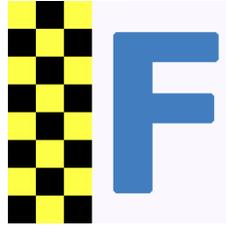# VFR CROSS-COUNTRY TUTORIAL
for FlightGear v2016.4 "Zurich"
Wangen-Lachen (LSPV) to St. Gallen-Altenrhein (LSZR)
by Jonathan Schellhase

Hello all together and welcome to FlightGear, the free, open-source flight simulator. This is your flight instructor speaking and I will guide you through this short flight tutorial.

Well, first things first:
- This tutorial presupposes that you have some basic knowledge of FlightGear and how to get an aircraft safely up into the virtual air and back.
- For this flight we will use the Cessna 172P, which is quite easy to fly and not by chance a very popular training aircraft. If you are not familiar with it, I recommend to check out the in-sim tutorials of this aircraft.
- This tutorial is primarily intended for FlightGear v2016.4 "Zurich" because in this version the default airport is Zurich (ICAO-code: LSZH) and the base package contains the scenery around Zurich.
- If you use another version of FlightGear you probably will have to download the required scenery for this tutorial. See also the FlightGear Wiki.
- **Again the warning:** If you're not able to keep your aircraft under control (including takeoff, maneuvering, flying straight and landing), it will be very difficult to finish this tutorial without a crash**!**

So, enough for the prologue, let's start with the preparations.

Introduction:
What you are going to, in general: Take off at LSPV from runway 08, fly eastbound following a motorway, turn left to a determined heading, then follow another motorway, and land at LSZR on runway 10 to join some other pilots for a beer. Takes about 30-40 minutes, but is for free in FlightGear.

The first step is flight planning. Read this carefully and memorize it because the following script guarantees that you arrive at LSZR without getting lost.

--------------------------*Flightplan*--------------------------

1. Right after takeoff you turn to a south-eastern course (ca. 130°), until you meet a motorway (the **A3**) about half a minute later.
2. With a slight left turn to about 110° you follow the A3 to the valley in front of you.
3. According to the mandatory minimum safe altitude we have to maintain an altitude of at least 2000 ft, but I recommend climbing to 3000 ft.
4. When passing through the valley, you will see an airfield to your right. That's **"Mollis"**, a former military airfield of the Swiss Air Force. In case of an emergency like an engine fire or something similar this would be an emergency landing field.
5. To your left front there is a lake, the **"Walensee"** This is where you now head for.
6. As soon as you are over the western shore of the lake you start a steep climb an turn to a course of 10-20°.
7. In order to pass the mountain in front of you need to reach *at least* 5500 ft, better 6000. To obtain such a steep ascent you have to set full power (just neglect the possibly over-speeding engine) and maybe apply one step of flaps.
8. After crossing the mountain pass you maintain a heading of 10-20° for about 17 miles until you reach the motorway **"A1"** which runs more or less parallel to a railway track. With a cruising speed approximately 140 knots this will take somewhat between five and six minutes.
9. On that leg (in pilot's language a *"leg"* is a straight part of a flight route) you can descent to 4000-4500 ft.
10. Now you turn eastwards to a heading of about 100° to follow the A1.
11. When flying over the city of **"St. Gallen"** the A1 makes a long drawn curve to the left (northwards). At some pint the shore of the **"Bodensee"** (also called **"Lake of Constance"**) will become visible.
12. As soon as you leave St. Gallen behind, the A1 makes a relative sharp turn to the east. Now you don't continue following the A1, but maintain heading and start descending to 3000 ft. Now you should also be able to spot you destination airport to the right front of you.
13. As soon as you line up with the runway (presumably quite accurate above the shore) you turn right and start the approach.
14. The rest (final approach and landing) shouldn't be new for you so you can do this on your own.

Here's a plan of the route (taken with FlightGear's external map):
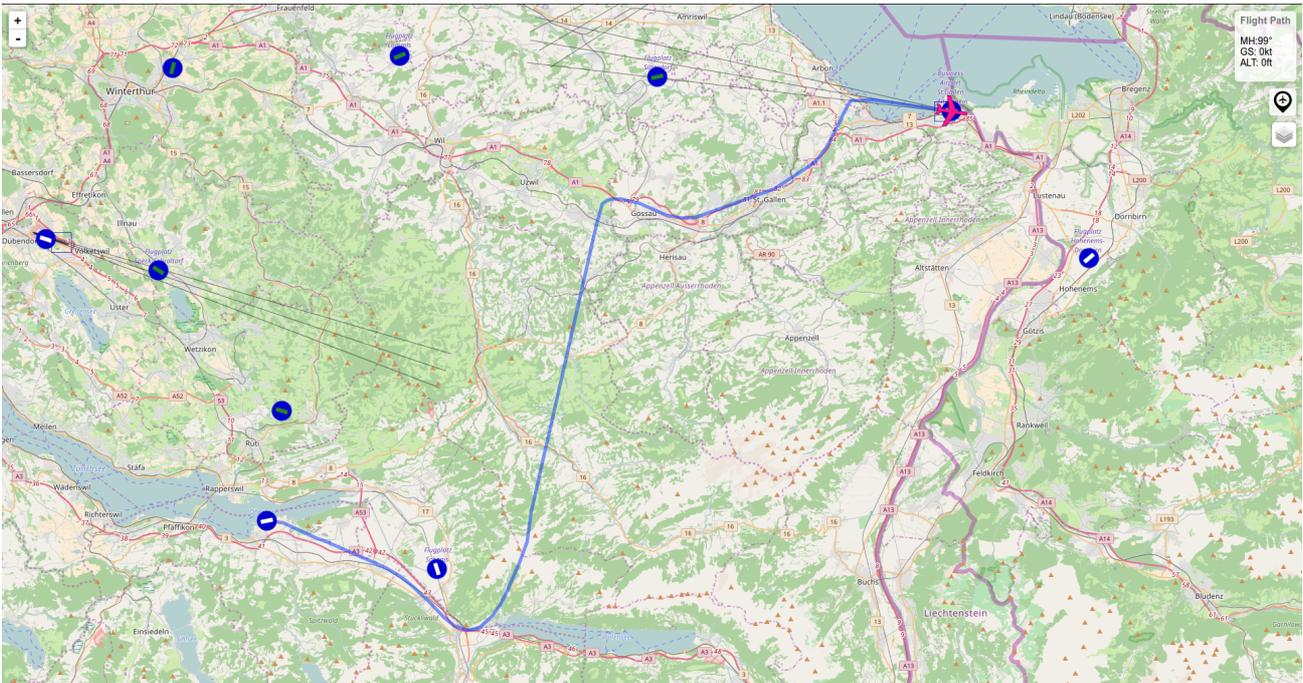
Emergency Go-Around:

If you need to abort the approach for any reason, you have to do the following:

1. Apply full throttle, set flaps to 10° (step 1)
2. Climb to pattern altitude: about 2500 ft MSL.
3. Initiate a right-hand circuit pattern with a right turn to 190°. You shouldn't fly a standard (left-hand) pattern because for safety reasons you shouldn't fly over water.
4. Make sure that you don't fly the crosswind too long because of the hills to the south of the airport.
5. Start a new approach.

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So, now that we discussed the whole thing in theory it is time to proceed to the next step: Perform the planned flight!

First of all you have to start FlightGear with the Cessna 172P at Wangen-Lachen airfield on runway 08. If you don't know how to start FlightGear with the appropriate options, I recommend you to also check out the [FlightGear Wiki](#).
To go into detail how to set up FlightGear accordingly would take us too far afield because it differs depending on the launcher (Qt5, FGRun, FGo!, etc.) and your operating system.

Let's say you started FlightGear correctly and you're sitting at LSPV at runway 08. One of the first things to do is setting the weather so that we can properly do a flight under Visual Flight Rules. But how do you do that?
In the menu bar you select **"Environment"**, and then **"Weather".** (If you can't see the menu bar, hit F10 once.) Here you can select the weather engine. In order to get nice looking clouds I recommend using **"Detailed Weather"**, which generates more authentic weather and nicer clouds than **"Basic Weather"**.
In the second half there is a drop-down menu called **"Weather Conditions"**. If not yet selected, select **"Fair weather"** from the list, and then press **"OK"**.
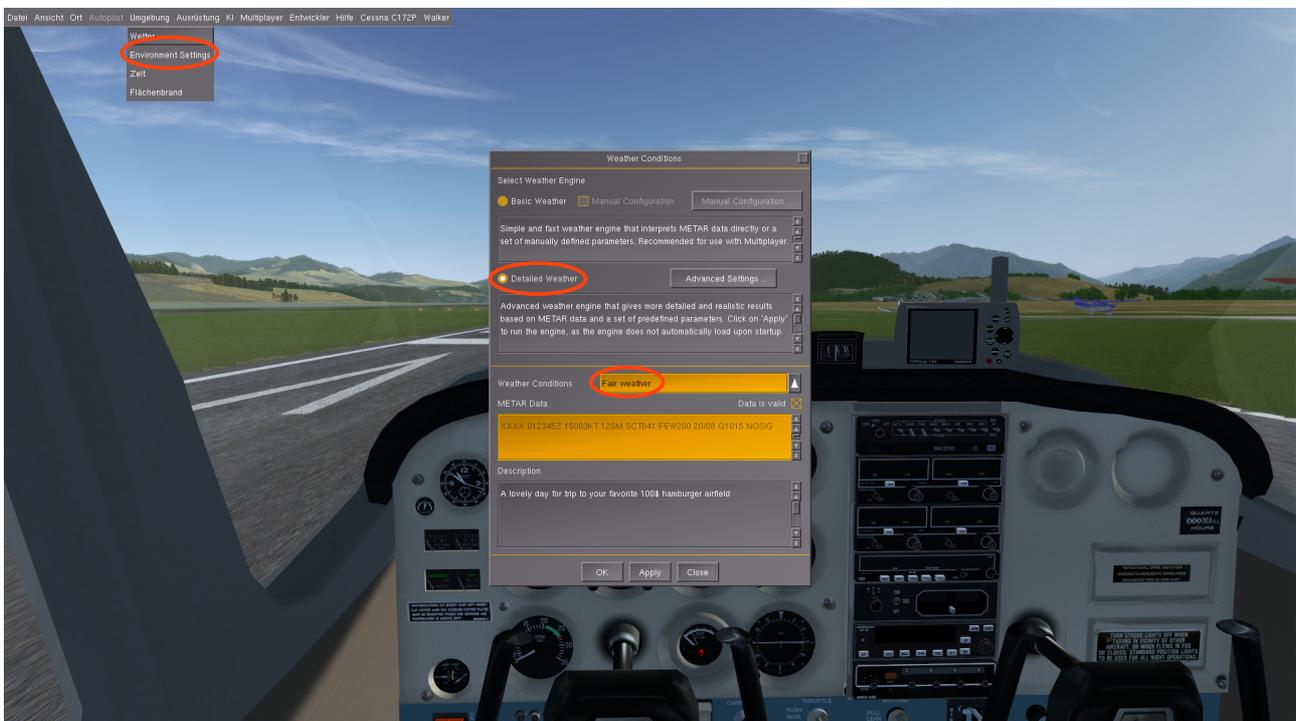
The Fair weather model simulates the wind coming from south-east (150°) with 3 knots. Since it is important to take off with headwind we must use the runway which points most likely into the wind. In this weather scenario at LSPV this is runway 08.

I assume that you indeed started up at runway 08 when you started FlightGear correctly. If you did start up at another location for some reason, you have to taxi to runway 08.

As this is no tutorial specifically about the Cessna 172P, I'm not going to explain in detail how to start up the engine. Instead we will use a little cheat: In the menu bar, select **"Cessna 172P"** → **"Autostart"**. The engine now starts up automatically. You should already be familiar with the basic steering of the aircraft, so now you can taxi to runway 08 (the highlighted point):

Before you can start the flight I have to give you some information about your destination airport and you have to do some preparations.

The field elevation of LSZR is 1306 ft above MSL, and as the pattern altitude is approximately 1000 ft above field elevation, you need to fly the circuit pattern at about 2300 ft MSL. For reasons of simplification I recommend 2500 ft. LSZR has an asphalt runway in the direction 10/28 and a grass runway in the same direction (10L/28R). You will land on runway 10 to land with as much headwind as possible. Remember: The wind comes from 150°.

In order to know your exact altitude you have to set the altimeter correctly, more precisely to the elevation of LSPV. Well, Wangen-Lachen lies at 1337 ft MSL so you have to set your altimeter to that value by turning the knob on the bottom left of the gauge.

Now you can take off and follow the flight plan that we created above.

Have a nice flight!

Below there are some screenshots of the flight where some of the waypoints can be seen.

1. Ready to taxi at LSPV

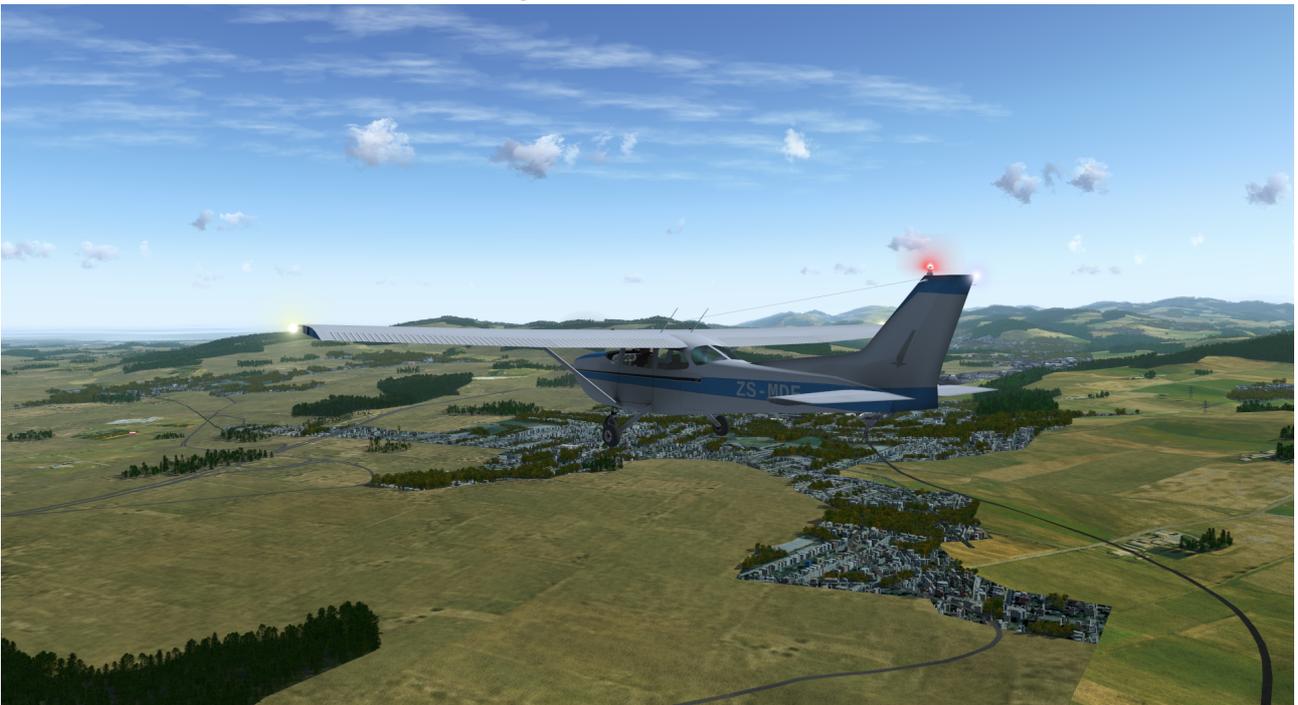

2. Taking off from the airfield

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3. Following the A3 to the valley

4. The Walensee in the left front

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5. Crossing the mountain pass

6. Meet the A1 and the railway track

7. Can you already spot LSZR?

8. Almost done – final approach

10. Congratulations, you successfully completed your first cross-country flight!

Finally, here is a link to a video where the forum user **Parnikkapore** recorded this flight:

https://youtu.be/wfdB9_PMr7I

FlightGear – fly free!

by Jonathan Schellhase