX	SEP	EX	OCT	EX	NOV	EX	DEC	EX
1	8		10		-		12		6		9		11		29		28		27		16		-	
2	8		8		6		18		15		10		15		-		29		39		18		13	
3	8		17		7		77		-		13		24		24		-		14		25		15	
4	20		16		6		-		5		7		23		29		20		19		26		17	
5	24		23		19		15		15		7		34		36		32		11		26		15	
6	12		20		11		35		22		12		12		32		-		15		30		14	
7	7		19		16		20		12		18		13		45		18		14		21		-	
8	14		21		12		-		19		12		14		21		25		16		11		-	
9	2		20		17		13		28		16		11		21		31		12		15		8	
10	19		28		5		25		-		-		8		17		42		9		15		-	
11	-		26		5		20		-		25		10		35		43		-		18		18	
12	23		9		8		52		-		12		13		37		15		9		19		14	
13	17		12		9		17		28		18		20		38		23		13		24		15	
14	34		15		14		6		33		18		-		42		-		-		27		22	
15	33		12		11		13		24		19		-		62		-		28		26		-	
16	30		17		-		22		27		13		-		18		-		40		-		3	
17	-		-		9		17		30		26		26		18		14		28		-		4	
18	21		7		27		23		14		16		16		25		8		16		15		9	
19	24		49		27		10		46		16		-		24		13		-		-		-	
20	16		11		-		18		36		14		24		50		17		23		14		21	
21	14		-		9		-		20		31		35		17		20		38		-		16	
22	6		20		14		15		23		6		16		31		29		-		22		26	
23	7		20		20		5		11		9		21		21		47		12		-		16	
24	12		26		18		7		10		15		20		14		38		17		-		16	
25	8		34		-		-		8		25		-		17		136		23		-		16	
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27	-		10		8		13		15		15		23		13		29		-		11		8	
28	22		19		14		8		18		32		44		15		17		20		-		20	
29	28		-		19		6		-		8		25		16		29		8		-		6	
30	14		-		165	AA	34		16		12		23		22		40		10		9		16	
31	14		-		12		-		14		-		21		24		-		10		-		17	
0 NBR OBS:	28		26		27		26		26		29		26		30		25		25		20		25	
MAX VALUE:	34		49		165		77		46		32		44		62		136		40		30		26	
ARITH MEAN:	16		19		19		20		19		15		20		28		31		19		19		14	

0 NBR OBS: 313 MAX VALUE 165 ARITH MEAN: 20
0 <ARITHMETIC MEAN VALUE IS SIMPLE AVERAGE OF VALUES (NOT BASED ON APPENDIX K OF 40 CFR PART 50)>
1

(81102) PM10 TOTAL 0-10UM CAS NUMBER:

STATE (53): WASHINGTON
YEAR: 1997

0SITE-ID: 53-071-1001 POC: 2
COUNTY (071): WALLA WALLA
CITY (00000): NOT IN A CITY
SITE ADDRESS: NEDROW FARM/WALLULA JUNCTION
SUPPORT AGENCY (001): WASHINGTON STATE DEPARTMENT OF ECOLOGY
SITE COMMENTS: PM10 AND SLAMS TSP SITE ESTAB. 2/28/86
MONITOR COMMENTS: MODEL: HI-VOL SA1200
MONITOR TYPE (2): SLAMS
UNITS (001): UG/CU METER (25 C)
COLLECTION AND ANALYSIS METHOD (063): HI-VOL-SA/GMW1200 GRAVIMETRIC

AQCR (230): SOUTH CENTRAL WASHINGTON
URBAN-AREA (0000):NOT IN AN URBAN AREA
LAND USE (4): AGRICULTURAL
LOCATION SETTING (3): RURAL
MINIMUM DETECTABLE: 4
REPORTING ORGANIZATION (001): WASHINGTON STATE DEPARTMENT OF

LATITUDE: 46:07:20 N
LONGITUDE:118:54:20 W
UTM ZONE: 11
UTM-NORTHING: 5109165
UTM-EASTING: 352760
ELEVATION-MSL: 124 M
PROBE HEIGHT: 4 M
INTERVAL: 7

- DAY	JAN	EX	FEB	EX	MAR	EX	APR	EX	MAY	EX	JUN	EX	JUL	EX	AUG	EX	SEP	EX	OCT	EX	NOV	EX	DEC	EX
1	-		-		-		-		-		-		-		-		93		48		-		-	
2	-		-		-		-		-		-		-		99		-		-		-		-	
3	-		11		-		-		-		20		210		-		-		-		-		-	
4	16		-		-		20		15		-		-		-		-		-		-		-	
5	-		-		16		-		-		-		-		-		-		-		-		-	
6	-		-		-		-		-		-		-		-		-		-		27		-	
7	-		-		-		-		-		-		-		-		52		23		-		-	
8	-		-		-		-		-		-		-		62		-		-		-		-	
9	-		16		-		-		-		33		30		-		-		-		-		-	
10	17		-		-		25		36		-		-		-		-		-		-		-	
11	-		-		13		-		-		-		-		-		-		-		-		-	
12	-		-		-		-		-		-		-		92		-		-		21		11	
13	-		-		-		-		-		-		-		-		48		25		-		-	
14	-		-		-		-		-		-		-		-		-		-		-		-	
15	-		17		-		-		-		40		31		-		-		-		-		-	
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17	-		-		9		-		-		-		-		-		-		-		-		-	
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21	-		15		-		-		-		160	A	75		-		-		-		-		-	
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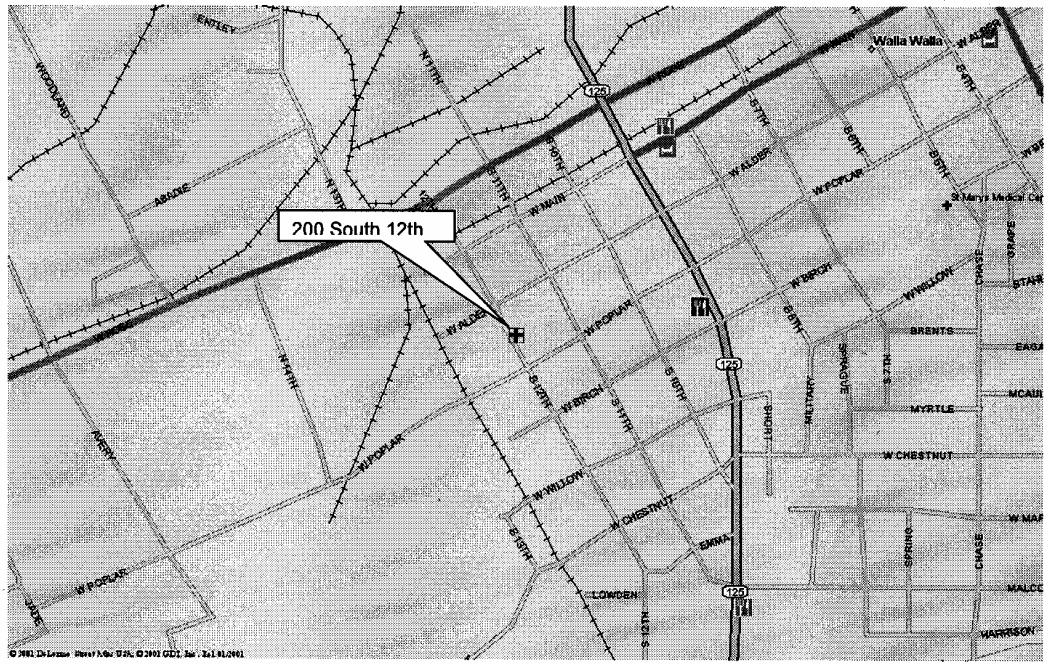
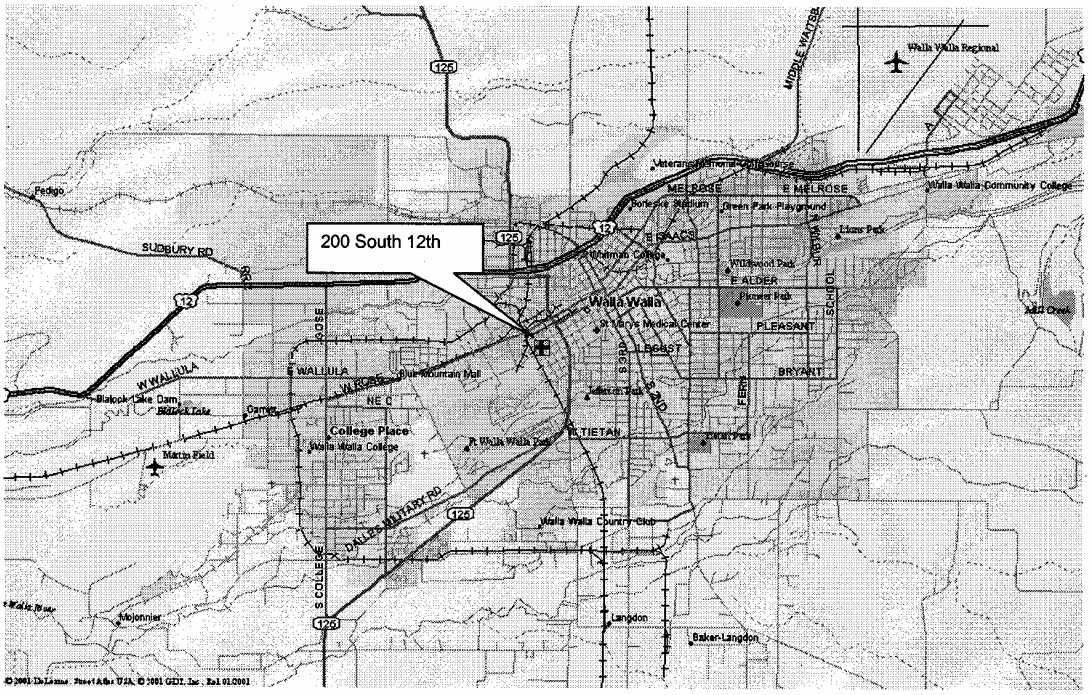
23	-		-		29		-		-		-		-		-		-		-		-		-	
24	-		-		-		-		-		-		-		-		-		-		13		15	
25	-		-		-		-		-		-		-		-		127		23		-		-	
26	-		-		-		-		-		-		-		57		-		-		-		-	
27	-		13		-		-		-		38		48		-		-		-		-		-	
28	18		-		-		25		26		-		-		-		-		-		-		-	
29	-		-		17		-		-		-		-		-		-		-		-		-	
30	-		-		-		-		-		-		-		-		-		-		15		22	
31	-		-		-		-		-		-		-		-		-		18		-		-	
0 NBR OBS:	5		5		5		5		5		5		5		5		5		6		5		4	
MAX VALUE:	26		17		29		33		44		160		210		99		127		48		27		22	
ARITH MEAN:	19		14		17		26		31		58		79		75		69		29		19		15	

0 NBR OBS: 60 MAX VALUE 210 ARITH MEAN: 38
0 <ARITHMETIC MEAN VALUE IS SIMPLE AVERAGE OF VALUES (NOT BASED ON APPENDIX K OF 40 CFR PART 50)>
1

PM_{10} Air Monitoring Site Walla Walla Fire Station

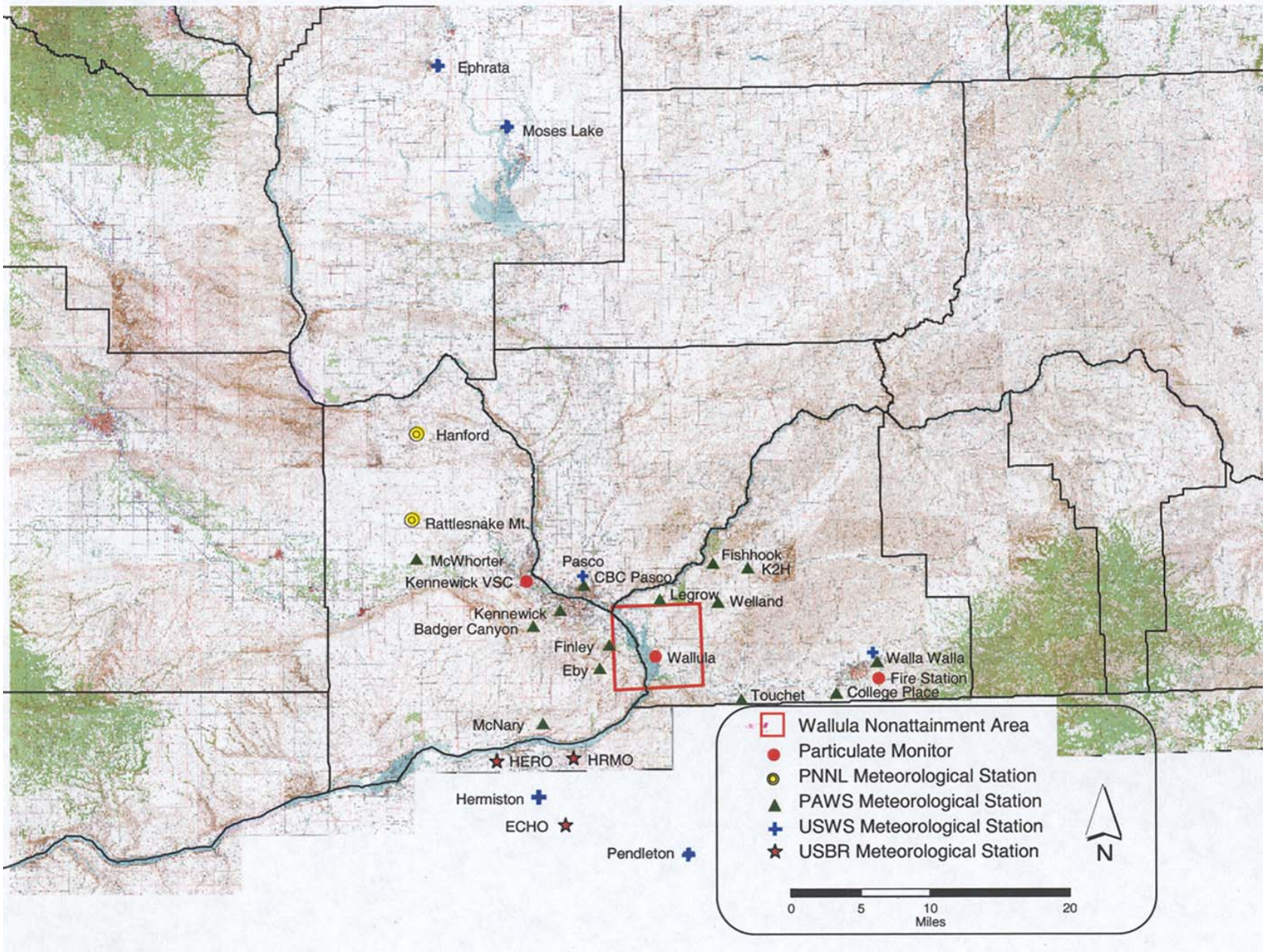


PM_{10} Air Monitoring Site Walla Walla Fire Station



Appendix B

Meteorological Data
Walla Walla, Washington


Ephrata
Moses Lake
Hanford
Rattlesnake Mt.
McWhorter
Kennewick VSC
Pasco
CBC Pasco
Fishhook
K2H
Legrow
Welland
Kennewick
Badger Canyon
Finley
Eby
Wallula
Walla Walla
Fire Station
College Place
Touchet
McNary
HERO
HRMO
Hermiston
ECHO
Pendleton
Wallula Nonattainment Area
Particulate Monitor
PNNL Meteorological Station
PAWS Meteorological Station
USWS Meteorological Station
USBR Meteorological Station
N
0
5
10
20
Miles

Data file for alw#
This data is from: Walla Walla (stn. code alw)
#
#
Walla Walla Site and Instrument specifications
Walla Walla, WA
NWS: This site is a National Weather Service site.

Archived data available via this UW link since: 01 Jul 1996

STATION NAME	ID	LAT	LON	ELEV M	ELEV FT	WMO
WALLA WALLA RGN WA US	KALW	46.10	-118.28	367 m	1204 ft	72788

#
Station precip: maximum and daily avg (inches) over entire period of record
#
Station extrema: daily hi/lo temperatures over entire period of record
#
Station average: daily hi/lo temperatures over entire period of record
#
Station 6-hour hi/lo temperatures
#
Rain Gauge (inches)
Relative humidity (%)
Solar irradiance (W/m^2)
Visibility (miles)
Cloud height (100's of feet)
Cloud cover (1/8ths of sky)
Wind peak (nautical miles per hour)
Wind speed (nautical miles per hour)
Wind direction (clockwise degrees from North)
Dewpoint temperature (F)
Air temperature (F)
Pressure (millibars)

# Date(GMT)	Julian date	Pres	Tair	Tdew	Dir	Spd	Peak	Cc	Cht	Vis	Radn	RelH	Rain	hi	lo	hi	lo	hi	lo	max	avg
1997-09-21 00:50	2450713.0347220	NA	70	48	220	7	NA	0	UNL	40	NA	45.5	NA								
1997-09-21 01:50	2450713.0763890	NA	64	48	190	5	NA	0	UNL	40	NA	56.0	NA								
1997-09-21 02:50	2450713.1180560	NA	61	50	120	4	NA	0	UNL	40	NA	67.1	NA								
1997-09-21 03:50	2450713.1597220	NA	59	50	120	7	NA	0	UNL	15	NA	72.0	NA								
1997-09-21 05:50	2450713.2430560	NA	57	48	120	8	NA	0	UNL	15	NA	71.8	NA								
1997-09-21 06:50	2450713.2847220	NA	55	48	80	7	NA	0	UNL	15	NA	77.2	NA								
1997-09-21 07:50	2450713.3263890	NA	55	48	90	8	NA	0	UNL	15	NA	77.2	NA								
1997-09-21 08:50	2450713.3680560	NA	52	46	100	6	NA	0	UNL	15	NA	79.9	NA								
1997-09-21 09:50	2450713.4097220	NA	54	46	110	7	NA	0	UNL	15	NA	74.2	NA								
1997-09-21 10:50	2450713.4513890	NA	52	46	100	7	NA	0	UNL	15	NA	79.9	NA								
1997-09-21 11:50	2450713.4930560	NA	50	46	100	7	NA	0	UNL	15	NA	86.1	NA								
1997-09-21 12:50	2450713.5347220	NA	50	46	110	7	NA	0	UNL	15	NA	86.1	NA								
1997-09-21 13:50	2450713.5763890	NA	48	45	120	5	NA	0	UNL	35	NA	89.3	NA								
1997-09-21 14:50	2450713.6180560	NA	55	48	100	4	NA	0	UNL	40	NA	77.2	NA								
1997-09-21 15:50	2450713.6597220	NA	61	46	180	4	NA	0	UNL	40	NA	57.7	NA								
1997-09-21 16:50	2450713.7013890	NA	66	46	190	4	NA	0	UNL	35	NA	48.4	NA								
1997-09-21 17:50	2450713.7430560	NA	68	46	200	4	NA	0	UNL	35	NA	45.2	NA								
1997-09-21 18:50	2450713.7847220	NA	70	46	240	7	NA	0	UNL	35	NA	42.2	NA								
1997-09-21 19:50	2450713.8263890	NA	73	45	220	6	NA	0	UNL	35	NA	36.7	NA								

Data file for alw.txt

1997-09-21	20:50	2450713.8680560	NA	73	52	210	5	NA	0	UNL	35	NA	47.7	NA
1997-09-21	21:50	2450713.9097220	NA	77	46	NA	5	NA	0	UNL	35	NA	33.3	NA
1997-09-21	22:50	2450713.9513890	NA	79	46	240	7	NA	0	UNL	35	NA	31.2	NA
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1997-09-22	00:50	2450714.0347220	NA	75	50	220	8	NA	0	UNL	35	NA	41.4	NA
1997-09-22	01:50	2450714.0763890	NA	68	50	180	5	NA	1	UNL	40	NA	52.5	NA
1997-09-22	02:50	2450714.1180560	NA	64	50	100	5	NA	1	UNL	40	NA	60.3	NA
1997-09-22	03:50	2450714.1597220	NA	61	50	110	7	NA	0	UNL	15	NA	67.1	NA
1997-09-22	04:50	2450714.2013890	NA	59	50	110	7	NA	0	UNL	15	NA	72.0	NA
1997-09-22	05:50	2450714.2430560	NA	59	48	110	9	NA	0	UNL	15	NA	66.8	NA
1997-09-22	06:50	2450714.2847220	NA	59	48	110	8	NA	0	UNL	15	NA	66.8	NA
1997-09-22	07:50	2450714.3263890	NA	55	48	90	8	NA	0	UNL	15	NA	77.2	NA
1997-09-22	08:50	2450714.3680560	NA	55	48	110	7	NA	0	UNL	15	NA	77.2	NA
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1997-09-22	10:50	2450714.4513890	NA	57	46	100	8	NA	0	UNL	15	NA	66.6	NA
1997-09-22	11:50	2450714.4930560	NA	55	45	120	7	NA	0	UNL	15	NA	68.9	NA
1997-09-22	12:50	2450714.5347220	NA	54	45	210	4	NA	0	UNL	15	NA	71.5	NA
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1997-09-22	14:50	2450714.6180560	NA	59	48	100	5	NA	1	UNL	35	NA	66.8	NA
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1997-09-22	16:50	2450714.7013890	NA	73	48	NA	4	NA	1	UNL	30	NA	41.1	NA
1997-09-22	17:50	2450714.7430560	NA	73	48	220	5	NA	1	UNL	30	NA	41.1	NA
1997-09-22	18:50	2450714.7847220	NA	75	48	180	5	NA	0	UNL	30	NA	38.4	NA
1997-09-22	19:50	2450714.8263890	NA	79	48	230	8	NA	0	UNL	30	NA	33.7	NA
1997-09-22	21:50	2450714.9097220	NA	84	48	180	3	NA	1	UNL	30	NA	28.6	NA
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1997-09-22	23:50	2450714.9930560	NA	86	48	320	7	NA	0	UNL	30	NA	26.8	NA
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1997-09-23	01:50	2450715.0763890	NA	73	55	160	5	NA	0	UNL	40	NA	53.2	NA
1997-09-23	02:50	2450715.1180560	NA	70	54	130	7	NA	0	UNL	30	NA	56.8	NA
1997-09-23	03:50	2450715.1597220	NA	66	54	120	6	NA	0	UNL	15	NA	65.2	NA
1997-09-23	04:50	2450715.2013890	NA	63	52	100	6	NA	0	UNL	15	NA	67.3	NA
1997-09-23	05:50	2450715.2430560	NA	63	50	90	8	NA	0	UNL	15	NA	62.5	NA
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1997-09-23	07:50	2450715.3263890	NA	57	48	110	7	NA	0	UNL	15	NA	71.8	NA
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1997-09-23	10:50	2450715.4513890	NA	54	46	110	6	NA	0	UNL	15	NA	74.2	NA
1997-09-23	11:50	2450715.4930560	NA	54	46	90	5	NA	0	UNL	15	NA	74.2	NA
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1997-09-23	20:50	2450715.8680560	NA	82	50	230	5	NA	0	UNL	20	NA	32.9	NA
1997-09-23	21:50	2450715.9097220	NA	84	48	230	3	NA	0	UNL	20	NA	28.6	NA
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1997-09-24	02:50	2450716.1180560	NA	70	54	110	4	NA	0	UNL	10	NA	56.8	NA
1997-09-24	03:50	2450716.1597220	NA	68	50	100	6	NA	0	UNL	15	NA	52.5	NA
1997-09-24	04:50	2450716.2013890	NA	66	52	110	7	NA	0	UNL	15	NA	60.6	NA
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1997-09-24	07:50	2450716.3263890	NA	61	50	80	8	NA	0	UNL	15	NA	67.1	NA
1997-09-24	08:50	2450716.3680560	NA	59	50	120	5	NA	0	UNL	15	NA	72.0	NA
1997-09-24	09:50	2450716.4097220	NA	61	50	110	5	NA	0	UNL	15	NA	67.1	NA
1997-09-24	10:50	2450716.4513890	NA	61	50	120	5	NA	0	UNL	15	NA	67.1	NA
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1997-09-24	12:50	2450716.5347220	NA	59	50	160	4	NA	0	UNL	15	NA	72.0	NA
1997-09-24	13:50	2450716.5763890	NA	57	50	100	6	NA	1	UNL	20	NA	77.4	NA
1997-09-24	14:50	2450716.6180560	NA	63	52	180	5	NA	1	UNL	20	NA	67.3	NA
1997-09-24	15:50	2450716.6597220	NA	68	52	200	4	NA	1	UNL	20	NA	56.5	NA
1997-09-24	16:50	2450716.7013890	NA	NA	NA	250	5	NA	1	UNL	15	NA	100.0	NA
1997-09-24	17:50	2450716.7430560	NA	79	52	270	6	NA	0	UNL	10	NA	39.1	NA
1997-09-24	18:50	2450716.7847220	NA	82	54	250	5	NA	1	UNL	10	NA	38.1	NA
1997-09-24	19:50	2450716.8263890	NA	88	52	310	5	NA	1	UNL	10	NA	29.2	NA
1997-09-24	20:50	2450716.8680560	NA	90	54	240	10	NA	1	UNL	10	NA	29.5	NA
1997-09-24	21:50	2450716.9097220	NA	91	50	240	5	NA	1	UNL	15	NA	24.7	NA
1997-09-24	23:50	2450716.9930560	NA	93	43	120	6	NA	1	UNL	20	NA	17.8	NA
1997-09-25	00:50	2450717.0347220	NA	90	45	NA	3	NA	1	UNL	20	NA	21.1	NA
1997-09-25	01:50	2450717.0763890	NA	81	55	140	4	NA	1	UNL	20	NA	40.8	NA
1997-09-25	02:50	2450717.1180560	NA	75	46	90	6	NA	1	UNL	15	NA	35.6	NA
1997-09-25	03:50	2450717.1597220	NA	73	46	140	4	NA	0	UNL	15	NA	38.1	NA
1997-09-25	04:50	2450717.2013890	NA	66	57	340	3	NA	1	UNL	10	NA	72.7	NA
1997-09-25	05:45	2450717.2395830	NA	79	43	110	8	NA	0	UNL	15	NA	27.8	NA
1997-09-25	06:50	2450717.2847220	NA	73	43	20	6	NA	0	UNL	15	NA	34.0	NA
1997-09-25	07:50	2450717.3263890	NA	68	45	360	6	NA	0	UNL	15	NA	43.5	NA
1997-09-25	08:50	2450717.3680560	NA	68	45	90	4	NA	0	UNL	15	NA	43.5	NA
1997-09-25	12:50	2450717.5347220	NA	64	45	70	11	NA	1	UNL	15	NA	50.0	NA
1997-09-25	13:50	2450717.5763890	NA	61	46	110	5	NA	1	UNL	25	NA	57.7	NA
1997-09-25	14:50	2450717.6180560	NA	68	48	130	5	NA	1	UNL	30	NA	48.7	NA
1997-09-25	15:50	2450717.6597220	NA	70	50	230	3	NA	1	UNL	30	NA	49.0	NA
1997-09-25	16:50	2450717.7013890	NA	72	50	220	6	NA	3	UNL	20	NA	45.8	NA
1997-09-25	17:50	2450717.7430560	NA	77	52	180	4	NA	6	200	20	NA	41.7	NA
1997-09-25	18:50	2450717.7847220	NA	86	52	NA	4	NA	6	200	15	NA	31.1	NA
1997-09-25	19:50	2450717.8263890	NA	84	54	220	4	NA	6	200	15	NA	35.7	NA
1997-09-25	20:50	2450717.8680560	NA	84	55	260	4	NA	6	180	15	NA	37.1	NA
1997-09-25	21:50	2450717.9097220	NA	86	52	250	4	NA	6	160	20	NA	31.1	NA
1997-09-25	22:50	2450717.9513890	NA	91	46	220	10	NA	6	160	10	NA	21.3	NA
1997-09-25	23:50	2450717.9930560	NA	90	43	180	20	NA	6	160	10	NA	19.6	NA
1997-09-26	00:50	2450718.0347220	NA	90	43	180	15	NA	6	160	30	NA	19.6	NA
1997-09-26	01:50	2450718.0763890	NA	86	41	170	10	NA	6	160	30	NA	20.5	NA
1997-09-26	02:50	2450718.1180560	NA	82	45	110	7	NA	6	160	20	NA	27.2	NA
1997-09-26	03:50	2450718.1597220	NA	82	45	140	9	NA	3	UNL	15	NA	27.2	NA
1997-09-26	04:35	2450718.1909720	NA	84	43	130	27	34	3	UNL	8	NA	23.7	NA
1997-09-26	04:50	2450718.2013890	NA	84	45	150	22	34	3	UNL	5	NA	25.5	NA
1997-09-26	05:50	2450718.2430560	NA	82	46	150	23	34	3	UNL	5	NA	28.3	NA
1997-09-26	14:50	2450718.6180560	NA	63	55	180	10	NA	6	65	40	NA	75.1	NA
1997-09-26	16:50	2450718.7013890	NA	64	52	220	17	NA	8	50	35	NA	65.0	NA
1997-09-26	17:50	2450718.7430560	NA	64	45	230	15	NA	NA	UNL	NA	NA	50.0	NA
1997-09-26	18:50	2450718.7847220	NA	64	45	250	14	NA	8	55	35	NA	50.0	NA
1997-09-26	19:50	2450718.8263890	NA	59	46	240	10	22	8	55	40	NA	62.0	NA
1997-09-26	20:50	2450718.8680560	NA	59	46	160	10	NA	8	70	40	NA	62.0	NA
1997-09-26	21:50	2450718.9097220	NA	61	46	100	12	NA	8	70	40	NA	57.7	NA
1997-09-26	22:50	2450718.9513890	NA	66	45	200	14	NA	6	130	40	NA	46.6	NA
1997-09-26	23:50	2450718.9930560	NA	68	43	200	10	NA	6	110	40	NA	40.3	NA
1997-09-27	01:50	2450719.0763890	NA	64	41	270	15	25	8	80	6	NA	42.9	NA
1997-09-27	03:50	2450719.1597220	NA	61	43	200	13	NA	8	100	15	NA	51.5	NA
1997-09-27	04:50	2450719.2013890	NA	57	41	220	13	NA	8	70	15	NA	55.0	NA

Data file for alw.txt

1997-09-27	06:50	2450719.2847220	NA	57	41	200	14	NA	8	55	15	NA	55.0	NA
1997-09-27	07:50	2450719.3263890	NA	57	39	200	18	NA	8	55	15	NA	50.9	NA
1997-09-27	08:50	2450719.3680560	NA	57	36	200	15	NA	8	55	15	NA	45.2	NA
1997-09-27	09:50	2450719.4097220	NA	57	39	220	15	NA	6	55	15	NA	50.9	NA
1997-09-27	10:50	2450719.4513890	NA	55	39	200	15	NA	6	100	15	NA	54.7	NA
1997-09-27	11:50	2450719.4930560	NA	55	41	200	14	NA	8	100	15	NA	59.1	NA
1997-09-27	12:50	2450719.5347220	NA	55	41	220	13	NA	6	200	15	NA	59.1	NA
1997-09-27	14:50	2450719.6180560	NA	55	39	220	10	NA	3	UNL	30	NA	54.7	NA
1997-09-27	15:50	2450719.6597220	NA	61	41	200	15	NA	3	UNL	25	NA	47.6	NA
1997-09-27	16:50	2450719.7013890	NA	61	41	230	20	NA	3	UNL	10	NA	47.6	NA
1997-09-27	17:50	2450719.7430560	NA	63	39	230	18	NA	3	UNL	10	NA	41.1	NA
1997-09-27	18:50	2450719.7847220	NA	68	39	240	18	NA	6	55	10	NA	34.5	NA
1997-09-27	19:50	2450719.8263890	NA	68	37	240	18	NA	3	UNL	15	NA	31.9	NA
1997-09-27	20:50	2450719.8680560	NA	70	37	250	18	NA	3	UNL	20	NA	29.8	NA
1997-09-27	22:50	2450719.9513890	NA	70	39	230	15	NA	3	UNL	40	NA	32.2	NA
1997-09-27	23:50	2450719.9930560	NA	66	39	230	15	NA	1	UNL	40	NA	37.0	NA
1997-09-28	00:50	2450720.0347220	NA	66	39	220	12	NA	1	UNL	40	NA	37.0	NA
1997-09-28	01:50	2450720.0763890	NA	59	41	180	8	NA	1	UNL	40	NA	51.2	NA
1997-09-28	02:50	2450720.1180560	NA	57	39	160	8	NA	1	UNL	40	NA	50.9	NA
1997-09-28	03:50	2450720.1597220	NA	57	39	150	13	NA	1	UNL	15	NA	50.9	NA
1997-09-28	04:50	2450720.2013890	NA	57	39	170	10	NA	1	UNL	15	NA	50.9	NA
1997-09-28	05:50	2450720.2430560	NA	55	41	180	9	NA	1	UNL	15	NA	59.1	NA
1997-09-28	06:50	2450720.2847220	NA	55	41	170	8	NA	1	UNL	15	NA	59.1	NA
1997-09-28	07:50	2450720.3263890	NA	52	41	190	8	NA	0	UNL	15	NA	66.0	NA
1997-09-28	08:50	2450720.3680560	NA	55	43	170	8	NA	0	UNL	15	NA	63.8	NA
1997-09-28	09:50	2450720.4097220	NA	55	43	170	6	NA	0	UNL	15	NA	63.8	NA
1997-09-28	10:50	2450720.4513890	NA	52	43	130	7	NA	0	UNL	15	NA	71.3	NA
1997-09-28	11:50	2450720.4930560	NA	50	41	120	7	NA	0	UNL	15	NA	71.0	NA
1997-09-28	13:50	2450720.5763890	NA	50	43	110	6	NA	1	UNL	35	NA	76.7	NA
1997-09-28	14:50	2450720.6180560	NA	55	43	NA	5	NA	1	UNL	40	NA	63.8	NA
1997-09-28	16:50	2450720.7013890	NA	68	43	00	0	NA	1	UNL	40	NA	40.3	NA
1997-09-28	17:50	2450720.7430560	NA	72	41	240	8	NA	1	UNL	40	NA	32.5	NA
1997-09-28	18:50	2450720.7847220	NA	73	43	250	7	NA	1	UNL	40	NA	34.0	NA
1997-09-28	19:50	2450720.8263890	NA	77	43	270	7	NA	1	UNL	40	NA	29.7	NA
1997-09-28	20:50	2450720.8680560	NA	79	45	200	10	NA	1	UNL	40	NA	30.1	NA
1997-09-28	21:50	2450720.9097220	NA	79	45	230	8	NA	1	UNL	40	NA	30.1	NA
1997-09-28	23:50	2450720.9930560	NA	79	45	240	7	NA	1	UNL	40	NA	30.1	NA
1997-09-29	00:50	2450721.0347220	NA	77	45	240	4	NA	3	UNL	40	NA	32.1	NA
1997-09-29	01:50	2450721.0763890	NA	70	45	330	5	NA	1	UNL	40	NA	40.6	NA
1997-09-29	02:50	2450721.1180560	NA	64	46	80	6	NA	0	UNL	25	NA	51.9	NA
1997-09-29	03:50	2450721.1597220	NA	64	46	90	8	NA	0	UNL	15	NA	51.9	NA
1997-09-29	04:50	2450721.2013890	NA	63	46	110	8	NA	0	UNL	15	NA	53.8	NA
1997-09-29	05:50	2450721.2430560	NA	63	46	120	8	NA	0	UNL	15	NA	53.8	NA
1997-09-29	06:50	2450721.2847220	NA	63	46	120	8	NA	0	UNL	15	NA	53.8	NA
1997-09-29	07:50	2450721.3263890	NA	61	46	110	7	NA	0	UNL	15	NA	57.7	NA
1997-09-29	08:50	2450721.3680560	NA	59	46	100	7	NA	0	UNL	15	NA	62.0	NA
1997-09-29	09:50	2450721.4097220	NA	59	46	130	7	NA	0	UNL	15	NA	62.0	NA
1997-09-29	11:50	2450721.4930560	NA	54	45	130	5	NA	0	UNL	15	NA	71.5	NA
1997-09-29	12:50	2450721.5347220	NA	52	45	100	6	NA	0	UNL	15	NA	76.9	NA
1997-09-29	13:50	2450721.5763890	NA	52	45	130	6	NA	0	UNL	35	NA	76.9	NA
1997-09-29	14:50	2450721.6180560	NA	59	46	120	5	NA	0	UNL	35	NA	62.0	NA
1997-09-29	15:50	2450721.6597220	NA	63	48	160	5	NA	0	UNL	35	NA	58.0	NA
1997-09-29	16:50	2450721.7013890	NA	68	48	180	4	NA	0	UNL	35	NA	48.7	NA
1997-09-29	18:50	2450721.7847220	NA	77	48	220	3	NA	0	UNL	35	NA	36.0	NA
1997-09-29	19:50	2450721.8263890	NA	81	48	NA	3	NA	0	UNL	35	NA	31.5	NA
1997-09-29	20:50	2450721.8680560	NA	82	46	300	6	NA	0	UNL	30	NA	28.3	NA
1997-09-29	21:50	2450721.9097220	NA	86	45	300	5	NA	0	UNL	30	NA	24.0	NA

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                                                    Data file for alw.txt
1997-09-29 22:50 2450721.9513890     NA   88   45 290    4   NA   1 UNL  30    NA   22.5  NA
1997-09-29 23:50 2450721.9930560     NA   86   50 250    7   NA   1 UNL  30    NA   28.9  NA
```

Data file for pdt#
This data is from: Pendleton (stn. code pdt)
#
#
Site and Instrument specifications
Pendleton Muni Airport, OR
NWS: This site is a National Weather Service site.

Archived data available via this UW link since: 01 Jul 1996

STATION NAME	ID	LAT	LON	ELEV M	ELEV FT	WMO
PENDLETON MUNIC OR US	KPDT	45.68	-118.85	456 m	1496 ft	72688

#
Station precip: maximum and daily avg (inches) over entire period of record
#
Station extrema: daily hi/lo temperatures over entire period of record
#
Station average: daily hi/lo temperatures over entire period of record
#
Station 6-hour hi/lo temperatures
#
Rain Gauge (inches)
Relative humidity (%)
Solar irradiance (W/m^2)
Visibility (miles)
Cloud height (100's of feet)
Cloud cover (1/8ths of sky)
Wind peak (nautical miles per hour)
Wind speed (nautical miles per hour)
Wind direction (clockwise degrees from North)
Dewpoint temperature (F)
Air temperature (F)
Pressure (millibars)

# Date(GMT)	Julian date	Pres	Tair	Tdew	Dir	Spd	Peak	Cc	Cht	Vis	Radn	RelH	Rain	hi	lo	hi	lo	hi	lo	max	avg
1997-09-21 00:56	2450713.0388889	1017.8	70.0	43.0	360	5.0	NA	0	120	10	NA	37.6	NA								
1997-09-21 01:56	2450713.0805556	1018.1	64.0	46.0	40	5.0	NA	0	120	10	NA	51.9	NA								
1997-09-21 02:56	2450713.1222222	1018.3	59.0	46.0	30	5.0	NA	0	120	10	NA	62.0	NA								
1997-09-21 03:56	2450713.1638889	1018.6	59.0	47.0	60	5.0	NA	0	120	10	NA	64.3	NA								
1997-09-21 04:56	2450713.2055556	1018.2	57.0	48.0	140	5.0	NA	0	120	10	NA	71.8	NA								
1997-09-21 05:56	2450713.2472222	1018.2	54.0	48.0	100	7.0	NA	0	120	10	NA	80.1	NA								
1997-09-21 06:56	2450713.2888889	1017.9	52.0	45.0	120	8.0	NA	0	120	10	NA	76.9	NA								
1997-09-21 07:56	2450713.3305556	1017.8	50.0	46.0	110	9.0	NA	0	120	10	NA	86.1	NA								
1997-09-21 08:56	2450713.3722222	1017.8	51.0	46.0	120	10.0	NA	0	120	10	NA	82.9	NA								
1997-09-21 09:56	2450713.4138889	1017.7	50.0	47.0	110	7.0	NA	0	120	10	NA	89.4	NA								
1997-09-21 10:56	2450713.4555556	1017.5	49.0	45.0	110	7.0	NA	0	120	10	NA	86.0	NA								
1997-09-21 11:56	2450713.4972222	1017.3	49.0	44.0	130	9.0	NA	0	120	10	NA	82.8	0.00								
1997-09-21 12:56	2450713.5388889	1017.3	48.0	44.0	120	7.0	NA	0	120	10	NA	85.9	NA								
1997-09-21 13:56	2450713.5805556	1017.5	47.0	44.0	130	5.0	NA	0	120	10	NA	89.2	NA								
1997-09-21 14:56	2450713.6222222	1017.6	51.0	46.0	110	5.0	NA	0	120	10	NA	82.9	NA								
1997-09-21 15:56	2450713.6638889	1017.6	55.0	46.0	110	5.0	NA	0	120	10	NA	71.6	NA								
1997-09-21 16:56	2450713.7055556	1017.5	59.0	47.0	130	4.0	NA	0	120	10	NA	64.3	NA								

Data file for pdt.txt

1997-09-21	17:56	2450713.7472222	1016.9	65.0	46.0	00	0.0	NA	0	120	10	NA	50.1	NA
1997-09-21	18:56	2450713.7888889	1016.3	69.0	45.0	290	6.0	NA	0	120	10	NA	42.0	NA
1997-09-21	19:56	2450713.8305556	1015.7	71.0	45.0	340	8.0	NA	0	120	10	NA	39.3	NA
1997-09-21	20:56	2450713.8722222	1015.1	73.0	46.0	NA	3.0	NA	0	120	10	NA	38.1	NA
1997-09-21	21:56	2450713.9138889	1014.4	75.0	46.0	NA	3.0	NA	0	120	10	NA	35.6	NA
1997-09-21	22:56	2450713.9555556	1013.9	78.0	47.0	330	9.0	NA	0	120	9	NA	33.5	NA
1997-09-21	23:56	2450713.9972222	1013.6	76.0	46.0	NA	3.0	NA	0	120	10	NA	34.5	NA
1997-09-22	00:56	2450714.0388889	1013.2	74.0	47.0	20	7.0	NA	0	120	10	NA	38.3	NA
1997-09-22	01:56	2450714.0805556	1013.1	68.0	48.0	20	6.0	NA	0	120	10	NA	48.7	NA
1997-09-22	02:56	2450714.1222222	1013.6	61.0	47.0	20	3.0	NA	0	120	10	NA	59.9	NA
1997-09-22	03:56	2450714.1638889	1013.7	63.0	48.0	120	4.0	NA	0	120	10	NA	58.0	NA
1997-09-22	04:56	2450714.2055556	1013.9	57.0	48.0	110	5.0	NA	0	120	10	NA	71.8	NA
1997-09-22	05:56	2450714.2472222	1013.8	55.0	47.0	110	6.0	NA	0	120	10	NA	74.3	NA
1997-09-22	06:56	2450714.2888889	1013.8	56.0	47.0	120	9.0	NA	0	120	10	NA	71.7	NA
1997-09-22	07:56	2450714.3305556	1013.8	56.0	47.0	120	11.0	NA	0	120	10	NA	71.7	NA
1997-09-22	08:56	2450714.3722222	1014.1	52.0	47.0	130	6.0	NA	0	120	10	NA	83.0	NA
1997-09-22	09:56	2450714.4138889	1014.1	51.0	46.0	110	6.0	NA	0	120	10	NA	82.9	NA
1997-09-22	10:56	2450714.4555556	1014.1	51.0	45.0	80	7.0	NA	0	120	10	NA	79.8	NA
1997-09-22	11:56	2450714.4972222	1014.7	48.0	44.0	100	7.0	NA	0	120	10	NA	85.9	0.00
1997-09-22	12:56	2450714.5388889	1014.9	51.0	44.0	130	7.0	NA	0	120	10	NA	76.8	NA
1997-09-22	13:56	2450714.5805556	1015.7	49.0	45.0	100	7.0	NA	0	120	10	NA	86.0	NA
1997-09-22	14:56	2450714.6222222	1016.1	53.0	46.0	110	5.0	NA	0	120	10	NA	77.0	NA
1997-09-22	15:56	2450714.6638889	1016.0	60.0	47.0	130	3.0	NA	0	120	10	NA	62.1	NA
1997-09-22	16:56	2450714.7055556	1016.3	65.0	46.0	NA	3.0	NA	0	120	10	NA	50.1	NA
1997-09-22	17:56	2450714.7472222	1016.1	72.0	48.0	290	6.0	NA	0	120	10	NA	42.5	NA
1997-09-22	18:56	2450714.7888889	1015.8	74.0	49.0	260	6.0	NA	0	120	10	NA	41.3	NA
1997-09-22	19:56	2450714.8305556	1015.9	76.0	49.0	290	10.0	NA	0	120	10	NA	38.6	NA
1997-09-22	20:56	2450714.8722222	1015.7	78.0	50.0	310	8.0	NA	0	120	10	NA	37.5	NA
1997-09-22	21:56	2450714.9138889	1015.2	81.0	50.0	310	8.0	NA	0	120	10	NA	34.0	NA
1997-09-22	22:56	2450714.9555556	1015.1	81.0	49.0	NA	6.0	NA	0	120	10	NA	32.7	NA
1997-09-22	23:56	2450714.9972222	1014.9	81.0	48.0	360	6.0	NA	0	120	10	NA	31.5	NA
1997-09-23	00:56	2450715.0388889	1015.0	79.0	49.0	20	6.0	NA	0	120	10	NA	34.9	NA
1997-09-23	01:56	2450715.0805556	1015.4	71.0	48.0	20	5.0	NA	0	120	10	NA	44.0	NA
1997-09-23	02:56	2450715.1222222	1015.8	65.0	49.0	10	6.0	NA	0	120	10	NA	56.1	NA
1997-09-23	03:56	2450715.1638889	1016.0	65.0	51.0	100	5.0	NA	0	120	10	NA	60.5	NA
1997-09-23	04:56	2450715.2055556	1016.1	63.0	50.0	120	5.0	NA	0	120	10	NA	62.5	NA
1997-09-23	05:56	2450715.2472222	1016.1	59.0	50.0	70	6.0	NA	0	120	10	NA	72.0	NA
1997-09-23	06:56	2450715.2888889	1016.4	55.0	50.0	80	6.0	NA	0	120	10	NA	83.2	NA
1997-09-23	07:56	2450715.3305556	1016.5	57.0	50.0	110	5.0	NA	0	120	10	NA	77.4	NA
1997-09-23	08:56	2450715.3722222	1016.8	56.0	49.0	150	9.0	NA	0	120	10	NA	77.3	NA
1997-09-23	09:56	2450715.4138889	1016.9	53.0	48.0	90	8.0	NA	0	120	10	NA	83.1	NA
1997-09-23	10:56	2450715.4555556	1017.2	51.0	47.0	100	7.0	NA	0	120	10	NA	86.1	NA
1997-09-23	11:56	2450715.4972222	1017.4	51.0	46.0	100	7.0	NA	0	120	10	NA	82.9	0.00
1997-09-23	12:56	2450715.5388889	1017.6	51.0	46.0	120	7.0	NA	0	120	10	NA	82.9	NA
1997-09-23	13:56	2450715.5805556	1018.2	53.0	46.0	130	7.0	NA	0	120	10	NA	77.0	NA
1997-09-23	14:56	2450715.6222222	1018.6	56.0	47.0	140	4.0	NA	0	120	10	NA	71.7	NA
1997-09-23	15:56	2450715.6638889	1018.6	60.0	48.0	130	4.0	NA	0	120	10	NA	64.5	NA
1997-09-23	16:56	2450715.7055556	1018.4	66.0	48.0	00	0.0	NA	0	120	10	NA	52.2	NA
1997-09-23	17:56	2450715.7472222	1018.0	72.0	49.0	00	0.0	NA	0	120	10	NA	44.1	NA
1997-09-23	18:56	2450715.7888889	1017.1	78.0	49.0	340	5.0	NA	0	120	10	NA	36.1	NA
1997-09-23	19:56	2450715.8305556	1016.3	81.0	49.0	NA	6.0	NA	0	120	10	NA	32.7	NA
1997-09-23	20:56	2450715.8722222	1015.3	84.0	48.0	350	9.0	NA	0	120	10	NA	28.6	NA
1997-09-23	21:56	2450715.9138889	1014.4	85.0	48.0	350	7.0	NA	0	120	10	NA	27.7	NA
1997-09-23	22:56	2450715.9555556	1013.9	85.0	45.0	20	9.0	NA	0	120	10	NA	24.7	NA
1997-09-23	23:56	2450715.9972222	1013.3	84.0	48.0	10	7.0	NA	0	120	10	NA	28.6	NA
1997-09-24	00:56	2450716.0388889	1013.1	80.0	50.0	10	9.0	NA	0	120	10	NA	35.1	NA
1997-09-24	01:56	2450716.0805556	1013.2	72.0	50.0	330	7.0	NA	0	120	10	NA	45.8	NA

1997-09-24	02:56	2450716.1222222	1013.1	72.0	51.0	00	0.0	NA	0	120	10	NA	47.5	NA
1997-09-24	03:56	2450716.1638889	1013.2	67.0	51.0	60	3.0	NA	0	120	10	NA	56.4	NA
1997-09-24	04:56	2450716.2055556	1012.9	64.0	50.0	100	6.0	NA	0	120	10	NA	60.3	NA
1997-09-24	05:56	2450716.2472222	1012.6	60.0	50.0	100	7.0	NA	0	120	10	NA	69.5	NA
1997-09-24	06:56	2450716.2888889	1012.3	60.0	48.0	110	7.0	NA	0	120	10	NA	64.5	NA
1997-09-24	07:56	2450716.3305556	1012.2	57.0	49.0	110	6.0	NA	0	120	10	NA	74.5	NA
1997-09-24	08:56	2450716.3722222	1011.9	58.0	49.0	130	5.0	NA	0	120	10	NA	71.9	NA
1997-09-24	09:56	2450716.4138889	1011.8	58.0	50.0	140	4.0	NA	0	120	10	NA	74.6	NA
1997-09-24	10:56	2450716.4555556	1011.5	62.0	47.0	00	0.0	NA	0	120	10	NA	57.8	NA
1997-09-24	11:56	2450716.4972222	1011.5	62.0	47.0	00	0.0	NA	0	120	10	NA	57.8	0.00
1997-09-24	12:56	2450716.5388889	1011.4	62.0	47.0	90	3.0	NA	0	120	10	NA	57.8	NA
1997-09-24	13:56	2450716.5805556	1011.8	55.0	47.0	00	0.0	NA	0	120	10	NA	74.3	NA
1997-09-24	14:56	2450716.6222222	1011.8	60.0	50.0	00	0.0	NA	0	120	10	NA	69.5	NA
1997-09-24	15:56	2450716.6638889	1011.1	73.0	49.0	300	3.0	NA	0	120	10	NA	42.7	NA
1997-09-24	16:56	2450716.7055556	1010.6	83.0	47.0	NA	6.0	NA	0	120	10	NA	28.5	NA
1997-09-24	17:56	2450716.7472222	1010.0	87.0	47.0	110	8.0	NA	0	120	10	NA	25.0	NA
1997-09-24	18:56	2450716.7888889	1009.2	90.0	46.0	130	8.0	14.0	0	120	10	NA	21.9	NA
1997-09-24	19:56	2450716.8305556	1008.7	89.0	47.0	NA	3.0	NA	0	120	10	NA	23.5	NA
1997-09-24	20:56	2450716.8722222	1007.9	91.0	47.0	230	11.0	NA	0	120	10	NA	22.1	NA
1997-09-24	21:56	2450716.9138889	1007.3	92.0	47.0	NA	5.0	NA	0	120	10	NA	21.4	NA
1997-09-24	22:56	2450716.9555556	1006.6	91.0	46.0	NA	3.0	NA	0	120	10	NA	21.3	NA
1997-09-24	23:56	2450716.9972222	1006.1	91.0	46.0	190	3.0	NA	0	120	10	NA	21.3	NA
1997-09-25	00:56	2450717.0388889	1005.8	89.0	48.0	00	0.0	NA	0	120	9	NA	24.4	NA
1997-09-25	01:56	2450717.0805556	1006.5	81.0	52.0	140	3.0	NA	0	120	10	NA	36.6	NA
1997-09-25	02:56	2450717.1222222	1006.8	80.0	47.0	120	7.0	NA	0	120	10	NA	31.4	NA
1997-09-25	03:56	2450717.1638889	1006.8	73.0	50.0	120	9.0	NA	0	120	10	NA	44.3	NA
1997-09-25	04:56	2450717.2055556	1006.8	70.0	49.0	140	7.0	NA	0	120	10	NA	47.2	NA
1997-09-25	05:56	2450717.2472222	1006.6	74.0	46.0	140	7.0	NA	0	120	10	NA	36.8	NA
1997-09-25	06:56	2450717.2888889	1006.7	72.0	46.0	180	4.0	NA	0	120	10	NA	39.4	NA
1997-09-25	07:56	2450717.3305556	1007.1	65.0	45.0	350	4.0	NA	0	120	10	NA	48.3	NA
1997-09-25	08:56	2450717.3722222	1006.9	65.0	45.0	330	4.0	NA	0	120	10	NA	48.3	NA
1997-09-25	12:56	2450717.5388889	1006.2	64.0	43.0	80	7.0	NA	0	120	10	NA	46.3	NA
1997-09-25	13:56	2450717.5805556	1006.1	65.0	43.0	80	7.0	NA	0	120	10	NA	44.7	NA
1997-09-25	14:56	2450717.6222222	1005.8	69.0	46.0	90	4.0	NA	0	120	10	NA	43.7	NA
1997-09-25	15:56	2450717.6638889	1005.8	79.0	46.0	120	5.0	NA	0	120	10	NA	31.2	NA
1997-09-25	16:56	2450717.7055556	1005.7	74.0	48.0	300	7.0	NA	0	120	10	NA	39.7	NA
1997-09-25	17:56	2450717.7472222	1005.0	82.0	49.0	290	6.0	NA	0	120	10	NA	31.7	NA
1997-09-25	18:56	2450717.7888889	1004.0	84.0	50.0	280	8.0	NA	0	120	10	NA	30.8	NA
1997-09-25	19:56	2450717.8305556	1003.2	85.0	51.0	300	6.0	NA	0	120	9	NA	31.0	NA
1997-09-25	20:56	2450717.8722222	1001.9	91.0	47.0	NA	4.0	NA	0	120	10	NA	22.1	NA
1997-09-25	21:56	2450717.9138889	1000.5	95.0	48.0	100	15.0	NA	0	120	10	NA	20.2	NA
1997-09-25	22:56	2450717.9555556	1000.4	93.0	44.0	170	21.0	27.0	0	120	10	NA	18.5	NA
1997-09-25	23:56	2450717.9972222	1000.7	89.0	44.0	150	21.0	28.0	0	120	8	NA	21.0	NA
1997-09-26	00:56	2450718.0388889	1000.4	87.0	44.0	140	25.0	35.0	0	120	9	NA	22.3	NA
1997-09-26	01:56	2450718.0805556	1000.4	83.0	46.0	140	19.0	24.0	0	120	10	NA	27.4	NA
1997-09-26	02:56	2450718.1222222	999.9	80.0	47.0	130	12.0	NA	0	120	10	NA	31.4	NA
1997-09-26	03:56	2450718.1638889	999.6	80.0	47.0	140	9.0	17.0	0	120	10	NA	31.4	NA
1997-09-26	04:56	2450718.2055556	999.7	79.0	47.0	130	10.0	NA	0	120	10	NA	32.4	NA
1997-09-26	05:56	2450718.2472222	1001.2	74.0	51.0	270	16.0	NA	0	120	10	NA	44.4	NA
1997-09-26	12:56	2450718.5388889	1007.4	61.0	56.0	280	9.0	NA	8	85	10	NA	83.6	NA
1997-09-26	13:56	2450718.5805556	1009.1	60.0	55.0	NA	3.0	NA	8	70	10	NA	83.5	NA
1997-09-26	14:56	2450718.6222222	1010.0	60.0	53.0	260	15.0	NA	6	90	10	NA	77.6	NA
1997-09-26	15:56	2450718.6638889	1011.6	61.0	49.0	250	15.0	NA	0	120	10	NA	64.6	NA
1997-09-26	16:56	2450718.7055556	1012.8	62.0	44.0	260	11.0	NA	3	120	10	NA	51.6	NA
1997-09-26	17:56	2450718.7472222	1013.9	61.0	43.0	250	11.0	NA	8	60	10	NA	51.5	NA
1997-09-26	18:56	2450718.7888889	1014.6	61.0	43.0	230	9.0	NA	8	50	10	NA	51.5	NA
1997-09-26	19:56	2450718.8305556	1015.0	61.0	43.0	240	9.0	NA	8	60	10	NA	51.5	NA

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1997-09-26	20:56	2450718.8722222	1014.7	65.0	44.0	210	11.0	NA	6	75	10	NA	46.5	NA
1997-09-26	21:56	2450718.9138889	1014.2	68.0	43.0	220	15.0	19.0	6	70	10	NA	40.3	NA
1997-09-26	22:56	2450718.9555556	1013.4	71.0	42.0	220	17.0	23.0	0	120	10	NA	35.0	NA
1997-09-26	23:43	2450718.9881944	NA	68.0	39.0	260	9.0	20.0	6	110	10	NA	34.5	NA
1997-09-26	23:56	2450718.9972222	1014.1	67.0	40.0	290	11.0	NA	8	80	10	NA	37.1	NA
1997-09-27	00:56	2450719.0388889	1015.4	66.0	40.0	270	22.0	27.0	6	85	10	NA	38.4	NA
1997-09-27	01:56	2450719.0805556	1017.2	58.0	46.0	270	17.0	NA	6	110	10	NA	64.2	NA
1997-09-27	02:56	2450719.1222222	1018.3	57.0	46.0	250	13.0	NA	6	90	10	NA	66.6	NA
1997-09-27	03:56	2450719.1638889	1018.9	56.0	42.0	240	11.0	NA	0	120	10	NA	59.2	NA
1997-09-27	04:56	2450719.2055556	1019.3	57.0	41.0	230	12.0	NA	1	120	10	NA	55.0	NA
1997-09-27	05:56	2450719.2472222	1019.9	57.0	39.0	230	15.0	NA	3	120	10	NA	50.9	NA
1997-09-27	06:56	2450719.2888889	1021.1	55.0	40.0	220	11.0	NA	1	120	10	NA	56.8	NA
1997-09-27	07:56	2450719.3305556	1021.5	56.0	39.0	220	17.0	NA	1	120	10	NA	52.7	NA
1997-09-27	08:56	2450719.3722222	1022.0	55.0	39.0	210	11.0	NA	0	120	10	NA	54.7	NA
1997-09-27	09:56	2450719.4138889	1022.7	55.0	41.0	220	13.0	NA	0	120	10	NA	59.1	NA
1997-09-27	10:56	2450719.4555556	1022.9	55.0	39.0	190	9.0	NA	8	49	10	NA	54.7	NA
1997-09-27	11:56	2450719.4972222	1023.4	56.0	40.0	190	8.0	NA	6	47	10	NA	54.8	0.00
1997-09-27	12:56	2450719.5388889	1024.3	54.0	39.0	210	7.0	NA	6	47	10	NA	56.7	NA
1997-09-27	13:56	2450719.5805556	1024.7	55.0	38.0	200	11.0	NA	6	49	10	NA	52.6	NA
1997-09-27	14:56	2450719.6222222	1025.3	57.0	38.0	200	13.0	NA	0	120	10	NA	48.9	NA
1997-09-27	15:56	2450719.6638889	1025.5	60.0	38.0	230	20.0	27.0	0	120	10	NA	43.9	NA
1997-09-27	16:56	2450719.7055556	1025.7	62.0	38.0	250	21.0	30.0	0	120	10	NA	40.9	NA
1997-09-27	17:56	2450719.7472222	1026.1	64.0	37.0	230	18.0	27.0	0	120	10	NA	36.7	NA
1997-09-27	18:56	2450719.7888889	1026.0	65.0	37.0	250	17.0	22.0	1	120	10	NA	35.4	NA
1997-09-27	19:56	2450719.8305556	1025.4	67.0	37.0	220	18.0	21.0	1	120	10	NA	33.0	NA
1997-09-27	20:56	2450719.8722222	1024.7	69.0	38.0	240	19.0	26.0	1	120	10	NA	32.1	NA
1997-09-27	21:56	2450719.9138889	1024.3	69.0	38.0	240	17.0	21.0	0	120	10	NA	32.1	NA
1997-09-27	22:56	2450719.9555556	1024.0	68.0	39.0	250	17.0	23.0	0	120	10	NA	34.5	NA
1997-09-27	23:56	2450719.9972222	1023.7	68.0	39.0	240	16.0	NA	0	120	10	NA	34.5	NA
1997-09-28	00:56	2450720.0388889	1023.7	65.0	40.0	240	14.0	NA	0	120	10	NA	39.8	NA
1997-09-28	01:56	2450720.0805556	1023.5	61.0	40.0	240	8.0	NA	0	120	10	NA	45.8	NA
1997-09-28	02:56	2450720.1222222	1024.3	57.0	41.0	220	9.0	NA	0	120	10	NA	55.0	NA
1997-09-28	03:56	2450720.1638889	1024.7	56.0	42.0	210	8.0	NA	1	120	10	NA	59.2	NA
1997-09-28	04:56	2450720.2055556	1024.8	53.0	41.0	150	7.0	NA	0	120	10	NA	63.6	NA
1997-09-28	05:56	2450720.2472222	1024.8	52.0	40.0	140	5.0	NA	0	120	10	NA	63.5	NA
1997-09-28	06:56	2450720.2888889	1024.7	51.0	40.0	130	8.0	NA	0	120	10	NA	65.8	NA
1997-09-28	07:56	2450720.3305556	1024.2	48.0	40.0	140	8.0	NA	0	120	10	NA	73.6	NA
1997-09-28	08:56	2450720.3722222	1024.0	49.0	40.0	120	8.0	NA	0	120	10	NA	70.9	NA
1997-09-28	09:56	2450720.4138889	1023.8	48.0	39.0	130	8.0	NA	0	120	10	NA	70.8	NA
1997-09-28	10:56	2450720.4555556	1023.5	47.0	39.0	120	5.0	NA	0	120	10	NA	73.5	NA
1997-09-28	11:56	2450720.4972222	1023.0	47.0	39.0	120	7.0	NA	0	120	10	NA	73.5	0.00
1997-09-28	12:56	2450720.5388889	1023.1	46.0	39.0	110	6.0	NA	0	120	10	NA	76.4	NA
1997-09-28	13:56	2450720.5805556	1023.2	47.0	40.0	100	4.0	NA	0	120	10	NA	76.5	NA
1997-09-28	14:56	2450720.6222222	1023.2	50.0	41.0	110	6.0	NA	0	120	10	NA	71.0	NA
1997-09-28	15:56	2450720.6638889	1022.9	56.0	40.0	130	4.0	NA	0	120	10	NA	54.8	NA
1997-09-28	16:56	2450720.7055556	1022.0	63.0	41.0	NA	3.0	NA	0	120	10	NA	44.4	NA
1997-09-28	17:56	2450720.7472222	1021.3	68.0	43.0	NA	4.0	NA	0	120	10	NA	40.3	NA
1997-09-28	18:56	2450720.7888889	1020.6	71.0	44.0	270	4.0	NA	0	120	10	NA	37.8	NA
1997-09-28	19:56	2450720.8305556	1019.8	73.0	44.0	270	7.0	NA	0	120	10	NA	35.3	NA
1997-09-28	20:56	2450720.8722222	1018.7	74.0	44.0	190	5.0	NA	0	120	10	NA	34.1	NA
1997-09-28	21:56	2450720.9138889	1017.7	77.0	45.0	270	9.0	NA	0	120	10	NA	32.1	NA
1997-09-28	22:56	2450720.9555556	1016.7	77.0	44.0	170	6.0	NA	0	120	10	NA	30.9	NA
1997-09-28	23:56	2450720.9972222	1015.9	77.0	44.0	NA	4.0	NA	0	120	10	NA	30.9	NA
1997-09-29	00:56	2450721.0388889	1015.2	76.0	44.0	00	0.0	NA	0	120	10	NA	31.9	NA
1997-09-29	01:56	2450721.0805556	1015.0	71.0	44.0	20	4.0	NA	0	120	10	NA	37.8	NA
1997-09-29	02:56	2450721.1222222	1015.0	66.0	42.0	00	0.0	NA	0	120	10	NA	41.5	NA
1997-09-29	03:56	2450721.1638889	1014.9	64.0	43.0	100	5.0	NA	0	120	10	NA	46.3	NA

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1997-09-29	04:56	2450721.2055556	1014.7	59.0	43.0	70	7.0	NA	0	120	10	NA	55.3	NA
1997-09-29	05:56	2450721.2472222	1014.1	57.0	43.0	80	7.0	NA	0	120	10	NA	59.4	NA
1997-09-29	06:56	2450721.2888889	1013.6	58.0	43.0	120	9.0	NA	0	120	10	NA	57.3	NA
1997-09-29	07:56	2450721.3305556	1013.4	52.0	42.0	80	7.0	NA	0	120	10	NA	68.6	NA
1997-09-29	08:56	2450721.3722222	1013.1	56.0	43.0	150	8.0	NA	0	120	10	NA	61.6	NA
1997-09-29	09:56	2450721.4138889	1012.8	53.0	43.0	120	4.0	NA	0	120	10	NA	68.7	NA
1997-09-29	10:56	2450721.4555556	1012.4	52.0	44.0	180	4.0	NA	0	120	10	NA	74.0	NA
1997-09-29	11:56	2450721.4972222	1011.8	54.0	43.0	120	5.0	NA	0	120	10	NA	66.2	0.00
1997-09-29	12:56	2450721.5388889	1011.5	49.0	41.0	40	6.0	NA	0	120	10	NA	73.7	NA
1997-09-29	13:56	2450721.5805556	1011.4	49.0	42.0	60	5.0	NA	0	120	10	NA	76.7	NA
1997-09-29	14:56	2450721.6222222	1011.6	55.0	44.0	110	4.0	NA	0	120	10	NA	66.3	NA
1997-09-29	15:56	2450721.6638889	1011.3	58.0	43.0	130	4.0	NA	0	120	10	NA	57.3	NA
1997-09-29	17:56	2450721.7055556	1010.9	68.0	48.0	300	5.0	NA	0	120	10	NA	48.7	NA
1997-09-29	17:56	2450721.7472222	1010.5	71.0	48.0	290	8.0	NA	0	120	10	NA	44.0	NA
1997-09-29	18:56	2450721.7888889	1009.5	76.0	47.0	300	5.0	NA	0	120	10	NA	35.8	NA
1997-09-29	19:56	2450721.8305556	1008.5	81.0	48.0	290	7.0	NA	0	120	10	NA	31.5	NA
1997-09-29	20:56	2450721.8722222	1007.0	85.0	47.0	260	6.0	NA	0	120	10	NA	26.7	NA
1997-09-29	21:56	2450721.9138889	1006.2	88.0	47.0	270	11.0	16.0	0	120	3	NA	24.3	NA
1997-09-29	22:56	2450721.9555556	1005.8	87.0	48.0	270	12.0	NA	0	120	10	NA	26.0	NA
1997-09-29	23:10	2450721.9652778	NA	88.0	46.0	320	9.0	NA	0	120	10	NA	23.4	NA
1997-09-29	23:56	2450721.9972222	1005.1	87.0	48.0	310	9.0	NA	0	120	10	NA	26.0	NA

** This dataset is not for commercial distribution **
Created on: Tue Sep 4 16:38:38 2001

726880, PENDLETON MUNICIPAL, ABCDEFGHIJKL, 4541N 11851W , 0456

(D) Precipitation

September 1997

-Day-	--Value
01	.00
02	.00
03	.20
04	.02
05	.00
06	.00
07	.00
08	.00
09	.00
10	.00'
11	.01
12	.00
13	.00
14	.00
15	.06
16	.17
17	.32
18	.00
19	.00
20	.00
21	.00
22	.00
23	.00
24	.00
25	.00
26	.00
27	.00
28	.00
29	.00
30	.00

USBR Pacific
Northwest Region
Hydromet System
Data Access

Although the Bureau of Reclamation makes efforts to maintain the accuracy of data found in the Hydromet system databases, the data is largely unverified and should be considered preliminary and subject to change. Data and services are provided with the express understanding that the United States Government makes no warranties, expressed or implied, concerning the accuracy, completeness, usability or suitability for any particular purpose of the information or data obtained by access to this computer system, and the United States shall be under no liability whatsoever to any individual or group entity by reason of any use made thereof.

BEGIN DATA
HRMO

DATE	PP
09/21/1997	0.01
09/22/1997	0.00
09/23/1997	0.00
09/24/1997	0.00
09/25/1997	0.00

END DATA

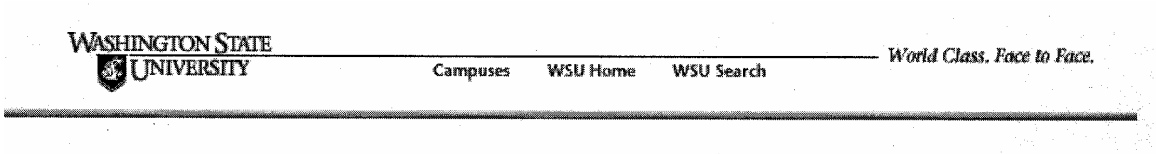
USBR Pacific Northwest Region
Hydromet System Data Access

Although the Bureau of Reclamation makes efforts to maintain the accuracy of data found in the Hydromet system databases, the data is largely unverified and should be considered preliminary and subject to change. Data and services are provided with the express understanding that the United States Government makes no warranties, expressed or implied, concerning the accuracy, completeness, usability or suitability for any particular purpose of the information or data obtained by access to this computer system, and the United States shall be under no liability whatsoever to any individual or group entity by reason of any use made thereof.

BEGIN DATA
ECHO

DATE	PP
09/10/1997	0.01
09/11/1997	0.00
09/12/1997	0.00
09/13/1997	0.00
09/14/1997	0.00
09/15/1997	0.00
09/16/1997	0.00
09/17/1997	0.00
09/18/1997	0.00
09/19/1997	0.00
09/20/1997	0.00
09/21/1997	0.00
09/22/1997	0.00
09/23/1997	0.00
09/24/1997	0.00
09/25/1997	0.00

END DATA



WSU Public Agricultural Weather System

Data Extracted:2002-12-31 13:2.4:24
TOUCHET, 1.5 MI S of Touchet, Wa
Lat:46.0 Lng:118.6 elevation:492
Dates Range From 1989-01-01 To 2002-12-30

DATE Gregorian	Total Precip inches
1997-09-01	.00
1997-09-02	.00
1997-09-03	.13
1997-09-04	.00
1997-09-05	.00
1997-09-06	.00
1997-09-07	.00
1997-09-08	.00
1997-09-09	.00
1997-09-10	.00
1997-09-11	.00
1997-09-12	.00
1997-09-13	.00
1997-09-14	.00
1997-09-15	.00
1997-09-16	.00
1997-09-17	.04
1997-09-18	.04
1997-09-19	.00
1997-09-20	.00
1997-09-21	.00
1997-09-22	.00
1997-09-23	.00
1997-09-24	.00
1997-09-25	.00

Data Extracted:2002-12-31 13:24:25
WALLA WALLA, 1 MI E of Walla Walla, Wa
Lat:46.0 Lng:118.2 elevation:1186
Dates Range From 1992-07-22 To 2002-12-30

DATE Gregorian	Total Precip inches
1997-09-01	.00
1997-09-02	.00
1997-09-03	.17
1997-09-04	.00
1997-09-05	.00
1997-09-06	.02
1997-09-07	.00
1997-09-08	.00
1997-09-09	.00
1997-09-10	.07
1997-09-11	.18
1997-09-12	.02
1997-09-13	.00
1997-09-14	.08
1997-09-15	.20
1997-09-16	.12
1997-09-17	.26
1997-09-18	.06
1997-09-19	.03
1997-09-20	.09
1997-09-21	.08
1997-09-22	.03
1997-09-23	.04
1997-09-24	.03
1997-09-25	.00