VFR CROSS-COUNTRY TUTORIAL
for FlightGear v2016.2 "Barcelona"
Barcelona-EL Prat (LEBL) to Igualada-Òdena (LEIG)
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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.
- You should basically know what a circuit pattern is, and how to fly it because the approach at Igualada-Òdena will take place in a pattern.
- 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 recom-mend to check out the in-sim tutorials of this aircraft.
- This tutorial is primarily intended for FlightGear v2016.2 "Barcelona" because in this version the default airport is Barcelona El Prat (ICAO-code: LEBL) and the base package contains the scenery around Barcelona.
- 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 LEBL at runway 20, fly north-westwards following a river and a motorway, and land at LEIG at runway 17 to join some others for a cup of tea. 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 LEIG without getting lost.

1. Right after takeoff we turn to a southern course (about 180°), until we meet the coast line about half a minute later.
2. With a left turn we follow the coast until we see the oil refinery.
3. According to the mandatory minimum safe altitude we have to maintain an altitude of at least 2000 ft.
4. Since we're already here we can do a bit sightseeing and fly a bow over the **"Castell de Montjuïc"**.
5. We turn westwards to a heading of 240°, which we steer until we catch up with the river **"Llobregat"**. You should see LEBL, our departure airport, in the front left of you.
6. After a right turn we follow the river upstream for ca. 5 minutes.
7. To keep a good view of the ground, you should maintain an altitude of 2,500-3,000 ft.
8. A few minutes later we will fly over the city **"Martorell"**, where the small river **"Anoia"**, coming from the west, flows into the Llobregat. At this point the Llobregat will become very small and difficult to see, but now we have a prominent mountain in front of us, the **"Montserrat"** where we're now heading for. Almost half of the distance lies now behind us. If you've done everything correct, about 15-20 minutes have passed since takeoff.
9. Now you don't need to see the river any longer and soon the terrain will rise, so you should now climb up to 4,000 ft.
10. We pass Montserrat on the left with a heading of about 310° following the street (the **"A-2"**). Make sure that you stay left of the A-2, because there is a restricted area over Montserrat which begins right next to the A-2.
11. Few minutes later we cross the town **"Collbató"**, from where you should be able to see our destination airport, the Aeròdrom Igualada-Òdena (LEIG) in the front left. At that point we start the descent to 2,600 ft, which is the pattern altitude of LEIG.
12. When we get closer to LEIG you will see that the street forks into two directions. Shortly before this point we make a right turn to 340° to join the downwind part of the circuit pattern for runway 17, on which you will land.
13. To be able to fly the approach and landing properly you should turn to base (250°) at the earliest when crossing the road **"C-37"** coming from the northeast, but before you get too close to the hills where the wind turbines stand on.
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 OpenStreetMap):
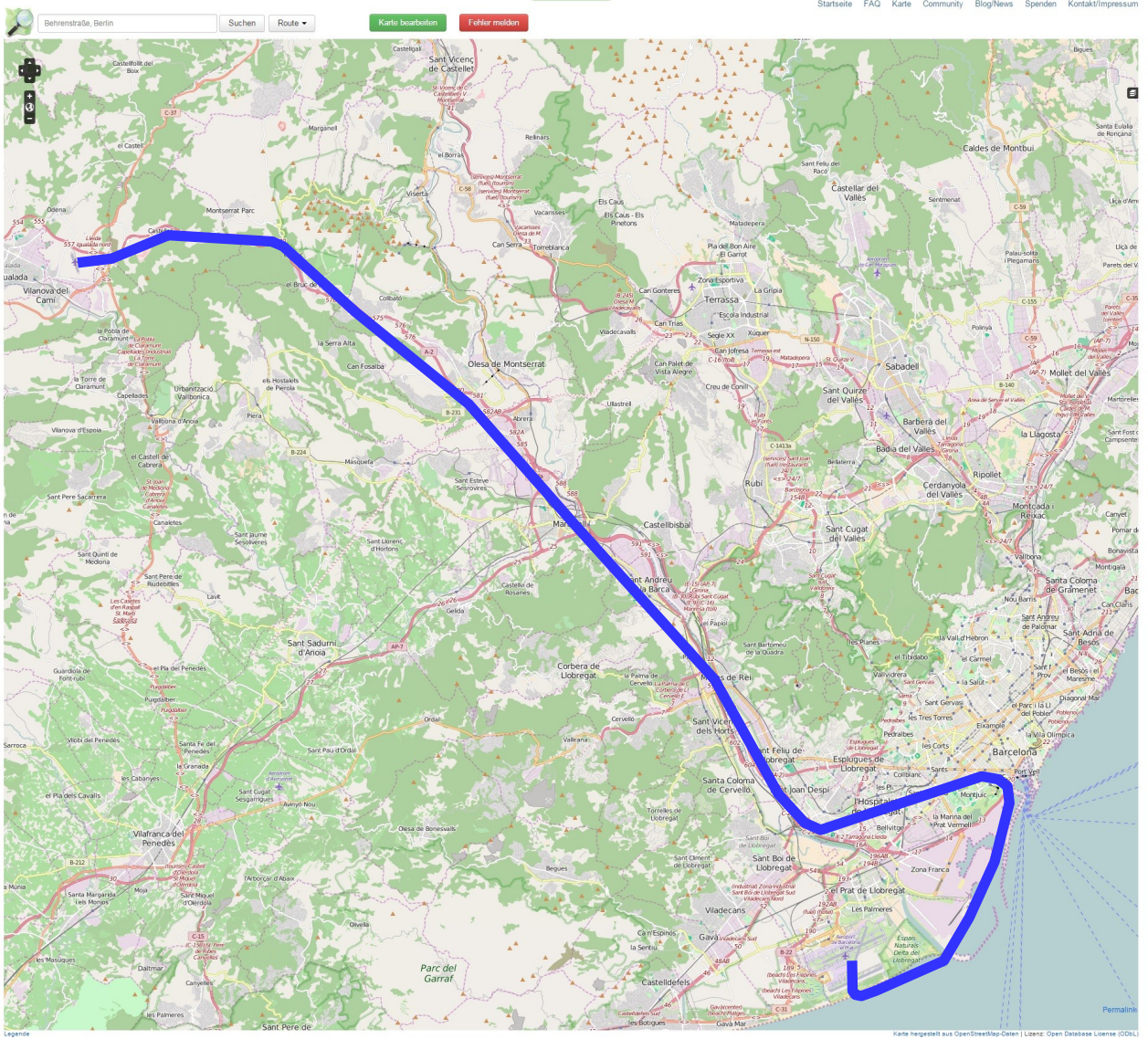
Emergency Go-Around:

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 2600 ft MSL.
3. Initiate a standard pattern with a left turn to 70°
4. Make sure that you keep an altitude of at least 2600 ft, because of the hills around the airfield.
5. Start a new approach.

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 Barcelona airport. 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 somewhere at LEBL, presumably at runway 20. 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"**.
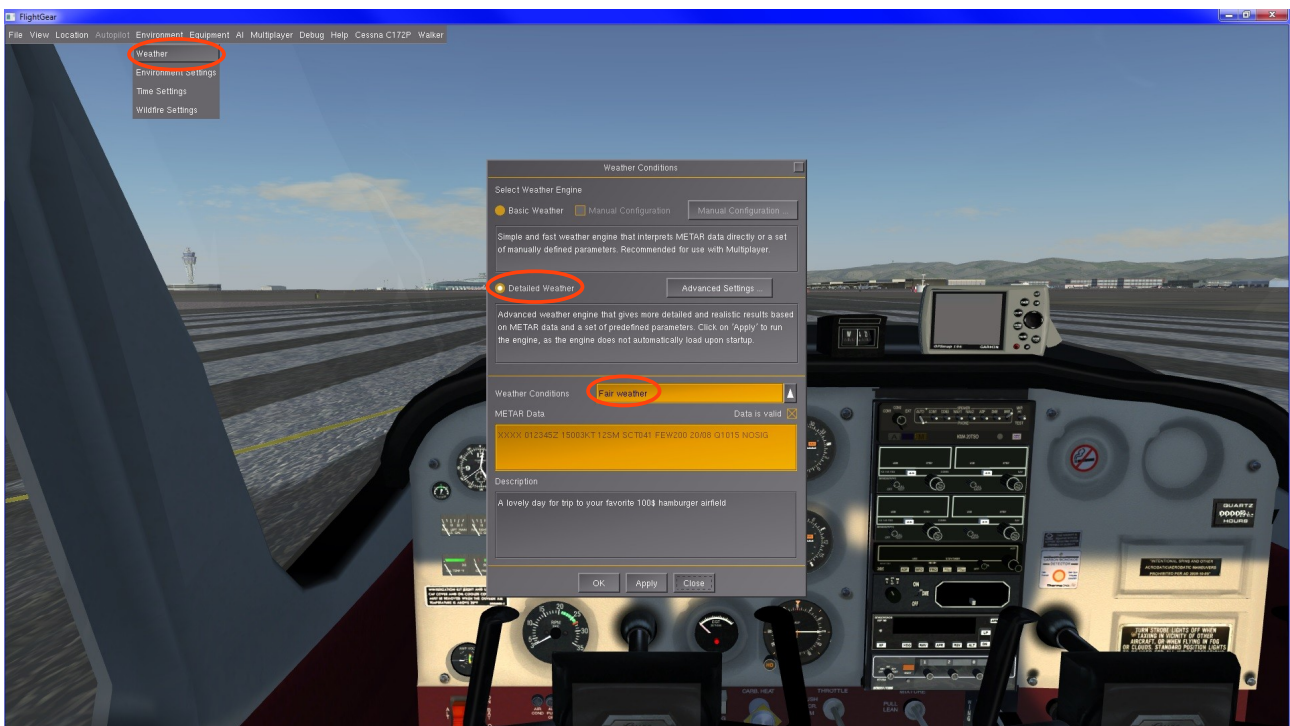
The Fair weather model simulates the wind coming from south-east (150°) with 3 knots. Since it is important to take off with headwind we must use the runway which points most likely into the wind. In this weather scenario at LEBL this is runway 20.

I assume that you indeed started up at runway 20, because that is FlightGear's default runway in LEBL. If you did start up at another location for some reason, you have to taxi to runway 20.

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"**, and then press **"s"** for ca. 3 seconds. You should already be familiar with the basic steering of the aircraft, so now you can taxi to runway 20 (the highlighted point):
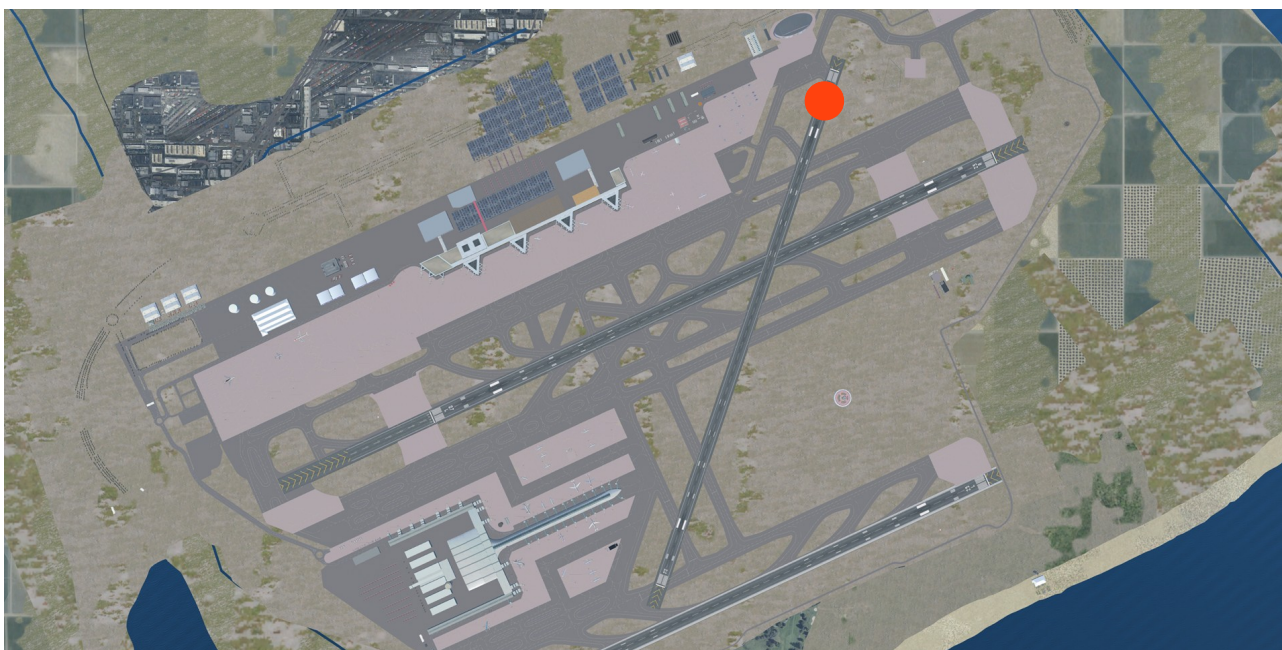
Before you can start the flight I have to give you some information about your destination airport and you have to do some preparations.

The field elevation of LEIG is 1162 ft above MSL, and as the pattern altitude is approximately 1500 ft above field elevation, you need to fly the circuit pattern at about 2600 ft MSL. LEIG has one runway in the direction 17/35, from which you will land on runway 17 to land with headwind. 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 Barcelona. Well, Barcelona-El Prat lies at 14 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!

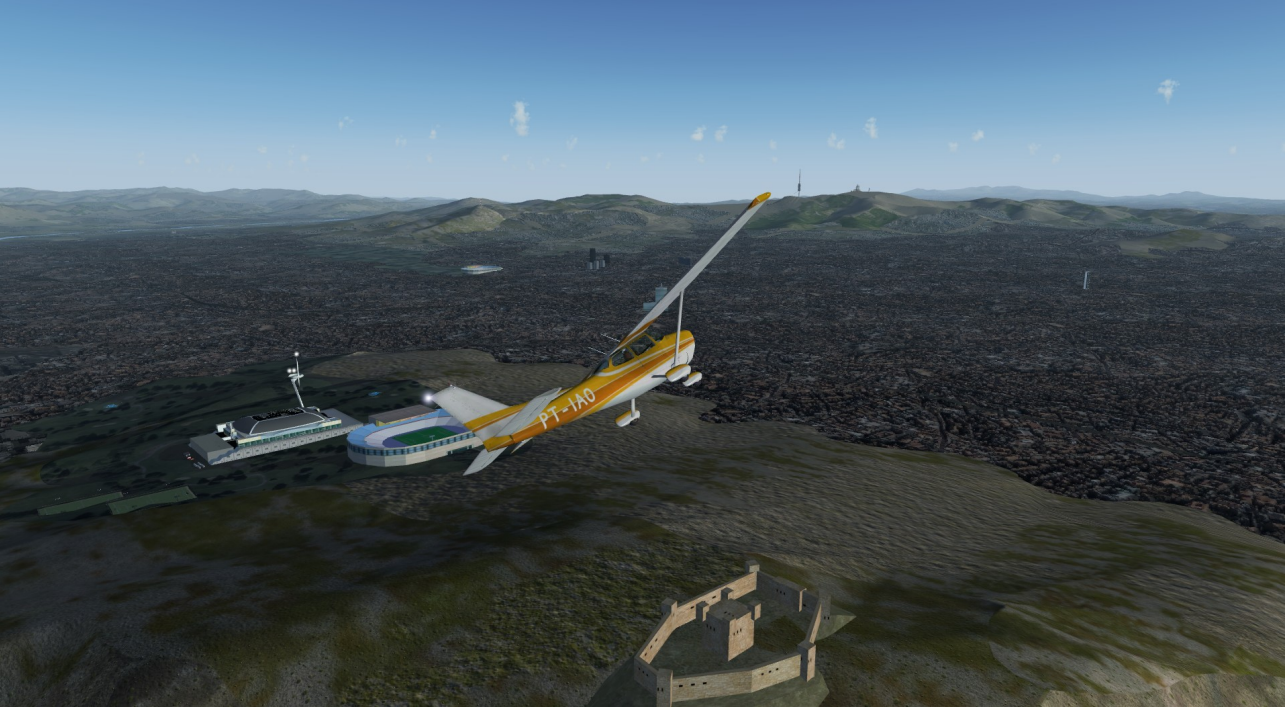Below there are some screenshots of the flight where some of the waypoints can be seen.

1. Takeoff at LEBL

2. The refinery

3. Sightseeing over Barcelona

4. Coming upon the river Llobregat

5. Flying northwards along the river, leaving Barcelona behind

6. Crossing the city Martorell, heading towards Montserrat

7. Can you already spot LEIG?

8. Joining the circuit pattern

9. Almost done, on final approach

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

FlightGear – fly free!