

## Airport Operations at OSU

### Discussion Leader Notes



These notes are specific to the YAA program at OSU. If you are interested in starting a YAA program in your community, please download the “Program Handbook” found at <http://youthaviationadventure.org> for the *complete* set of discussion leader notes, along with tips, and other information on how to run this program in your neighborhood.

**Please note, these discussion notes should be used as a guideline. You are a professional, and you have a lot to offer our participants. Please be sure to cover the objectives, but know that this is not written in a way that will make you read it word for word. Also, if you’re in a loud area, like on the ramp, you’ll have to speak loudly to be heard.**

#### Objectives

1. The learner will report on
  - a. How the facilities are used
  - b. How the runways are numbered
  - c. How runways are determined to be “active”
2. Explain:
  - a. The recreational pilot and the private pilot certificates
  - b. The instrument rating

#### Setting

This station is held inside OSU Airport’s old air traffic control tower. Maximum group size should be about 30.

**Time Allowed:** 20 minutes

#### A day or two before the event:

Try to determine if the weather will be IFR or VFR. If the weather looks like it will be VFR, the setup will be simpler as it does not require the flat screen TV and computer.

#### Setting up the Station:

Remove everything in tower, including chairs.

Set the flat-screen TV (if IFR) on top of two stacked tables. This will give enough height to the TV to let all participants see. Set up the laptop and speakers with the Virtual Airport software and Internet access to view on the TV.

If the weather is VFR and there is traffic at the airport, use the VFR procedure notes below.

If the weather is IFR and traffic is light or nonexistent, you should opt to use the laptop and TV, and follow the IFR procedure notes below.

### **Materials**

- Two scanners or transceivers. One set to “scan” any local airport, and the other tuned to listen to ATIS. (With two radios, you don’t miss any potential communications when you are listening to ATIS.)
- Map of the airport (included in the handbook).
- Sketch of a compass rose. (Included in handout.)
- List of the phonetic alphabet. (Included in handout.)
- Computer and television or projector and screen for viewing. Internet access via wireless network is also necessary.

### **Activity Note:**

Because this activity relies so heavily on air traffic at the airport, if the weather is bad, it is critical to have a “plan B.” Our “plan B” includes a computer with access to the Internet to cover the essentials even when there is no traffic at the airport.

### **VFR Procedure:**

Before the activity begins, predict whether there will be enough traffic to keep the activity interesting. The core of this activity is the interaction between pilots and tower. If the weather is bad and there is no air traffic that day, use the IFR Procedure below. The following procedure describes the ideal day, with traffic to watch.

- The discussion leader begins by showing participants the map of the airport and asking introductory questions. The discussion leader is cautioned to cover all objectives in this initial part of the activity.
  - How are runways numbered?
  - How does someone determine which runway to use?
  - Which way is the wind blowing right now?
  - How do you know? What are other ways of knowing?
  - When you’re taking off or landing a plane, do you want the wind blowing in your face or at your back?
  - Which runway(s) is active today?
  - Point out the yellow signs on taxiways and red ones to runways.
  - Discuss taxiways and runways and how they’re marked.
  - When you see any traffic, ask, “what is that airplane doing?”
- Listen to ATIS and discuss. Do this after questioning about which runway is active. Does ATIS verify what you see out the window?
- Discuss the different certifications a pilot can earn. Include the sport pilot, recreational pilot, private pilot, and instrument pilot ratings. Discuss why you can

only fly in certain weather with certain ratings. There is a brief outline of the requirements of each rating in the student handbook. Refer participants to those pages for the summary.

- The rest of the activity revolves around watching traffic and listening and interpreting interactions between pilot and tower.
  - Pilot contacts tower. While they interact, the discussion leader translates, and explains while the group watches the traffic and listens to the communications. Discussion leader also prepares participants on what's going to happen next.
  - Have two radios. One set to scan, so participants can pick up on whatever traffic there is, even if it's at a neighboring airport. The other radio is set to ATIS. Once ATIS is retrieved, have both radios set to scan. For very large groups having two scanners in different parts of the room or viewing area allows everyone to have a chance to hear.

### **IFR Procedure:**

The procedure for this station on an IFR day when there is little or no traffic starts out the same, but then moves to online resources and the movies on the CD to cover the essence of the lesson, while treating any traffic at the airport as a bonus. The software by itself, however, isn't as much fun or active as watching and listening to traffic.

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  - Which way is the wind blowing right now?
  - How do you know? What are other ways of knowing?
  - When you're taking off or landing a plane, do you want the wind blowing in your face or at your back?
  - Which runway(s) is active today?
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  - Discuss taxiways and runways and how they're marked.
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- Listen to ATIS and discuss. Do this after questioning about which runway is active. Does ATIS verify what you see out the window?
- Discuss the different certifications a pilot can earn. Include the sport pilot, recreational pilot, private pilot, and instrument pilot ratings. Discuss why you can only fly in certain weather with certain ratings.
- The rest of the station revolves around viewing the suggested Websites and discussing various aspects of airport operations.
- **Internet options:**  
Go to <http://Flightaware.com>. On the left, toward the bottom, type in OSU's identifier to look at local traffic on the radar. Click on the radar map on the top right to see the traffic that ATC is watching.

If there's not much traffic at OSU, you can look at KCMH (and listen to their frequency on the radio) or check out Chicago or another high traffic airport. Planes at high altitude have shadows. Planes at low altitude don't. Each plane has an identifier, a plane type, a flight level. You need to click on the map again to get a refreshed picture. There is a slight delay between real flight operations and the time you see it, but it's a pretty good simulation of what ATC sees in the "radar room" only their planes move. Flightaware gives us a snapshot.

Also at <http://flightaware.com> you can listen to live air traffic control at most airports. You can pull up a screen shot of the radar while you listen to the communications at those airports. You can bring up Boston Logan, for example, and ask questions like: What runway is active? What direction do you think the wind is blowing? You can also pull up a map of Boston Logan to verify the runways that you are hearing about.

Also at <http://flightaware.com>, click on the world map image with the red dots, click on Analysis > Animated Activity at the bottom of the map. Each red dot is an aircraft. You can watch the time lapse, and see that when there are no flights, it's the middle of the night. Then the East Coast wakes up and has more air traffic and you can watch as the air traffic reaches the West Coast. Flights travel toward Europe at a certain time of the day and toward Hawaii during a different part of the day.

<http://www.liveatc.net/feedindex.php> -- live ATC. Across the top you can choose feeds, sorted by airspace class. Sometimes you can listen to CMH, but other airports can illustrate how fast it comes. Also has links to airport info, so you can listen while you look at a map. You can also look at radar (from flightaware.com described above) while you listen, but there is the visual time delay.

Weather sites – During any weather discussion you can talk about VFR versus IFR, go/no go decisions, and why there is no traffic outside today.

<http://adds.aviationweather.noaa.gov/> A place where you can discuss METARS and TAFs.

<http://www.usatoday.com/weather/wpilots0.htm> -- a page sponsored by USA Today with many great links, including how to understand zulu time, articles on microbursts and tornadoes, basics of wind shear, and a wide variety of other things.

### **Hands-on component**

When there is traffic to watch and listen to, the hands-on component of this station is the interaction between the pilot and tower (via the radio) and the discussion leader who interprets the messages.

When there is no traffic, the hands-on component at this station is the discussions that take place about pilot decisions, the listening to live ATC and viewing of radar through flightaware.com.

**Tips and Options:**

- Since you can't control the weather, try to insure that you have traffic so that they can see and hear what's going on. With no traffic, this activity can be boring. One way to ensure activity at the airport is to engage one or two volunteer pilots to fly the pattern to create traffic for you so that students can see the traffic and hear the interaction between the tower and the pilot. If you have a Young Eagles program, plan it so that the Young Eagles flights take place when this activity is occurring.
- Though there are great resources online, streaming audio of ATC at other airports might be too sophisticated for a beginner audience. It is useful, however, to point out how fast the communications can take place, and to illustrate why pilots must be concise in their language and follow the "rules" of communication.
- It is important that the Discussion Leader familiarize him/herself with the websites and software before the day of the program.

**Resources in Booklet**

Phonetic alphabet

Picture of a compass rose

Airport map

Airport aerial view from an online source

See following pages for copies of student booklet.

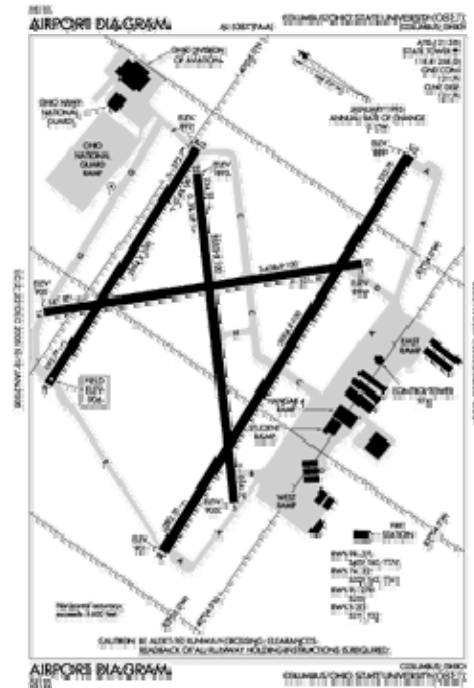
The following pages are taken from the Airport Operations section of the participant handbook.

## Airport Operations

OSU Airport aerial photo:



OSU Airport Diagram:



OSU's runways are 27L/9R; 27R/9L, and two crossing runways, 5/23 and 14/32

Latitude	40-04-47.200N
Longitude	083-04-22.900W
Elevation	905 Feet (275.8 Meters)
Land Size	1300 Acres
Variation	5 West

## Compass Rose

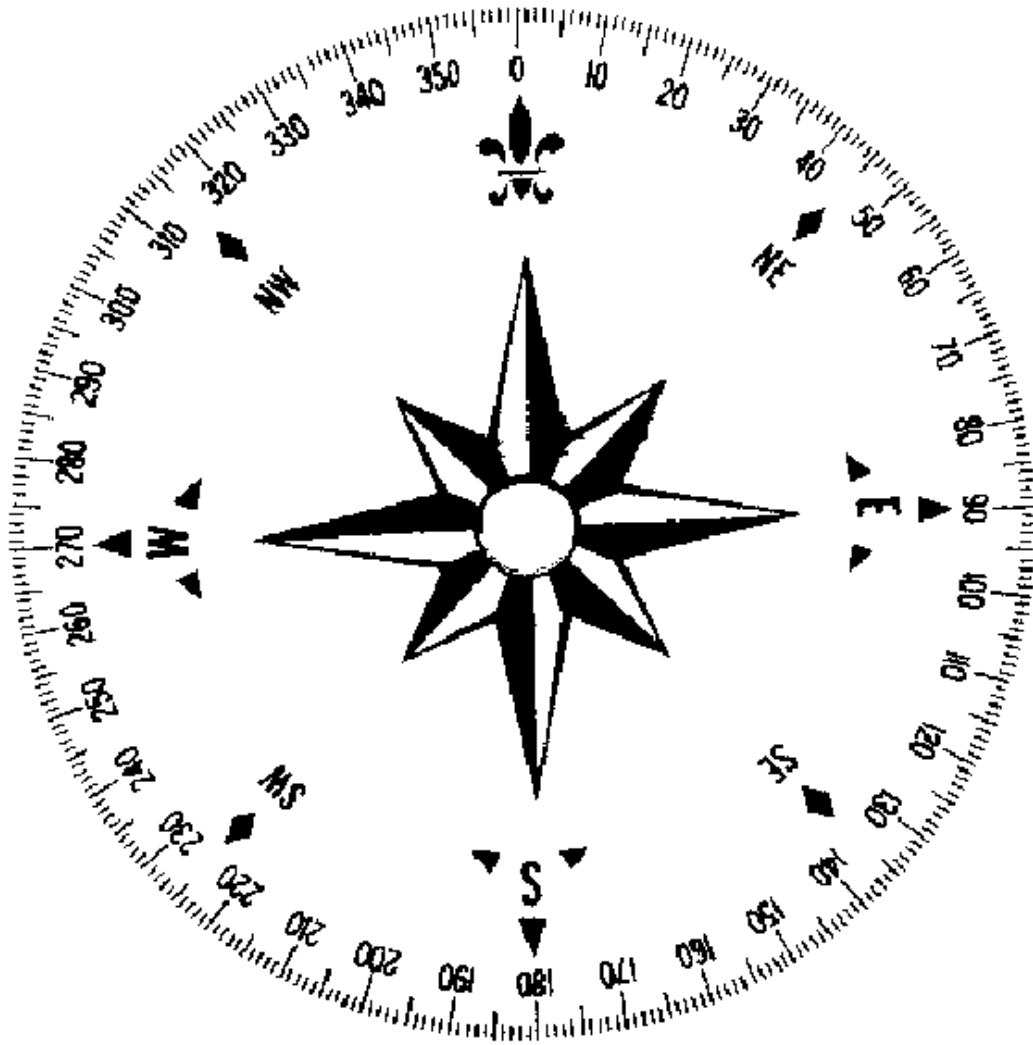


Image courtesy of Dave Chappell, Station Operator  
NOAA Weather Spotter ID #LEWIS4  
<http://mywebpages.comcast.net/dchappell/weather/compass.gif>

The compass rose is always oriented so that zero degrees points toward the North.

OSU's main runways are 27L and 27R, and 9L and 9R. This means that when a pilot is landing on runway 27L, they are facing toward 270° on the compass rose – or directly toward the West. (The last digit is dropped, so runway 3 is really facing toward 30°.) When we land on runway 9R, we are facing toward 90° or due East.

The L and R indications are used with parallel runways. 27L is the runway on the left as you are facing 270°.

## Phonetic Alphabet

(Note: The syllables printed in capital letters are to be stressed.)

<b>Letter</b>	<b>Pronunciation</b>
A	Alpha (AL fah)
B	Bravo (BRAH VOH)
C	Charlie (CHAR lee)
D	Delta (DELL tah)
E	Echo (ECK oh)
F	Foxtrot (FOKS trot)
G	Golf (GOLF)
H	Hotel (hoh TELL)
I	India (IN dee ah)
J	Juliet (JEW lee ETT)
K	Kilo (KEY loh)
L	Lima (LEE mah)
M	Mike (MIKE)
N	November (no VEM ber)
O	Oscar (OSS cah)
P	Papa (pah PAH)
Q	Quebec (keh BECK)
R	Romeo (ROW me oh)
S	Sierra (see AIR rah)
T	Tango (TANG go)
U	Uniform (YOU nee form)
V	Victor (VIK tah)
W	Whiskey (WISS key)
X	X Ray (ECKS RAY)
Y	Yankee (YANG key)
Z	Zulu (ZOO loo)
0	ZEE row
1	WUN
2	TOO
3	TREE
4	FOW er
5	FIFE
6	SIX
7	SEVEN
8	AIT
9	NINE er