APPENDIX A

ASOS Video

Screens

EXAMPLE OF THE VDU SCREEN

09:35:17	08/12/97	HOME TOWN AIRPORT	
SKY	BKN075		
VSBY	21/2SM	TWR VSBY	3SM
PREWX	HZ	SEA PRES	1024.7
TEMP/DP	20/17 C	REL HUM	43
WIND	090/07 040V120	MAG WIND	110/07 070V140
ALT SET	30.15 DEN ALT 1000	PRES ALT	320

REMARKS RMK AO2 TWR VIS 3 VIS 13/4V4

SPECI KXXX 121220Z 09007KT 040V120 2 1/2SM HZ BKN075 20/17 A3015
RMK AO2 TWR VIS 3 VIS 1 3/4V4

EXAMPLE OF THE OID REVIEW OBSERVATION (METAR/SPECI) SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

08/12/97 04:22:18 SPECI KXXX 120916Z AUTO 33004KT 4SM BR FEW001 19/19
A3011 RMK AO2
08/12/97 05:02:23 METAR KXXX 120956Z AUTO 00000KT 5SM BR BKN075 20/19
A3013 RMK AO2 SLP197 T02000194
08/12/97 06:02:42 METAR KXXX 121056Z AUTO 00000KT 3SM BR CLR 21/21 A3014
RMK AO2 SLP201 T02060206
08/12/97 06:13:15 SPECI KXXX 121108Z AUTO 00000KT 2 1/2SM BR FEW120 20/20
A3014 RMK AO2
08/12/97 06:39:27 SPECI KXXX 121134Z AUTO 00000KT 3SM BR FEW120 22/21
A3015 RMK AO2
08/12/97 07:02:18 METAR KXXX 121156Z AUTO 36003KT 4SM BR CLR 23/22 A3015
RMK AO2 SLP206 70005 T02280217 10228 20183 51015
08/12/97 07:57:23 METAR KXXX 121256Z AUTO VRB05KT 5SM HZ CLR 24/22 A3015
RMK AO2 SLP207 T02440217

REVIEW OBSERVATION

PRINT	DATE	PREV
EXIT	BACK	NEXT

EXAMPLE OF THE OID EDIT SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

SKY = CLR
VISIBILITY = 5SM TEMP/DEWPT = 26.1 /21.7 C 79 /71 F
WIND DIR/SPD = VRB/05
PRESENT WX = HZ ALTIMETER = 30.16
REMARKS = RMK AO2

METAR KXXX 121256Z AUTO VRB05KT 5SM HZ CLR 24/22 A3015 RMK AO2 SLP207 T02440217

MAG WIND DIR/SPD: VRB/05
RELATIVE HUMIDITY: 76 STATION PRESSURE: 29.85
PRESSURE ALTITUDE: 60
SEA LVL PRESSURE: 1020.9 DENSITY ALTITUDE: 1400

PRINT		
SIGN		
REVUE		AUX

EXAMPLE OF THE OID 5-MINUTE SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

08/12/97 08:15:31 5-MIN KXXX 121315Z AUTO 02006KT 5SM HZ CLR 25/22 A3016
60 81 1300 030/06 RMK AO2
08/12/97 08:20:31 5-MIN KXXX 121320Z AUTO 02006KT 5SM HZ CLR 25/22 A3016
60 81 1300 030/06 RMK AO2
08/12/97 08:25:31 5-MIN KXXX 121325Z AUTO VRB05KT 5SM HZ CLR 25/22 A3016
60 81 1300 VRB/05 RMK AO2
08/12/97 08:30:31 5-MIN KXXX 121330Z AUTO 03006KT 5SM HZ CLR 26/22 A3016
60 79 1300 040/06 RMK AO2
08/12/97 08:35:31 5-MIN KXXX 121335Z AUTO VRB04KT 5SM HZ CLR 26/22 A3016
60 79 1300 VRB/04 RMK AO2
08/12/97 08:40:31 5-MIN KXXX 121340Z AUTO 03005KT 5SM HZ CLR 26/22 A3016
60 76 1400 040/05 RMK AO2
08/12/97 08:45:31 5-MIN KXXX 121345Z AUTO VRB05KT 5SM HZ CLR 26/22 A3016
60 76 1400 VRB/05 RMK AO2

REVIEW 5 MINUTE

PRINT		PREV
ARC2H	TIME	REV2H
EXIT	BACK	NEXT

EXAMPLE OF THE OID REVIEW SHEF SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

08/11/97 19:24:30 .A XXX 0812 DH0022/PPH 0.00
08/11/97 20:24:28 .A XXX 0812 DH0122/PPH 0.03
08/11/97 21:26:04 .A XXX 0812 DH0222/PPH 0.01
08/11/97 22:26:04 .A XXX 0812 DH0322/PPH 0.00
08/11/97 23:26:03 .A XXX 0812 DH0422/PPH 0.00
08/12/97 00:26:57 .A XXX 0812 DH0522/PPH 0.00
08/12/97 01:26:02 .A XXX 0812 DH0622/PPH 0.01
08/12/97 02:39:05 .A XXX 0812 DH0722/PPH 0.00
08/12/97 03:28:22 .A XXX 0812 DH0822/PPH 0.00
08/12/97 04:28:19 .A XXX 0812 DH0922/PPH 0.00
08/12/97 05:27:14 .A XXX 0812 DH1022/PPH 0.00
08/12/97 06:28:23 .A XXX 0812 DH1122/PPH 0.00
08/12/97 07:27:22 .A XXX 0812 DH1222/PPH 0.00
08/12/97 08:24:29 .A XXX 0812 DH1322/PPH 0.00

REVIEW SHEF

PRINT	DATA	PREV
EXIT	BACK	NEXT

EXAMPLE OF THE OID MAINTENANCE SYSTEM-LOG (SYSLOG) SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

08/10/97 23:59 *SY 9999 AOMC CALLS TODAY: 0, AOMC SUCCESSFUL CALLS TODAY:
0

08/11/97 23:04 *ST 1958 ALL AFOS COMMUNICATION ATTEMPTS FAILED

08/11/97 23:59 *SY 9999 CALLS ON PHONE LINES: LINE #1 0 CALLS LINE
#2 0 CALLS LINE #3 0 CALLS LINE #4 0 CALLS LINE #5 0 CALLS LINE
#6 0 CALLS LINE #7 0 CALLS LINE #8 0 CALLS
08/11/97 23:59 *SY 9999 AOMC CALLS TODAY: 0, AOMC SUCCESSFUL CALLS TODAY:
0

MAINTENANCE LOG

PRINT	DATA	PREV
	FILTR	
EXIT	BACK	NEXT

EXAMPLE OF THE OID 5-SECOND AVERAGE WIND SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

5-SECOND AVERAGE WIND

READINGS	WIND DIR	WIND SPD	READINGS	WIND DIR	WIND SPD
OLDEST	359	5	12	356	6
23	354	5	11	340	6
22	350	6	10	354	5
21	351	6	9	352	5
20	356	6	8	360	5
19	16	6	7	1	6
18	19	7	6	356	7
17	19	7	5	355	6
16	6	7	4	357	6
15	358	6	3	6	6
14	356	6	2	3	6
13	356	5	NEWEST	18	5

CURRENT

PRINT	PAGE	
		UPDATE
EXIT	BACK	

EXAMPLE OF THE OID 10-SECOND PRESSURE SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

10-SECOND PRESSURE

READINGS	PRESSURE 1	PRESSURE 2	PRESSURE 3
OLDEST	29.854	29.863	
5	29.854	29.863	
4	29.853	29.863	
3	29.854	29.863	
2	29.853	29.863	
NEWEST	29.853	29.863	

CURRENT

PRINT	PAGE	
		UPDATE
EXIT	BACK	

EXAMPLE OF THE OID 1-MINUTE CURRENT SENSOR DATA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

1-MINUTE CURRENT SENSOR DATA

UTC	VIS1	D/N1	VIS2	D/N2	VIS3	D/N3	TEMP	DEWPT	5SEC WIND	RVR
1342	5.19	D					79	71	24	8
1343	5.30	D					79	71	21	8
1344	5.34	D					79	71	33	6
1345	5.34	D					79	71	11	7
1346	5.37	D					79	71	16	7
1347	5.39	D					79	71	34	7
1348	5.36	D					79	71	353	6
1349	5.40	D					79	71	6	7
1350	5.45	D					79	71	356	7
1351										

CURRENT

PRECIPITATION AMOUNT (HOUR): 0.00 IN
WATER EQUIVALENT (HOUR): M IN
CURRENT SNOW DEPTH: M IN

PRINT	PAGE	
		UPDATE
EXIT	BACK	

EXAMPLE OF THE OID 1-MINUTE CURRENT SENSOR DATA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

1-MINUTE CURRENT SENSOR DATA

UTC	WX	ZR	TS
1337	NP	--	-
1338	NP	--	-
1339	NP	--	-
1340	NP	--	-
1341	NP	--	-
1342	NP	--	-
1343	NP	--	-
1344	NP	--	-
1345	NP	--	-
1346	NP	--	-
1347	NP	--	-
1348	NP	--	-
1349	NP	--	-
1350	NP	--	-
1351	NP	--	-

CURRENT

PRINT	PAGE	
UPDATE		
EXIT	BACK	

EXAMPLE OF THE OID DAILY SUMMARY DATA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

DAILY SUMMARY FOR 08/11/97

24 HR MAX TEMP (F):	90	LATEST DAY MAX TEMP (0700-1900 LST):	90	
24 HR MAX TEMP TIME (LST):	1614	LATEST NIGHT MIN TEMP(1900-0800 LST):	58	
24 HR MIN TEMP (F):	58			
24 HR MIN TEMP TIME (LST):	0535	SKY COVER MID-MID (TENTHS):		
24 HR AVG TEMP (F):	74	SKY COVER SR-SS (TENTHS):		
DEPART FROM NORMAL:	0			
		TOTAL SUNSHINE (MINUTES):	M	
HEATING DEGREE DAYS:	0	TOTAL SUNSHINE (HOURS):	M	
COOLING DEGREE DAYS:	9	PERCENT POSSIBLE SUNSHINE:	M	
		CHARACTER OF SUNRISE:		
PEAK WIND SPEED (MPH):	15	CHARACTER OF SUNSET:		
PEAK WIND DIR (DEG):	210	WEATHER (CODE):	1,2,8	
PEAK WIND TIME (LST):	1558			
FASTEST 2MIN SPEED (MPH):	13			
FASTEST 2MIN DIR (DEG):	170			
FASTEST 2MIN TIME (LST):	1643			
AVERAGE WIND SPEED (MPH):	2.7			

DAILY DATA

PRINT	PAGE	PREV
		DATE
EXIT	BACK	NEXT

EXAMPLE OF THE OID DAILY SUMMARY DATA SCREEN

08:47:19 08/12/97 1347ZHOME TOWN AIRPORT

DAILY PRECIPITATION SUMMARY FOR 08/11/97

24 HR PRECIPITATION (IN): 0.04
24 HR SNOWFALL (IN):
SNOW DEPTH (IN): M

HOURLY INCREMENTAL PRECIPITATION VALUES (IN):

0059	0.00	1259	0.00
0159	0.00	1359	0.00
0259	0.00	1459	0.00
0359	0.00	1559	0.00
0459	0.00	1659	0.00
0559	0.00	1759	0.00
0659	0.00	1859	0.00
0759	0.00	1959	0.00
0859	0.00	2059	0.04
0959	0.00	2159	0.00
1059	0.00	2259	0.00
1159	0.00	2359	0.00

DAILY DATA

PRINT	PAGE	PREV
	DATE	
EXIT	BACK	NEXT

EXAMPLE OF THE OID DAILY SUMMARY DATA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

DAILY PRESSURE SUMMARY FOR 08/11/97

HOURLY STATION PRESSURE VALUES:

0556 29.850
1156 29.865
1756 29.815
2356 29.775

AVERAGE STATION PRESSURE: 29.830

MINIMUM SEA LEVEL PRESSURE: 30.06
TIME OF OCCURRENCE: 1839

DAILY DATA

PRINT	PAGE	PREV
	DATE	
EXIT	BACK	NEXT

EXAMPLE OF THE OID MONTHLY TEMPERATURE SUMMARY SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

MONTHLY TEMPERATURE SUMMARY - AUG97 SO FAR THIS MONTH

AVG DAILY MAXIMUM: 86.7
AVG DAILY MINIMUM: 55.5
AVG MONTHLY TEMP: 71.1
DEPART FROM NORMAL:

MAXIMUM TEMPERATURE: 93
DATE(S) OF MAXIMUM: 3
MINIMUM TEMPERATURE: 47
DATE(S) OF MINIMUM: 8

NUM DAYS MAX 32 AND BELOW: 0
NUM DAYS MAX 90 AND ABOVE: 3

NUM DAYS MIN 32 AND BELOW: 0
NUM DAYS MIN 0 AND BELOW: 0

HEATING DEGREE DAYS
MONTHLY TOTAL: 0
DEPART FROM NORMAL:
SEASON (JUL 1 - JUN 30): 0(E)
DEPART FROM NORMAL: 0(E)

COOLING DEGREE DAYS
MONTHLY TOTAL: 71
DEPART FROM NORMAL:
SEASON (JAN 1 - DEC 31): 215(E)
DEPART FROM NORMAL: -255(E)

MONTHLY DATA

PRINT	PAGE	JULY
EXIT	BACK	

EXAMPLE OF THE OID MONTHLY PRECIPITATION SUMMARY SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

MONTHLY PRECIPITATION SUMMARY - AUG97 SO FAR THIS MONTH

	PRECIPITATION	SNOW
MONTHLY TOTAL:	0.42	M
DEPARTURE FROM NORMAL:		
GREATEST IN 24 HOURS:	0.30	
DATE(S) OF OCCURRENCE:	4	
GREATEST DEPTH ON GROUND:		M
DATE(S) OF OCCURRENCE:		

NUMBER OF DAYS WITH PRECIPITATION .01 INCH OR MORE: 4
NUMBER OF DAYS WITH PRECIPITATION .10 INCH OR MORE: 1
NUMBER OF DAYS WITH PRECIPITATION .50 INCH OR MORE: 0
NUMBER OF DAYS WITH PRECIPITATION 1.00 INCH OR MORE: 0

SHORT DURATION PRECIPITATION AMOUNTS WITH DATE/TIME TAGS:

5 0.04	051345	30 0.13	041200	100 0.20	041320
10 0.06	051350	45 0.15	041200	120 0.18	041200
15 0.07	041200	60 0.17	041200	150 0.28	041230
20 0.09	041200	80 0.18	041200	180 0.18	041200

MONTHLY DATA

PRINT	PAGE	JULY
EXIT	BACK	

EXAMPLE OF THE OID MONTHLY SUMMARY DATA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

MONTHLY SUMMARY - AUG97 SO FAR THIS MONTH

NUMBER OF CLEAR DAYS:
NUMBER OF PARTLY CLOUDY DAYS:
NUMBER OF CLOUDY DAYS:

TOTAL SUNSHINE (HOURS): M
PERCENT POSSIBLE SUNSHINE: M

AVERAGE STATION PRESSURE: 29.785

HIGHEST SEA LEVEL PRESSURE: 30.25 +
DATE OF OCCURRENCE: 08
TIME OF OCCURRENCE: 1048

LOWEST SEA LEVEL PRESSURE: 29.80 +
DATE OF OCCURRENCE: 04
TIME OF OCCURRENCE: 1847

AVERAGE SEA LEVEL PRESSURE: 30.08

MONTHLY DATA

PRINT	PAGE	JULY
EXIT	BACK	

EXAMPLE OF THE OID MONTHLY NORMALS SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

NORMALS FOR AUGUST

DAY	TMIN	TMAX	TAVG	SUN	DAY	TMIN	TMAX	TAVG	SUN	DAY	TMIN	TMAX	TAVG	SUN
1	65	85	75	850	11	65	84	74	830	21	63	83	73	807
2	65	85	75	848	12	64	84	74	828	22	63	83	73	805
3	65	85	75	846	13	64	84	74	825	23	62	82	72	803
4	65	85	75	844	14	64	84	74	823	24	62	82	72	800
5	65	85	75	842	15	64	84	74	821	25	62	82	72	798
6	65	85	75	840	16	64	84	74	819	26	62	82	72	796
7	65	84	75	838	17	64	83	73	817	27	62	82	72	793
8	65	84	75	836	18	63	83	73	814	28	61	81	71	791
9	65	84	75	834	19	63	83	73	812	29	61	81	71	788
10	65	84	74	832	20	63	83	73	810	30	61	81	71	786
										31	61	81	71	784
									AVG/SUM:	63.5		83.3	73.4	25360

MONTHLY NORMAL HEATING DEG DAYS: 0
MONTHLY NORMAL COOLING DEG DAYS: 260
MONTHLY NORMAL PRECIP: 4.14
SEASON HEATING DEGREE DAYS: 0
SEASON COOLING DEGREE DAYS: 730

NORMALS

PRINT		PREV
EXIT	BACK	NEXT

EXAMPLE OF THE OID SPECIAL ALERT (SPECI) CRITERIA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

CRITERIA FOR SPECIAL ALERTS

SKY CONDITION:

CEILING AT OR BELOW	3000	1500	1000	500	FEET	
USER'S CEILING AT OR BELOW	0	0	0	0	0	0

LAYERS BELOW	1000	FEET		
USER'S LAYERS BELOW	0	0	0	0

VISIBILITY:	3	2	1	MILES
USER'S VISIBILITY	1/2			

RVR: 2400 FEET

CRITERIA

FEET	PRINT	PAGE
EXIT	BACK	

EXAMPLE OF THE OID LOCAL ALERT CRITERIA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

CRITERIA FOR LOCAL ALERTS

SKY CONDITION:

CEILING AT OR BELOW 0 0 0 0 0 0 FEET

VISIBILITY: 5 MILES

CRITERIA

PRINT	PAGE	
EXIT	BACK	

EXAMPLE OF THE OID SHEF ALERT CRITERIA SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

CRITERIA FOR SHEF ALERTS

15-MINUTE ONSET THRESHOLD: 0.40 INCHES

15-MINUTE TERMINATION THRESHOLD: 0.02 INCHES

CRITERIA

PRINT	PAGE	
EXIT	BACK	

EXAMPLE OF THE OID SITE PHYSICAL CHARACTERISTICS SCREEN

08:47:19 08/12/97 1347Z HOME TOWN AIRPORT

STATION				
NAME:	HOME TOWN AIRPORT			
IDENTIFIER:	XXX	DATE:	08/12/97	
COMMISSIONED:	COMM	TIME:	13:55:57	UTC
ATTENDED:	YES	UTC TO LST OFFSET:	-5	
OPEN 24 HOURS:	YES	METAR SWITCH DATE:	05/01/96	UTC
OPENING TIME:		METAR SWITCH TIME:	07:45:00	UTC
CLOSING TIME:		DSM GENERATED:	YES	
ELEVATION:	281 FEET	PRIMARY DSM XMIT TIME:		UTC
		INTERMED DSM XMIT TIMES:	19:01:00	UTC
FIELD ELEVATION:	277 FEET			UTC
PRESSURE SENSOR ELEVATION:	283 FEET			UTC
		MSM GENERATED:	YES	
OBS HOURLY REPORT TIME:	50	MSM XMIT TIME:		UTC
OBS EDIT TIME:	5:00			PHYSICAL
OBS HOURLY TRANSMIT TIME:	55:00			
SHEF HOURLY TRANSMIT TIME:	22			
LATITUDE:	38.57N			
LONGITUDE:	77.27W			
MAG DECLINATION:	9W			

PRINT		
EXIT	BACK	

EXAMPLE OF THE OID SOFTWARE VERSION SCREEN

08:47:19 08/12/97 1347Z ` HOME TOWN AIRPORT

UNIT	BOARD	NAME	DEVICE	VERSION	DATE
ACU	CPU A	PSOS OS	EPROM	1.81	03/07/95
	CPU B	PSOS OS	EPROM	1.81	03/07/95
	MEMORY	ACU APPLICATION	EPROM	2.60	06/26/97
	MEMORY	DCP APPLICATION	EPROM	2.60	06/26/97
DCP-1	CPU A	BOOT	EPROM	1.80	11/22/96
	MEMORY	DCP APPLICATION	RAM	2.60	06/26/97

SOFTWARE VERSIONS

PRINT		
EXIT	BACK	

APPENDIX B

ASOS Initial

Operating Capabilities

ASOS SENSOR SPECIFICATIONS

PARAMETER	SENSOR	RANGE	ACCURACY
Cloud Height	Laser Ceilometer	100-12,000 Feet	± 100 Feet Or 5% Whichever Is Greater
Visibility	Forward Scatter Meter	< ¼ To 10+ Miles	± ¼ Mile To 1¼ Miles; Up To ± 2 reportable Increments Between 4 and 10 Miles
Present Weather Identification Precipitation	Precipitation Identifier (PI)	Detect Light, Moderate, And Heavy Rain Or Snow; Or Mixed Precipitation	Solid[1] : 99 / 97 Liquid[1]: 99 / 90
Freezing Rain Occurrence	Vibrating Element	Accumulation Over 01"/Hr	99% In Precipitation Rates As Low As 0.05"/Hr.
Obstructions To Vision	Derived From Other Sensors: (Temperature; Dew Point, Visibility)	Fog, Haze Reports	When Visibility Is < 7 Miles
Ambient Temperature	Resistive Temperature Device (RTD)	-80EF To +130EF	RMSE: 0.9EF To 1.8EF[2]
Dew Point Temperature	Chilled Mirror	-30EF To +86EF[3]	RMSE: 1.1EF To 7.9EF[2]
Pressure	Redundant Pressure Cells	16.9"Hg - 31.5"Hg	± 0.02"Hg
Wind Direction	Vane	0 - 359E	± 5E (When Speed $ 5 Knots)
Wind Speed	Cup Anemometer	0 - 125 KTS	± 2 Knots Or 5% Whichever is Greater
Liquid Precipitation	Heated Tipping Bucket	0 - 10"/Hr	± 0.02" Or 4% Of Hourly Total Whichever is Greater
Thunderstorm	Wideband Electric Field	30 miles	Thunderstorms: 100 % within 10 miles; Cloud-to-ground lightning : 90% within 10 miles

[1]% of occurrances detected / % correctly identified

[2]Dependent on operating range

[3]ASOS Program Office is working to increase the reportable range to: -80EF to +86EF

ASOS DATA CHARACTERISTICS

PARAMETER	SENSOR		ALGORITHM		
	Data Collection Frequency	**Data Sampling Interval**	**Data Processing Frequency**	**Data Accumulation Period**	**Data Reporting Frequency**
Cloud Height & Amount	~1/770 sec	12-sec	30-sec	30-min	1-min
Visibility	30-sec	1-min	1-min	10-min	1-min
Present Weather	1-sec	1-min	1-min	10-min	1-min
Freezing Rain	1-sec	1-min	1-min	15-min	1-min
Temp/Dew Point	10-sec	1-min	1-min	5-min	1-min
Wind	1-sec	5-sec	5-sec	2-min	5-sec 1-min
Pressure	10-sec	1-min	1-min	1-min	1-min
Precipitation Accumulation	1-sec	1-min	1-min	1-min	15-min 1-hour
Thunderstorm	1-sec	1-min	1-min	1-min	1-min

APPENDIX C

Content of
ASOS-Generated METAR

A Quick Reference Guide

KEY TO DECODE AN ASOS (METAR) OBSERVATION

```
METAR KABC 121755Z AUTO 21016G24KT 180V240 1SM R11/P6000FT -RA BR BKN015 OVC025 06/04 A2990
RMK AO2 PK WND 20032/25 WSHFT 1715 VIS 3/4V1 1/2 VIS 3/4 RWY11 RAB07 CIG 013V017 CIG 017 RWY11
PRESFR SLP125 P0003 60009 T00640036 10066 21012 58033 TSNO $
```

TYPE OF REPORT	METAR: hourly (scheduled) report; SPECI: special (unscheduled) report.	METAR
STATION IDENTIFIER	Four alphabetic characters; ICAO location identifier.	KABC
DATE/TIME	All dates and times in UTC using a 24-hour clock; two-digit date and four-digit time; always appended with Z to indicate UTC. 121755Z	
REPORT MODIFIER	Fully automated report, no human intervention; removed when observer signed-on.	AUTO
WIND DIRECTION AND SPEED	Direction to nearest ten degrees from true north (first three digits); next two digits: speed in whole knots; as needed Gusts (character) followed by maximum observed speed; always appended with KT to indicate knots; 00000KT for calm; if direction varies by 60E or more a Variable wind direction group is reported.	21016G24KT 180V240
VISIBILITY	Prevailing visibility in statute miles and fractions (space between whole miles and fractions); always appended with SM to indicate statute miles; values <1/4 reported as M1/4.	1SM
RUNWAY VISUAL RANGE	10-minute RVR value in hundreds of feet; reported if prevailing visibility is # one mile or RVR # 6000 feet; always appended with FT to indicate feet; value prefixed with M or P to indicate value is lower or higher than the reportable RVR value .	R11/P6000FT
WEATHER PHENOMENA	RA: liquid precipitation that does not freeze; SN: frozen precipitation other than hail; UP: precipitation of unknown type; intensity prefixed to precipitation: light (-), moderate (no sign), heavy (+); FG: fog; FZFG: freezing fog (temperature below 0EC); BR: mist; HZ: haze; SQ: squall; maximum of three groups reported; augmented by observer: FC (funnel cloud/ tornado/waterspout); TS (thunderstorm); GR (hail); GS (small hail; <1/4 inch); FZRA (intensity; freezing rain); VA (volcanic ash).	-RA BR
SKY CONDITION	Cloud amount and height: CLR (no clouds detected below 12000 feet); FEW (few); SCT (scattered); BKN (broken); OVC (overcast); followed by 3-digit height in hundreds of feet; or vertical visibility (VV) followed by height for indefinite ceiling.	BKN015 OVC025
TEMPERATURE/DEW POINT	Each is reported in whole degrees Celsius using two digits; values are separated by a solidus; sub-zero values are prefixed with an M (minus).	06/04
ALTIMETER	Altimeter always prefixed with an A indicating inches of mercury; reported using four digits: tens, units, tenths, and hundredths.	A2990

REMARKS ON REVERSE SIDE

REMARKS IDENTIFIER: RMK	RMK
TORNADIC ACTIVITY: Augmented; report should include TORNADO, FUNNEL CLOUD, or WATERSPOUT, time begin/end, location, movement; e.g., TORNADO B25 N MOV E.	
TYPE OF AUTOMATED STATION: AO2; automated station with precipitation discriminator.	AO2
PEAK WIND: PK WND dddff(f)/(hh)mm; direction in tens of degrees, speed in whole knots, and time.	PK WND 20032/25
WIND SHIFT: WSHFT (hh)mm	WSHFT 1715
TOWER OR SURFACE VISIBILITY: TWR VIS vvvvv: visibility reported by tower personnel, e.g., TWR VIS 2; SFC VIS vvvvv: visibility reported by ASOS, e.g., SFC VIS 2.	
VARIABLE PREVAILING VISIBILITY: VIS v_{nnnnn} V v_{xxxxx} ; reported if prevailing visibility is < 3 miles and variable.	VIS 3/4V1 1/2
VISIBILITY AT SECOND LOCATION: VIS vvvvv [LOC]; reported if different than the reported prevailing visibility in body of report.	VIS 3/4 RWY11
LIGHTNING: [FREQ] LTG [LOC]; when detected the frequency and location is reported, e.g., FRQ LTG NE.	
BEGINNING AND ENDING OF PRECIPITATION AND THUNDERSTORMS: w'w'B(hh)mmE(hh)mm; TSB(hh)mmE(hh)mm	RAB07
VIRGA: Augmented; precipitation not reaching the ground, e.g., VIRGA.	
VARIABLE CEILING HEIGHT: CIG h_{nnn} V h_{xxx} ; reported if ceiling in body of report is < 3000 feet and variable.	CIG 013V017
CEILING HEIGHT AT SECOND LOCATION: CIG hhh [LOC]; Ceiling height reported if secondary ceilometer site is different than the ceiling height in the body of the report.	CIG 017RWY11
PRESSURE RISING OR FALLING RAPIDLY: PRESRR or PRESFR; pressure rising or falling rapidly at time of observation.	PRESFR
SEA-LEVEL PRESSURE: SLPppp; tens, units, and tenths of SLP in hPa.	SLP125
HOURLY PRECIPITATION AMOUNT: Prrrr; in .01 inches since last METAR; a trace is P0000.	P0003
3- AND 6-HOUR PRECIPITATION AMOUNT: 6RRRR; precipitation amount in .01 inches for past 6 hours reported in 00, 06, 12, and 18 UTC observations and for past	
3 hours in 03, 09, 15, and 21 UTC observations; a trace is 60000.	60009
24-HOUR PRECIPITATION AMOUNT: 7R R_{24} R_{24} R_{24} R_{24} ; precipitation amount in .01 inches for past 24 hours reported in 12 UTC observation, e.g., 70015.	
HOURLY TEMPERATURE AND DEW POINT: Ts T T T s T' T' T' ; tenth of degree Celsius; s : 1 if temperature below 0EC and 0 if temperature 0EC or higher.	T00640036
6-HOUR MAXIMUM TEMPERATURE: 1s T T T $_{naaa}$; tenth of degree Celsius; 00, 06, 12, 18 UTC; s_n : 1 if temperature below 0EC and 0 if temperature 0EC or higher.	10066
6-HOUR MINIMUM TEMPERATURE: 2s T T T $_{nnnn}$; tenth of degree Celsius; 00, 06, 12, 18 UTC; s_n : 1 if temperature below 0EC and 0 if temperature 0EC or higher. 2	1012
24-HOUR MAXIMUM AND MINIMUM TEMPERATURE: 4s T T T s T T T $_{nxxxnnn}$; tenth of degree Celsius; reported at midnight local standard time; 1 if temperature below 0EC and 0 if temperature 0EC or higher, e.g., 400461006.	
PRESSURE TENDENCY: 5appp; the character (a) and change in pressure (ppp; tenths of hPa) the past 3 hours.	58033
SENSOR STATUS INDICATORS: RVRNO: RVR missing; PWINO: precipitation identifier information not available; PNO: precipitation amount not available;	
FZRANO: freezing rain information not available; TSNO: thunderstorm information not available; VISNO [LOC]: visibility at secondary location not available, e.g., VISNO RWY06; CHINO [LOC]: (cloud-height-indicator) sky condition at secondary location not available, e.g., CHINO RWY06.	TSNO
MAINTENANCE CHECK INDICATOR: Maintenance needed on the system.	$

If an element or phenomena does not occur, is missing, or cannot be observed, the corresponding group and space are omitted (body and/or remarks) from that particular report, except for Sea-Level Pressure (SLPppp). SLPNO shall be reported in a METAR when the SLP is not available.

U.S. DEPARTMENT OF COMMERCE - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION - National Weather Service - Observing Systems Branch, 1325 East-West Highway, Silver Spring, Maryland 20910 METAR\TA2\3-18-97

APPENDIX D

ASOS Voice

Vocabulary

ASOS VOICE VOCABULARY

(Revised 8/18/97)

a

airport
all quadrants
altimeter
and
at
automated weather observation
automated weather observing system

b

between
blowing snow
blowing snow in vicinity
blowing dust
blowing dust in vicinity
blowing sand
blowing sand in vicinity
broken

C

calm
ceiling
celsius
center
center field
clear

d

density altitude
dew point
distant
drizzle
dust storm
dust storm in vicinity

e

east
eight
estimated

f

feet
few
five
fog
fog in vicinity
four
freezing drizzle
freezing fog
freezing rain
funnel cloud

h

hail
haze
heavy drizzle
heavy dust storm
heavy freezing drizzle
heavy freezing rain
heavy ice pellets
heavy rain
heavy sand storm
heavy snow
hundred

i

ice pellets
information not available

j, k, l

left
less than
lightning
light drizzle
light freezing drizzle
light freezing rain
light ice pellets
light rain
light snow

m

minus
missing
mist

n

niner
north
northeast
northwest

o

one
one eighth
one half
one and one half
one and one quarter
one and three quarters
one quarter
one sixteenth
overcast

p

patches of fog
peak gusts
peak gusts in squalls
present weather

q, r

rain
remarks
right
runway

s

sand
sand storm
sand storm in vicinity
scattered
seven
shallow fog
six
sky condition
smoke
snow
south
southeast
southwest
special
squalls
surface visibility

t

temperature
temporarily inoperative
test
thousand
three
three and one half
three quarters
through
thunderstorm
tornado
tower visibility
two
two and one half

u, v

variable
vertical visibility
vicinity
visibility
volcanic ash

w

waterspout
west
wide spread dust
wind

x, y, z

zero
zulu

APPENDIX E

Acronyms

ACRONYMS

ACF	Area Control Facility
ACU	Acquisition Control Unit
ADAS	AWOS Data Acquisition System
AGL	Above Ground Level
ALS	ASOS Lightning Sensor
ALDARS	Automated Lightning Detection and Reporting System
AMOS	Automated Meteorological Observing System
AOMC	ASOS Operations and Monitoring Center
ARP	Airport Reference Point
ARTCC	Air Route Traffic Control Center
ASOS	Automated Surface Observing System
ATC	Air Traffic Controller
ATCT	Air Traffic Control Tower
AUTOB	Automated Observation
AWIPS	Advanced Weather Interactive Processing System for the 1990s
AWOS	Automated Weather Observing System
AV-AWOS	Aviation Automated Weather Observing System
BKN	Broken
CF	Center Field
CHI	Cloud Height Indicator
CLR	Clear
CONUS	Continental United States
DCP	Data Collection Package
DD	Dew Point Depression
DOD	Department of Defense
FAA	Federal Aviation Administration
FIBI	Filed But Impractical to Transmit
FMH-1	Federal Meteorological Handbook # 1 Surface Aviation Observations
GAI	Global Atmospheric Inc.
GFE	Government Furnished Equipment
GOES	Geostationary Operational Environmental Satellite
Hg	Mercury
hPc	Hectopascals
HTB	Heated Tipping Bucket (precipitation gauge)
Hz	Hertz
IOC	Initial Operating Capability
IR	Infrared
IRED	InfraRed Emitting Diode
kHz	Kilohertz
LED	Light Emitting Diode
LEDWI	Light Emitting Diode Weather Identifier
LST	Local Standard Time
MWP	Meteorological Weather Processor
NADIN	National Airspace Data Interchange Network
NAS	National Airspace System
NCDC	National Climatic Data Center
NGRVR	New Generation Runway Visual Range
NLDN	National Lightning Detection Network
NWS	National Weather Service
NWSTG	NWS Telecommunication Gateway
OFCM	Office of the Federal Coordinator for Meteorological Services and Supporting Research
OID	Operator Interface Device
OMO	One-Minute Observation
OTV	Obstruction to Vision
OVC	Overcast
PACE	PC-Based Asychronous Communications Extension (for ASOS)
PI	Precipitation Identification
PLCD	Preliminary Local Climatic Data
PV	Prevailing Visibility
PWINO	Precipitation Identifier Information Not Available
RAMOS	Remote Automated Meteorological Observing System
RBC	Rotating Beam Ceilometer
RMSE	Root Mean Square Error
RS	Record Special SAO
RTA	Remote Terminal to AFOS
RTD	Resistive Temperature Device
RWP	Real-Time Weather Processor
SA	Scheduled Record Hourly SAO
SAO	Surface Aviation Observation
SEV	Sensor Equivalent Visibility
SCT	Scattered
SHEF	Standard Hydrometeorological Exchange Format
SID	Station Identifier
SMCC	Systems Monitoring and Coordination Center
SOC	Systems Operations Center
SOD	Systems Operations Division
SP	Special SAO
SRRS	Service Records Retention System
SUM	Software User's Manual
TDZ	Touchdown Zone
TNO	Thunderstorm Information Not Available
USP	Urgent Special SAO
UTC	Universal Coordinated Time
VDU	Video Display Unit
WMSC	Weather Message Switching Center
WMSCR	Weather Message Switching Center Replacement
WSR-88D	Weather Surveillance Radar 1988, Doppler
Z	Zulu Time
ZR	Freezing Rain
ZRNO	Freezing Rain Information Not Available
$	Maintenance Check Indicator