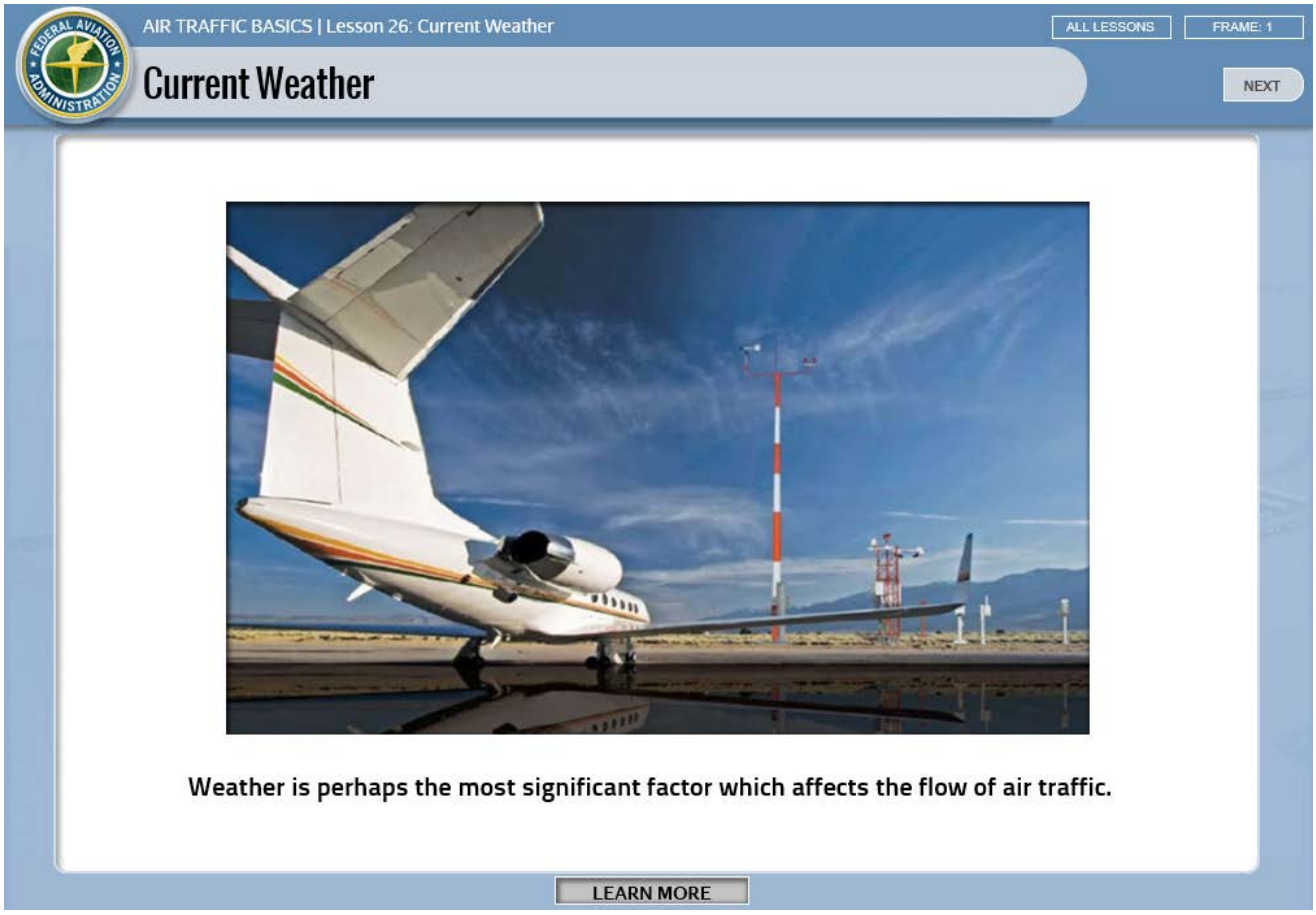
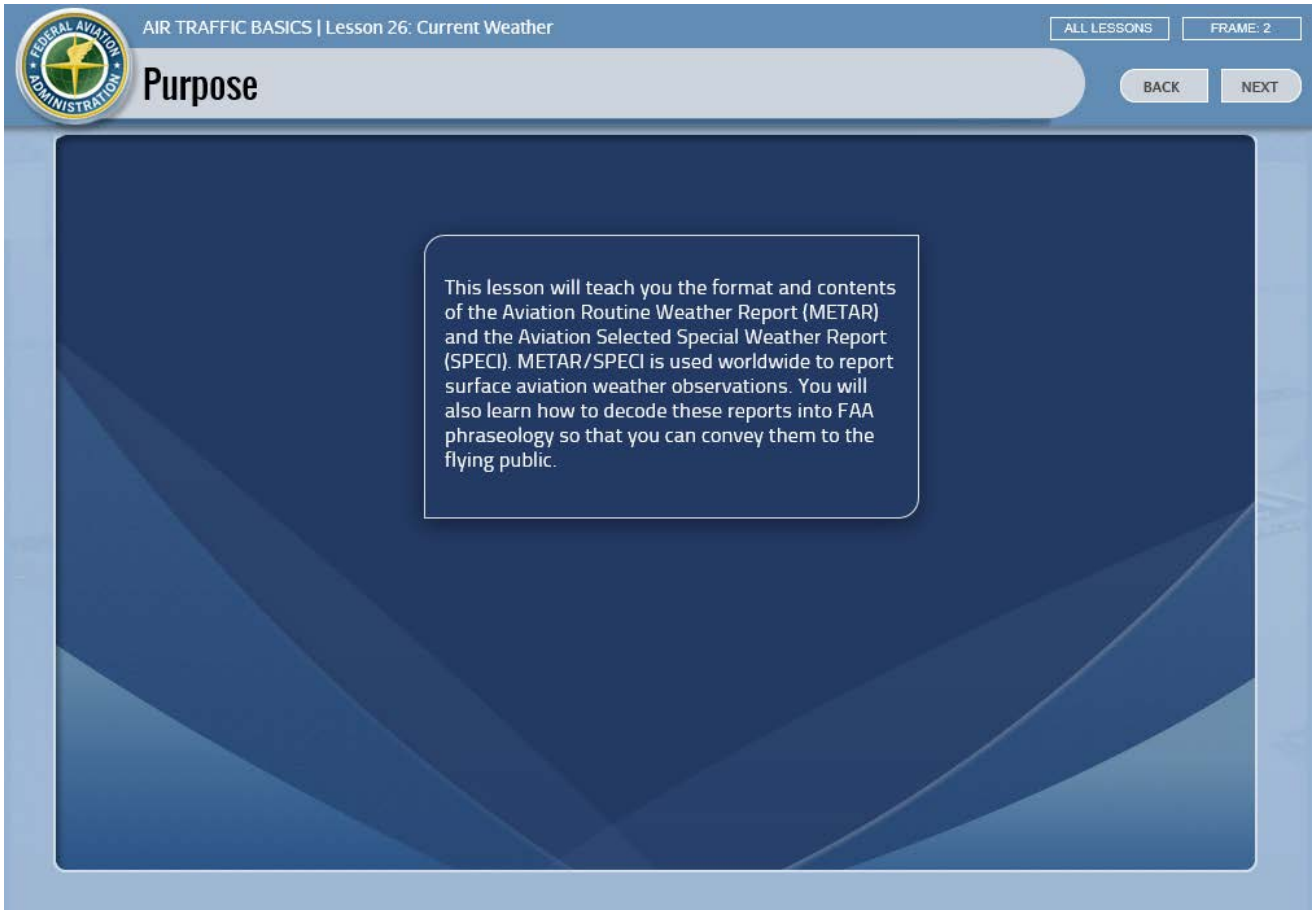
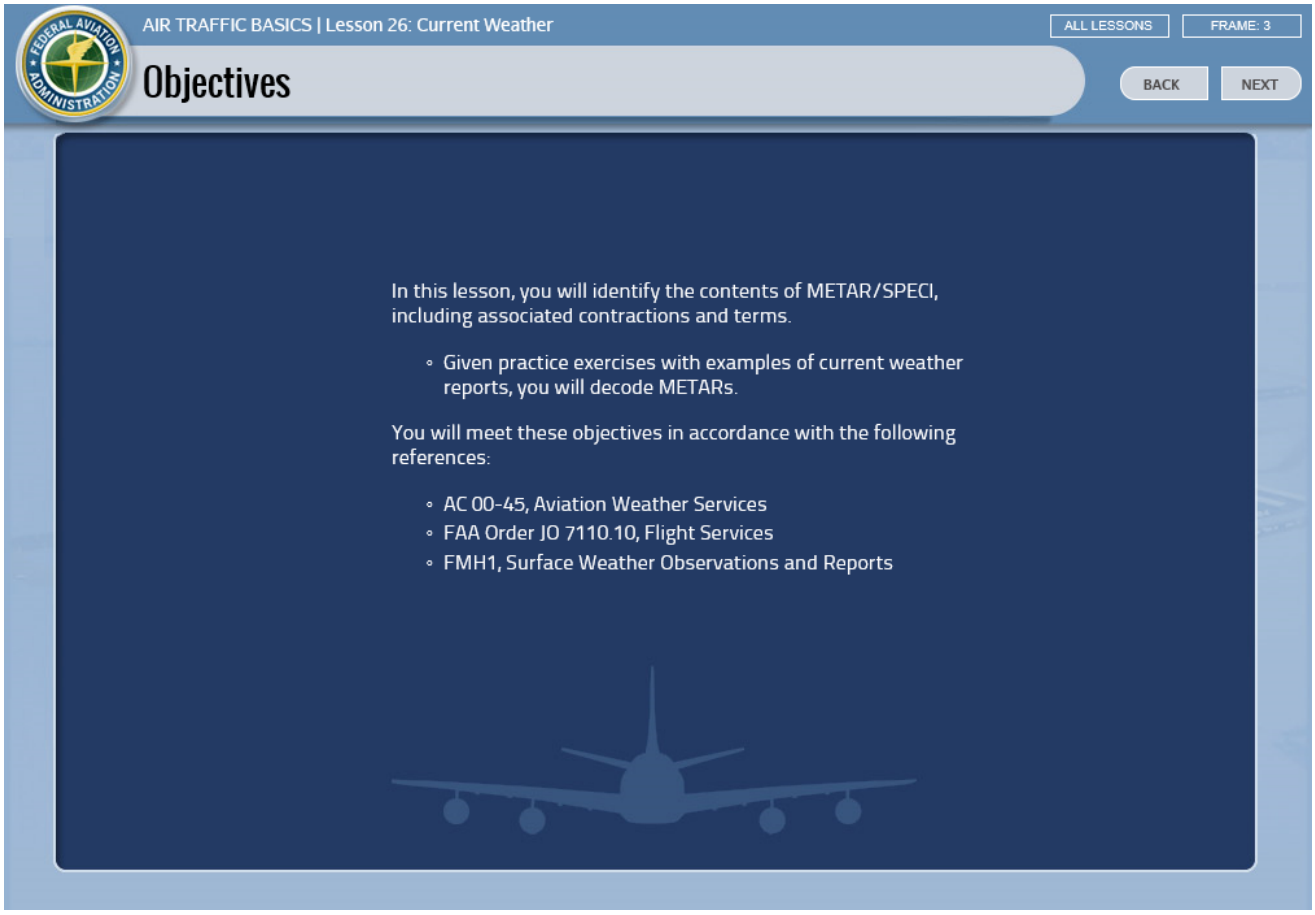


Just as knowing the location of other aircraft is important, knowing the weather, which affects your traffic, is equally important.


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 2
Purpose
BACK
NEXT
This lesson will teach you the format and contents of the Aviation Routine Weather Report (METAR) and the Aviation Selected Special Weather Report (SPECI). METAR/SPECI is used worldwide to report surface aviation weather observations. You will also learn how to decode these reports into FAA phraseology so that you can convey them to the flying public.


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 3
Objectives
BACK
NEXT
In this lesson, you will identify the contents of METAR/SPECI, including associated contractions and terms.
Given practice exercises with examples of current weather reports, you will decode METARs.
You will meet these objectives in accordance with the following references:
AC 00-45, Aviation Weather Services
FAA Order JO 7110.10, Flight Services
FMH1, Surface Weather Observations and Reports

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 4

Types of Observations

BACK NEXT

Automated Observation is obtained from an automated surface weather observing system that prepares the meteorological reports for transmission without a certified weather observer.

There are three automated observation systems used at U.S. airports, each with similar sensors:

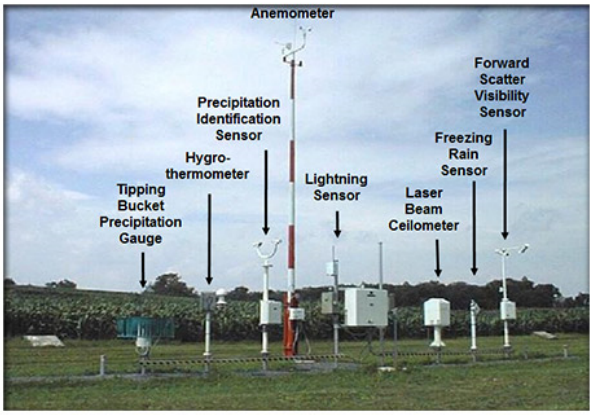
- Automated Weather Observing System (AWOS)
- Automated Surface Observing System (ASOS)
- Automated Weather Sensor System (AWSS)

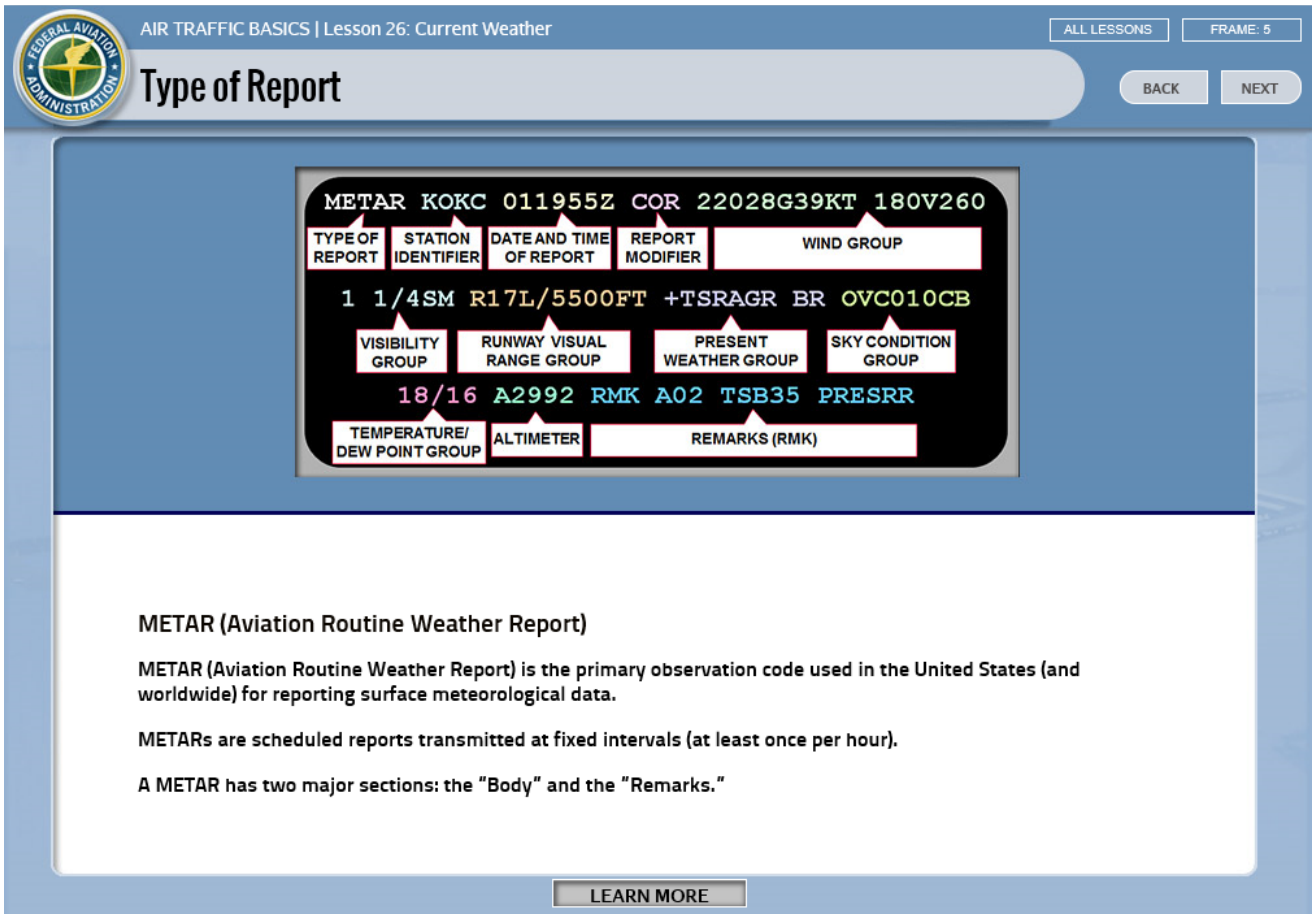
Augmented Observation is an automated surface weather observing system that prepares the meteorological reports for transmission with certified weather observers signed on to the system to add information to the observation.

Manual Observation is taken by a certified weather observer who is responsible for meteorological observations.

FMH1, Chap. 1

Automated Surface Observing System (ASOS)





- The "Body" consists of a maximum of 11 groups:
  - Type of Report
  - Station Identifier
  - Date and Time of Report
  - Report Modifier
  - Wind Group
  - Visibility Group
  - Runway Visual Range (RVR) Group
  - Present Weather Group
  - Sky Condition Group
  - Temperature/Dew Point Group
  - Altimeter
- The "Remarks" section consists of two categories:
  - Automated, Manual, and Plain Language
  - Additive and Maintenance data
- When an element does not occur or cannot be observed, the corresponding group is omitted from that particular report.

References:

- AC 00-45, sec. 3
- FMH1, Chap. 2, 12

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 6

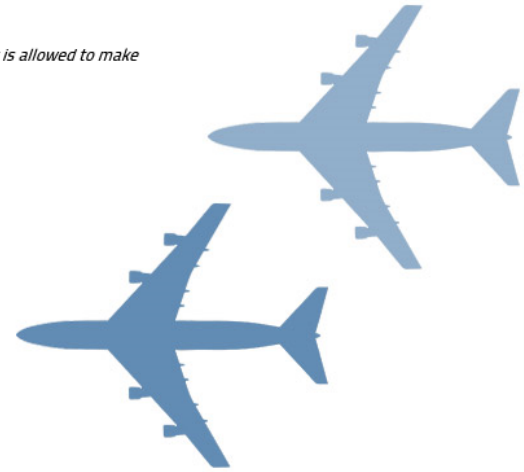
Type of Report

BACK NEXT

METAR (Aviation Routine Weather Report)

NOTE: The term "METAR" originated from the French phrase "message d'observation météorologique régulière pour l'aviation." It is thought to be a contraction of the French words "MÉTéorologique" (weather) Aviation Régulière (routine).

NOTE: Although the METAR/SPECI code is used worldwide, each country is allowed to make modifications or exceptions to the code for their own use.



AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 7

Type of Report

BACK NEXT

SPECI (Aviation Selected Special Weather Report)

A SPECI (Aviation Selected Special Weather Report) is an unscheduled report taken when certain criteria have been observed. (See Appendix A, Criteria for SPECI at the end of this lesson.)

- **These criteria denote weather changes important to aircraft safety.**
- **A SPECI contains all of the data elements found in a METAR.**
- **SPECI criteria are only applicable to stations which have the capability of evaluating the event.**
  - **For example, visually evaluated elements, such as a tornado, are not applicable to non-staffed automated stations.**

AC 00-45, sec 3; FMH1, Chap. 2

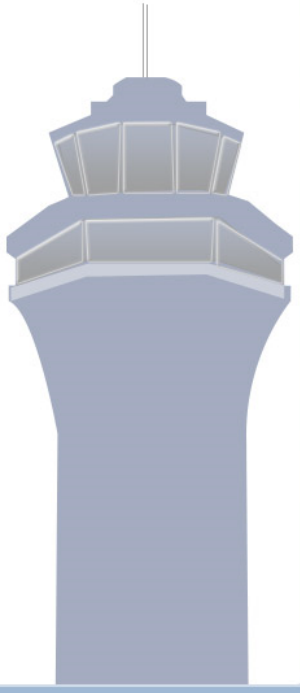
Type of Report

Announcing Missing Elements

With the exception of Report Modifier, Runway Visual Range (RVR), Present Weather group, and Remarks, announce the word "*missing*" when any item or component of a weather report is not reported.

- **Also, announce the word "*missing*" in place of unreadable or obviously incorrect items or portions of weather reports.**

JO 7110.10, Chaps. 2, 13



AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 9

Type of Report

BACK NEXT

TYPE OF REPORT

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

The type, METAR or SPECI, is included in all reports.

If the report is a SPECI, announce as "*special report.*"

Do not announce the type of report if it is a METAR.

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 10

Station Identifier

BACK NEXT

STATION IDENTIFIER

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

The Station Identifier is included in all reports to identify the station to which the coded report applies.

- The station identifier is the four-letter International Civil Aviation Organization (ICAO) airport code used to designate each airport around the world.

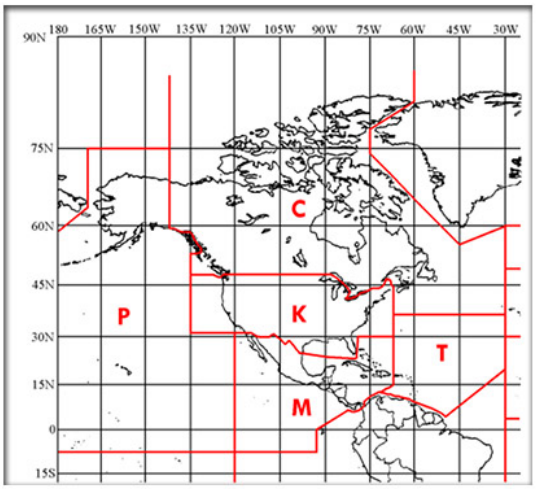
AC 00-45, sec. 3; FMH1, Chap. 12

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 11

Station Identifier

BACK NEXT



ICAO Airport Code Prefix

The ICAO airport codes have a regional structure, are not duplicated, and are comprehensive.

- In general, the first letter is allocated by region and represents a country or group of countries within that region.
- The second letter generally represents a country within that region.
- The final two letters are used to identify each airport.

Exception: In larger countries that have single-letter country codes (like the contiguous USA), the remaining three letters identify the airport.

AC 00-45, sec. 3

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 12

Station Identifier

BACK NEXT

ICAO Airport Codes: Contiguous United States of America Region

In the contiguous United States of America region, the ICAO prefix is "K."

LOCATION	ICAO PREFIX	ICAO STATION IDENTIFIER
Caribou, ME	K	KCAR
Key West, FL	K	KEYW
Dodge City, KS	K	KDDC
Salt Lake City, UT	K	KSLC
Bellingham, WA	K	KBLI
San Diego, CA	K	KSAN

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 13

Station Identifier

BACK NEXT

LOCATION	ICAO PREFIX	ICAO STATION IDENTIFIER
Anchorage International, AK	PA	PANC
Nome, AK	PA	PAOM
Honolulu, HI	PH	PHNL
Hilo, HI	PH	PHTO
Agana, GU	PG	PGUM
Anderson AFB, GU	PG	PGUA

ICAO AIRPORT CODES: EASTERN NORTH PACIFIC REGION

In the Eastern North Pacific region, the ICAO prefix begins with "P," followed by the appropriate country code, with the last two letters used to identify each airport.

- Alaska's ICAO prefix is "PA"
- Hawaii's ICAO prefix is "PH"
- The Marianas Islands' (including Guam) ICAO prefix is "PG"

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 14

Station Identifier

BACK NEXT

Location Name

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 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.

JO 7110.10, Chaps. 2, 13

Station Identifier Examples

KPAH	*"Paducah"*	KORD	*"Chicago O'Hare"*
KSGF	*"Springfield, Missouri"*	KADW	*"Andrews Air Force Base"*
KOKC	*"Oklahoma City Will Rogers World Airport"*	KFRI	*"Fort Riley, Marshall Army Air Field"*
KMDW	*"Chicago Midway"*	KNGU	*"Norfolk Naval Air Station"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 15

Date and Time of Report

BACK NEXT

DATE AND TIME OF REPORT

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

Report Date and Time

The Date and Time (UTC) of Report element is the actual time of the report or when the criteria for a SPECI was met or noted.

- **If the report is a correction to a previously disseminated report, the time of the corrected report is the same as the report being corrected.**

AC 00-45, sec. 3; FMH1, Chap. 12

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 16

Date and Time of Report

BACK NEXT

121456Z	
12	Day of the month
14	Hour (UTC)
56	Minute (UTC)
Z	Universal Time Coordinated (UTC)

Decoding

The Date and Time of Report coding format is:

- **12 – First two digits are the day of the month**
- **14 – The next two digits are the hour (UTC)**
- **56 – Final two digits are the minute (UTC)**
- **Z – Universal Time Coordinated (UTC)**

AC 00-45, sec. 3; FMH1, Chap. 12

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 17

Date and Time of Report

BACK NEXT

Announcing Date and Time

If a special report (SPECI) is the most recent observation available, follow the location with the words "special report, (last two digits of the time) observation."

- **A METAR's time of report may be given upon request.**
  - **Follow the location with "(all four digits of the time) observation."**

NOTE: In the following examples and exercises, the METAR Time of Report will be typed in parentheses to indicate it may be given upon request.

JO 7110.10, Chaps. 2, 13

Date and Time of Report Examples

METAR KOKC 021250Z…	*"…(one two five zero observation)…"*
METAR KOKC 091952Z…	*"…(one niner five two observation)…"*
SPECI KOKC 222108Z…	*"…special report, zero eight observation…"*
SPECI KOKC 310023Z…	*"…special report, two three observation…"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 18

Report Modifier

BACK NEXT

REPORT MODIFIER

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

The Report Modifier, AUTO, identifies the METAR/SPECI as a fully automated report with no human intervention or oversight.

In the event of a corrected METAR or SPECI, the report modifier, COR, is substituted in place of AUTO.

The omission of a "Report Modifier" element indicates either a manual or augmented observation.

Announce AUTO as "automated."

Announce COR as "corrected."

AC 00-45, sec. 3; FMH1, chap. 12; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 19

Report Elements Phraseology

BACK NEXT

Report Type/Station ID/Date-Time/Modifier Groups Examples

METAR KMCI 010255Z...	*"Kansas City International, (zero two five five observation)…"*
METAR KMTH 071954Z AUTO...	*"Marathon, automated, (one niner five four observation)…"*
SPECI KOKB 141242Z AUTO...	*"Oceanside, automated, special report, four two observation…"*
SPECI PHML 302316Z COR...	*"Molokai, corrected, special report, one six observation…"*

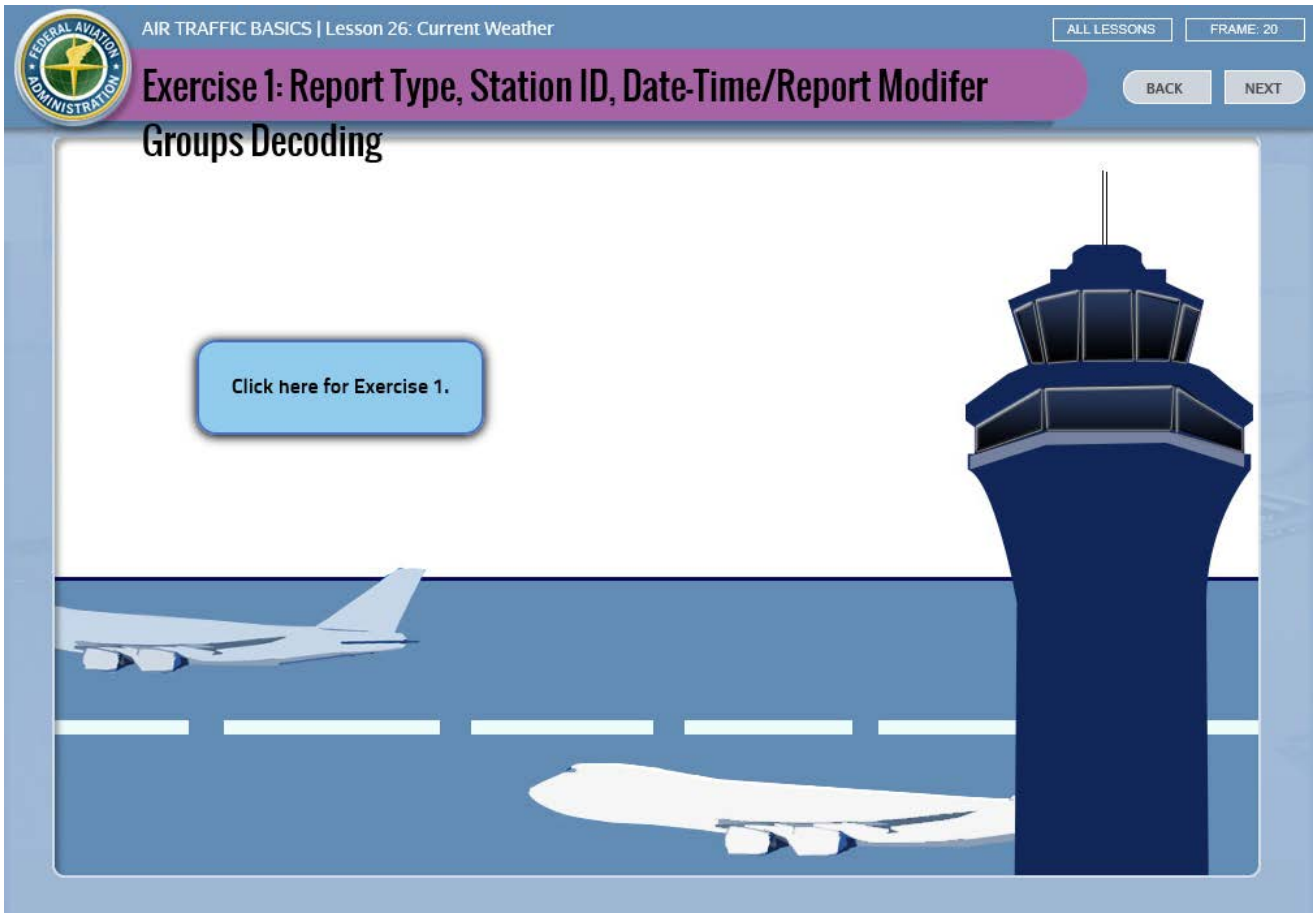
Announcing Report Elements

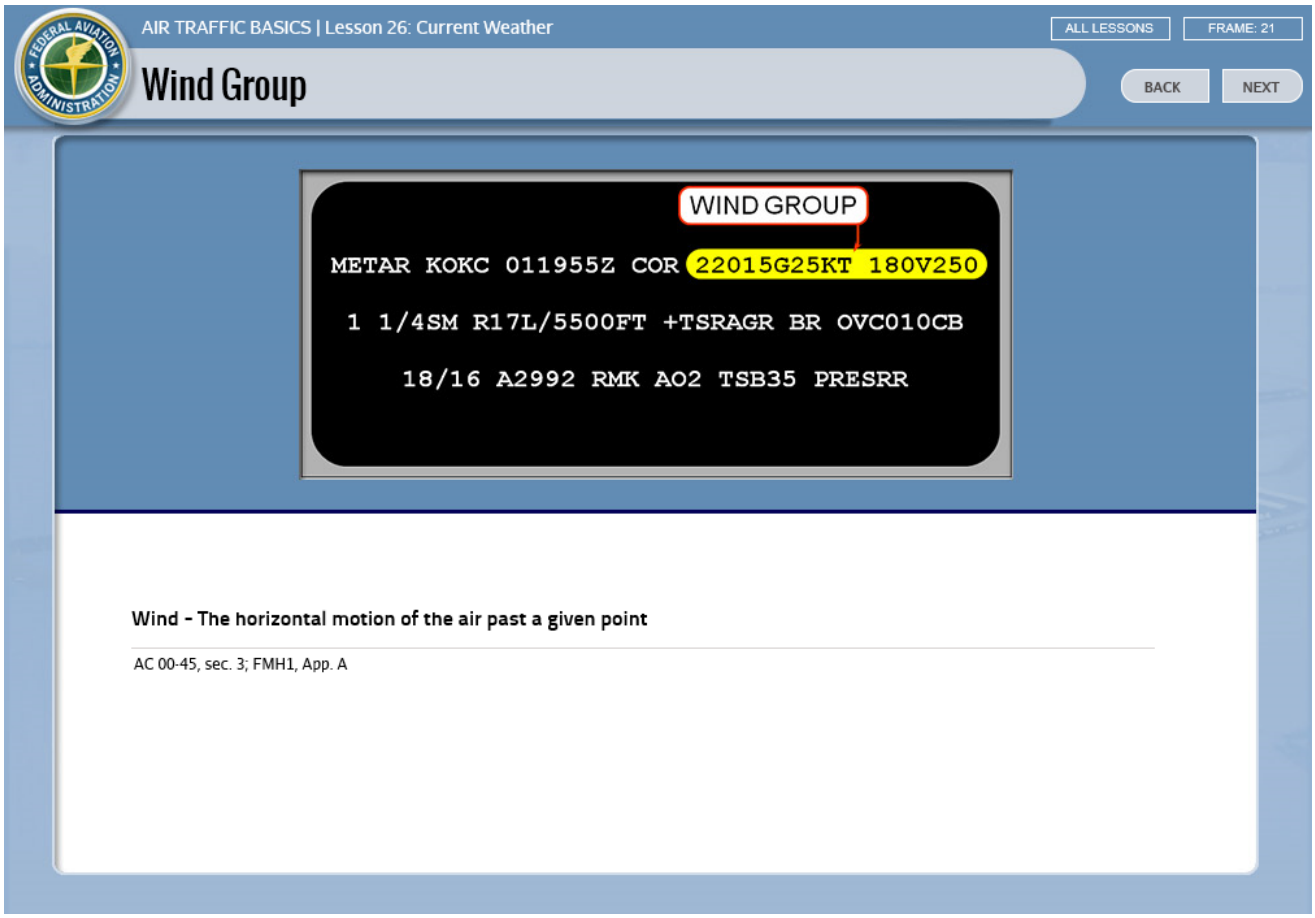
Announce METAR/SPECI report elements in the following order:

- **Station identifier**
- **Report modifier (if applicable)**
- **Type of report (SPECI only)**
  - **Do not announce if METAR**
- **Date and time of report**
  - **If SPECI, only announce the minutes**
  - **If METAR, announce hours and minutes upon request**

NOTE: The remaining METAR/SPECI elements are announced in their listed order.

JO 7110.10, Chaps. 2, 13


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 20
Exercise 1: Report Type, Station ID, Date-Time/Report Modifer Groups Decoding
BACK
NEXT
Click here for Exercise 1.


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 21
Wind Group
BACK
NEXT
WIND GROUP
METAR KOKC 011955Z COR 22015G25KT 180V250
1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB
18/16 A2992 RMK AO2 TSB35 PRESRR
Wind - The horizontal motion of the air past a given point
AC 00-45, sec. 3; FMH1, App. A

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 22

Wind Group

BACK NEXT

Decoding

The Wind Group coding format is:

- 220 – The first three digits indicate the wind direction relative to true north coded in tens of degrees using three digits.
  - VRB is coded if the wind direction is variable and the speed is 6 knots or less.
- 15 – The next two (or three) digits indicate the wind speed in knots.
  - 00000KT denotes "wind calm"
- G25 – If the wind is gusty, G is coded followed by two (or three) digits which indicate the maximum instantaneous wind speed gust.

22015G25KT 180V250	
220	Wind direction (degrees) relative to true north
15	Wind speed (knots)
G25	Maximum instantaneous wind speed gust (knots)
KT	Units of measurement (knots)
180V250	Variable wind direction (wind speed greater than 6 knots)

NOTE: Wind gusts are rapid fluctuations in wind speed.

- KT indicates the unit of measurement is knots.
- 180V250 – If the wind direction is variable and the speed is greater than 6 knots, a variable wind group consisting of the extremes of the wind directions separated by a V will follow the wind group.

AC 00-45, sec. 3; FMH1, Chap. 12

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 23

Wind Group

BACK NEXT

VRB04KT	*"Wind variable at four"*
29012KT 260V320	*"Wind two niner zero at one two, wind variable between two six zero and three two zero"*
33037G46KT 300V010	*"Wind three three zero at three seven gusts four six, wind variable between three zero zero and zero one zero"*
00000KT	*"Wind calm"*
26012KT	*"Wind two six zero at one two"*
30008KT	*"Wind three zero zero at eight"*
36012G20KT	*"Wind three six zero at one two gusts two zero"*

Announcing Wind

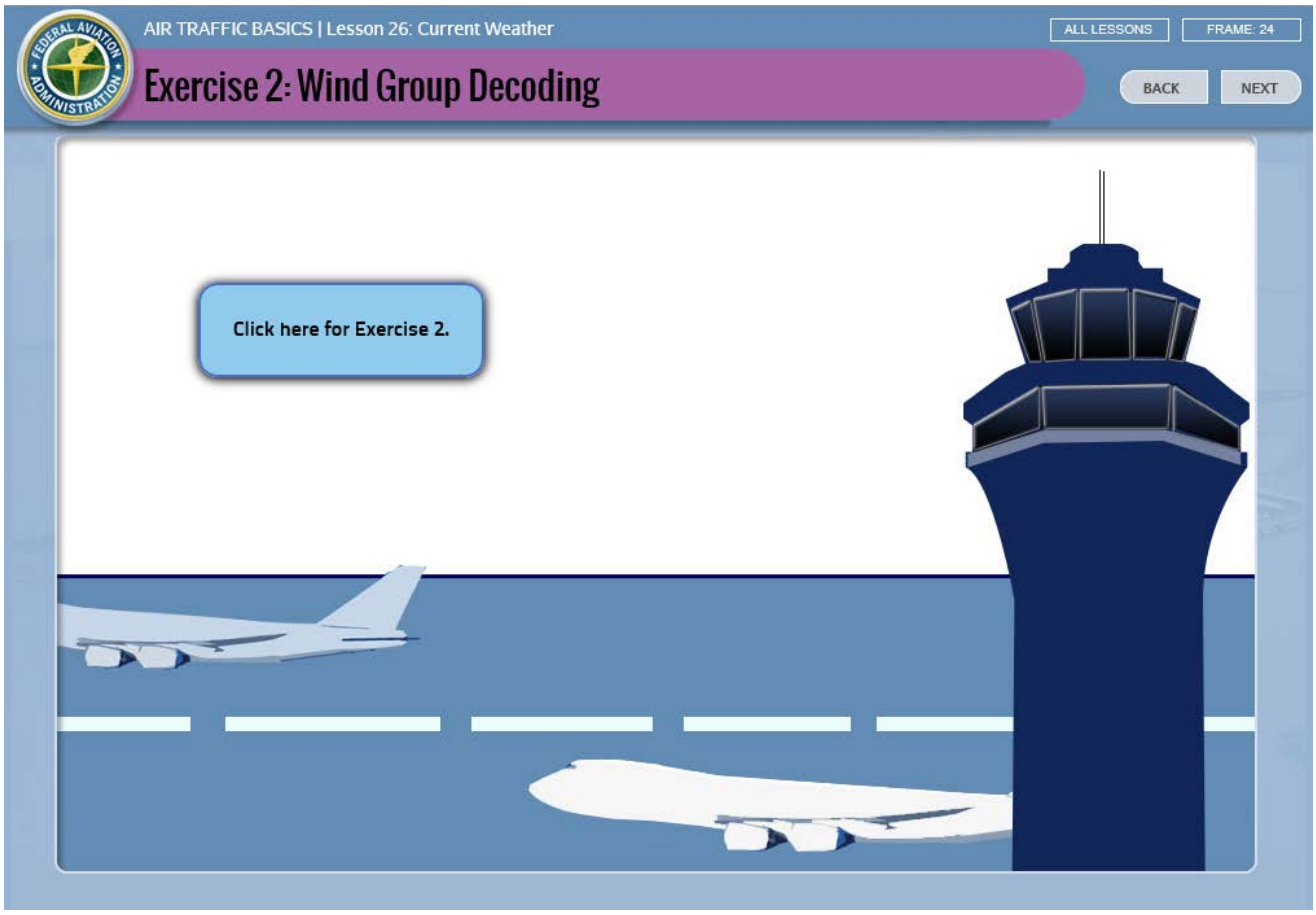
Announce surface wind direction and speed by stating the word "Wind" followed by the separate digits of wind direction to the nearest 10 degrees and the separate digits of the speed.

- **For speeds less than 10 knots, the leading zero is not spoken.**

A "G" between two wind speed values is announced as "Gusts."

Announce the variability of wind at the end of the wind group.

JO 7110.10, Chaps. 2, 13


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 24
Exercise 2: Wind Group Decoding
BACK
NEXT
Click here for Exercise 2.

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 25

Visibility Group

BACK NEXT

VISIBILITY GROUP

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

Prevailing visibility - Visibility considered representative of conditions at the station; the greatest distance that can be seen throughout at least half the horizon circle (180 degrees), not necessarily continuous. This is reported in the Visibility Group of a METAR/SPECI.

FMH1, App. A

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 26

Visibility Group

BACK NEXT

Decoding

The Visibility Group coding format is:

- **1 1/4 represents the surface visibility in statute miles**
  - **Automated stations use M to indicate "less than."**

NOTE: M1/4SM or "visibility less than one-quarter" is the lowest visibility that can be reported by an automated station; the highest visibility an automated station can report is 10SM or "visibility one zero."

- **SM indicates the units of measurement are in statute miles.**

AC 00-45, sec. 3; FMH1, Chap. 12

1 1/4SM	
1 1/4	Surface visibility (statute miles)
SM	Units of measurement (statute miles)

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 27

Visibility Group

BACK NEXT

Visibility Group Examples

0SM	*"Visibility zero"*	3/4SM	*"Visibility three-quarters"*
1/16SM	*"Visibility one sixteenth"*	1 1/2SM	*"Visibility one and one half"*
1/8SM	*"Visibility one eighth"*	8SM	*"Visibility eight"*
M1/4SM	*"Visibility less than one quarter"*	25SM	*"Visibility two five"*

Announcing Visibility

State the word "*Visibility*" followed by the visibility values in miles and/or fractions of statute miles.

- **Announce the separate digits of whole numbers as applicable.**

JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 28

Runway Visual Range (RVR) Group

BACK NEXT

RUNWAY VISUAL RANGE (RVR) GROUP

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

Runway Visual Range (RVR) is an instrumentally derived value, based on standard calibrations, that represents the horizontal distance a pilot may see down the runway from the approach end.

RVR is reported whenever:

- Visibility is 1SM or less

  and/or

- RVR for the designated instrument runway is 6,000 feet or less

AC 00-45, sec. 3; FMH1, Chap. 7

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 29

Runway Visual Range (RVR) Group

BACK NEXT

Decoding

The Runway Visual Range (RVR) Group format is:

- R - Indicates that the runway designator follows
- 17 - Runway designator
  - An additional letter may be used for parallel runways such as "R" for right, "L" for left, and "C" for center.
- / - Solidus
- 5500 - Constant reportable value in feet
  - If the RVR is less than its lowest reportable value, the group is preceded by an "M" and spoken as "*less than*."
  - If the RVR is greater than its highest reportable value, the group is preceded by a "P" and spoken as "*more than*."
  - When the RVR is variable, both the lowest and highest values are coded with a "V" between them.
- FT - Indicates that units of measurement are feet

AC 00-45, sec. 3; FMH1, Chap. 12

R17L/5500FT	
R	Indicates runway designator follows
17	Runway designator
L	Parallel runway (if necessary)
5500	Constant reportable value (feet)
FT	Units of measurement (feet)

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 30

Runway Visual Range (RVR) Group

BACK NEXT

Runway Visual Range (RVR) Group Examples

R16/M0600FT	*"Runway one six visual range less than six hundred"*
R17L/2400V3000FT	*"Runway one seven left visual range variable between two thousand four hundred and three thousand"*
R28L/3500FT	*"Runway two eight left visual range three thousand five hundred"*
R35R/P6000FT	*"Runway three five right visual range more than six thousand"*

Announcing RVR

Provide RVR information by stating the runway, "*visual range*," and the indicated value.

- **The abbreviation "*R-V-R*" may be spoken in lieu of "*visual range*."**
- **When the indicated values are separated by a V, preface the values with the words "*variable between*," followed by the first value, the word "*and*," then the second value.**

Omit RVR when it is not reported.

- **Do not announce it as missing.**

JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 31
Exercise 3: Visibility and RVR Groups Decoding
BACK
NEXT
Click here for Exercise 3.

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 32

Present Weather Group

BACK NEXT

PRESENT WEATHER GROUP

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

The Present Weather Group specifies any weather phenomena occurring at, or in the vicinity of, the station.

Precipitation is listed in order of descending predominance.

AC 00-45, sec. 3; FMH1, Chap. 8

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 33

Present Weather Group

BACK NEXT

Present Weather Notations

Weather phenomena consist of precipitation, obscurations, or other.

- **Precipitation is any of the forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the ground.**
- **Obscuration is any phenomenon in the atmosphere, other than precipitation, that reduces horizontal visibility.**

Qualifiers may be used in various combinations to describe the weather phenomena.

QUALIFIER		WEATHER PHENOMENA		
Intensity or Proximity 1	Descriptor 2	Precipitation 3	Obscuration 4	Other 5
- Light Moderate + Heavy **VC** - In the vicinity	**MI** Shallow **PR** Partial **BC** Patches **DR** Low drifting **BL** Blowing **SH** Shower(s) **TS** Thunderstorm **FZ** Freezing	**DZ** Drizzle **RA** Rain **SN** Snow **SG** Snow grains **IC** Ice crystals **PL** Ice pellets **GR** Hail **GS** Small hail and/or snow pellets **UP** Unknown precipitation	**BR** Mist **FG** Fog **FU** Smoke **VA** Volcanic ash **DU** Widespread dust **SA** Sand **HZ** Haze **PY** Spray	**PO** Well-developed dust/sand whirls **SQ** Squalls **FC** Funnel cloud, tornado, waterspout **SS** Sandstorm **DS** Duststorm
The weather groups are constructed by considering columns 1 to 5 in sequence, i.e., intensity, followed by description, followed by weather phenomena, e.g., heavy freezing rain is coded as +FZRA.				

- **Intensity qualifiers are: light (-), moderate (no entry), and heavy (+).**
- **The proximity qualifier "vicinity" (VC) indicates weather phenomena (other than precipitation) between 5 and 10 statute miles from the point(s) of observation.**
  - **"Showers in the vicinity" (VCSH) indicate precipitation not occurring at the point of observation but within 10 statute miles.**
- **Descriptors are qualifiers which further amplify weather phenomena and are used with certain types of precipitation and obscurations.**

NOTE: Present Weather Notation definitions can be found in Appendix B at the end of this lesson.

AC 00-45, sec. 3; FMH1, Chap. 8

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 34

Present Weather Group

BACK NEXT

Present Weather Group Examples

-FZRA	*"Light freezing rain"*	VCTS	*"Thunderstorm in the vicinity"*
+TSRA	*"Thunderstorm, heavy rain (showers)"*	BCFG	*"Patchy fog" is encoded as BCFG vs. PRFG which is partial*
VCFG	*"Fog in the vicinity"*	DRSN	*"Low drifting snow"*
VCBLSA	*"Blowing sand in the vicinity"*	SHSN	*"Snow showers"*

Announcing Present Weather Group

Intensity refers to precipitation, not descriptors.

- **Light (-) intensity is spoken as "*light.*"**
- **Moderate (no entry) intensity is not spoken.**
- **Heavy (+) intensity is spoken as "*heavy.*"**

The proximity qualifier (VC) is spoken as "(phenomena) in the vicinity."

Descriptors are spoken before the weather phenomenon.

- **Except for "*showers*" which is spoken after the precipitation**

NOTE: Since thunderstorms imply showery precipitation, "showers" may be used to describe precipitation that accompanies thunderstorms.

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 35

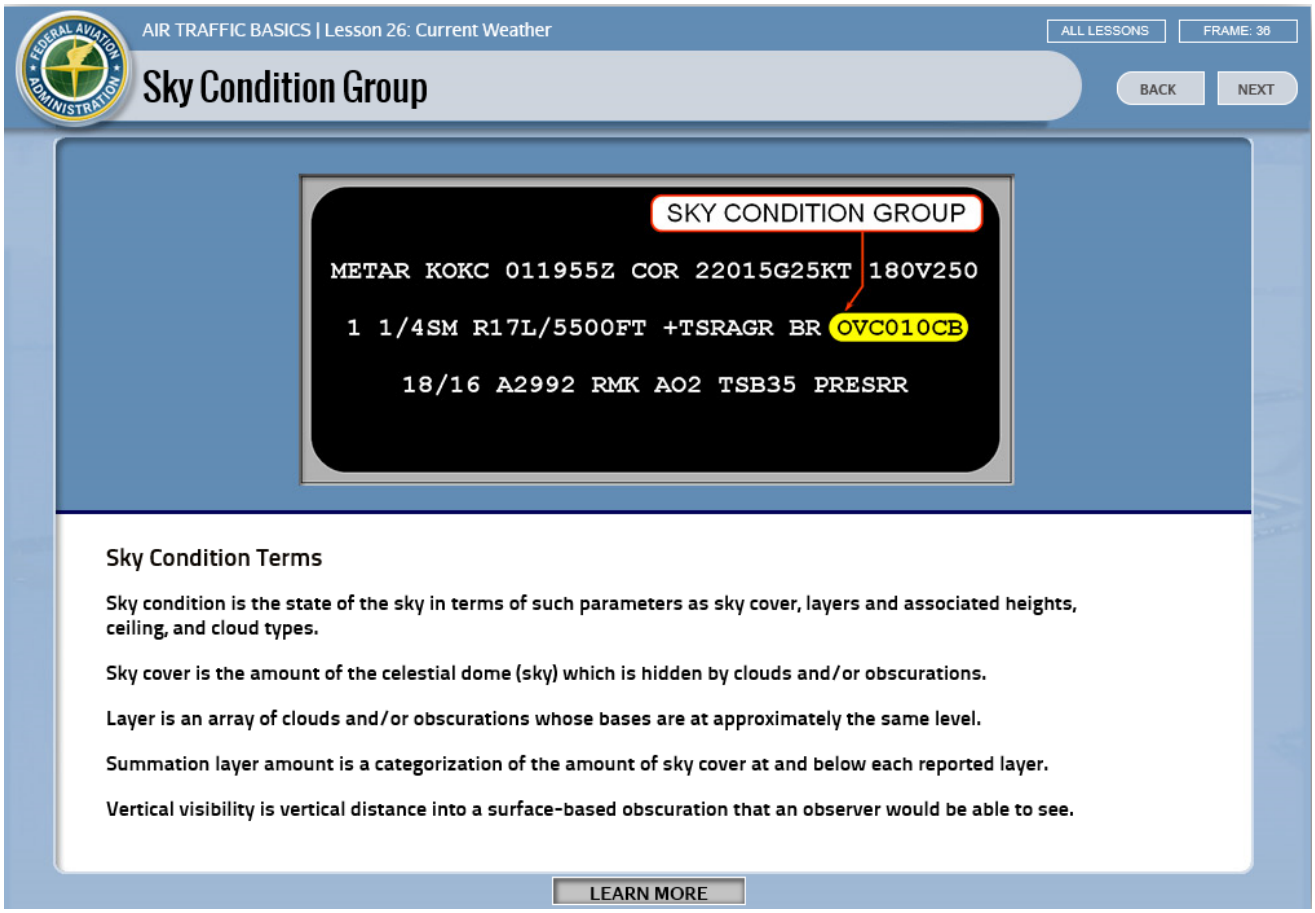
Present Weather Group

BACK NEXT

Present Weather Group Examples

NOTE: When multiple precipitation types are encoded, do not speak the word "and" between them.

BLDU	*"Blowing dust"*	-FZRAPL FG	*"Light freezing rain, ice pellets, fog"*
-FZDZ	*"Light freezing drizzle"*	+SHRA BR SQ	*"Heavy rain showers, mist, squalls"*
FZRA	*"Freezing rain"*	+FC +TSRAGR	*"Tornado, thunderstorm, heavy rain (showers), hail"*
VCSH	*"Showers in the vicinity"*	SN BLSN	*"Snow, blowing snow"*



Ceiling is the lowest layer aloft reported as broken or overcast, or the vertical visibility into an indefinite ceiling.

Indefinite ceiling is the ceiling classification applied when the reported ceiling value represents the vertical visibility upward into a surface-based obscuration.

References:

- AC 00-45, sec. 3
- FMH1, App. A

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 37

Sky Condition Group

BACK NEXT

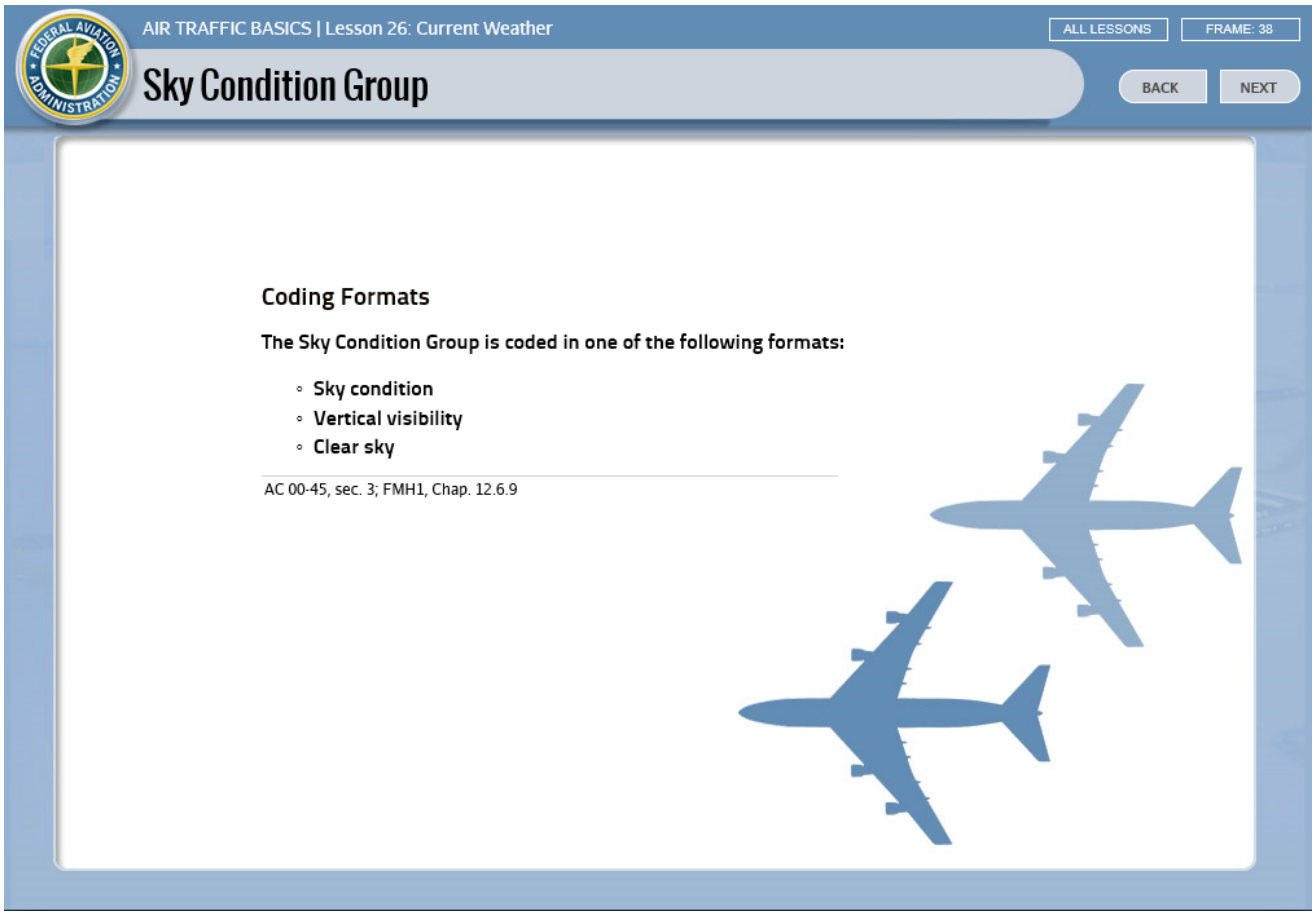
Reportable Contraction	Meaning	Summation Amount of Layer
VV	Vertical Visibility	8/8
SKC or CLR[1]	Clear	0
FEW[2]	Few	1/8 – 2/8
SCT	Scattered	3/8 – 4/8
BKN	Broken	5/8 – 7/8
OVC	Overcast	8/8

1. CLR is used at automated stations when no layers at or below 12,000 feet are reported; SKC is used at manual stations when no layers are reported.

2. Any layer amount greater than 0, but less than 1/8 is reported as FEW.

Reportable Contractions for Sky Cover

AC 00-45, sec. 3; FMH1, Chaps. 9, 12


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 38
Sky Condition Group
BACK
NEXT
Coding Formats
The Sky Condition Group is coded in one of the following formats:
Sky condition
Vertical visibility
Clear sky
AC 00-45, sec. 3; FMH1, Chap. 12.6.9

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 39

Sky Condition Group

BACK NEXT

Decoding

The sky condition format is:

- BKN - The first three letters identify the amount of sky cover (FEW, SCT, BKN, or OVC)
- 012 - Followed by three digits which indicate the height of the layer in hundreds of feet AGL
  - "000" indicates a layer is 50 feet or less AGL
  - "///" indicates the layer is below station level (e.g., FEW///)
- TCU - At manual stations, if towering cumulus (TCU) or cumulonimbus (CB) clouds are present, they are reported by appending the appropriate contraction to the layer that represents their base.
- When a portion of the sky is obscured by a surfaced-based obscuration, the obscuration is reported using the appropriate sky cover contraction (FEW, SCT or BKN), with "000" entered for the layer height.

BKN012TCU	
BKN	Amount of sky cover (**FEW**, **SCT**, **BKN**, or **OVC**)
012	Height of the layer (in hundreds of feet AGL)
TCU	Cloud type (**TCU** or **CB** if present; manual stations only)

Example: SCT000

- Remarks section will specify the cause of the partial obscuration.

Example: RMK FG SCT000

- Sky condition is coded in an ascending order.
  - Each layer is separated from other layers by a space.

AC 00-45, sec. 3; FMH1, Chap. 12

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 40

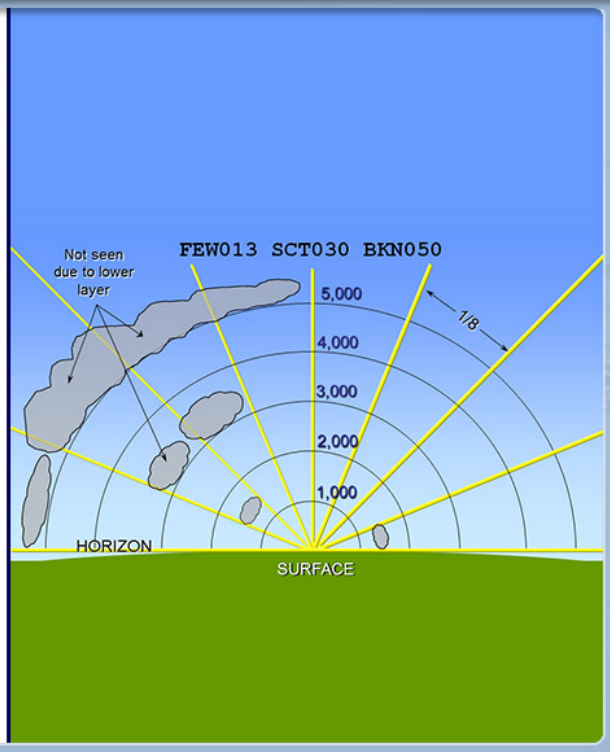
Sky Condition Group

BACK NEXT

Sky Condition Example

The sky condition group is coded "FEW013 SCT030 BKN050."

- From the surface observer's position, a layer at 1,300 feet covers 2/8 of the sky (FEW013).
- A higher layer at 3,000 feet covers an additional 1/8 of the sky.
  - Therefore, the summation total equals 3/8 of the celestial dome (SCT030).
- The highest layer at 5,000 feet covers and additional 2/8 of the sky.
  - Therefore, the summation total equals 5/8 of the sky (BKN050).



AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 41

Sky Condition Group

BACK NEXT

Vertical Visibility Decoding

The vertical visibility format is:

- **VV - Identifies an indefinite ceiling**
- **005 - Followed by three digits which indicate the vertical visibility into the indefinite ceiling in hundreds of feet AGL**

AC 00-45, sec. 3; FMH1, Chap. 12

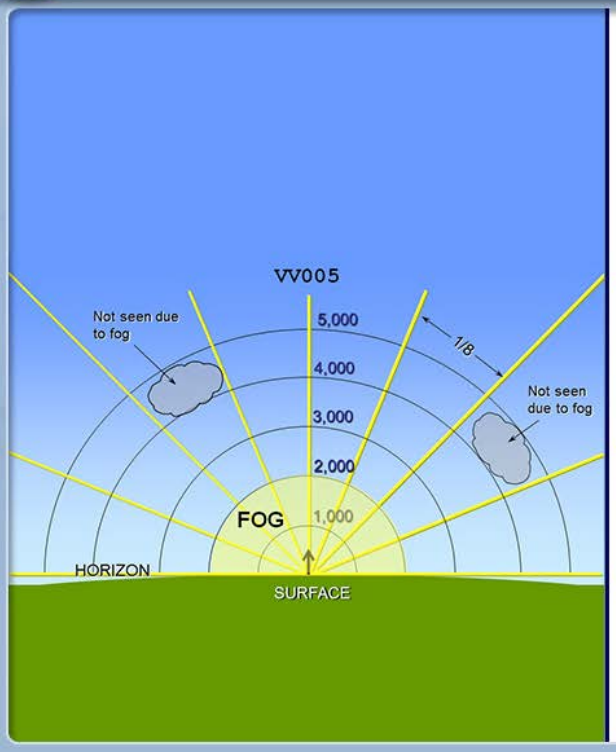
VV005	
VV	Indicates an indefinite ceiling
005	Vertical visibility into the indefinite ceiling (in hundreds of feet AGL)

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 42

Sky Condition Group

BACK NEXT



Vertical Visibility Example

The sky condition group is coded "VV005."

- Fog obscures the entire sky.
- Vertical visibility into this surface based obscuration is 500 feet

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 43

Sky Condition Group

BACK NEXT

Clear Sky Decoding

The clear sky format is:

- **SKC is the abbreviation used by manual stations to indicate no layers are present.**
- **CLR is the abbreviation used by automated stations to indicate no layers are detected at or below 12,000 feet above the surface.**
  - **The ceilometers at automated stations cannot presently detect layers above 12,000 feet.**

AC 00-45, sec. 3; FMH1, Chap. 12

SKC/CLR	
SKC	Used by manual stations to indicate no layers are present
CLR	Used by automated stations to indicate no layers are detected at or below 12,000 feet above the surface

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 44

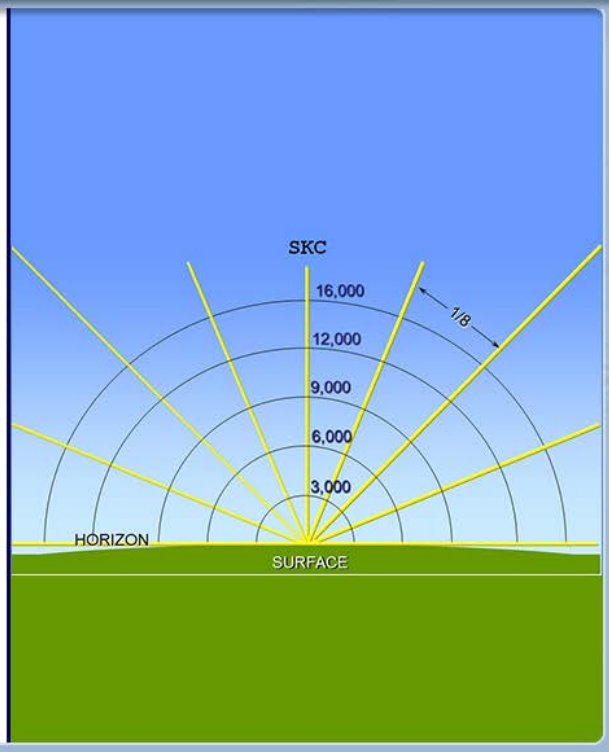
Sky Condition Group

BACK NEXT

Clear Sky (SKC) Example

The sky condition group is coded "SKC."

- The sky is clear as determined by a human observer.

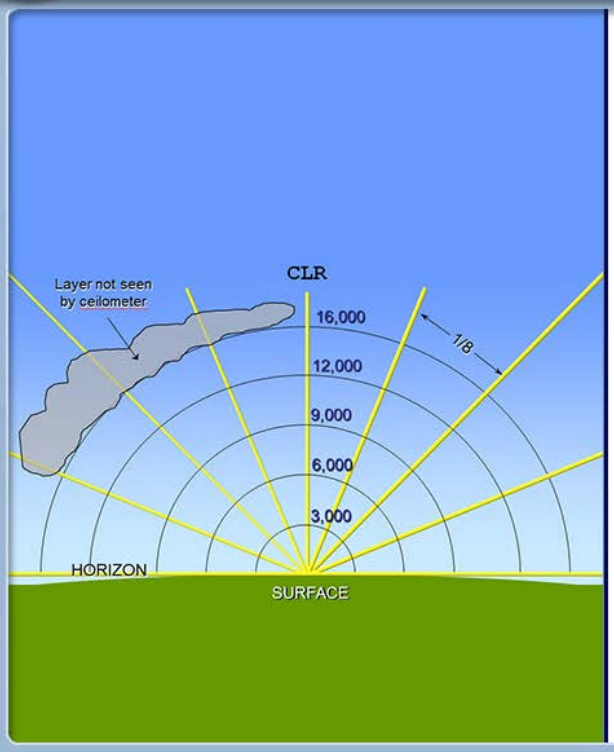


AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 45

Sky Condition Group

BACK NEXT



Clear Sky (CLR) Example

The sky condition group is coded "CLR."

- The sky is clear at or below 12,000 feet as determined by an automated observing system.
- The ceilometers at automated stations cannot presently detect layers above 12,000 feet.

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 46

Sky Condition Group

BACK NEXT

Announcing Sky Coverage

State sky coverage in the same order as reported on the weather observation.

Announce "*ceiling*" before the lowest layer aloft reported as broken or overcast or "*indefinite ceiling*" in place of vertical visibility.

Announce partial surface-based obscurations as "*Sky partially obscured.*"

State layer heights in tens, hundreds, and/or thousands of feet.

JO 7110.10, Chaps. 2, 13

Phraseology

Contraction	Phraseology
BKN000[1]	*"Sky partially obscured"*
BKN000[2]	*"Ceiling less than five zero broken"*
FEW000[1]	*"Sky partially obscured"*
FEW000[2]	*"Few clouds at less than five zero"*
SCT000[1]	*"Sky partially obscured"*
SCT000[2]	*"Less than five zero scattered"*
(lowest layer aloft) BKN/OVC	*(precede with) "Ceiling"*
VV	*"Indefinite ceiling"*

[1] *Surface-based obscurations. Requires remarks, i.e. RMK FG SCT000, FU BKN000, etc.*
[2] *No remark means the layer is aloft.*

Layer Height	Phraseology
000	*"Indefinite ceiling zero"*
003	*"Three hundred"*
018	*"One thousand, eight hundred"*
200	*"Two zero thousand"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 47

Sky Condition Group

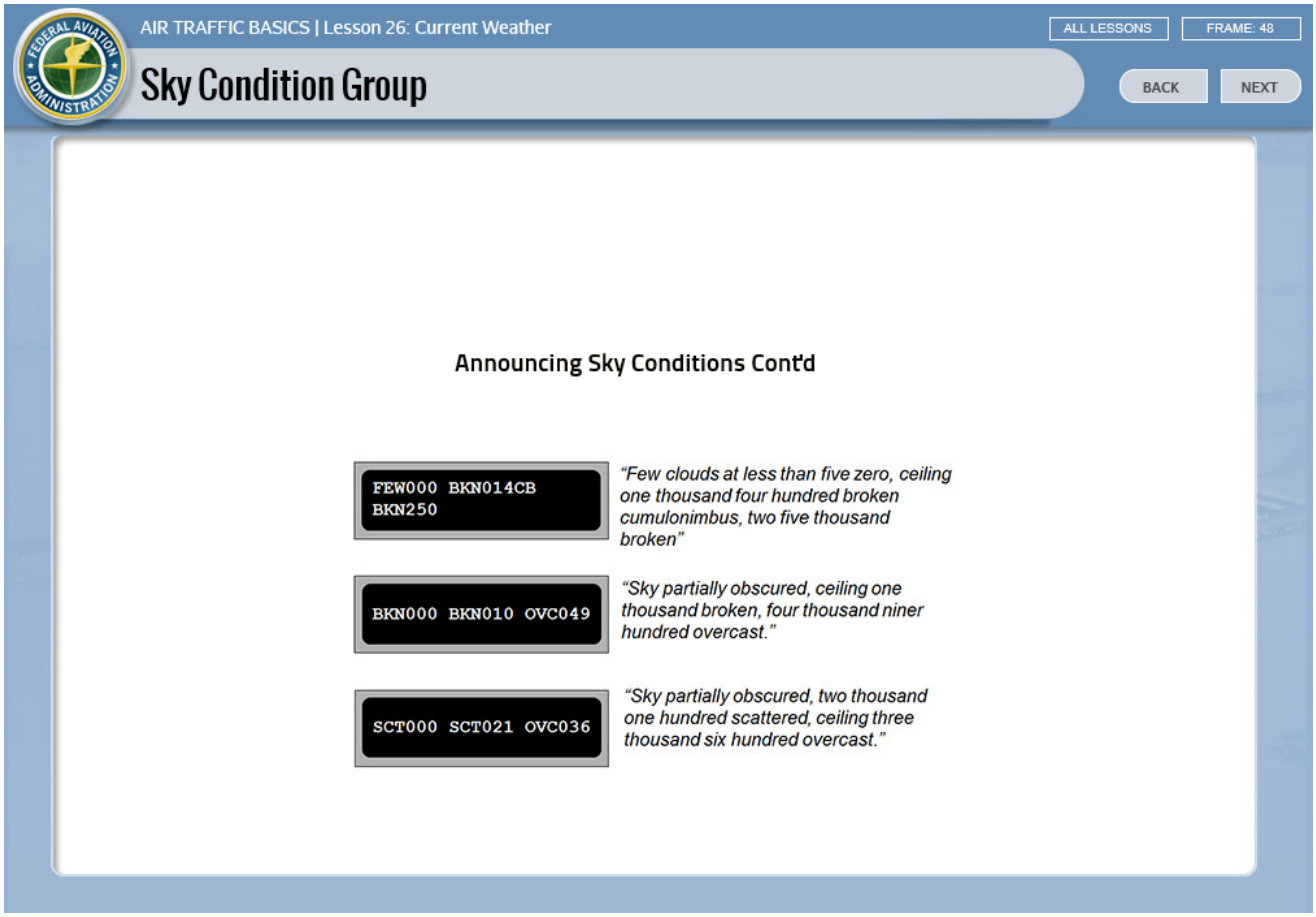
BACK NEXT

Announcing Sky Conditions

Announce sky conditions as indicated:

Reportable Contraction	Phraseology
SKC	*"Clear"*
CLR	*"Clear below one two thousand"*
FEW	*"Few clouds at (height)"*
SCT	*"(height) scattered"*
BKN	*"(height) broken"*
OVC	*"(height) overcast"*
CB	*"Cumulonimbus"*
TCU	*"Towering cumulus"*

FEW004 SCT016 BKN085	*"Few clouds at four hundred, one thousand six hundred scattered, ceiling eight thousand five hundred broken"*
SCT037TCU OVC150	*"Three thousand seven hundred scattered towering cumulus, ceiling one five thousand overcast"*
VV000	*"Indefinite ceiling zero"*
VV006	*"Indefinite ceiling six hundred"*


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 48
Sky Condition Group
BACK
NEXT
Announcing Sky Conditions Cont'd
FEW000 BKN014CB BKN250
"Few clouds at less than five zero, ceiling one thousand four hundred broken cumulonimbus, two five thousand broken"
BKN000 BKN010 OVC049
"Sky partially obscured, ceiling one thousand broken, four thousand niner hundred overcast."
SCT000 SCT021 OVC036
"Sky partially obscured, two thousand one hundred scattered, ceiling three thousand six hundred overcast."

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 49

Temperature/Dew Point Group

BACK NEXT

TEMPERATURE/ DEW POINT GROUP

METAR KOKC 011955Z COR 22015G25KT 180V250

1 1/4SM R17L/5500FT +TSRAGR BR OVC010CB

18/16 A2992 RMK AO2 TSB35 PRESRR

Temperature is a measure of the hotness or coldness of the air as measured by a thermometer.

Dew point is the temperature to which the air must be cooled at constant pressure and constant water-vapor content in order for saturation to occur.

AC 00-45, sec. 3; FMH1, Chap. 10; App. A

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 50

Temperature/Dew Point Group

BACK NEXT

Decoding

The Temperature/Dew Point Group coding format is:

- 18 - The first two digits indicate the temperature rounded to the nearest whole degree Celsius.
- / - Solidus
- 16 – The final two digits indicate the dew point rounded to the nearest whole degree Celsius.
- Temperatures and dew points below zero are prefixed with an M.
- If the dew point is not available, the temperature is coded followed by a solidus "/" and no entry made for dew point.
- If the temperature is not available, the entire group will not be coded.

AC 00-45, sec. 3; FMH1, Chap. 12

18/16	
18	Temperature (in degrees Celsius)
16	Dew point (in degrees Celsius)

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 51

Temperature/Dew Point Group

BACK NEXT

Announcing Temperature/Dew Point Group

Announce surface temperature and dew point by stating the words "*Temperature*" or "*Dew Point*" as appropriate, followed by the temperature in degrees Celsius.

- **Temperatures below zero are announced by prefixing the word "*Minus*" before the value.**
- **For-single digit temperatures, the leading zero is not spoken.**

JO 7110.10, Chaps. 2, 13

Temperature/Dew Point Group Examples

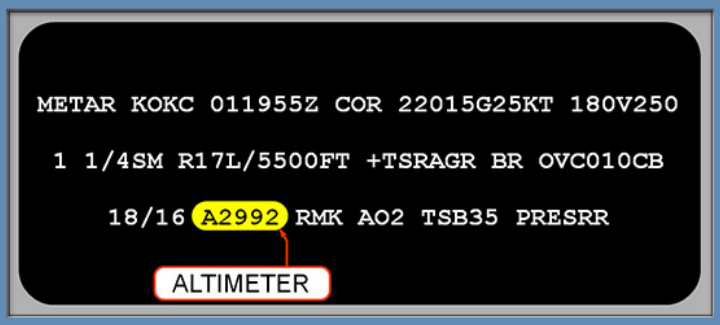
32/18	*"Temperature three two, dew point one eight"*	M03/M12	*"Temperature minus three, dew point minus one two"*
14/06	*"Temperature one four, dew point six"*	15/	*"Temperature one five, dew point missing"*
00/M06	*"Temperature zero, dew point minus six"*		*"Temperature missing, dew point missing"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 52

Altimeter

BACK NEXT



Altimeter setting is the pressure value to which an aircraft altimeter scale is set so that it will indicate the altitude above mean sea level of an aircraft on the ground at the location for which the value was determined.

AC 00-45, sec. 3; FMH1, Chap. 11, App. A

Altimeter

Decoding

The Altimeter coding format is:

- **A - The international indicator for altimeter setting in inches of mercury**
- **2992 - The altimeter setting coded as a four-digit group using the tens, units, tenths, and hundredths of inches of mercury**
  - **The decimal point is not coded.**

AC 00-45, sec. 3; FMH1, Chap. 12

A2992	
A	International indicator for altimeter setting in inches of mercury
2992	Altimeter setting (inches of mercury)

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 54

Altimeter

BACK NEXT

Announcing Altimeter

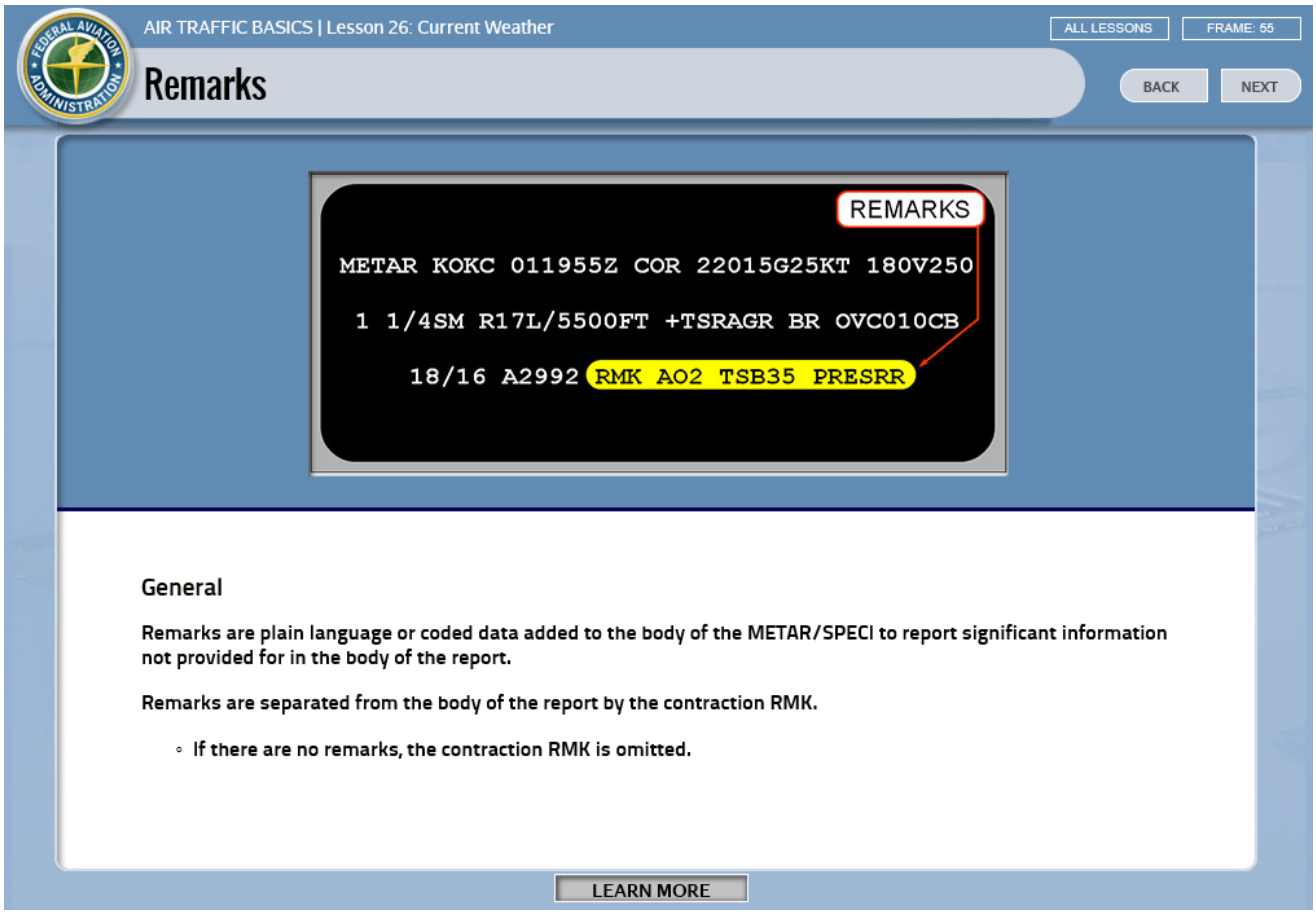
State the word "*Altimeter*" followed by the four digits of the altimeter setting.

- **The decimal point is not spoken.**

JO 7110.10, Chaps. 2, 13

Altimeter Examples

A3042	*"Altimeter three zero four two"*
A3025	*"Altimeter three zero two five"*
A2987	*"Altimeter two niner eight seven"*
A2961	*"Altimeter two niner six one"*



Remarks fall into two categories:

- Automated, Manual, and Plain Language
  and
- Additive and Automated Maintenance Data

NOTE: *Plain language remarks are only provided from manual stations.*

Time entries for remarks are generally coded in minutes past the hour if the phenomenon occurs during the same hour the observation was taken.

- Hours and minutes are coded if the hour is different.

DSNT indicates weather phenomena beyond 10 statute miles of the point(s) of observation.

References:

- AC 00-45, sec. 3
- FMH1, Chap. 12.7, App. A

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 56

Remarks

BACK NEXT

Automated, Manual, and Plain Language		Additive and Automated Maintenance Data
Volcanic Eruption	Thunderstorm Location	Sensor Status Indicators
Funnel Cloud	Hailstone Size	
Peak Wind	Virga	
Wind Shift	Variable Ceiling Height	
Tower or Surface Visibility	Obscurations	
Variable Prevailing Visibility	Variable Sky Condition	
Sector Visibility	Significant Cloud Types	
Lightning	Pressure Rising or Falling Rapidly	
Beginning and Ending of Precipitation	Snow Increasing Rapidly	
Beginning and Ending of Thunderstorms	Other Significant Information	

Note: Other coded remarks should have no direct impact on ATC operations and are not covered in this lesson.

Order of Remarks

Other coded remarks should have no direct impact on ATC operations and are not covered in this lesson.

Announce pertinent remarks from surface weather observations in accordance with FAA Order JO 7340.2, Contractions.

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 57

Remarks

BACK NEXT

Volcanic Eruptions [Plain Language]

Volcanic eruption is an explosion caused by the intense heating of subterranean rock which expels lava, steam, ashes, etc., through vents in the earth's crust.

Volcanic eruptions are coded in plain language and contain the following, if known:

- Name of volcano
- Latitude and longitude or the direction and approximate distance from the station
- Date/Time (UTC) of the eruption
- Size description, approximate height, and direction of movement of the ash cloud
- Any other pertinent data about the eruption

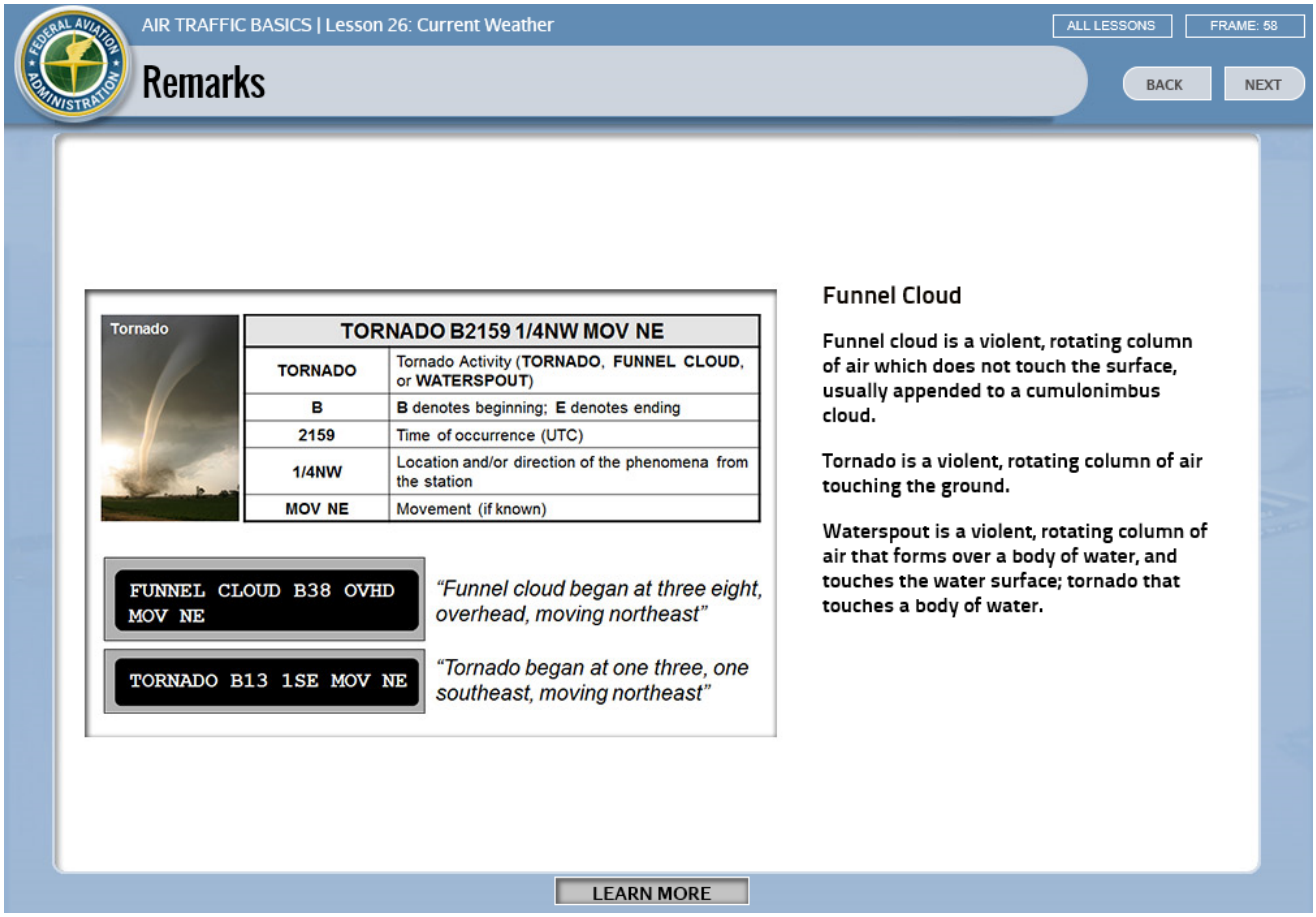
AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

MT. AUGUSTINE VOLCANO 70 MILES SW ERUPTED 231505 LARGE ASH CLOUD EXTENDING TO APRX 30000 FEET MOVING NE.

"Mount Augustine volcano, seven zero miles southwest, erupted at one five zero five, large ash cloud extending to approximately three zero thousand feet, moving northeast."

Click "LEARN MORE" to see a video about volcanic ash hazards to aviation.

LEARN MORE



The Funnel Cloud remark format is:

- Tornadic activity – Either TORNADO, FUNNEL CLOUD, or WATERSPOUT
- B - Denotes the beginning; E denotes ending
- 2159 - Followed by the time of occurrence (UTC)
  - Only the minutes are required if the hour can be inferred from the report time.

- **1/4NW** - Followed by the location and/or direction of the phenomena from the station
- **NE** - Followed by the movement, if known

References:

- AC 00-45, sec. 3
- FMH1, Chap. 12, App. A
- JO 7110.10, Chap. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 59

Remarks

BACK NEXT

Peak Wind

Peak wind speed is the maximum instantaneous wind speed that exceeded 25 knots since the last METAR.

Peak wind remark format is:

- **PK WND - Remark identifier**
- **190 - The first three digits represent the direction of the peak wind.**
- **42 - The next two (or three) digits indicate the peak wind speed since the last METAR.**
- **/ - Solidus**
- **2157 - The final two (or four) digits indicate the time of occurrence.**
  - **Only the minutes are required if the hour can be inferred from the report time.**

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

PK WND 19042/2157	
PK WND	Remark identifier
190	Direction (degrees) of the peak wind
42	Speed (knots) of the peak wind since the last METAR
2157	Time of occurrence (UTC)

`PK WND 33048/22` *"Peak wind three three zero at four eight occurred at two two past the hour"*

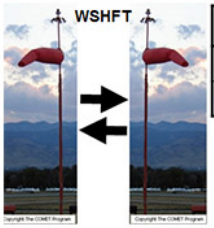
`PK WND 28065/2359` *"Peak wind two eight zero at six five occurred at two three five niner"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 60

Remarks

BACK NEXT



WSHFT 0159	
WSHFT	Remark identifier
0159	Time the wind shift began (UTC)

WSHFT 0258 *"Wind shifted at zero two five eight"*

WSHFT 30 FROPA *"Wind shifted at three zero due to frontal passage"*

Wind Shift

Wind shift is a change in the wind direction of 45 degrees or more in less than 15 minutes with sustained wind speeds of 10 knots or more throughout the wind shift.

Wind Shift remark format is:

- **WSHFT - the remark identifier**
- **0159 - Followed by either two (or four) digits which indicate the time the wind shift began (UTC).**
  - **Only the minutes are required if the hour can be inferred from the report time.**
- **The contraction, FROPA, may be entered following the time if it is reasonably certain that the wind shift was the result of a frontal passage.**

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 61

Remarks

BACK NEXT

Tower or Surface Visibility

Surface visibility is the prevailing visibility determined from the usual point of observation.

Tower visibility is the prevailing visibility determined from the Airport Traffic Control Tower (ATCT) when the surface visibility is determined from another location.

If either the tower or surface visibility is less than 4SM and they are not identical:

- The lower value is coded as the "Visibility Group" in the body of the METAR/SPECI.
- The higher value is coded as the "Tower or Surface Visibility" remark in the format:
  - TWR VIS or SFC VIS – Tower or surface visibility identifier
  - 1 1/4 - followed by the observed Tower/surface visibility value in statute miles

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

TWR VIS 1 1/4	
TWR VIS	Tower visibility (**TWR VIS**) or surface visibility (**SFC VIS**) identifier
1 1/4	Observed tower/surface visibility value (statute miles)

`SFC VIS 1/2` *"Surface visibility one-half"*

`TWR VIS 1 3/4` *"Tower visibility one and three-quarters"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 62

Remarks

BACK NEXT

VIS 1/2V2	
VIS	Remark identifier
1/2	Lowest visibility evaluated (statute miles)
V	Denotes variability between two values
2	Highest visibility evaluated (statute miles)

`VIS 1V3` *"Visibility variable between one and three"*

`VIS 3/4V1 1/2` *"Visibility variable between three-quarters and one and one-half"*

Variable Prevailing Visibility

Variable prevailing visibility is a condition when the prevailing visibility is less than 3 statute miles and rapidly increases and decreases by ½ mile or more during the period of observation.

The Variable Prevailing Visibility remark format is:

- **VIS - Remark identifier**
- **1/2 - Followed by the lowest visibility evaluated in statute miles**
- **V - Which denotes variability between two values**
- **2 - Followed by the highest visibility evaluated in statute miles**

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 63

Remarks

BACK NEXT

Sector Visibility [Plain Language]

Sector visibility is the visibility in a specified direction that represents at least a 45-degree arc of the horizon circle.

The Sector Visibility format is:

- **VIS - Remark identifier**
- **SE-S - Followed by the sector(s) defined to eight points of the compass**
- **1 1/2 - Followed by the sector visibility in statute miles**

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

VIS SE-S 1 1/2	
VIS	Remark identifier
SE-S	Defines the sector to 8 points of the compass
1 1/2	Sector visibility (statute miles)

`VIS S 1 W 1/4` *"Visibility south one, west one-quarter"*

`VIS NE-SE 1/4 S-SW 3/4` *"Visibility northeast through southeast one-quarter, south through southwest three-quarters"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 64

Remarks

BACK NEXT

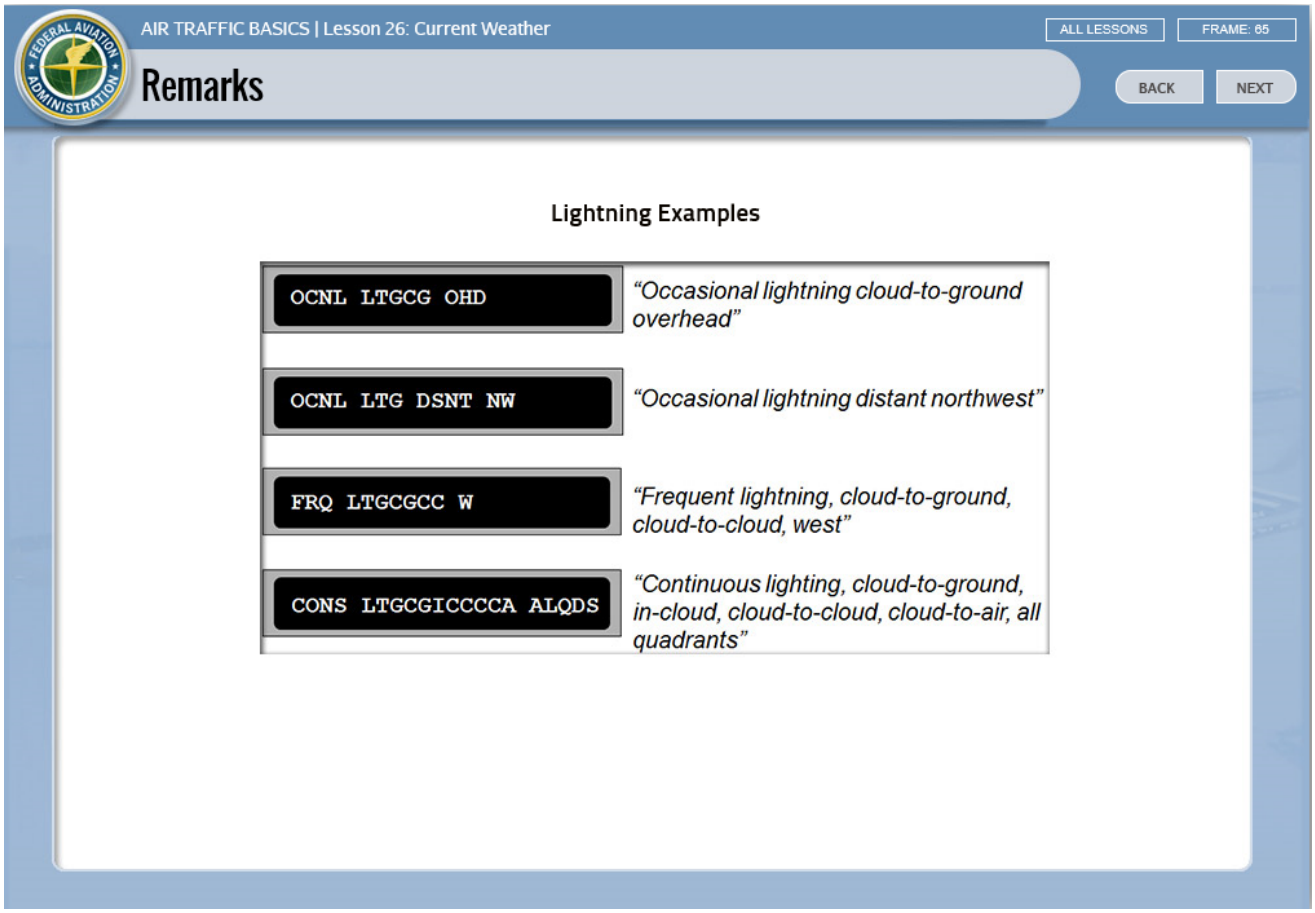
Lightning Decoding

Frequency_LTG(type)_[LOC]	
Frequency	Frequency of lighting
LTG	Contraction for lightning
type	Type of lightning
LOC	Location of the lightning from the station

Frequency of Lightning		
Frequency	Contraction	Definition
Occasional	OCNL	Less than 1 flash/minute
Frequent	FRQ	About 1 to 6 flashes/minute
Continuous	CONS	More than 6 flashes/minute

Type of Lighting		
Type	Contraction	Definition
Cloud-to-ground	CG	Lightning occurring between cloud and ground
In-cloud	IC	Lightning which takes place within the cloud
Cloud-to-cloud	CC	Streaks of lightning reaching from one cloud to another
Cloud-to-air	CA	Streaks of lightning which pass from a cloud to the air, but do not strike the ground

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
FRAME: 65
Remarks
BACK
NEXT
Lightning Examples
OCNL LTGCG OHD
"Occasional lightning cloud-to-ground overhead"
OCNL LTG DSNT NW
"Occasional lightning distant northwest"
FRQ LTGCGCC W
"Frequent lightning, cloud-to-ground, cloud-to-cloud, west"
CONS LTGCGICCCCA ALQDS
"Continuous lighting, cloud-to-ground, in-cloud, cloud-to-cloud, cloud-to-air, all quadrants"

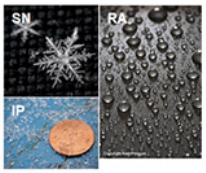
AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 66

Remarks

BACK NEXT

Beginning and Ending of Precipitation



RAB0758E12	
RA	Type of precipitation
B	Denotes beginning
0758	Beginning time of occurrence (UTC)
E	Denotes ending
12	Ending time of occurrence (UTC)

PLE16SNB16 *"Ice pellets ended at one six, snow began at one six"*

SHRAB05E30SHSNB20E55 *"Rain showers began at zero five, ended at three zero, snow showers began at two zero, ended at five five"*

At designated stations, the Beginning and Ending of Precipitation format is:

- **RA - Precipitation type is listed first**

  NOTE: See Present Weather Group for a list of precipitation types.

  - **Precipitation types may be combined.**
  - **Intensity qualifiers are not coded.**
- **B - Denotes "beginning"**
- **0758 - Followed by beginning time of occurrence (UTC)**
  - **Only the minutes are required if the hour can be inferred from the report time.**
- **E - Denotes "ending"**
- **12 - Followed by ending time of occurrence (UTC)**
  - **Only the minutes are required if the hour can be inferred from the report time.**

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 67

Remarks

BACK NEXT

Beginning and Ending of Thunderstorms

The Beginning and Ending of Thunderstorms remark format is:

- TS - Indicates thunderstorm
- B - Denotes "beginning"
- 1258 - Followed by beginning time of occurrence (UTC)
  - Only the minutes are required if the hour can be inferred from the report time.
- E - Denotes "ending"
- 37 - Followed by the ending time of occurrence (UTC)
  - Only the minutes are required if the hour can be inferred from the report time.

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

TSB1258E37	
TS	Indicates thunderstorm
B	Denotes beginning
1258	Beginning time of occurrence (UTC)
E	Denotes ending
37	Ending time of occurrence (UTC)

TSB22E44 *"Thunderstorm began at two two, ended at four four"*

TSB0159E30 *"Thunderstorm began at zero one five niner, ended at three zero"*

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ALL LESSONS FRAME: 68

Remarks

BACK NEXT

TS NE MOV SE	
TS	Identifies thunderstorm activity
NE	Location of the thunderstorm(s) from the station
SE	Movement with direction (if known)

TS OHD MOV E *"Thunderstorm overhead, moving east"*

TS W MOV E *"Thunderstorm west, moving east"*

Thunderstorm Location [Plain Language]

The Thunderstorm Location remark format is:

- **TS - Identifies the thunderstorm activity**
- **NE - Followed by the location of the thunderstorm(s) from the station**
- **MOV SE - Followed by the movement with direction, if known**

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 69

Remarks

BACK NEXT

Hailstone Size [Plain Language]

At designated stations, the Hailstone Size remark format is:

- **GR - Remark identifier**
- **3 3/4 - Followed by the diameter of the largest hailstone.**
  - **Coded in ¼-inch increments**

NOTE: If GS is coded in the body of the report, no hailstone size remark is required.

AC 00-45, sec. 3; FMH1, Chap.12; JO 7110.10, Chaps. 2, 13

GR 3 3/4	
GR	Remark identifier
3 3/4	Diameter of the largest hailstone (inches)

GR 3/4 *"Hailstones three-quarter inches in diameter"*

GR 2 *"Hailstones two inches in diameter"*

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ALL LESSONS FRAME: 70

Remarks

BACK NEXT

VIRGA NE-E	
VIRGA	Remark identifier
NE-E	Direction from the station

VIRGA *"Virga"*

VIRGA SW *"Virga southwest"*

Virga [Plain Language]

Virga is visible wisps or strands of precipitation falling from clouds that evaporate before reaching the surface.

The Virga remark format is:

- **VIRGA - Remark identifier**
- **NE-E - Followed by the direction from the station (optional)**

NOTE: Virga is important because it could indicate the beginning of a dry microburst. Also, the virga could consist of supercooled water droplets and be an icing hazard at altitude.

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13

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ALL LESSONS FRAME: 71

Remarks

BACK NEXT

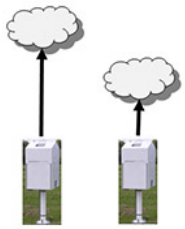
Variable Ceiling Height

Variable ceiling is a ceiling of less than 3,000 feet which rapidly increases or decreases in height during the period of observation.

The Variable Ceiling Height remark format is:

- **CIG - Remark identifier**
- **007 - The first three digits indicate the lowest ceiling height evaluated in feet**
- **V - Denotes variability between two values**
- **018 - The final three digits indicate the highest ceiling height evaluated in feet**

AC 00-45, sec. 3; FMH1, Chap. 12, App. A; JO 7110.10, Chaps. 2, 13



CIG 007V018	
CIG	Remark identifier
007	Lowest ceiling height evaluated (feet)
V	Denotes variability between two values
018	Highest ceiling height evaluated (feet)

`CIG 005V010` *"Ceiling variable between five hundred and one thousand"*

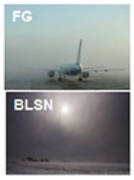
`CIG 012V028` *"Ceiling variable between one thousand two hundred and two thousand eight hundred"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 72

Remarks

BACK NEXT



BLDU SCT000	
BLDU	Weather causing the obscuration at the surface or aloft
SCT	Applicable sky cover amount of the obscuration
000	Applicable height (feet)

FG FU FEW000	*"Fog and smoke obscuring one to two-eighths of the sky"*
FU OVC012	*"Smoke layer one thousand two hundred overcast"*
BLSN BKN000	*"Blowing snow obscuring five to seven-eighths of the sky"*

Obscurations [Plain Language]

The Obscurations remark format is:

- BLDU - The weather causing the obscuration at the surface or aloft is coded first.
  - Multiple obscurations may be listed.
- SCT - Followed by the applicable sky cover amount of the obscuration.
  - Aloft (FEW, SCT, BKN, OVC) or
  - At the surface (FEW, SCT, BKN)
- 000 - The final three digits indicate the applicable height in feet.
  - Surface-based obscurations have a height of "000"

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 73

BACK NEXT

Remarks

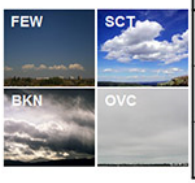
Variable Sky Condition [Plain Language]

The sky cover is considered variable if it varies by two or more ranges (FEW, SCT, BKN, OVC) during the period it is being evaluated.

The Variable Sky Condition remark format is:

- FEW and BKN - The two sky conditions
- V - Denotes the variability between the two ranges
- 015 - If there are several layers with the same sky condition amount, the layer height of the variable layer is coded in feet using three digits.

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13



FEW015 V BKN	
FEW and **BKN**	Identifies the two sky conditions (**FEW**, **SCT**, **BKN**, or **OVC**)
V	Denotes the variability between the two ranges
015	Layer height of the variable layer (feet)

BKN V OVC *"Broken variable overcast"*

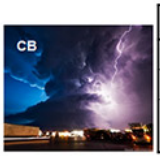
SCT020 V BKN *"Two thousand scattered variable broken"*

AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 74

Remarks

BACK NEXT



CB SW MOV NE	
CB	Cloud type (**CB** or **CBMAM**)
SW	Direction from the station
NE	Movement with direction (if known)

`CB W MOV E` *"Cumulonimbus west, moving east"*

`CBMAM DSNT S` *"Cumulonimbus mammatus distant south"*

Significant Cloud Types [Plain Language]

The significant cloud type remark is coded in all reports in the following manner:

The Cumulonimbus and Cumulonimbus Mammatus significant cloud remarks format is:

- **CB or CBMAM - cloud type**
- **SW - Followed by the direction from the station**
- **MOV NE - Followed by the movement with direction (if known)**

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

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Remarks

BACK NEXT

Significant Cloud Types [Plain Language]

The Towering Cumulus significant cloud types remark format is:

- **TCU - Cloud type**
- **W-N - Followed by the direction from the station**

The Altocumulus Castellanus significant cloud type format is:

- **ACC - Cloud type**
- **E-SE - Followed by the direction from the station**

NOTE: Altocumulus Castellanus (ACC) indicates convective turbulence and icing above the freezing level.

TCU W-N	
TCU	Cloud type
W-N	Direction from the station

TCU W — *"Towering cumulus west"*

TCU NE-SE — *"Towering cumulus northeast through southeast"*

ACC E-SE	
ACC	Cloud type
E-SE	Direction from the station

ACC NW — *"Altocumulus castellanus northwest"*

ACC DSNT S-W — *"Altocumulus castellanus distant south through west"*

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ALL LESSONS FRAME: 76

Remarks

BACK NEXT

SCSL NE-SE	
SCSL	Cloud type (**SCSL**, **ACSL**, **CCSL**, or **ROTOR CLD**)
NE-SE	Direction from the station

CCSL S	*"Cirrocumulus standing lenticular south"*
ACSL OVR RDG SW	*"Altocumulus standing lenticular over ridge southwest"*
ROTOR CLD NE	*"Rotor cloud northeast"*

Significant Cloud Types [Plain Language]

Standing Lenticular or Rotor Clouds significant cloud types format is:

- **SCSL - Cloud type**
  - **Stratocumulus standing lenticular (SCSL)**
  - **Altocumulus standing lenticular (ACSL)**
  - **Cirrocumulus standing lenticular (CCSL)**
  - **Rotor cloud (ROTOR CLD)**
- **NE-SE - Followed by the direction from the station**

NOTE: These clouds indicate mountain waves which can produce severe to extreme turbulence and occasionally violent downslope wind storms.

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ALL LESSONS FRAME: 77

Remarks

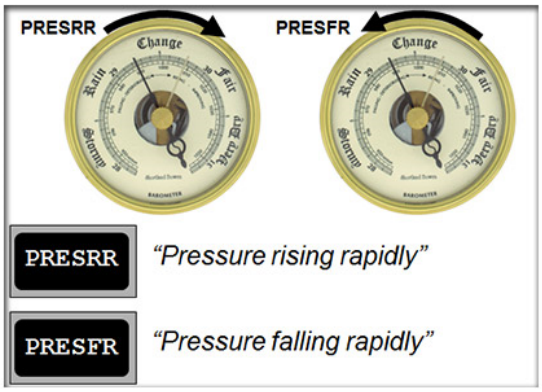
BACK NEXT

Pressure Rising or Falling Rapidly

At designated stations, when the pressure is rising or falling rapidly at the time of observation, the remark PRESRR (pressure rising rapidly) or PRESFR (pressure falling rapidly) is included in the report.

NOTE: PRESRR and PRESFR indicate rapid changes of altimeter setting are also occurring. Air traffic controllers should ensure pilots have the latest altimeter setting so they can maintain proper altitude.

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13



AIR TRAFFIC BASICS | Lesson 26: Current Weather

ALL LESSONS FRAME: 78

Remarks

BACK NEXT

Snow Increasing Rapidly

At designated stations, the Snow Increasing Rapidly remark is reported, in the next METAR, whenever the snow depth has increased by 1 inch or more in the past hour.

The remark format is:

- **SNINCR - Remark identifier**
- **2 - Followed by the depth increase in the past hour in inches**
- **/ - Solidus**
- **7 - Followed by the total snow depth on the ground at the time of the report in inches**

NOTE: A snow increase of a specified depth may trigger the airport operations crew to plow the runway.

In the Other Significant Information remark, agencies may add other information significant to their operations to a report.

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

SNINCR 2/7	
SNINCR	Remark identifier
2	Snow depth increase in the past hour (inches)
7	Total snow depth on the ground at the time of the report (inches)

SNINCR 1/4	*"Snow increase one inch during the past hour, four inches on the ground"*
SNINCR 3/10	*"Snow increase three inches during the past hour, ten inches on the ground"*

METAR/SPECI DECODING EXAMPLES


```
METAR KDLN 031653Z AUTO 00000KT 10SM CLR
06/03 A2984 RMK AO2 SLP103 T00560028
```

"Dillon, automated, (one six five three observation), wind calm, visibility one zero, clear below one two thousand, temperature six, dew point three, altimeter two niner eight four"

```
METAR PABE 102253Z 01005KT 2 1/2SM
R18/4500VP6000FT -SN BR BKN017 OVC055
M05/M07 A2911 RMK AO2 SFC VIS 3 SNB03
P0000
```

"Bethel, (two two five three observation), wind zero one zero at five, visibility two and one-half, runway one eight, visual range variable between four thousand five hundred and more than six thousand, light snow, mist, ceiling one thousand seven hundred broken, five thousand five hundred overcast, temperature minus five, dew point minus seven, altimeter two niner one one, surface visibility three, snow began at zero three"

AC 00-45, sec. 3; FMH1, Chap. 12; JO 7110.10, Chaps. 2, 13

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ALL LESSONS FRAME: 80

METAR/SPECI DECODING EXAMPLES

BACK NEXT

```
SPECI KDAL 092138Z COR 26018G24KT 4SM FU
DU BKN060 31/M08 A2950 RMK AO2 WSHFT 28
VIS SW-NW 2 FU BKN060 LN TCU NE-S
```

"Dallas/Love Field, corrected, special report, three eight observation, wind two six zero at one eight gusts two four, visibility four, smoke, dust, ceiling six thousand broken, temperature three one, dew point minus eight, altimeter two niner five zero, wind shifted at two eight past the hour, visibility southwest through northwest two, smoke layer six thousand broken, line towering cumulus northeast through south"

```
SPECI KOWB 201737Z 19023KT 2SM +TSRA BR
OVC020CB 15/13 A2967 RMK AO2 PK WND
19031/35 OCNL LTG W TS W MOV NE TSB22
P0004
```

"Owensboro/Davies, special report three seven observation, wind one niner zero at two three, visibility two, thunderstorm, heavy rain (showers), mist, ceiling two thousand overcast cumulonimbus, temperature one five, dew point one three, altimeter two niner six seven, peak wind one niner zero at three one occurred at three five past the hour, occasional lighting west, thunderstorm west moving northeast, thunderstorm began at two two"

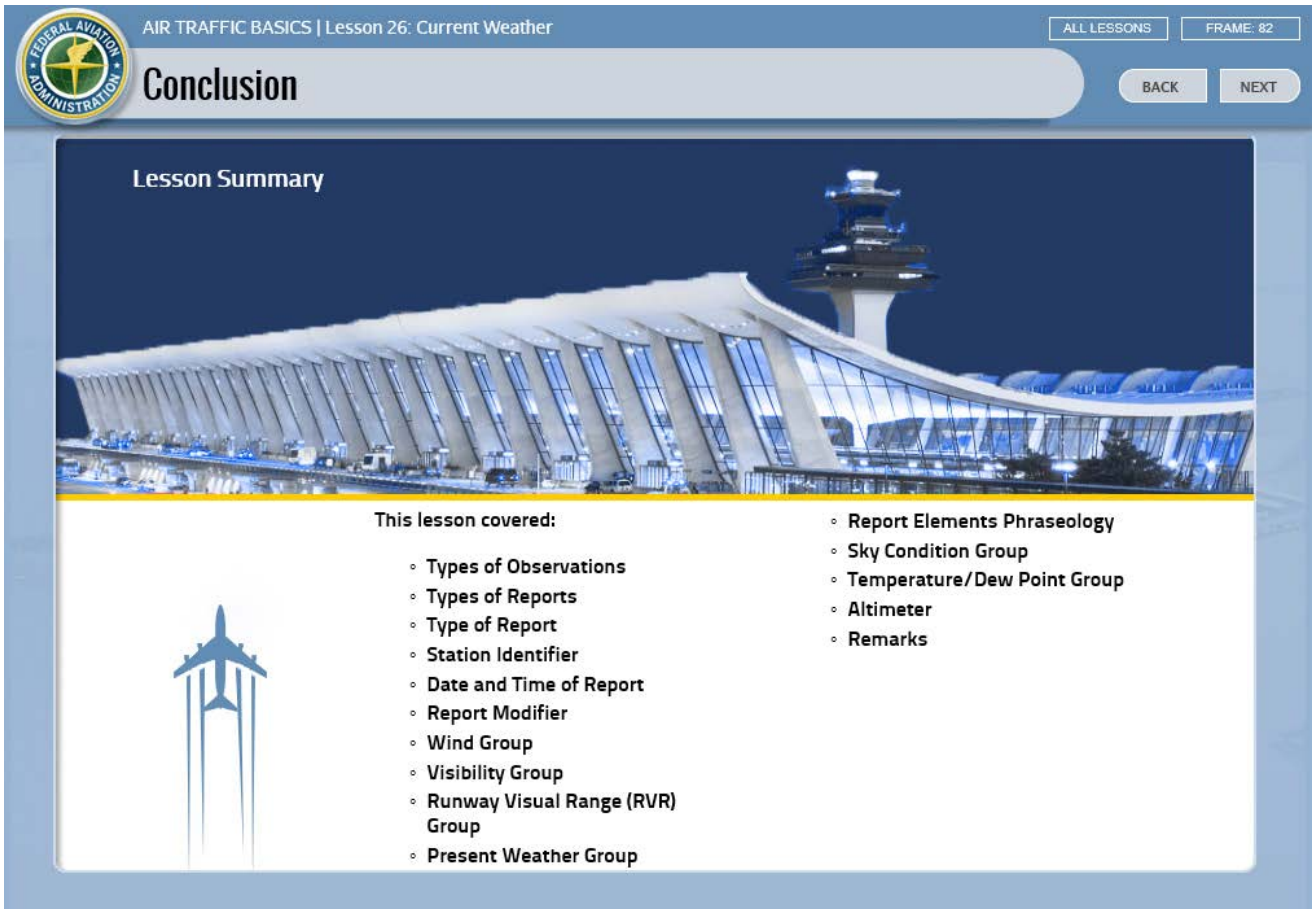
METAR/SPECI DECODING EXAMPLES


```
SPECI PHTO 100118Z VRB03KT 10SM -RA FEW025
BKN034 OVC043 20/17 A3018 RMK AO2
RAE0058B17 P0000
```

"Hilo, special report, one eight observation, wind variable at three, visibility one zero, light rain, few clouds at two thousand five hundred, ceiling three thousand four hundred broken, four thousand three hundred overcast, temperature two zero, dew point one seven, altimeter three zero one eight, rain ended at zero zero five eight began at one seven"

```
METAR KLXV 141853Z AUTO 12013G25KT 080V170
1/4SM +SN FG VV003 01/M01 A2923 RMK AO2 PK
WND 08031/1833 SLP899 P0007 T00111006 TSNO
$
```

"Leadville, automated, (one eight five three observation), wind one two zero at one three gusts two five, wind variable between zero eight zero and one seven zero, visibility one-quarter, heavy snow, fog, indefinite ceiling three hundred, temperature one, dew point minus one, altimeter two niner two three, peak wind zero eight zero at three one occurred at one eight three three, thunderstorm/lightning information not available"


AIR TRAFFIC BASICS | Lesson 26: Current Weather
ALL LESSONS
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Conclusion
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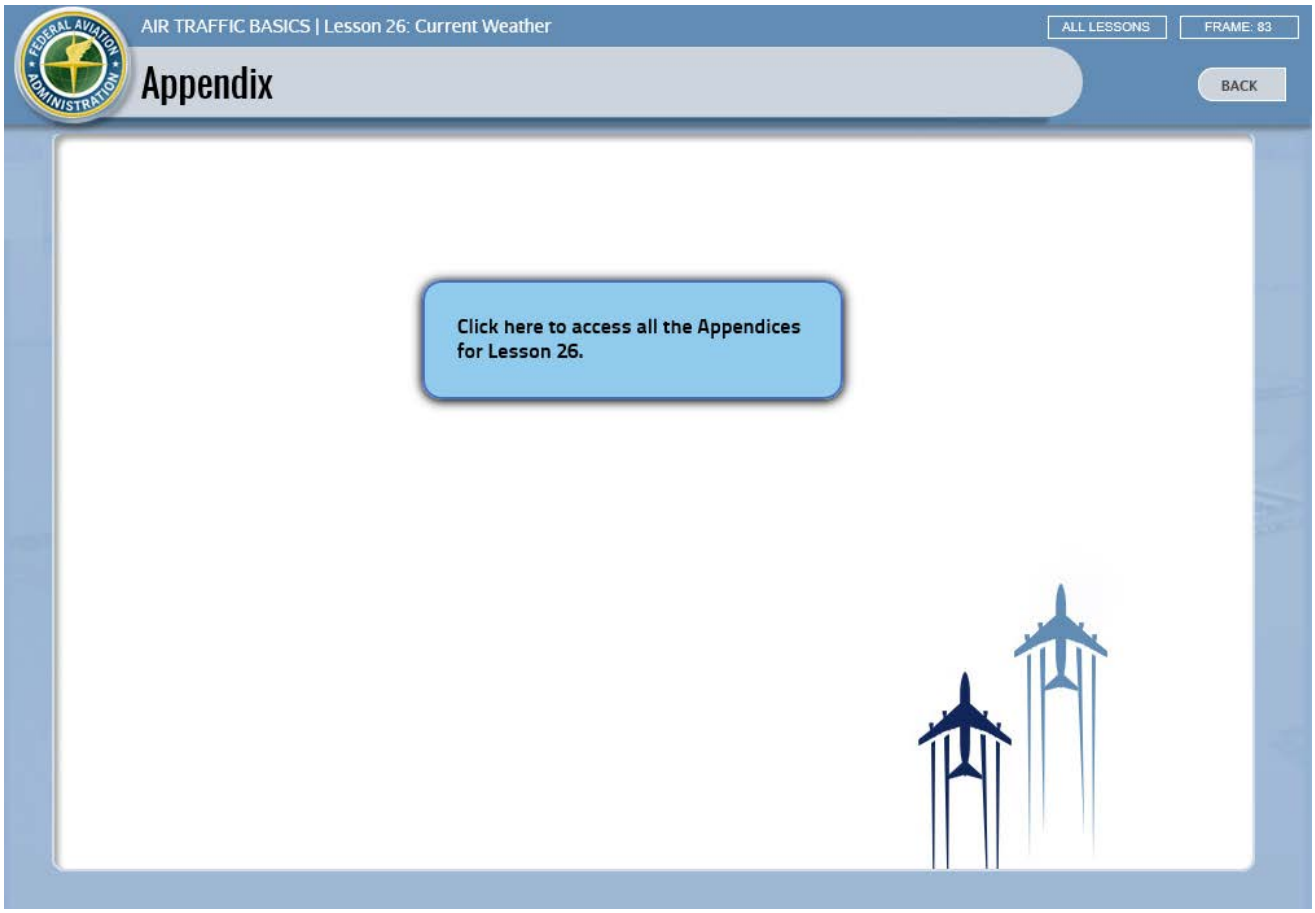
NEXT
Lesson Summary
This lesson covered:
Types of Observations
Types of Reports
Type of Report
Station Identifier
Date and Time of Report
Report Modifier
Wind Group
Visibility Group
Runway Visual Range (RVR) Group
Present Weather Group
Report Elements Phraseology
Sky Condition Group
Temperature/Dew Point Group
Altimeter
Remarks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FRAME: 83
Appendix
BACK
Click here to access all the Appendices for Lesson 26.