Attention

KLZU 151545Z 29006KT 10SM SCT045 29/22 A3004 RMK ATIS L. RWY 25. VIS APCH...BK

Objective

To know how to find the current weather conditions as well as forecasts.

Schedule

Ground instruction – 30 minutes

Reference Material

https://en.wikipedia.org/wiki/Automated_airport_weather_station

https://en.wikipedia.org/wiki/Automatic_terminal_information_service

Material

METARs - AWOS/ASOS/ATIS

In the United States, there are several varieties of automated weather stations that have somewhat subtle but important differences. These include the Automated Weather Observing System (AWOS), the Automated Surface Observing System (ASOS), and the Automated Weather Sensor System (AWSS).

The Automated Weather Observing System (AWOS) units are mostly operated, maintained and controlled by the Federal Aviation Administration (FAA) in the United States, although there are AWOS units that are also operated by state or local governments and some private agencies. The American National Weather Service (NWS) and Department of Defense (DOD) play little to no role in the operation, maintenance or deployment of AWOS units. These systems are among the oldest automated weather stations in the United States, and many of them predate ASOS.

AWOS systems disseminate weather data in a variety of ways:

A computer-generated voice message which is broadcast via radio frequency to pilots in the vicinity of an airport. The message is updated at least once per minute, and this is the only mandatory form of weather reporting for an AWOS.

AWOS A: barometric pressure and altimeter setting (in inches of Mercury).
AWOS I: wind speed and wind gusts (in knots), wind direction (from which the wind is blowing) and variable wind direction (in degrees of the compass), temperature and dew point (in degrees Celsius), altimeter setting and density altitude.
AWOS II: all AWOS I parameters, plus visibility and variable visibility (in miles).
AWOS III: all AWOS II parameters, plus sky condition (in oktas), cloud ceiling height (in feet), and liquid precipitation accumulation (in inches).

AWOS III P: all AWOS III parameters, plus precipitation type (rain, snow and sometimes drizzle) identification.
AWOS III T: all AWOS III parameters, plus thunderstorm detection (via a cloud-to-ground lightning detector).
AWOS III P/T: all AWOS III parameters, plus precipitation type identification and thunderstorm detection.
AWOS IV Z: all AWOS III P/T parameters, plus freezing rain detection via a freezing rain sensor (Note: this configuration used to be called AWOS III PTZ).
AWOS IV R: all AWOS III P/T parameters, plus runway surface condition.
AWOS IV Z/R: all AWOS III P/T parameters, plus freezing rain detection and runway surface condition.
Also, custom configurations such as AWOS AV (AWOS A parameters plus visibility) are possible. Non-certified sensors may be attached to AWOS systems, but weather data derived from those sensors must be clearly identified as "advisory" in any voice messages and may not be included in any METAR observations.

The Automated Surface Observing System (ASOS) units are operated and controlled cooperatively in the United States by the NWS, FAA, and DOD. After many years of research and development, the deployment of ASOS units began in 1991 and was completed in 2004.

These systems generally report at hourly intervals, but also report special observations if weather conditions change rapidly and cross aviation operation thresholds. They generally report all the parameters of the AWOS-III, while also having the additional capabilities of reporting temperature and dew point in degrees Fahrenheit, present weather, icing, lightning, sea level pressure and precipitation accumulation.

Automatic terminal information service, or ATIS, is a continuous broadcast of recorded aeronautical information in busier terminal (i.e. airport) areas. ATIS broadcasts contain essential information, such as weather information, which runways are active, available approaches, and any other information required by the pilots, such as important NOTAMs. Pilots usually listen to an available ATIS broadcast before contacting the local control unit, in order to reduce the controllers' workload and relieve frequency congestion.

The recording is updated in fixed intervals or when there is a significant change in the information, e.g. a change in the active runway. It is given a letter designation (e.g. bravo) from the ICAO spelling alphabet. The letter progresses through the alphabet with every update and starts at alpha after a break in service of 12 hours or more. When contacting the local control unit, a pilot will indicate he/she has "information <letter>", where <letter> is the ATIS identification letter of the ATIS transmission the pilot received. This allows the ATC controller to verify whether the pilot has all the current information.

https://www.liveatc.net/flisten.php?icao=katl&mount=katl_atis_arr

https://www.liveatc.net/flisten.php?icao=klal&mount=klal_atis

METARs are in the form:
Station Identifier, Date and Time, Wind, Visibility, Phenomena, Clouds, Temperature / Dew Point, Altimeter, Remarks

Current METAR at closest airport as I write this
KRYY 151447Z 28006KT 10SM FEW038 28/25 A3007
Station = KRYY

Date and Time = 151447Z
=> June 15th 1447 Zulu => June 15th 10:47 Eastern

Wind = 28006KT
=> Wind is from 280 degrees @ 6 kts

0-9 kts not to worry 10-19 kts you will have work to do 20+ stay on the ground if you can

Visibility = 10SM

Phenomena = blank since it is a nice day

Clouds = FEW038
Few clouds the bottom is 3800 ft AGL

Cloud categories:
Clear

Few	0 – 25%	Scattered	26-50%
Broken	51-75%	Overcast	76-100%

Temperature / Dew Point = 28/25
=> 28 degrees C / 25 degrees C

Altimeter = A3007

Remarks = blank

At the Dallas, GA airport
KPUJ 151435Z AUTO 33005KT 10SM SCT050 28/25 A3007 RMK AO2

Station = KPUJ
Date and Time = June 15 1453 Zulu
AUTO means no human is involved
Winds = 33005KT
=> from 330 @ 5 kts
Visibility = 10SM
Clouds = SCT050
=> Scattered at 5000 ft AGL
…

A02 means that the site is automated and HAS a precipitation sensor.

Variable speed winds

It will have two numbers for the speed and a 'G'.
22015G25KT
=> from 220 degrees @ 15 kts gusting 25 kts
This means when you land it could be at 15 kts or 25 kts…or it could be 15 kts as you are coming in then suddently 25 kts as you are touching the wheels. You have to literally be on your toes (and arms) when this is happening.

Variable direction

It will have two numbers and a 'V'.
180V260
=> Anywhere from 180 degrees to 260 degrees
I would suggest if you know this is the situation before you takeoff…you don't takeoff.

TAFs

Terminal Aerodrome Forecasts as good for 5 miles. TAFs are just forecasted METARs.

KRYY 151120Z 1512/1612 VRB03KT P6SM FEW060 BKN150
FM151400 28003KT P6SM FEW030
FM151600 29004KT P6SM SCT040
FM151800 25006KT P6SM VCSH SCT040 BKN080
PROB30 1522/1602 4SM TSRA BKN030CB
FM160200 28003KT P6SM FEW060 SCT200

FM151400 = From June 15th 1400 Zulu
PROB30 1522/1602 = Probably between June 15th 2200 Zulu and June 16th 0200 Zulu

Maintaining ATIS

Controllers shall maintain an ATIS message that reflects the most current arrival and departure information.

a. Make a new recording when any of the following occur:

1. Upon receipt of any new official weather regardless of whether there is or is not a change in values.

2. When runway braking action reports are received that indicate runway braking is worse than that which is included in the current ATIS broadcast.

3. When there is a change in any other pertinent data, such as runway change, instrument approach in use, new or canceled NOTAMs/PIREPs/HIWAS update, etc.

b. When a pilot acknowledges that he/she has received the ATIS broadcast, controllers may omit those items contained in the broadcasts if they are current. Rapidly changing conditions will be issued by ATC, and the ATIS will contain the following:

c. Broadcast on all appropriate frequencies to advise aircraft of a change in the ATIS code/message.

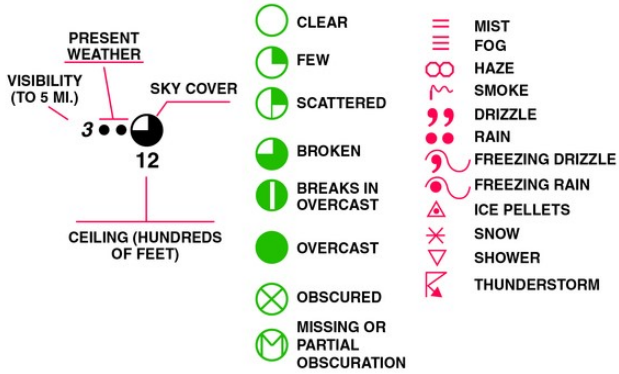
d. Controllers shall ensure that pilots receive the most current pertinent information. Ask the pilot to confirm receipt of the current ATIS information if the pilot does not initially state the appropriate ATIS code. Controllers shall ensure that changes to pertinent operational information is provided after the initial confirmation of ATIS information is established. Issue the current weather, runway in use, approach information, and pertinent NOTAMs to pilots who are unable to receive the ATIS.

EXAMPLE-
“Verify you have information ALPHA.”
“Information BRAVO now current, visibility three miles.”
“Information CHARLIE now current, Ceiling 1500 Broken.”
“Information CHARLIE now current, advise when you have CHARLIE.”

For more info
http://www.aviationweather.gov/static/help/taf-decode.php
https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_00-45H.pdf

Weather depiction chart

Shows VFR, MVFR, IFR areas



HIWAS

Hazardous Inflight Weather Advisory Service (HIWAS) is a continuous broadcast of hazardous weather information which is transmitted over selected VORs. This hazardous weather includes AIRMETs, SIGMETs, Convective SIGMETs, and urgent PIREPs.

The presence of HIWAS information on a VOR is indicated on a sectional or terminal area chart by an "H" in the upper-right corner of the box surrounding the NAVAID frequency.