

Appendix A: Criteria for SPECI

1	Wind Shift	Wind direction changes by 45 degrees or more in less than 15 minutes and the wind speed is 10 knots or more throughout the wind shift.
2	Visibility	Surface visibility as reported in the body of the report decreases to less than, or if below, increases to equal or exceed: <ul style="list-style-type: none"> a. 3 miles b. 2 miles c. 1 mile d. The lowest standard instrument approach procedure minimum as published in the National Ocean Service (NOS) <i>U.S Instrument Procedures</i>. If none published, use ½ mile.
3	Runway Visual Range (RVR)	The highest value from the designated RVR runway decreases to less than, or if below, increases to equal or exceed 2,400 feet during the preceding 10 minutes. U.S. military stations may not report a SPECI based on RVR.
4	Tornado, Funnel Cloud, or Waterspout	<ul style="list-style-type: none"> a. is observed. b. disappears from sight or ends.
5	Thunderstorm	<ul style="list-style-type: none"> a. begins (a SPECI is not required to report the beginning of a new thunderstorm if one is currently reported). b. ends.
6	Precipitation	<ul style="list-style-type: none"> a. hail begins or ends. b. freezing precipitation begins, ends, or changes intensity. c. ice pellets begin, end, or change intensity
7	Squalls	When they occur
8	Ceiling	The ceiling (rounded off to reportable values) forms or dissipates below, decreases to less than, or if below, increases to equal or exceed: <ul style="list-style-type: none"> a. 3,000 feet. b. 1,500 feet c. 1,000 feet d. 500 feet e. The lowest standard instrument approach procedure minimum as published in the National Ocean Service (NOS) <i>U.S Instrument Procedures</i>. If none published, use 200 feet.
9	Sky Condition	A layer of clouds or obscurations aloft is present below 1,000 feet and no layer aloft was reported below 1,000 feet in the preceding METAR or SPECI.
10	Volcanic Eruption	When an eruption is first noted
11	Aircraft Mishap	Upon notification of an aircraft mishap, unless there has been an intervening observation
12	Miscellaneous	Any other meteorological situation designated by the responsible agency which, in the opinion of the observer, is critical.

Appendix B: Present Weather Notation Definitions

-  **Blowing (BL).** A descriptor used to amplify observed weather phenomena whenever the phenomena are raised to a height of 6 feet or more above the ground.
-  **Drizzle (DZ).** Fairly uniform precipitation composed exclusively of fine drops (diameter less than 0.02 inch or 0.5 mm) very close together. Drizzle appears to float while following air current, although unlike fog droplets, it falls to the ground.
-  **Duststorm (DS).** A severe weather condition characterized by strong winds and dust-filled air over an extensive area.
-  **Fog (FG).** A visible aggregate of minute water particles (droplets) which are based at the Earth's surface and reduce horizontal visibility to less than 5/8 statute mile and, unlike drizzle, does not fall to the ground.
-  **Freezing (FZ).** A descriptor, FZ, used to describe drizzle and/or rain that freezes on contact with the ground or exposed objects. It is also used to describe fog that is composed of minute ice crystals.
-  **Funnel cloud (FC).** A violent, rotating column of air which does not touch the surface, usually appended to a cumulonimbus cloud.
-  **Hail (GR).** Precipitation in the form of small balls or other pieces of ice falling separately or frozen together in irregular lumps.
-  **Haze (HZ).** A suspension in the air of extremely small, dry particles invisible to the naked eye and sufficiently numerous to give the air an opalescent appearance.
-  **Ice crystals (diamond dust) (IC).** A fall of non-branched (snow crystals are branched) ice crystals in the form of needles, columns, or plates.
-  **Ice pellets (PL).** Precipitation of transparent or translucent pellets of ice, which are round or irregular, rarely conical, and which have a diameter of 0.2 inch (5 mm), or less. There are two main types: a. Hard grains of ice consisting of frozen raindrops, or largely melted and refrozen snowflakes. b. Pellets of snow encased in a thin layer of ice which have formed from the freezing, either of droplets intercepted by the pellets, or of water resulting from the partial melting of the pellets.
-  **Intensity qualifier.** Intensity qualifiers are used to describe whether a phenomenon is light (-), moderate (no symbol used), or heavy (+).
-  **Low drifting (DR).** A descriptor, DR, used to describe snow, sand, or dust raised to a height of less than 6 feet above the ground.
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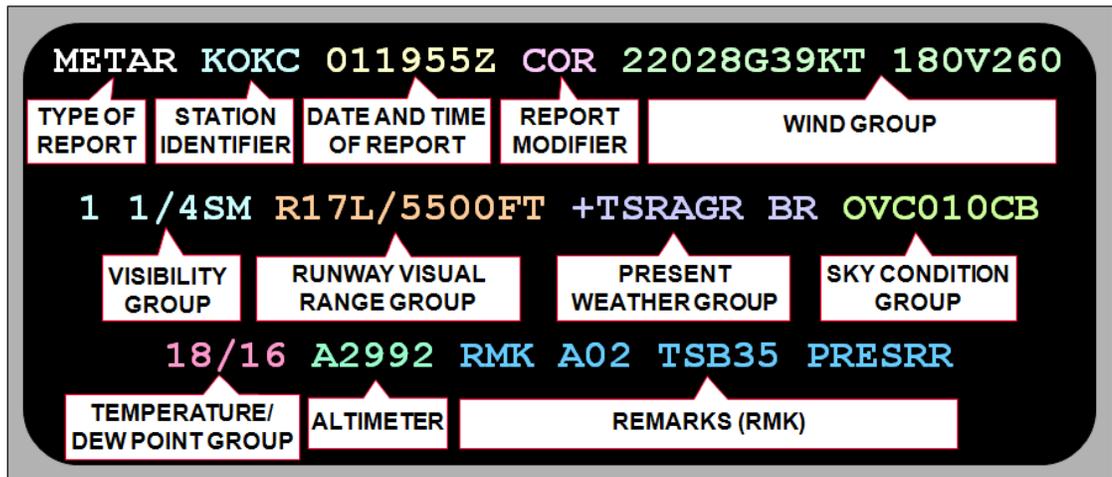
Appendix B: Present Weather Notation Definitions (Continued)

-  **Mist (BR).** A visible aggregate of minute water droplets or ice crystals suspended in the atmosphere that reduces visibility to less than 7 statute miles but greater than or equal to 5/8 statute mile.
-  **Obscuration.** Any phenomenon in the atmosphere, other than precipitation, that reduces the horizontal visibility in the atmosphere.
-  **Partial (PR).** A descriptor, PR, used only to report fog that covers part of the airport.
-  **Patches (BC).** A descriptor, BC, used only to report fog that occurs in patches at the airport.
-  **Precipitation.** Any of the forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the ground.
-  **Rain (RA).** Precipitation, either in the form of drops larger than 0.02 inch (0.5 mm), or smaller drops, which in contrast to drizzle, are widely separated; for automated stations, precipitation that remains in the liquid state upon impact with the ground or other exposed objects.
-  **Sand (SA).** Loose particles of granular material.
-  **Sandstorm (SS).** Particles of sand carried aloft by a strong wind. The sand particles are mostly confined to the lowest 10 feet, and rarely rise more than 50 feet above the ground.
-  **Shallow (MI).** A descriptor, MI, used only to describe fog when the visibility at 6 feet above the ground is 5/8 statute mile or more and the apparent visibility in the fog layer is less than 5/8 statute mile.
-  **Shower(s) (SH).** A descriptor, SH, used to qualify precipitation characterized by the suddenness with which it starts and stops, by the rapid changes of intensity, and usually by rapid changes in the appearance of the sky.
-  **Smoke (FU).** A suspension in the air of small particles produced by combustion. A transition to haze may occur when smoke particles have traveled great distances (25 to 100 statute miles or more) and when the larger particles have settled out and the remaining particles have become widely scattered through the atmosphere.
-  **Snow (SN).** Precipitation of snow crystals, mostly branched in the form of six-pointed stars; for automated stations, any form of frozen precipitation other than hail.
-  **Snow grains (SG).** Precipitation of very small, white, opaque grains of ice.

Appendix B: Present Weather Notation Definitions (Continued)

-  **Snow pellets (GS).** Precipitation of white, opaque grains of ice. The grains are round or sometimes conical. Diameters range from about 0.08 to 0.2 inch (2 to 5 mm).
-  **Spray (PY).** An ensemble of water droplets torn by the wind from an extensive body of water, generally from the crests of waves, and carried up into the air in such quantities that it reduces the horizontal visibility.
-  **Squall (SQ).** A strong wind characterized by a sudden onset in which the wind speed increases at least 16 knots and is sustained at 22 knots or more for at least one minute.
-  **Thunderstorm (TS).** A cumulonimbus cloud that is accompanied by lightning and thunder, or for automated systems, a storm detected by lightning detection systems.
-  **Tornado (+FC).** A violent, rotating column of air touching the ground; funnel cloud that touches the ground (see funnel cloud and waterspout).
-  **Unknown precipitation (UP).** Precipitation type that is reported if the automated station detects the occurrence of precipitation, but the precipitation discriminator cannot recognize the type.
-  **Vicinity (VC).** A proximity qualifier, VC, used to indicate weather phenomena observed between 5 and 10 statute miles of the usual point of observation, but not at the station.
-  **Volcanic ash (VA).** Fine particles of rock powder that originate from a volcano and that may remain suspended in the atmosphere for long periods.
-  **Waterspout (+FC).** A violent, rotating column of air that forms over a body of water, and touches the water surface; tornado or funnel cloud that touches a body of water (see funnel cloud and tornado).
-  **Well-developed dust/sand whirl (PO).** An ensemble of particles of dust or sand, sometimes accompanied by small litter, raised from the ground in the form of a whirling column of varying height with a small diameter and an approximately vertical axis.
-  **Widespread dust (DU).** Fine particles of earth or other matter raised or suspended in the air by the wind that may have occurred at or far away from the station.
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Appendix C: METAR/SPECI Phraseology



ELEMENT	PHRASEOLOGY	EXAMPLES
Type of Report	If SPECI, follow the location with the words “ <i>special report, (last two digits of the time) observation.</i> ” (If METAR, do not announce the Type of Report)	“ Special report, two three observation ”
Station Identifier	Announce the geographic name (not the identifier) once for communications. When the location name is duplicated within 500 miles, follow the location name with the state name. When the weather reports originate at more than one airport at the same geographic location, identify the airport. Where it is considered necessary and is requested by the military base commander, broadcast military observations by stating the location, the name of the airport if different, and the controlling military branch.	“ Tallahassee ” “ Springfield, Missouri ” “ Chicago O’Hare ” “ Enid, Vance Air Force Base ”
Date and Time or Report	If SPECI, follow the location with the words “ <i>special report, (last two digits of the time) observation.</i> ” If METAR, time of report may be given upon request. Follow the location with “ <i>(all four digits of the time) observation.</i> ”	“ Special report, one six observation ” “ (One niner five five observation) ”
Report Modifier	If AUTO , announce “ <i>Automated.</i> ” (If COR , announce “ <i>Corrected</i> ”) When the Report Modifier is omitted (e.g., a manual or augmented observation), do not announce as missing.	“ Automated ” “ Corrected ”

Appendix C: METAR/SPECI Phraseology (Continued)

ELEMENT	PHRASEOLOGY	EXAMPLES
<p>Wind Group</p>	<p>Announce surface wind direction and speed by stating the word “<i>wind</i>” followed by the separate digits of wind direction to the nearest 10 degrees and the separate digits of the speed. A “G” between two wind speed values is announced as “<i>Gusts</i>.” State local wind as it appears in the report. Announce the variability of wind at the end of the wind group.</p> <p>(If a variable wind group is coded, announce “<i>Wind variable between (three-digit direction) and (three-digit direction)</i>.”)</p> <p>(If VRB is coded as the wind direction, announce “<i>Wind variable at (wind speed)</i>”)</p> <p>(00000KT is announced as “<i>Wind calm</i>.”)</p>	<p>“<i>Wind two seven zero at niner</i>”</p> <p>“<i>Wind zero one zero at one zero, gusts two five</i>”</p> <p>“<i>Wind variable between one one zero and two two zero</i>”</p> <p>“<i>Wind variable at five</i>”</p> <p>“<i>Wind calm</i>”</p>
<p>Visibility Group</p>	<p>State the word “<i>Visibility</i>” followed by the visibility values in miles and/or fractions of statute miles, except announce values indicated by the figure 0 as “<i>zero</i>.”</p> <p>Announce the separate digits of whole numbers as applicable.</p> <p>(If M is coded before a value, it is spoken as “<i>less than</i>.”)</p>	<p>“<i>Visibility one and one-half</i>”</p> <p>“<i>Visibility three-quarters</i>”</p> <p>“<i>Visibility less than one-quarter</i>”</p>
<p>Runway Visual Range (RVR) Group</p>	<p>Provide RVR information by stating the runway, “<i>visual range</i>,” and the indicated value. The abbreviation “<i>R-V-R</i>” may be spoken in lieu of “<i>visual range</i>.” When the indicated values are separated by a V, preface the values with the words “<i>variable between</i>,” followed by the first value, the word and, then the second value.</p> <p>If the RVR is less than its lowest reportable value, the group is preceded by an “M” and spoken as “<i>less than</i>.”</p> <p>If the RVR is greater than its highest reportable value, the group is preceded by a “P” and spoken as “<i>more than</i>.”</p> <p>When RVR is not reported, do not announce as missing.</p>	<p>“<i>Runway two right R-V-R three thousand</i>”</p> <p>“<i>Runway one R-V-R less than six hundred</i>”</p> <p>“<i>Runway two one R-V-R more than six thousand</i>”</p> <p>“<i>Runway one five left visual range variable between one thousand and two thousand</i>”</p>

Appendix C: METAR/SPECI Phraseology (Continued)

ELEMENT	PHRASEOLOGY	EXAMPLES
Present Weather Group	<p>See AC 00-45 or FAA JO 7110.10 for a listing of contractions.</p> <p>Intensity refers to precipitation, not descriptors. Proximity is spoken after the phenomenon to which it refers. Descriptors are spoken ahead of weather phenomenon with the exception of “showers” which is spoken after the precipitation.</p> <p>When Present Weather is not reported, do not announce as missing.</p>	<p><i>“Patchy fog”</i></p> <p><i>“Thunderstorm, heavy rain (showers), hail”</i></p>
Sky Condition Group	<p>State sky coverage in the same order as reported on the weather observation. For SCT, BKN, OVC layers state the height of the layer followed by the amount of sky cover.</p> <p>Announce “<i>ceiling</i>” before the lowest layer aloft reported as broken or overcast; or “<i>indefinite ceiling</i>” in place of vertical visibility. Announce partial surface-based obscurations as “<i>Sky partially obscured.</i>”</p>	<p><i>“One thousand two hundred scattered, ceiling two thousand five hundred broken, cumulonimbus”</i></p> <p><i>“Indefinite ceiling seven hundred”</i></p> <p><i>“Sky clear” or “Clear below one two thousand”</i></p>
Temperature /Dew Point Group	<p>Announce surface temperature and dew point by stating the words “<i>Temperature</i>” or “<i>Dewpoint</i>” as appropriate, followed by the temperature in degrees Celsius.</p> <p>Temperatures below zero are announced by prefixing the word “<i>minus</i>” before the value.</p>	<p><i>“Temperature one two, dew point seven”</i></p> <p><i>“Temperature minus one, dew point missing”</i></p>
Altimeter	<p>State the word “<i>Altimeter</i>” followed by the four digits of the altimeter setting.</p>	<p><i>“Altimeter three zero one zero”</i></p>
Remarks (RMK)	<p>Announce pertinent remarks from surface weather observations in accordance with FAAO 7340.2, Contractions, and as shown in the examples from FAA 7110.10.</p> <p>Do not state additive data or other information intended for NWS analysis or processing that does not contribute to the description of the conditions occurring at the station.</p>	<p><i>“Peak wind three five zero at three seven occurred at two two past the hour”</i></p> <p><i>“Tower visibility two and one-half”</i></p> <p><i>“Thunderstorm north moving southeast”</i></p>

NOTE: If weather data is not available, state the location and the word “*missing.*”

NOTE: Do not announce units of measure.

Appendix C: METAR/SPECI Phraseology (Continued)

EXAMPLES:

METAR KLTS 071455Z AUTO 17005KT 10SM CLR 06/M09 A3030

“Altus Air Force Base, automated, (one four five five observation), wind one seven zero at five, visibility one zero, clear below one two thousand, temperature six, dew point minus niner, altimeter three zero three zero”

**METAR KAGC 071553Z 29009G20KT 7SM -SN SCT017 BKN023 OVC050 00/M04 A2957
RMK SNB05**

“Pittsburg Alleghany County, (one five five three observation), wind two niner zero at niner gusts two zero, visibility seven, light snow, one thousand seven hundred scattered, ceiling two thousand three hundred broken, five thousand overcast, temperature zero, dew point minus four, altimeter two niner five seven, snow began at zero five”

**METAR KIAD 081055Z COR 21019G27KT 1/2SM R04R/3000FT -SN FG SCT011 OVC015
01/M02 A2945 RMK PK WND 19029/16**

“Washington Dulles, corrected, (one zero five five observation), wind two one zero at one niner gusts two seven, visibility one-half, runway four right visual range three thousand, light snow, fog, one thousand one hundred scattered, ceiling one thousand five hundred overcast, temperature one, dew point minus two, altimeter two niner four five, peak wind one niner zero at two niner occurred at one six past the hour”

**SPECI PADM 071513Z AUTO 00000KT 4SM -SN BR BKN008 BKN017 OVC029 M01/M02
A2983 RMK CIG 005V011 UPE10SNB10**

“Marshall automated, special report, one three observation, wind calm, visibility four, light snow, mist, ceiling eight hundred broken, one thousand seven hundred broken, two thousand niner hundred overcast, temperature minus one, dew point minus two, altimeter two niner eight three, ceiling variable between five hundred and one thousand one hundred, unknown precipitation ended at one zero, snow began at one zero”

**SPECI KMRB 122232Z AUTO 14007KT 2SM +TSRA BR BKN013 BKN026 OVC065 24/22
A2979 RMK PK WND 36028/16 WSHFT 14 VIS 1 1/4V3 LTG DSNT E AND SE RAB07 P0034**

“Martinsburg, automated, special report, three two observation, wind one four zero at seven, visibility two, thunderstorm, heavy rain (showers), mist, ceiling one thousand three hundred broken, two thousand six hundred broken, six thousand five hundred overcast, temperature two four, dew point two two, altimeter two niner seven niner, peak wind three six zero at two eight occurred at one six past the hour, wind shifted at one four, visibility variable between one and one-quarter and three, lightning distant east and southeast, rain began at zero seven”

Appendix D: Bonus Exercise – METAR/SPECI Decoding

Directions Decode the following METAR and SPECI items.

- Items**
1. METAR: KPHX 011956Z 26008KT 10SM CLR 39/10 A2989
 2. METAR: KORD 011856Z 08011KT 10SM FEW075 BKN250 30/11 A3005
 3. SPECI: KMIA 021727Z 28011G20KT 1SM +TSRA BR FEW003 OVC010CB 23/22 A3004 RMK OCNL LTGICCG
 4. METAR: KDET 091350Z AUTO 04008KT 8SM -RA FEW008 BKN029 OVC055 18/17 A3000
 5. SPECI: KTOL 091242Z 04008KT 2SM BR BKN006 OVC009 21/20 A2997 RMK SFC VIS 6 CIG 003V007
 6. SPECI: KPIT 091231Z 23006KT 8SM FEW008 BKN018 OVC110 21/19 A3000
 7. METAR: KLVS 091553Z AUTO 04011KT 10SM CLR 28/M03 A3030 RMK PRESRR
 8. METAR: KTUS 091555Z VRB05KT 10SM CLR 32/07 A3002
 9. SPECI: KLAS 091536Z 01005KT 10SM FEW250 33/07 A2998 RMK TCU W
 10. METAR: KATL 101253Z 25010KT 10SM FEW035CB SCT150 BKN250 26/22 A3008 RMK SLP174 CB DSNT W-NW

Appendix D: Bonus Exercise – METAR/SPECI Decoding (Continued)

Answers

1. METAR: KPHX 011956Z 26008KT 10SM CLR 39/10 A2989

“PHOENIX (ONE NINER FIVE SIX OBSERVATION), WIND TWO SIX ZERO AT EIGHT, VISIBILITY ONE ZERO, CLEAR BELOW ONE TWO THOUSAND, TEMPERATURE THREE NINER, DEW POINT ONE ZERO, ALTIMETER TWO NINER EIGHT NINER”

2. METAR: KORD 011856Z 08011KT 10SM FEW075 BKN250 30/11 A3005

“CHICAGO O’HARE (ONE EIGHT FIVE SIX OBSERVATION), WIND ZERO EIGHT ZERO AT ONE ONE, VISIBILITY ONE ZERO, FEW CLOUDS AT SEVEN THOUSAND FIVE HUNDRED, CEILING TWO FIVE THOUSAND BROKEN, TEMPERATURE THREE ZERO, DEW POINT ONE ONE, ALTIMETER THREE ZERO ZERO FIVE”

3. SPECI: KMIA 021727Z 28011G20KT 1SM +TSRA BR FEW003 OVC010CB 23/22 A3004 RMK OCNL LTGICCG

“MIAMI SPECIAL REPORT TWO SEVEN OBSERVATION, WIND TWO EIGHT ZERO AT ONE ONE GUSTS TWO SEVEN, VISIBILITY ONE, THUNDERSTORM, HEAVY RAIN (SHOWERS), MIST, FEW CLOUDS AT THREE HUNDRED, CEILING ONE THOUSAND OVERCAST, CUMULONIMBUS, TEMPERATURE TWO THREE, DEW POINT TWO TWO, ALTIMETER THREE ZERO ZERO FOUR, OCCASIONAL LIGHTNING IN-CLOUD, CLOUD-TO-GROUND.”

4. METAR: KDET 091350Z AUTO 04008KT 8SM -RA FEW008 BKN029 OVC055 18/17 A3000

“DETROIT CITY AUTOMATED (ONE THREE FIVE ZERO) OBSERVATION, WIND ZERO FOUR ZERO AT EIGHT, VISIBILITY EIGHT, LIGHT RAIN, FEW CLOUDS AT EIGHT HUNDRED, CEILING TWO THOUSAND NINER HUNDRED BROKEN, FIVE THOUSAND FIVE HUNDRED OVERCAST, TEMPERATURE ONE EIGHT, DEW POINT ONE SEVEN, ALTIMETER THREE ZERO ZERO ZERO.”

Appendix D: Bonus Exercise – METAR/SPECI Decoding (Continued)

Answers (Cont'd)

5. SPECI: KTOL 091242Z 04008KT 2SM BR BKN006 OVC009 21/20
A2997 RMK SFC VIS 6 CIG 003V007

"TOLEDO SPECIAL REPORT FOUR TWO OBSERVATION WIND
ZERO FOUR ZERO AT EIGHT, VISIBILITY TWO, MIST, CEILING SIX
HUNDRED BROKEN, NINER HUNDRED OVERCAST,
TEMPERATURE TWO ONE, DEW POINT TWO ZERO, ALTIMETER
TWO NINER NINER SEVEN, SURFACE VISIBILITY SIX, CEILING
VARIABLE BETWEEN THREE HUNDRED AND SEVEN HUNDRED"

6. SPECI: KPIT 091231Z 23006KT 8SM FEW008 BKN018 OVC110 21/19
A3000

"PITTSBURG INTERNATIONAL SPECIAL REPORT THREE ONE
OBSERVATION, WIND TWO THREE ZERO AT SIX, VISIBILITY
EIGHT, FEW CLOUDS AT EIGHT HUNDRED, CEILING ONE
THOUSAND EIGHT HUNDRED BROKEN, ONE ONE THOUSAND
OVERCAST, TEMPERATURE TWO ONE, DEW POINT ONE NINER,
ALTIMETER THREE ZERO ZERO ZERO"

7. METAR: KLVS 091553Z AUTO 04011KT 10SM CLR 28/M03 A3030
RMK PRESRR

"LAS VEGAS, NEW MEXICO AUTOMATED (ONE FIVE FIVE THREE)
OBSERVATION, WIND ZERO FOUR ZERO AT ONE ONE, VISIBILITY
ONE ZERO, CLEAR BELOW ONE TWO THOUSAND, TEMPERATURE
TWO EIGHT, DEW POINT MINUS THREE, ALTIMETER THREE ZERO
THREE ZERO, PRESSURE RISING RAPIDLY"

8. METAR: KTUS 091555Z VRB05KT 10SM CLR 32/07 A3002

"TUCSON (ONE FIVE FIVE FIVE OBSERVATION), WIND VARIABLE
AT FIVE, VISIBILITY ONE ZERO, CLEAR BELOW ONE TWO
THOUSAND, TEMPERATURE THREE TWO, DEW POINT SEVEN,
ALTIMETER THREE ZERO ZERO TWO"

Appendix D: Bonus Exercise – METAR/SPECI Decoding (Continued)

**Answers
(Cont'd)**

9. SPECI: KLAS 091536Z 01005KT 10SM FEW250 33/07 A2998 RMK TCU W

“LAS VEGAS, NEVADA SPECIAL REPORT THREE SIX OBSERVATION, WIND ZERO ONE ZERO AT FIVE, VISIBILITY ONE ZERO, FEW CLOUDS AT TWO FIVE THOUSAND, TEMPERATURE THREE THREE, DEW POINT SEVEN, ALTIMETER TWO NINER NINER EIGHT, TOWERING CUMULUS WEST”

10. METAR: KATL 101253Z 25010KT 10SM FEW035CB SCT150 BKN250 26/22 A3008 RMK CB DSNT W-NW

“ATLANTA HARTSFIELD (ONE TWO FIVE THREE OBSERVATION), WIND TWO FIVE ZERO AT ONE ZERO, VISIBILITY ONE ZERO, FEW CLOUDS AT THREE THOUSAND FIVE HUNDRED CUMULONIMBUS, ONE FIVE THOUSAND SCATTERED, CEILING TWO FIVE THOUSAND BROKEN, TEMPERATURE TWO SIX, DEW POINT TWO TWO, ALTIMETER THREE ZERO ZERO EIGHT, CUMULONIMBUS DISTANT WEST THROUGH NORTHWEST.”