Rhine River

The journey along the Rhine, from its source to its mouth, will take you through 6 countries: Switzerland, Liechtenstein, Austria, Germany, France and the Netherlands.

Experience the Rhine as a traveling mountain stream in the Alps, as an economic factor, power generator, source of drinking water and of course as a breathtakingly beautiful river, especially in the Middle Rhine Valley.

You fly with the Cessna 172, one of the most used private aircrafts in Central Europe.

The voice output of the flight simulator provides you with interesting facts about the Rhine and its cultural and economic aspects during your journey. You can also turn this off by changing the frequency of COM2, or by simply turning COM2 off. The voice output is active when COM2 is set to 123 MHz and is receiving.

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LEGS

LEG 1: LSPM - LSZE

Departure: Ambri (LSPM)
Destination: Bad Ragaz (LSZE)
Distance: 63,7 nm

POI1-Airolo

Distance:	4,0 nm
Dist. from Dept.:	4,0 nm
Dist. to Dest.:	59,7 nm
True Course:	283°
Magnetic Course:	280°

You start about 7 nautical miles south of the source of the Rhine in Ambri. Fly west and follow the A2 highway to Airolo. There you will find the southern portal of the Gotthard road tunnel.

At 16.9 kilometers long, the Gotthard road tunnel is the fourth longest road tunnel in the world and the longest road tunnel in the Alps. The tunnel is part of the Swiss A2 national road from Basel to Chiasso. The tunnel connects Göschenen in the canton of Uri with Airolo in the canton of Ticino. It was built from 1970 to 1980 and opened on September 5, 1980. The Gotthard road tunnel is the most important Swiss corridor for cars through the Alps.

POI2-Hospental

Distance:	5,6 nm
Dist. from Dept.:	9,6 nm
Dist. to Dest.:	54,1 nm
True Course:	346°
Magnetic Course:	343°

You should climb to over 7000 feet, the journey goes north over the Gotthard Pass. National Road 2 and the old Gotthard Pass road wind their way up the mountain. At the highest point you fly over Lago della Piazza and Lago di S. Carlo and follow the road downhill to Hospental.

From the Middle Ages until the construction of the railroad and highway tunnels, the Gotthard Pass was one of the most important north-south connections across the Alps. The Gotthard axis is the still today important European traffic axis, which leads in north-south direction over the Gotthard massif or under it. The Gotthard Pass is one of the direct transport links through the Central Alps that only crosses a mountain ridge.

POI3-Lake Oberalp

Distance:	4,7 nm
Dist. from Dept.:	14,3 nm
Dist. to Dest.:	49,4 nm
True Course:	58°
Magnetic Course:	55°

At Hospental you turn right to the northeast and after a short time you fly over Andermatt. There, a road again winds its way up the mountain on your course. A flight altitude above 7000 feet is mandatory for this section.

POI4-Anterior Rhine

Distance:	1,3 nm
Dist. from Dept.:	15,6 nm
Dist. to Dest.:	48,0 nm
True Course:	122°
Magnetic Course:	119°

Fly over the lake and follow the road into the valley. The still young Anterior Rhine flows down from the mountains on the right. The source, or the outlet from Lake Toma, is about a kilometer to the south. Feel free to fly into the first valley, it is only a short distance, but you will have to climb to over 8000 feet.

From here on, the Rhine will be your companion for the next 1230 kilometers.

Traditionally, Lake Toma is considered the source of the Vorderrhein and the Rhine as a whole. The Hinterrhein rises in the high valley Rheinwald below the Rheinwaldhorn.

However, the source of the main flow path, which results from the respective larger amount of water at each confluence, lies elsewhere, in the east in the Dischma Valley. The absolutely longest spring river, the Rein da Medel, rises south of the main Alpine ridge in Val Cadlimo in Lago Scuro and Lago di Dentro on Ticino cantonal territory.

POI5-Rein da Medel

Distance:	7,3 nm
Dist. from Dept.:	22,9 nm
Dist. to Dest.:	40,8 nm
True Course:	67°
Magnetic Course:	64°

You fly over the village of Tujetsch. At the next village, Disentis, the Rein da Medel flows out of the southern valley into the Anterior Rhine. The mouth is directly behind a road bridge.

POI6-Val Russein

Distance:	2,3 nm
Dist. from Dept.:	25,2 nm
Dist. to Dest.:	38,4 nm
True Course:	51°
Magnetic Course:	48°

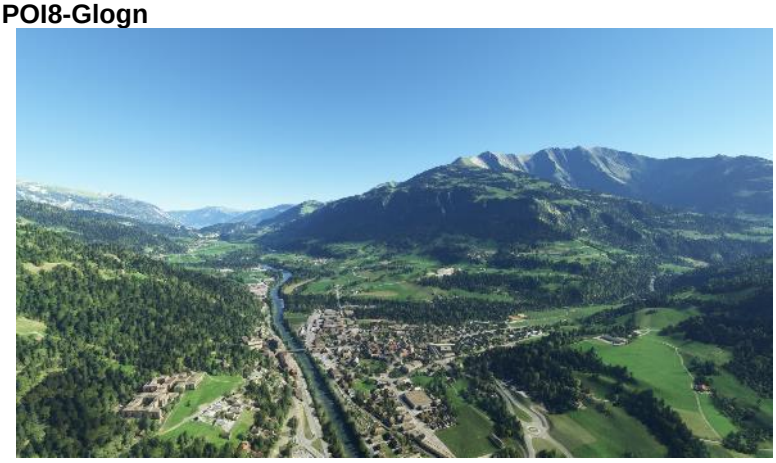
On the northern side of the Anterior Rhine Valley, behind Desentis, two side valleys follow in quick succession from which further streams flow into the still young Rhine. At the second valley, a railroad viaduct spans the stream.

POI7-Rein da Sumvitg

Distance:	2,5 nm
Dist. from Dept.:	27,7 nm
Dist. to Dest.:	36,0 nm
True Course:	79°
Magnetic Course:	76°

The next important tributary is the Rein da Sumvitg.

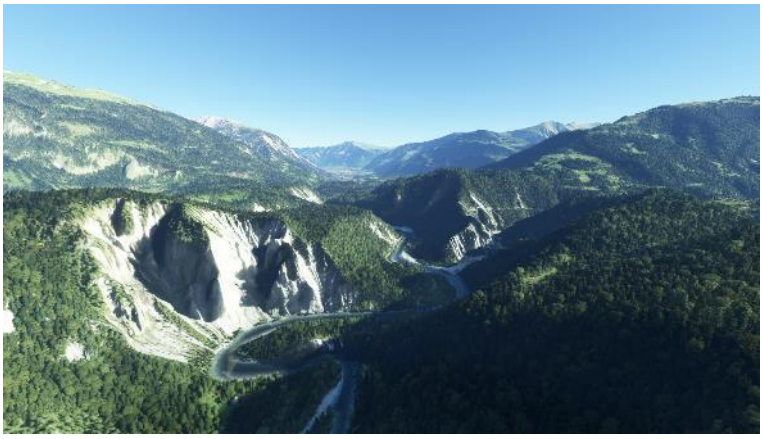
POI8-Glogn



Distance:	10,8 nm
Dist. from Dept.:	38,6 nm
Dist. to Dest.:	25,1 nm
True Course:	74°
Magnetic Course:	71°

Many small streams from the side valleys feed the Anterior Rhine. At Ilanz, the Glogn flows in from the south.

POI9-Ruinaulta



Distance:	6,0 nm
Dist. from Dept.:	44,5 nm
Dist. to Dest.:	19,2 nm
True Course:	69°
Magnetic Course:	66°

Next you come to the Rhine Gorge, a gorge up to 400 meters deep on the Anterior Rhine.

The Ruinaulta or Rhine Gorge is a gorge of the Anterior Rhine up to 400 meters deep and about 13 kilometers long.

It was formed after the Flims landslide almost 10,000 years ago. At that time, more than 10 billion cubic meters of rock broke off between the Flimserstein and the Piz Grisch and buried the Anterior Rhine Valley between the present-day villages of Castrisch and Reichenau under a mass of debris several hundred meters thick.

Since the Anterior Rhine could no longer flow away, a lake was dammed over a length of about 25 kilometers. In the course of time, the river cut deeply into the landslide masses and the resulting lake was able to drain off completely. What remained was the Ruinaulta with its steep limestone rubble cliffs in imposing erosion formations.

POI10-Rhine River

Distance:	2,6 nm
Dist. from Dept.:	47,1 nm
Dist. to Dest.:	16,6 nm
True Course:	75°
Magnetic Course:	72°

At Reichenau, the Anterior Rhine and the Posterior Rhine flow together. From here on, the river only bears the name Rhine. Coming from the south, you will see the A13 highway, which now runs parallel to the Rhine.

The 64-kilometer-long Posterior Rhine flows first east-northeast, then north. It flows through the three valley valleys Rheinwald, Schams and Domleschg-Heinzenberg. In between lie the gorge landscapes of Roffla and Viamala. Its headwaters lie in the Adula Alps.

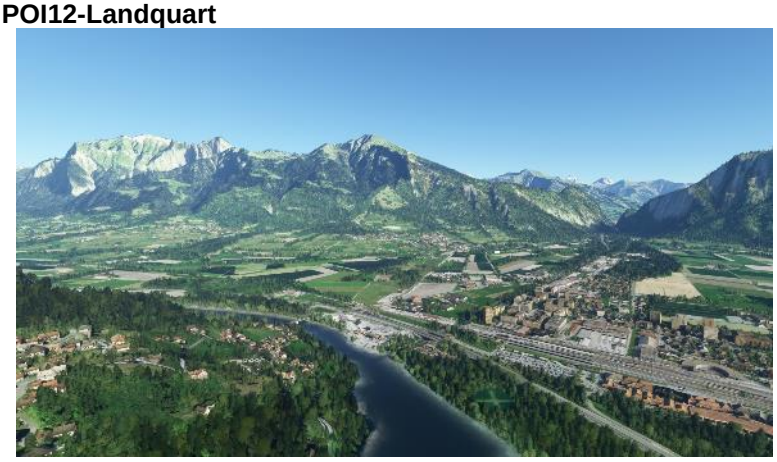
POI11-Chur

Distance:	5,4 nm
Dist. from Dept.:	52,5 nm
Dist. to Dest.:	11,2 nm
True Course:	73°
Magnetic Course:	70°

Follow the river and the highway. The nearest larger city is Chur.

At Reichenau, the Anterior Rhine and Posterior Rhine have merged to form the Alpine Rhine. Over a length of barely 86 kilometers, it drops from an altitude of 599 to 396 meters. The Rhine first bends sharply to the north at Chur, the capital of Graubünden. The Alpine Rhine Valley is a glacially shaped, broadly cleared, alpine box valley.

POI12-Landquart



Distance:	7,2 nm
Dist. from Dept.:	59,7 nm
Dist. to Dest.:	4,0 nm
True Course:	6°
Magnetic Course:	3°

Behind Chur, the Rhine turns in a northerly direction. You fly over some bridges and wind turbines. The A13 highway runs to the right of the river.

LSZE-Bad Ragaz

Distance:	4,0 nm
Dist. from Dept.:	63,7 nm
Dist. to Dest.:	0,0 nm
True Course:	314°
Magnetic Course:	311°

Two more bridges over the Rhine follow before the highway and a railroad line cross the river at Bad Ragaz. Now fly roughly along the course of the railroad to the mountains on the left and you will see the short and narrow, but paved runway of Bad Ragaz ahead of you.

The airport is at an altitude of 1617 feet and offers you fuel.

LEG 2: LSZE - EDTZ

Departure: Bad Ragaz (LSZE)
Destination: Constance (EDTZ)
Distance: 54,5 nm

POI13-Sargans

Distance:	2,2 nm
Dist. from Dept.:	2,2 nm
Dist. to Dest.:	52,2 nm
True Course:	353°
Magnetic Course:	349°

Your aircraft was only half fueled at takeoff from Ambri to get you over the Gotthard Pass. The fuel will not last until Speyer, the next regular airport on the flight plan with fuel. Here is the opportunity to refuel. The refueling station is located on the eastern apron.

After departure, return to the Rhine and follow it north. From Sargans, the Rhine is the border river between Switzerland and Liechtenstein for about 14 nautical miles.

At Sargans, only a few meters high land step prevents the Rhine from flowing through the open Seez valley through Lake Walen and Lake Zurich towards the Aare.

POI14-AT/CH/LI

Distance:	13,3 nm
Dist. from Dept.:	15,6 nm
Dist. to Dest.:	38,9 nm
True Course:	10°
Magnetic Course:	7°

You fly over the Rhine bridges at Balzers (LI), Vaduz, the capital of Liechtenstein, Buchs (CH), Gamprin (LI) and Ruggel (LI) until you reach the border triangle of Liechtenstein, Austria and Switzerland. The bridge at Bangs already leads to Austria.

POI15-Illspitz

Distance:	2,0 nm
Dist. from Dept.:	17,6 nm
Dist. to Dest.:	36,9 nm
True Course:	33°
Magnetic Course:	30°

Shortly thereafter, the Ill flows into the Rhine from the east. The mouth can be seen very well at the Illspitz. Immediately before the mouth is a hydroelectric power plant in the Ill.

POI16-Mouth of Alpine Rhine

Distance:	12,9 nm
Dist. from Dept.:	30,5 nm
Dist. to Dest.:	24,0 nm
True Course:	21°
Magnetic Course:	18°

At Diepoldsau, an oxbow of the Rhine can be seen, which is also the border between Austria and Switzerland. So Diepoldsau is in Switzerland, although it is east of the current course of the river.

Then you come to the mouth of the Rhine into Lake Constance, which is also the end of the Alpine Rhine.

The Rhine, with its water bright due to high suspended matter content, has already largely filled Lake Constance, which originally reached far into the Alps, with sediments. It transports up to 3 million cubic meters of solids into Lake Constance per year. The inland delta growing into the lake is largely a nature reserve and bird sanctuary between the Old Rhine in the west and the Lower Rhine Passage in the east. The Rhine also once naturally branched into at least two main branches. Depositing bedload created many small islands. In the estuary area, permanent gravel mining with dredgers is necessary to control sedimentation.

The regulation of the Rhine and the resulting cuttings at Diepoldsau and Fußach counteracted the flooding and heavy sedimentation in the Rhine delta. In order to prevent the Bregenz Bay from silting up and to preserve the present coastline, the mouth of the canal-like Alpine Rhine into Lake Constance was "stretched forward" and aligned to the west. The cut-off Old Rhine initially ran in a marshland, but was canalized below St. Margrethen in the course of the Rhine regulation and made navigable from Rheineck.

POI17-Seerhein

Distance:	22,1 nm
Dist. from Dept.:	52,6 nm
Dist. to Dest.:	1,9 nm
True Course:	297°
Magnetic Course:	294°

You fly over Lake Constance to the northwest. This part of Lake Constance is called Upper Lake. On the southern shore, shortly after the mouth of the Altenrhein, is the St. Gallen Altenrhein Airport. A little further on, you will fly through the ILS of runway 06 of Friedrichshafen airport on the north side of Lake Constance.

To the west, you can already see Constance, where the Rhine flows through its shortest section: The Seerhein, which is only 4.3 kilometers long. It begins at the Old Constance Rhine Bridge in the east to the island of Triboldingerbohl in the west. In the middle of the old Constance Rhine Bridge, the kilometer marking of the Rhine begins, so here is Rhine kilometer 0.

Lake Constance is composed of two lakes and a section of the Rhine River connecting them, the Upper Lake (with Lake Überlingen), the Seerhein and the Lower Lake. The Seerhein connects the Upper Lake with the Lower Lake. Lake Constance is Germany's largest inland body of water. With a depth of 251 meters between Fischbach and Uttwil, it is also Germany's deepest lake.

Three countries, Germany, Austria and Switzerland, border Lake Constance. There is a recognized border only in the Lower Lake between Germany and Switzerland. In the area of the Upper Lake, no mutually agreed border has been established.

The main tributary of the Upper Lake is the Alpine Rhine. The Alpine Rhine mixes only to a limited extent with the lake waters and flows through Lake Constance in mostly constant courses. In addition, there are 236 smaller tributaries. The outflow of the Upper Lake is the Seerhein, which in turn is the main tributary of the Lower Lake.

By far the largest island is Reichenau in the Lower Lake. The former Reichenau Monastery is a UNESCO World Heritage Site, also due to three early and high medieval churches. The island is also known for its intensive cultivation of fruit and vegetables.

The island of Lindau in the very east of the Upper Lake is the second largest island. On it is located both the old town and the former main station of the city of Lindau.

The third largest island is Mainau in the southeast of Lake Überlingen, the northwestern finger-shaped arm of the Upper Lake. The owners have established the island as a tourist destination and have created botanical gardens and animal enclosures for it. Due to the favorable climate of Lake

Constance, palm trees and other Mediterranean plants grow on the island. Because of its rich subtropical, sometimes tropical vegetation, Mainau is also called the "flower island in Lake Constance".

EDTZ-Constance

Distance:	1,9 nm
Dist. from Dept.:	54,5 nm
Dist. to Dest.:	0,0 nm
True Course:	291°
Magnetic Course:	288°

The airport is located in the west of Constance. Follow the road behind the bridge. It will lead you directly to grass runway 30.

The airport is at an elevation of 1302 feet.

LEG 3: EDTZ - EDTR

Departure: Constance (EDTZ)

Destination: Herten-Rheinfelden (EDTR)

Distance: 61,2 nm

POI18-Stein am Rhein

Distance:	11,4 nm
Dist. from Dept.:	11,4 nm
Dist. to Dest.:	49,7 nm
True Course:	264°
Magnetic Course:	261°

Take off and fly in a westerly direction. You will fly over Reichenau Island, the largest island in Lake Constance. Follow the southern shore and you will reach Stein am Rhein. This is where Lake Constance and Lower Lake end.

The High Rhine now forms the border between Switzerland in the south and Germany in the north to a certain extent as far as Eglisau, between Stein am Rhein, Schaffhausen and the Zurich Rafzerfeld, and from Eglisau to Basel along its entire length.

The character of the river landscape was changed over wide stretches by the construction of hydroelectric power plants. In connection with the original goal of making the river navigable, the large rapids near Laufenburg were also blown up and dammed.

At Koblenz in the canton of Aargau, the Aare flows in from the south. Although it is shorter than the Rhine up to this section, it carries considerably more water than the Rhine and is thus the hydrological main stem of the entire river system. At Rheinfelden, the Rhine reaches a depth of 32 m in the St. Anna Loch.

POI19-Rheinfall

Distance:	9,9 nm
Dist. from Dept.:	21,4 nm
Dist. to Dest.:	39,8 nm
True Course:	277°
Magnetic Course:	274°

The following section from Stein am Rhein is called High Rhine. In contrast to the Alpenrhein, it flows mainly to the west and drops from 395 meters to 252 meters. Downstream you pass Schaffhausen and the adjacent Neuhausen. Here lies the famous Rhine Falls (or Großer Laufen), measured by the fall energy the second largest waterfall in Europe.

Together with the equally high Sarpsfossen in Norway, the Rhine Falls is one of the three largest waterfalls in Europe. The Sarpsfossen has more water, while the Dettifoss in Iceland, which is twice as high, only has about half as much water.

The Rhine Falls has a height of 23 meters and a width of 150 meters. The scour in the impact zone has a depth of 13 meters. It cannot be overcome by fish upstream, except by the eel. The latter meanders sideways (outside the river bed on the land) up over the rocks.

POI20-Thur

Distance:	5,1 nm
Dist. from Dept.:	26,5 nm
Dist. to Dest.:	34,7 nm
True Course:	191°
Magnetic Course:	188°

Shortly after the Rhine Falls, you fly over the Rhine loop at Rheinau Monastery. A little further south, the Thur flows into the Rhine.

About 7 kilometers below the Rhine Falls follows the Rheinau diversion power plant. Its construction was preceded by fierce protests in the 1950s because the dam effect is visible all the way to the Rhine Falls. In addition, the Rhine loop at the Rheinau monastery is only flushed with water thanks to two auxiliary weirs.

POI21-Aare

Distance:	14,9 nm
Dist. from Dept.:	41,4 nm
Dist. to Dest.:	19,8 nm
True Course:	273°
Magnetic Course:	270°

Shortly after, the Rhine turns back to the west, the main flow direction of the High Rhine. You fly over the power plants and barrages of Eglisau and Reckingen and come to Waldshut-Tiengen on the German side and Koblenz on the southern, Swiss side of the Rhine. Between the two cities the Wutach flows into the Rhine from the north and after Koblenz the water-rich Aare.

The construction of the power plant at Eglisau-Glattfelden and the associated damming of the river necessitated the demolition of numerous houses and the construction of the new Eglisau Rhine bridge between 1915 and 1920. In the Eglisau district of Oberriet alone, for example, 15 of a total of 17 buildings had to be demolished.

About ten kilometers downstream, the Reckingen run-of-river power plant follows, after which the river flows through the Laufen near Ettikon, whose rapids were blown up shortly before the planned construction of the power plant was halted in 1965.

The Aare is the longest river running entirely within Switzerland. Its total length is 288 kilometers, and the gradient is 1665 meters. The Aare is the most water-rich tributary of the Rhine, ahead of the Meuse and the High Rhine itself, and it carries more water than the Moselle and Main combined. So, from a hydrological point of view, the Rhine is a tributary of the Aare.

POI22-Albbruck-Dogern

Distance:	2,2 nm
Dist. from Dept.:	43,6 nm
Dist. to Dest.:	17,6 nm
True Course:	258°
Magnetic Course:	255°

A few minutes later you will reach the Albbruck-Dogern run-of-river power plant with the reservoir behind it. Before that, you pass the Leibstadt nuclear power plant. From here to Basel, another seven power plants follow. In total, the High Rhine has eleven barrages with twelve run-of-river power plants.

The Leibstadt nuclear power plant is equipped with a boiling water reactor with a net electrical output of 1233 MW. It went into operation at the end of 1984, making it the youngest of the four active nuclear reactors in Switzerland. It generates one-sixth of the electricity produced in Switzerland. Cooling is provided by a 144-meter-high natural draft wet cooling tower.

The nuclear power plant in Leibstadt is one of five nuclear power plants located on the Rhine. Further on, you will see Fessenheim in France and Philippsburg, Biblis and Mühlheim-Kärlich in Germany, all of which have already been shut down and are partly being dismantled.

POI23-Laufenburg

Distance:	5,0 nm
Dist. from Dept.:	48,6 nm
Dist. to Dest.:	12,6 nm
True Course:	245°
Magnetic Course:	242°

Near Laufenburg was the Kleine Laufen, the third largest rapids on the High Rhine. It was blown up between 1908 and 1912 to improve navigability and to build a power plant.

POI24-St. Anna Hole

Distance:	10,9 nm
Dist. from Dept.:	59,5 nm
Dist. to Dest.:	1,7 nm
True Course:	267°
Magnetic Course:	264°

In the further course you fly over Murg, where the stream of the same name flows into the Rhine. Before you reach Bad Säckingen, you will pass the mouth of the Whera. Behind the bridge in Rheinfelden lies the deepest point of the High Rhine: the St. Anna-Loch with a depth of 31 meters.

Already about 700 meters above the bridge in the area of the Höllhaken, the first furrows begin to dig into the riverbed of the Rhine. These smaller furrows run in the direction of flow and merge over time to form ever larger ditches. About 100 meters above the old Rhine bridge, the last two ditches unite to form a mighty, steep-walled ditch that runs directly under the middle section of the bridge between the island with the former Stein Castle and the right bank of the Rhine. Immediately after the Rhine bridge, the ditch opens into an extensive, shell-shaped basin, the deepest point of which is the St. Anna hole.

EDTR-Herten-Rheinfelden

Distance:	1,7 nm
Dist. from Dept.:	61,2 nm
Dist. to Dest.:	0,0 nm
True Course:	279°
Magnetic Course:	276°

North of the river in Rheinfelden, Germany, is your next stop: the Herten-Rheinfelden airfield.
The airport is located at an altitude of 925 feet.

LEG 4: EDTR - EDSW

Departure: Herten-Rheinfelden (EDTR)

Destination: Altdorf-Wallburg (EDSW)

Distance: 56,8 nm

POI25-Basel

Distance:	6,4 nm
Dist. from Dept.:	6,4 nm
Dist. to Dest.:	50,3 nm
True Course:	270°
Magnetic Course:	267°

After taking off and continuing westward, you will find yourself on the last stretch of the High Rhine. In the center of Basel, the first major city on the course of the river, lies the "Rhine bend". This is where the High Rhine ends. Officially, the middle bridge is the border between the High and Upper Rhine.

On November 1, 1986, a major fire occurred in a warehouse of the Sandoz company in Schweizerhalle near Basel. Chemicals (especially phosphoric acid esters and mercury compounds) entered the Rhine with the extinguishing water and destroyed a large part of the animal and plant life there.

Flora and fauna recovered in the following months and years, with floods also making a particular contribution. Thanks to the increased expansion and construction of wastewater treatment plants and other water protection measures, the Rhine recovered, but was subsequently more heavily colonized by alien species than before. As a result of this accident, the firewater retention directive was enacted in Switzerland.

POI26-Wiese

Distance:	1,4 nm
Dist. from Dept.:	7,8 nm
Dist. to Dest.:	48,9 nm
True Course:	355°
Magnetic Course:	353°

The river now flows as the Upper Rhine northward through the Upper Rhine lowlands, which are about 300 km long and up to 40 km wide, its height dropping from 252 m to 76 m in the process.

Still within the city limits of Basel, the Wiese flows into the Rhine from the west.

The most important tributaries in the Upper Rhine are, from the left, the Ill below Strasbourg, from the right, the Neckar in Mannheim and the Main opposite Mainz. At Mainz, the Rhine leaves the Upper Rhine Graben and flows through the Mainz Basin. The section of the Upper Rhine from Mainz down through the Rheingau and Rheinhessen is also known as the Inselrhein. In this section of the river, which is the widest at up to 900 meters, there are large river islands known here as Rhine meadows.

The southern half of the Upper Rhine forms the state border between France and Germany. The northern half runs through Germany and forms the state border between Rhineland-Palatinate in the west on the one hand and Baden-Württemberg and Hesse in the east and north on the other.

The Upper Rhine Valley was already an important cultural landscape in Europe in antiquity and the Middle Ages. The Upper Rhine is the location of numerous important industrial and service companies with the centers Basel, Strasbourg and Mannheim-Ludwigshafen.

The Upper Rhine landscape has changed considerably due to the straightening of the Rhine in the 19th century. Because of the increase in flow velocity and thus depth erosion, the groundwater level fell considerably, causing side arms to dry out and the floodplain primeval forest to decline sharply. In France, the Rhine side channel, important for Rhine navigation, was built, through which most of the river water is conducted. In some places there are larger compensation basins, such as the huge Bassin de compensation de Plobsheim in Alsace.

POI27-Grand Canal d'Alsace

Distance:	2,2 nm
Dist. from Dept.:	10,0 nm
Dist. to Dest.:	46,8 nm
True Course:	344°
Magnetic Course:	341°

After the port in the east you leave Switzerland and the Rhine forms the border between France in the west and Germany in the east.

To the west is the EuroAirport Basel Mulhouse Freiburg. Now would be a good time to look at your fuel gauge, at the EuroAirport you can refuel. Shortly after you will come to the Rhine-Side-Channel. Here the main water flow of the Rhine is directed to the Rhine side canal (Grand Canal d'Alsace) running on

the French side. It receives the shipping traffic and passes four run-of-river power plants. The old, already straightened course, the so-called Restrhein (actually it is the real Rhine), is followed by the state border.

To the west is the EuroAirport, a good opportunity to refuel. Although the EuroAirport Basel Mulhouse Freiburg is located exclusively on French territory, it is unique in the world in that it is operated jointly by two countries. However, it is directly connected to Swiss territory by the Basel airport road, which is a duty-free road.

After the German Empire lost the First World War, the Alsace-Lorraine region was reincorporated into France under the Treaty of Versailles of 1919. As a result, the Rhine in the section between Basel and Lauterbourg again became the national border between Germany and France. In addition, the Treaty of Versailles granted France the exclusive right to divert Rhine water at will and to use the Rhine's hydroelectric power in the border section. Half of the electricity generated was to be credited to Germany.

Taking advantage of this treaty clause, France began to plan and realize a canal west of the border-forming section of the Rhine, which would serve not only navigation but also, and above all, power generation. In order to maximize the energy gain, practically the entire water volume of the Rhine was to run through the canal and the French power plants planned along it. Only a small amount of residual water was to remain in the border river except during floods.

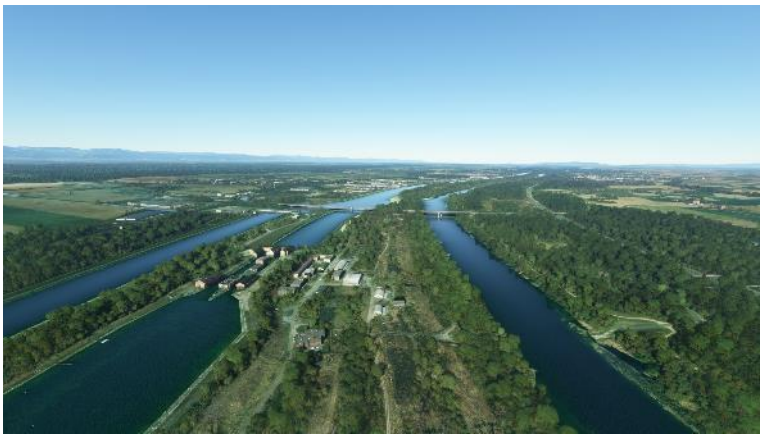
POI28-Kembs

Distance:	3,1 nm
Dist. from Dept.:	13,1 nm
Dist. to Dest.:	43,7 nm
True Course:	319°
Magnetic Course:	316°

The Grand Canal d'Alsace or Rhine-Side-Channel begins at Kembs. Most of the Rhine's water is carried through the left-hand canal, which is entirely on the French side. 4 barrages with associated power plants and locks for navigation are located in the canal.

The first of these is Kembs and the backwater of the water reaches Basel.

POI29-Ottmarsheim



Distance:	7,1 nm
Dist. from Dept.:	20,2 nm
Dist. to Dest.:	36,6 nm
True Course:	1°
Magnetic Course:	358°

Before you reach the next barrage of the Rhine-Side-Channel, you can see the mouth of the Rhine-Rhône-Channel in the west. The power station at Ottmarsheim is the second one in the Rhine-Side-Channel.

The Rhine-Rhône Canal connects the valleys of the Saône and Rhine rivers across the Burgundy Gate watershed between the Vosges and Jura Mountains. It is part of an inland waterway that provides a navigable link across Europe between the coasts of the Mediterranean and the North Sea. This route is composed of the following waterways: Rhône, Saône, Rhine-Rhône Canal, Rhine Side Canal and Rhine.

POI30-Fessenheim

Distance:	8,4 nm
Dist. from Dept.:	28,6 nm
Dist. to Dest.:	28,2 nm
True Course:	13°
Magnetic Course:	10°

North of the power plant, the A36 autoroute crosses the Rhine-Side-Channel and the Rhine at the Ottmarsheim Rhine Bridge and leads to the Federal Highway 5 on the German side.

Before the barrage at Fessenheim, to the west of the canal, lies the Fessenheim nuclear power plant

On the French side is the Fessenheim nuclear power plant. It was commissioned in 1978 and was the oldest and least powerful French nuclear power plant. The power plant is located one kilometer west of the border with Germany, 25 kilometers west-southwest of Freiburg im Breisgau. Reactor 1 was shut down in February 2020 and reactor 2 in June 2020, marking the final retirement of the power plant.

POI31-Vogelgrun

Distance:	6,5 nm
Dist. from Dept.:	35,1 nm
Dist. to Dest.:	21,7 nm
True Course:	2°
Magnetic Course:	359°

The Vogelgrun power plant is the last of the four power plants in the course of the Rhine-Side-Channel, which flows back into the Rhine about one kilometer below the power plant.

On the German side you see the Kaiserstuhl. It is a 556 meter high, small low mountain range of volcanic origin in the Upper Rhine Plain. The formation of the volcano was the peak and the final point of volcanic activity in the Upper Rhine Graben. Geologically, the Kaiserstuhl can be divided into a sedimentary and a volcanic part. Because of these peculiarities, the Kaiserstuhl was awarded as one of the most important national geotopes in Germany.

POI32-Marckolsheim

Distance:	8,0 nm
Dist. from Dept.:	43,1 nm
Dist. to Dest.:	13,6 nm
True Course:	4°
Magnetic Course:	1°

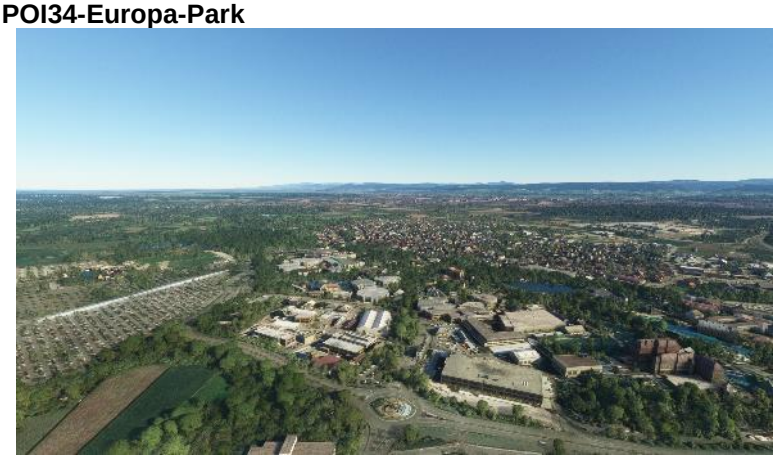
Another power plant, barrage and lock is located at Marckolsheim. On the right side is the Kaiserstuhl, a small low mountain range of volcanic origin.

POI33-Elz (Leopoldskanal)

Distance:	6,9 nm
Dist. from Dept.:	50,0 nm
Dist. to Dest.:	6,7 nm
True Course:	31°
Magnetic Course:	29°

Near Schoenau on the French side and Weisweil in Germany is the next barrage. Follow the Rhine on the right side. Shortly after the power plant, the Elz flows into the Rhine, or rather, the Leopold Canal, which serves to discharge the Elz behind the power plant.

POI34-Europa-Park



Distance:	1,9 nm
Dist. from Dept.:	52,0 nm
Dist. to Dest.:	4,8 nm
True Course:	61°
Magnetic Course:	59°

Northeast of the estuary you can see the town of Rust. There you will find Europa-Park, Germany's largest amusement park and the second largest in Europe after Disneyland in Paris. Over 100 rides in 18 themed worlds as well as several shows invite you to visit for several days. The U.S. magazine Amusement Today voted Europa-Park the best amusement park in the world for the sixth time in a row in September 2019.

EDSW-Altdorf-Wallburg

Distance:	4,8 nm
Dist. from Dept.:	56,8 nm
Dist. to Dest.:	0,0 nm
True Course:	87°
Magnetic Course:	85°

Turn to the east and keep a course of about 95 degrees magnetic. You fly over two small lakes. The second one leads you at course 70 in direct runway direction to the airfield Altdorf-Wallburg. To the right of the airport are a couple of man-made ponds.

The airport is at an altitude of 625 feet.

LEG 5: EDSW - EDRY

Departure: Altdorf-Wallburg (EDSW)
Destination: Speyer (EDRY)
Distance: 71,9 nm

POI35-Gerstheim

Distance:	9,1 nm
Dist. from Dept.:	9,1 nm
Dist. to Dest.:	62,8 nm
True Course:	330°
Magnetic Course:	328°

Fly back to the Rhine and follow it further downstream. At Gerstheim on the French side is the next fork of the river and leads to the power plant of the same name.

POI36-Plobsheim

Distance:	3,9 nm
Dist. from Dept.:	13,0 nm
Dist. to Dest.:	59,0 nm
True Course:	19°
Magnetic Course:	16°

Shortly after, you will come to Plobsheim Lake or Plan d'Eau de Plobsheim, a large basin created to regulate the waters of the Ill River.

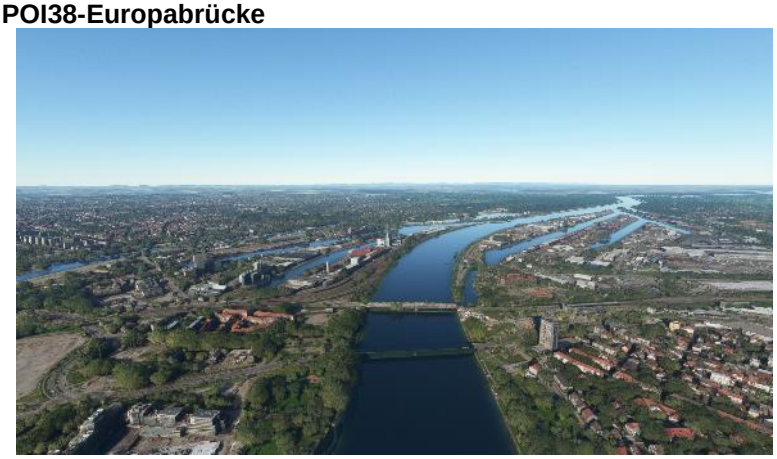
A special feature of the Ill River on the French side is the strong estuary entrainment, due to which the Ill flows several kilometers parallel to the embankment river Rhine. Already from La Wantzenau on, there are oxbow lakes on the left side of the Ill, which bear the name component "-rhein": Waldrhein, Hanauerrhein, Muehlrhein. When the Ill was extended, existing arms of the Old Rhine were partly used.

POI37-Strasbourg

Distance:	4,1 nm
Dist. from Dept.:	17,0 nm
Dist. to Dest.:	54,9 nm
True Course:	20°
Magnetic Course:	17°

South of Strasbourg there is another power plant on the French side.

POI38-Europabrücke



Distance:	2,9 nm
Dist. from Dept.:	19,9 nm
Dist. to Dest.:	52,0 nm
True Course:	5°
Magnetic Course:	2°

On the left of the Rhine there are some harbor facilities and you come to the Europabrücke, which connects Kehl with Strasbourg.

POI39-Kinzig

Distance:	2,4 nm
Dist. from Dept.:	22,3 nm
Dist. to Dest.:	49,6 nm
True Course:	23°
Magnetic Course:	20°

More harbors follow to the right and left of the Rhine before you reach the mouth of the Kinzig on the German side.

POI40-Gambsheim

Distance:	5,7 nm
Dist. from Dept.:	28,0 nm
Dist. to Dest.:	43,9 nm
True Course:	39°
Magnetic Course:	36°

The next barrage is located near Gambsheim. The structure realizes a dam height of 10 meters and consists of a weir on the German side, two locks and a hydroelectric power plant on the French side. A fish ladder allows various migratory fish species, such as salmon, sea trout, allis shad and eel to ascend and reach the upper reaches of the Rhine tributaries.

POI41-Ill

Distance:	1,2 nm
Dist. from Dept.:	29,2 nm
Dist. to Dest.:	42,7 nm
True Course:	28°
Magnetic Course:	25°

Due to the damming of the Rhine at Gambsheim, the already estuary-drained Ill had to be extended via the Canal de Dérivation to finally reach the mouth of the Rhine about 1.5 kilometers to the north.

POI42-Karlsruhe Baden-Baden Airport

Distance:	7,7 nm
Dist. from Dept.:	36,9 nm
Dist. to Dest.:	35,0 nm
True Course:	47°
Magnetic Course:	44°

You will now see more and more floodplains, oxbow lakes and polders on both sides of the Rhine. After a bend in the Rhine, you will see the Karlsruhe/Baden-Baden airport on the German side.

POI43-Iffezheim

Distance:	3,1 nm
Dist. from Dept.:	40,0 nm
Dist. to Dest.:	32,0 nm
True Course:	28°
Magnetic Course:	25°

About 3 nautical miles north of the airport is the Iffezheim barrage, the last in the Upper Rhine. It is the only one of the 10 barrages between Basel and Lauterbourg that is located in Germany.

The Iffezheim lock is the busiest inland lock in Germany with an average of 25 million freight tons and about 30,000 freight ships per year. It is in operation 24 hours a day and its use, like that of the entire Rhine, is free of charge for shipping.

Iffezheim is also internationally known for the gallop races that take place three times a year. The most important single race is the Grand Prix of Baden, which has been held since the founding of the track in 1858 and was at times counted among the most important gallop races in the world.

POI44-Sauer + Murg

Distance:	5,5 nm
Dist. from Dept.:	45,5 nm
Dist. to Dest.:	26,4 nm
True Course:	22°
Magnetic Course:	19°

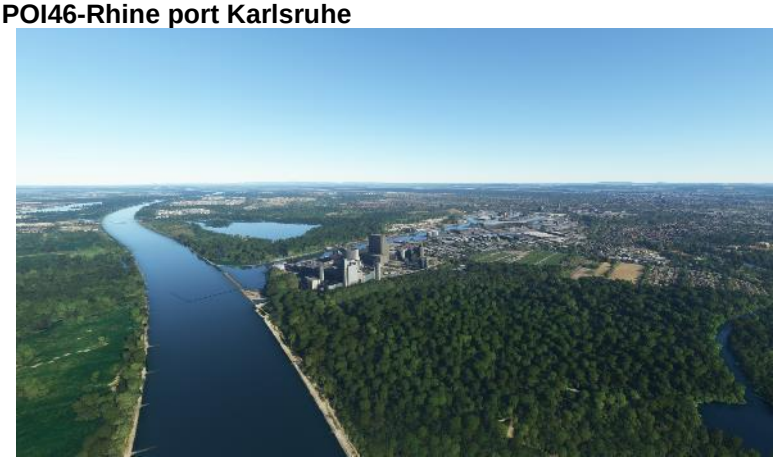
You fly over two bridges that cross the Rhine and first come to the mouth of the Sauer from the west at Munchhausen. Only a few hundred meters further, the Murg flows into the Rhine from the east.

POI45-Easternmost point of France

Distance:	4,0 nm
Dist. from Dept.:	49,5 nm
Dist. to Dest.:	22,4 nm
True Course:	43°
Magnetic Course:	40°

About 4 nautical miles further downstream at Lauterbourg lies the easternmost point of France. From here to the Dutch border, the Rhine flows exclusively through Germany. First, it forms the border between the German states of Rhineland-Palatinate in the west and Baden-Württemberg in the east.

POI46-Rhine port Karlsruhe



Distance:	4,0 nm
Dist. from Dept.:	53,6 nm
Dist. to Dest.:	18,4 nm
True Course:	43°
Magnetic Course:	40°

From here you will fly over many floodplains, lakes, polders and oxbow lakes of the Rhine until Mannheim. The next prominent point on the journey is the Rhine port of Karlsruhe.

POI47-Pfinz

Distance:	11,0 nm
Dist. from Dept.:	64,5 nm
Dist. to Dest.:	7,4 nm
True Course:	17°
Magnetic Course:	14°

Flying over the Rhine bridge near Karlsruhe-Maxau, a suspension bridge for road traffic. Directly in front of it is another railroad bridge.

After you have flown over more quarry ponds and floodplains, you come to the Saalbach canal, which is fed by the Pfinz and thus flows into the Rhine here.

POI48-Philippsburg

Distance:	4,4 nm
Dist. from Dept.:	68,9 nm
Dist. to Dest.:	3,0 nm
True Course:	27°
Magnetic Course:	24°

Behind the next bridge near Germersheim, you will first see an oxbow lake on the western side, followed by one on the east. On this artificial island lies the former nuclear power plant Philippsburg.

On the right bank of the Rhine lies the decommissioned Philippsburg nuclear power plant. Since December 31, 2019, it has been completely shut down as scheduled in accordance with the Atomic Energy Act. Unit 1 has been demolished since 2017 and unit 2 since 2020. A special feature was that the reactor units were of different design. Unit 1 consisted of a boiling water reactor, while Unit 2 was a pressurized water reactor. The two cooling towers have since been blown up.

EDRY-Speyer

Distance:	3,0 nm
Dist. from Dept.:	71,9 nm
Dist. to Dest.:	0,0 nm
True Course:	12°
Magnetic Course:	9°

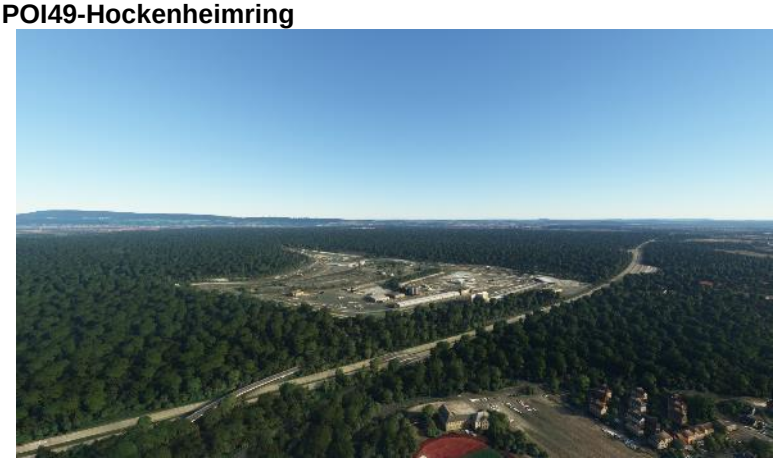
Speyer Airport is located behind another loop of the Altrhein River on the left side of the river.

It is at an elevation of 312 feet and offers you fuel.

LEG 6: EDRY - EDFZ

Departure: Speyer (EDRY)
Destination: Finthen (EDFZ)
Distance: 60,6 nm

POI49-Hockenheimring

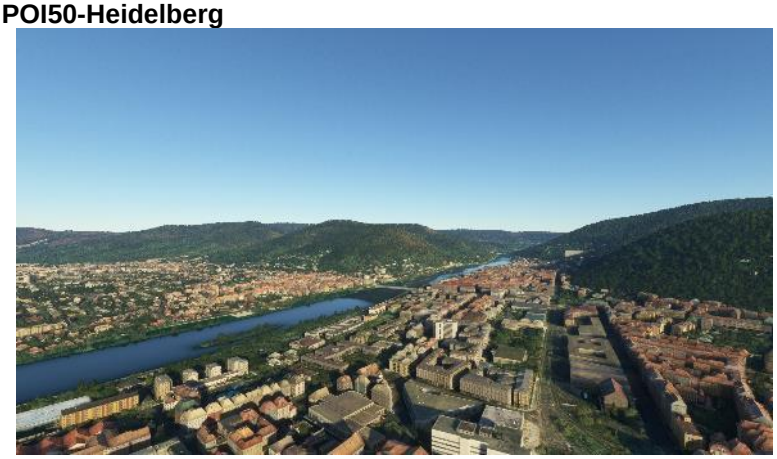


Distance:	4,8 nm
Dist. from Dept.:	4,8 nm
Dist. to Dest.:	55,9 nm
True Course:	70°
Magnetic Course:	67°

After takeoff, you will see the A61 highway bridge over the Rhine north of the airport. Follow the highway to the east. The A61 meets the A6 behind Hockenheim. There you will find the Hockenheimring.

The Hockenheimring was built in 1932 within just three months as an approximately 12-kilometer triangular circuit on the unpaved forest roads in the Hardtwald; among other things, as a test track for Mercedes-Benz, but also as a racetrack because the Karlsruhe Wildpark racetrack, which had been in use since the 1920s, could no longer be used following a ban by the authorities. After various modifications to a length of 6.8 kilometers, the high-speed track was radically reduced in 2002 and the track length is now just over 4.5 kilometers.

POI50-Heidelberg



Distance:	7,5 nm
Dist. from Dept.:	12,3 nm
Dist. to Dest.:	48,4 nm
True Course:	51°
Magnetic Course:	48°

Fly to the northeast. You can already see the Neckar River in the distance. Where it flows out of the hills into the plain is Heidelberg. Just before Heidelberg is the closed Heidelberg AAF (ETIE) airport, which was used for military purposes. A special feature is that a road with traffic lights crosses the runway.

POI51-Neckar

Distance:	12,5 nm
Dist. from Dept.:	24,8 nm
Dist. to Dest.:	35,9 nm
True Course:	299°
Magnetic Course:	296°

After visiting the castle in Heidelberg, follow the Neckar river downstream to the northwest until it flows into the Rhine. You will fly over Mannheim and Mannheim City Airport.

Across the estuary is the BASF plant in Ludwigshafen, the largest contiguous chemical site in the world owned by a single company.

Das Heidelberger Schloss ist eine der berühmtesten Ruinen Deutschlands und das Wahrzeichen der Stadt Heidelberg. Bis zu seiner Zerstörung im pfälzischen Erbfolgekrieg war es die Residenz der Kurfürsten von der Pfalz. Seit den Zerstörungen durch die Soldaten Ludwigs XIV. 1689 und der Sprengung durch französische Pioniere am 6. September 1693 wurde das Heidelberger Schloss nur teilweise restauriert.

Die Schlossruine aus rotem Sandstein erhebt sich am Nordhang des Königstuhls oberhalb der Altstadt 80 Meter über dem Talgrund.

POI52-Worms

Distance:	7,5 nm
Dist. from Dept.:	32,2 nm
Dist. to Dest.:	28,4 nm
True Course:	343°
Magnetic Course:	340°

On the way to the Niebelungen and Luther city of Worms, the A6 highway crosses the Rhine. Continue following the Rhine to the north. To the west you will see the Silver Lake, surrounded by the old arms of the Rhine. At about this height, the border between the states of Baden-Württemberg and Hesse lies to the east. The Lampertheimer Altrhein in the east is already in Hesse. From here on, the Rhine forms the border between Rhineland-Palatinate in the west and Hesse in the east.

The next bridge is near Worms. Worms Cathedral is one of the three Romanesque imperial cathedrals, along with Mainz Cathedral and Speyer Cathedral, and one of the most beautiful examples of Romanesque architecture in Germany.

POI53-Biblis

Distance:	5,0 nm
Dist. from Dept.:	37,2 nm
Dist. to Dest.:	23,4 nm
True Course:	16°
Magnetic Course:	13°

Beyond the next bend of the Rhine to the northeast, the Biblis nuclear power plant is located on the right side of the river.

The Biblis nuclear power plant on the right bank of the Rhine was shut down on Nov. 30, 2011, following the Fukushima nuclear disaster in Japan, and finally decommissioned in 2017. The decommissioning work is expected to take about 15 years. Until the power plant was shut down, it was Germany's second highest-yielding nuclear power plant after Gundremmingen in Bavaria.

POI54-Main

Distance:	17,6 nm
Dist. from Dept.:	54,8 nm
Dist. to Dest.:	5,8 nm
True Course:	345°
Magnetic Course:	342°

Until shortly before the mouth of the Main River at Mainz, there is no other bridge over the Rhine. You fly over other oxbow lakes, the Stockstadt Erfelder Altrhein being the best known.

To the left of the Rhine you can see the grass runway of Oppenheim. Further north, the A60 freeway crosses the river before the Main flows into the Rhine from the east.

EDFZ-Finthen

Distance:	5,8 nm
Dist. from Dept.:	60,6 nm
Dist. to Dest.:	0,0 nm
True Course:	255°
Magnetic Course:	252°

Turn west and fly over Mainz. You will pass the soccer stadium of the Bundesliga team FSV Mainz 05 and then come to your next stop: Mainz-Finthen.

The airport is at an altitude of 760 feet and offers you fuel.

LEG 7: EDFZ - EDRA

Departure: Finthen (EDFZ)

Destination: Bad Neuenahr-Ahrweiler Airfield (EDRA)

Distance: 63,8 nm

POI55-Inselrhein

Distance:	3,3 nm
Dist. from Dept.:	3,3 nm
Dist. to Dest.:	60,5 nm
True Course:	355°
Magnetic Course:	352°

Take off and fly north back to the Rhine. At Mainz, the Rhine leaves the Upper Rhine Graben and flows through the Mainz Basin. The section up to Bingen is also known as the Inselrhein. In this section of the river, which is the widest at up to 900 meters, there are large river islands, here called Rhine floodplains.

POI56-Bingen

Distance:	10,2 nm
Dist. from Dept.:	13,5 nm
Dist. to Dest.:	50,3 nm
True Course:	252°
Magnetic Course:	249°

Fly further west and you will come to Bingen. There the Nahe flows from the south into the Rhine and shortly after the mouth is the famous Mäuseturm. This is also where the Upper Rhine ends.

According to a legend, the Archbishop of Mainz Hatto II had the Mouse Tower built in the 10th century. At that time, when there was a famine in the country, the hard-hearted bishop is said to have denied help to the poor from his filled granaries. When they continued to beg, he is said to have locked them in a barn, which was then set on fire by his henchmen. He is said to have commented derisively on the cries of the dying with the words, "Do you hear the mice whistling?"

At that moment, according to legend, thousands of mice came crawling out of every corner and swarmed over the table and through the bishop's chambers. The mass of rodents put the servants to flight, and Hatto is said to have taken a ship down the Rhine to the island, where he thought he was safe. But when he had locked himself up there, he was eaten alive by the mice.

In fact, the tower was built in the first half of the 14th century as a customs watchtower to reinforce the customs barrier system of Ehrenfels Castle. The sighting of downstream and upstream boats was communicated by signals and could also prevent an encounter in the Binger Loch.

POI57-Reichenstein castle

Distance:	2,5 nm
Dist. from Dept.:	16,0 nm
Dist. to Dest.:	47,8 nm
True Course:	329°
Magnetic Course:	326°

At the Binger Loch, just behind the Mäuseturm and the Ehrenfels castle ruins on the right, the river enters the Rhenish Slate Mountains as the Middle Rhine at 76 meters above sea level and will leave it again at 50 meters. The first section to Koblenz, the upper Middle Rhine Valley is a UNESCO World Heritage Site and one of the most beautiful sections on this tour. Until Koblenz, no bridge crosses the Rhine and only ferries are used.

Further along the Rhine on the western side are Rheinstein Castle and Reichenstein Castle

The valley area between Rüdesheim and Koblenz is part of the UNESCO World Heritage Upper Middle Rhine Valley and extends over a length of 67 kilometers.

The uniqueness of this cultural landscape is the extraordinary wealth of cultural evidence. The Upper Middle Rhine Valley owes its special appearance on the one hand to the natural shaping of the river landscape, and on the other hand to the shaping by man. For two millennia it has been one of the most important traffic routes for cultural exchange between the Mediterranean region and northern Europe. Located in the heart of Europe, sometimes a border, sometimes a bridge of cultures, the valley reflects the history of the Occident in an exemplary manner. Not least, it inspired Heinrich Heine to write his Loreleylied.

POI58-Pfalzgrafenstein Castle

Distance:	5,8 nm
Dist. from Dept.:	21,8 nm
Dist. to Dest.:	42,0 nm
True Course:	324°
Magnetic Course:	321°

To the left and right of the Middle Rhine Valley run a federal highway and a railroad line, respectively. Behind the next island opposite Lorch, the ruins of Fürstenberg Castle lie to the west. Behind Bacharach, at the next island, the Rhine flows exclusively into Rhineland-Palatinate.

This is followed by the island Kauber Werth and near Kaub is the castle Pfalzgrafenstein on an island of the Rhine and the castle Gutenfels on the right side above Kaub.

Die charakteristische, enge Talform des Mittelrheins entstand erdgeschichtlich durch Tiefenerosion des Flusses in eine sich hebende Scholle. Der Fluss verläuft fast über die gesamte Länge des Mittelrheins im Bundesland Rheinland-Pfalz.

Bei Sankt Goarshausen schließt der Rhein mit einer scharfen Flussbiegung den berühmten Loreleyfelsen ein und erreicht dort eine Tiefe von 25 Metern. Mit seinen hochrangigen Baudenkmälern, den rebenbesetzten Hängen, seinen auf schmalen Uferleisten zusammengedrängten Orten und den auf Felsvorsprüngen aufgereihten Höhenburgen gilt das Mittelrheintal als Inbegriff der Rheinromantik.

POI59-Loreley

Distance:	3,7 nm
Dist. from Dept.:	25,5 nm
Dist. to Dest.:	38,3 nm
True Course:	337°
Magnetic Course:	335°

About 7 kilometers downstream you pass the Loreley Rock. According to legend, a virgin sat there, who distracted the ship captains with her golden hair and her singing, so that they could no longer concentrate on the rocky reefs in the Rhine. Before that you will pass the Ochsenturm near Oberwesel.

The Loreley is a slate rock located on the eastern, right bank of the Rhine 132 meters high and rising steeply on the inside of a Rhine bend. The view from above of the Rhine bends and of Sankt Goarshausen with Katz Castle is a tourist attraction.

A few hundred meters from the viewpoint is the Loreley open-air stage, built in 1939, where large events are regularly held.

POI60-Rhine bends

Distance:	7,8 nm
Dist. from Dept.:	33,3 nm
Dist. to Dest.:	30,5 nm
True Course:	317°
Magnetic Course:	314°

Near St. Goar on the western side is Rheinfels Castle. Opposite is St. Goarshausen with the castle Katz.

After you have passed Bad Salzig shortly after, you come to Boppard, a town just before the Rhine bends.

POI61-Lahn

Distance:	4,5 nm
Dist. from Dept.:	37,8 nm
Dist. to Dest.:	26,0 nm
True Course:	3°
Magnetic Course:	360°

You pass the two loops and Marksburg Castle on the right side of the river. Shortly before the mouth of the Lahn from the east is the castle Stolzenfels in the west in the Rhine valley.

POI62-Moselle

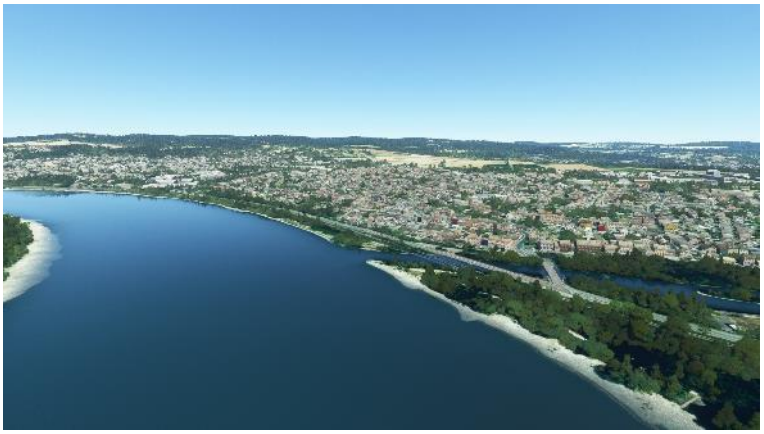
Distance:	3,4 nm
Dist. from Dept.:	41,2 nm
Dist. to Dest.:	22,6 nm
True Course:	7°
Magnetic Course:	5°

You leave the upper Middle Rhine Valley and fly over the two bridges in Koblenz. From the west, the Moselle flows into the Rhine at the Deutsches Eck.

The "Deutsche Eck" is an artificially raised headland at the mouth of the Moselle into the Rhine. Originally so named after a nearby settlement of the Teutonic Order, today it is best known for the monumental equestrian statue of the first German Emperor, Wilhelm I, erected in 1897 after the founding of the new German Empire in 1871.

The Kaiser Wilhelm Monument, commissioned by the Rhine Province for the monarch's 100th birthday, was intended to commemorate the founding of the German Empire in 1871 and was in the tradition of many patriotic monuments erected during the imperial era. Shortly before the end of World War II, the statue was destroyed, and from 1953 to 1990 its base served as a "German Unity Memorial." Since its purpose was fulfilled after reunification, a replica of the original sculptural group was placed back on the pedestal in 1993 after controversial discussions.

POI63-Wied



Distance:	7,7 nm
Dist. from Dept.:	48,8 nm
Dist. to Dest.:	15,0 nm
True Course:	307°
Magnetic Course:	304°

After you have flown over another bridge, you will recognize the former nuclear power plant Mülheim-Kärlich on the left side of the Rhine. Near Neuwied is an island in the Rhine, at the end of which a bridge crosses the river. Shortly after Neuwied, the Wied flows into the Rhine from the east.

The Mülheim-Kärlich nuclear power plant on the left bank of the Rhine northwest of Koblenz was the only nuclear power plant in Rhineland-Palatinate. It was commissioned on March 1, 1986.

The plant was controversial because it is located in the Neuwied Basin, which is slightly prone to earthquakes. Because of this hazard, the reactor building was erected 70 meters away from the originally planned site without a new building permit procedure. Because this made the project illegal under building law, the nuclear power plant had to be shut down in September 1988 after almost two years in trial operation and exactly 100 days in regular operation. The cooling tower was demolished in 2019; complete demolition is scheduled for completion in the late 2020s.

POI64-Ahr

Distance:	9,6 nm
Dist. from Dept.:	58,4 nm
Dist. to Dest.:	5,3 nm
True Course:	318°
Magnetic Course:	315°

You enter a short gorge of the Rhine, pass Namedy Castle on the left side of the Rhine and Ahrenfels Castle on the right side of the Rhine at the end of the gorge.

In Sinzig the river Ahr flows into the river from the west.

In mid-July 2021, the low pressure system "Bernd" caused heavy rainfall in several regions of Germany between July 12 and 19. Within 24 hours, with a focus on July 14, 2021, more than 150 liters of rain per square meter fell in some places.

At least 180 people died in the Ahr Valley as a result of the severe storms and the subsequent flood wave, including five firefighters in action. Because the floodwater reached several substations, the power supply companies cut off the electricity there. 200,000 people were affected by the power outage. Mobile phone networks and drinking water supplies were also down in some affected areas.

Due to the destruction of the traffic infrastructure, quick help was not possible. Leaking oil from heating oil tanks as well as gasoline, diesel and oil from vehicles leaked into the waterways. In addition, chemicals from industrial and commercial areas leaked into the environment, threatening water quality locally and in regions further downstream.

EDRA-Bad Neuenahr-Ahrweiler Airfield

Distance:	5,3 nm
Dist. from Dept.:	63,8 nm
Dist. to Dest.:	0,0 nm
True Course:	269°
Magnetic Course:	266°

Follow the Ahr and the federal highway to the west. The Ahr crosses the federal highway and a prominent highway bridge crosses the Ahr valley. The airport is located northwest of it, on a hill. It is best to follow the A61 for one kilometer and then veer left on a course of 103 degrees.

The airport is at an elevation of 672 feet and offers you fuel.

LEG 8: EDRA - EDDL

Departure: Bad Neuenahr-Ahrweiler Airfield (EDRA)

Destination: Dusseldorf (EDDL)

Distance: 51,3 nm

POI65-St. Apollinaris

Distance:	3,5 nm
Dist. from Dept.:	3,5 nm
Dist. to Dest.:	47,8 nm
True Course:	66°
Magnetic Course:	63°

A country road runs north of the airport. It leads you back east to the Rhine, at the pilgrimage church St Apollinaris.

POI66-Bonn

Distance:	9,2 nm
Dist. from Dept.:	12,7 nm
Dist. to Dest.:	38,6 nm
True Course:	335°
Magnetic Course:	333°

Follow the Rhine again downstream to the north. At Bad Honnef, there are two islands in the river. A little further on you will come to the Konrad Adenauer Bridge, named after the first chancellor of the Federal Republic of Germany. Behind the leisure park on the left side of the Rhine begins the former government district in Bonn, which was the capital of Germany until 1990 and the seat of government until 1999.

Bonn can look back on more than 2000 years of history dating back to Germanic and Roman settlements, making it one of the oldest cities in Germany. In 1948/49, the Parliamentary Council met in Bonn and drafted the Basic Law for the Federal Republic of Germany. Bonn became its first seat of parliament and government in 1949.

After reunification in 1990, the Bundestag passed the Bonn-Berlin resolution in 1991, as a result of which the seat of parliament and government was moved to the new federal capital Berlin in 1999/2000 and, in turn, numerous federal authorities were relocated from Berlin and other cities to Bonn.

As the headquarters of 20 United Nations organizations, Bonn has a high degree of international integration, bears the title of UN City and is often referred to as the world capital for sustainability and climate protection.

POI67-Sieg

Distance:	3,3 nm
Dist. from Dept.:	16,0 nm
Dist. to Dest.:	35,3 nm
True Course:	330°
Magnetic Course:	327°

The next bridge is the Kennedy Bridge, which was given this name in 1963 in honor of John F. Kennedy. After the following bridge you can already recognize the mouth of the Sieg, which flows from the east into the Rhine. The Rhine changes from the low mountain region to the North German lowlands and becomes the Lower Rhine at the mouth. The Lower Rhine drops from a height of 50 meters to 12 meters.

Like the Upper Rhine, the winding Lower Rhine was given a riverbed fortified by hydraulic engineering. Here, however, the dikes lie further back, so that the Lower Rhine has more flood space than the Upper Rhine.

The Lower Rhine lies entirely in North Rhine-Westphalia. Its banks are mostly heavily populated and industrialized, especially in the Cologne, Düsseldorf and Ruhr conurbations. Here, the Lower Rhine flows through Germany's largest conurbation, the Rhine-Ruhr metropolitan region. Downstream from Duisburg, the region is more agricultural.

POI68-Cologne Cathedral

Distance:	11,3 nm
Dist. from Dept.:	27,3 nm
Dist. to Dest.:	24,0 nm
True Course:	337°
Magnetic Course:	334°

No other bridge crosses the river until Cologne. After one bridge at a suburb, three more follow at the old town. The last bridge is the well-known railroad bridge to Cologne Central Station, where Cologne Cathedral is also located.

Cologne Cathedral is one of the largest cathedrals in the Gothic architectural style. Its construction began in 1248 and was not completed until 1880. With about 300 years of construction interruption from 1528-1823, this is probably, after the construction of the Great Wall of China, the longest construction period of a building. The cathedral is over 157 meters high and the west facade is the largest church facade in the world. There are 11 ringing bells. The largest bell has a diameter of 3.22 meters and weighs 24,000 kg.

The cathedral has been a UNESCO World Heritage Site since 1996 and is one of the most visited sights in Germany.

POI69-Wupper

Distance:	6,2 nm
Dist. from Dept.:	33,6 nm
Dist. to Dest.:	17,7 nm
True Course:	355°
Magnetic Course:	353°

Two more bridges cross the Rhine near Cologne. Further north, at Leverkusen, the A1 highway crosses the river and behind it on the right side is the mouth of the Wupper.

POI70-Erft

Distance:	11,6 nm
Dist. from Dept.:	45,2 nm
Dist. to Dest.:	6,1 nm
True Course:	316°
Magnetic Course:	314°

After a few twists and turns of the Rhine, the A45 crosses the Rhine in a north/south direction. Behind it, on the left side of the river, in the next bend, is the mouth of the Erft.

POI71-Düsseldorf

Distance:	2,6 nm
Dist. from Dept.:	47,7 nm
Dist. to Dest.:	3,6 nm
True Course:	28°
Magnetic Course:	26°

On the left side of the Rhine is the port of Neuss and on the eastern side is the port of Düsseldorf. At the entrance to the port of Düsseldorf is the Rheinkniebrücke. The old town is on the right side of the Rhine.

The Old Town of Düsseldorf is the historical, political and cultural center of the capital of North Rhine-Westphalia. Large parts of the old town are pedestrian zones with numerous stores and restaurants. More than 300 pubs, discotheques and restaurants are concentrated here on half a square kilometer, giving the old town the reputation of being the "longest bar in the world", as sung about in "Altbierlied". The front of the old town to the Rhine forms the Rhine bank promenade.

EDDL-Dusseldorf

Distance:	3,6 nm
Dist. from Dept.:	51,3 nm
Dist. to Dest.:	0,0 nm
True Course:	356°
Magnetic Course:	354°

North of Düsseldorf is the next stop. This airport is the last regular stopover that offers you fuel. There are a few airports with refueling facilities on your way, but you'll have to make an unscheduled landing. EDDL is at an altitude of 125 feet.

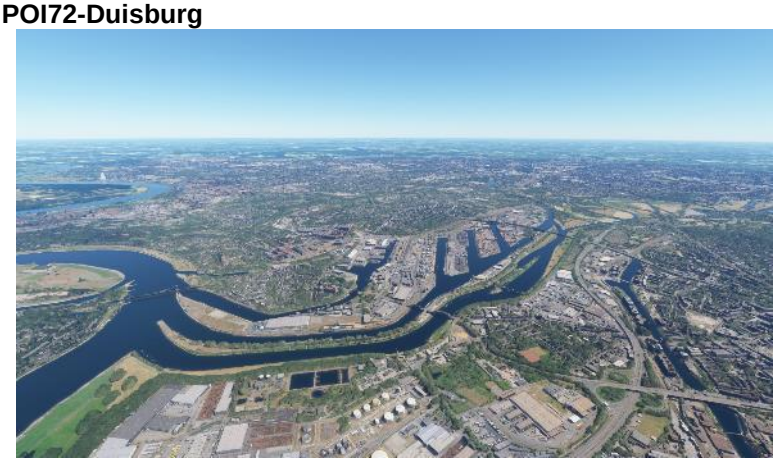
LEG 9: EDDL - EDIS

Departure: Dusseldorf (EDDL)

Destination: Emmerich Airfield (EDIS)

Distance: 39,5 nm

POI72-Duisburg



Distance:	10,2 nm
Dist. from Dept.:	10,2 nm
Dist. to Dest.:	29,3 nm
True Course:	353°
Magnetic Course:	351°

Look at the fuel gauge. Here in Düsseldorf, you can refuel for the last time at a regular stop. The gas station is at the northeast end of the apron.

Continue along the Lower Rhine. After about 10 nautical miles, you'll reach the Duisburg-Ruhrort ports, which form the largest inland port in Europe. This is where the Ruhr River flows in and where the Rhine-Herne Canal begins.

The Duisburg-Ruhrort ports are located at the mouth of the Ruhr into the Rhine and are considered the largest inland port in Europe, and in their entirety even the largest inland port in the world. The 21 public port basins have a water surface of over 180 hectares. The shore length is 40 kilometers, 15 kilometers of which are transshipment shores with rail sidings.

In the North Sea ports of Amsterdam, Emden, Rotterdam, Antwerp and also Hamburg, goods are also transferred from ocean-going vessels to inland waterway vessels and transported largely via Duisburg to the European hinterland. Conversely, there are also direct shipping connections from Duisburg via the Rhine and Meuse to overseas.

The Rhine-Herne Canal is a link in the water supply network formed by the canals of western Germany. This network serves not only navigation for the locks and compensation for seepage and evaporation, but also to a large extent for public, agricultural and industrial water supply.

POI73-Emscher

Distance:	6,9 nm
Dist. from Dept.:	17,1 nm
Dist. to Dest.:	22,3 nm
True Course:	349°
Magnetic Course:	347°

As you continue along the Rhine, you fly over three more bridges until you reach the mouth of the Emscher River on the right side of the Rhine at Dinslaken.

POI74-Wesel-Datteln Canal

Distance:	5,4 nm
Dist. from Dept.:	22,6 nm
Dist. to Dest.:	16,9 nm
True Course:	325°
Magnetic Course:	323°

Fly over the Orsoyer Rhine bend and you come to the beginning of the Wesel-Datteln Canal, the second west-east shipping link.

POI75-Lippe

Distance:	0,8 nm
Dist. from Dept.:	23,4 nm
Dist. to Dest.:	16,1 nm
True Course:	356°
Magnetic Course:	354°

Behind the Niederrhein bridge near Wesel you can already see the mouth of the Lippe.

POI76-Rees

Distance:	10,5 nm
Dist. from Dept.:	33,9 nm
Dist. to Dest.:	5,6 nm
True Course:	307°
Magnetic Course:	304°

You will now fly over an area with many lakes and floodplains to the left and right of the Rhine until you reach another bridge over the river at Rees. In this area there are several nature reserves and recreational areas that offer many outdoor activities.

EDIS-Emmerich Airfield

Distance:	5,6 nm
Dist. from Dept.:	39,5 nm
Dist. to Dest.:	0,0 nm
True Course:	317°
Magnetic Course:	314°

You are also already on approach to the next stopover. The grass runway is located directly to the right of the Rhine, behind the two oxbow lakes. The airfield is at an altitude of 47 feet.

LEG 10: EDIS - EHND

Departure: Emmerich Airfield (EDIS)
Destination: Vliegveld Numansdorp (EHND)
Distance: 82,0 nm

POI77-Rhine bridge Emmerich

Distance:	1,8 nm
Dist. from Dept.:	1,8 nm
Dist. to Dest.:	80,2 nm
True Course:	283°
Magnetic Course:	281°

Continue flying westward along the Rhine. After 3 kilometers you will reach the Rhine bridge that connects Emmerich with Kleve. At 803 meters, it is the longest suspension bridge in Germany and, at 500 meters, has the largest span of any bridge in Germany.

POI78-Delta Rhine

Distance:	7,4 nm
Dist. from Dept.:	9,2 nm
Dist. to Dest.:	72,8 nm
True Course:	291°
Magnetic Course:	288°

The next village on the right side of the Rhine, Spiek, is already in the Netherlands. For a short distance, the Rhine is the border river between Germany and Holland. At Millingen aan de Rijn at the latest, you enter Dutch airspace.

North of the town, the river divides into Waal (south) and Nederrijn (north). This is also where the Lower Rhine ends. The section up to its mouth is called the Delta Rhine or Rhine-Meuse Delta.

At the Dutch-German state border, the Rhine-Meuse delta, the most important natural unit in the Netherlands, and thus the Delta Rhine, begins with the division of the Rhine.

Outflows from the Rhine were added to the Rhine-Meuse Delta only in the last millennium. To this day, they are considered tributaries of the Meuse River, which has always flowed into the delta. This is mainly due to the fact that there are no branches of the river in the Rhine-Meuse Delta that have "Rhine" in their name.

Before that time, the Rhine flowed further north at Katwijk into the North Sea, via today's Nederrijn. Today, all Rhine water flows through the Waal and Lek arms branching off to the left from the original Rhine into the Rhine-Meuse delta. The exception is a partial outflow through the IJssel to the north. The original Rhine is in its lower course only a still water, the Oude Rijn.

It is said that the Waal was created by two brothers, both of them were giants. A long time ago they started digging the Rhine in Switzerland. 100 years later they arrived in Lobith, there they quarreled. From then on, each went his own way, the younger brother continued to dig the Rhine, the older created the Waal.

POI79-Maas-Waal-Kanaal

Distance:	8,0 nm
Dist. from Dept.:	17,1 nm
Dist. to Dest.:	64,9 nm
True Course:	266°
Magnetic Course:	264°

You follow the main stream, Waal, to the Meuse-Waal Canal. The canal flows in from the south, just past the island of Veur-Lent. The northern part of the river around the island is called Spiegelwaal.

POI80-Amsterdam-Rijn-Kanaal

Distance:	13,6 nm
Dist. from Dept.:	30,8 nm
Dist. to Dest.:	51,2 nm
True Course:	277°
Magnetic Course:	274°

Further along the Waal you will come to the Amsterdam-Rijn-Kanaal, which branches off to the north.

Depending on your altitude, you can already see the Meuse to the south. Between 1904 and 1970, the Meuse was an independent river that flowed into the North Sea. Due to extensive changes in the course of flood protection, the Meuse is now a tributary of the Rhine.

POI81-Kanaal van Sint Andries

Distance:	6,6 nm
Dist. from Dept.:	37,4 nm
Dist. to Dest.:	44,6 nm
True Course:	217°
Magnetic Course:	215°

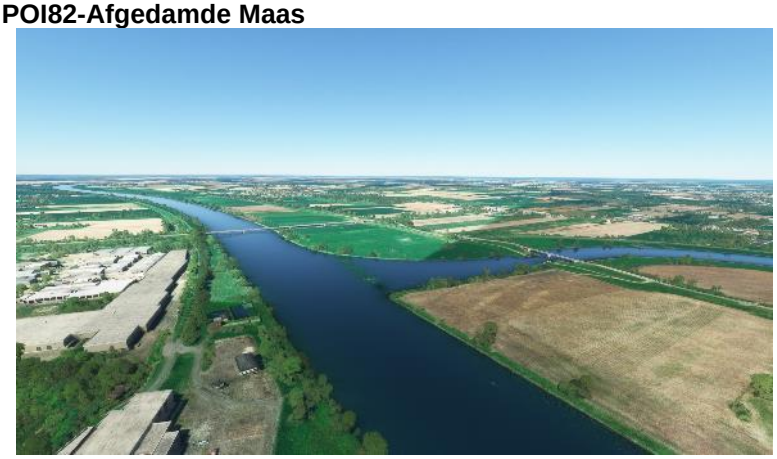
Follow the Waal southwest. At a bend in the river to the west you will see the Kanaal van Sint Andries on the left. Here, for the first time, water of the Meuse mixes with the Rhine (Waal). The Meuse runs only a few hundred meters to the south.

Today, only about one tenth as much water comes from the Meuse in the delta as from the Rhine. For historical reasons, there are even several watercourses in the delta that have "Meuse" in their names. This has not changed since the Meuse and the Waal no longer flow together since 1904, but the Meuse flows separately in a newly created bed, the Bergsche Maas, into the North Sea.

All other arms of the river in the delta than the Bergsche Maas have since then also ceased to carry a minor amount of Maas water. However, a few of them still have the "Maas" in their names: Oude Maas, Nieuwe Maas and Maasmond.

The reunited main branches of the Rhine, the Lek and the Noord branch of the Waal, are called the Nieuwe Maas. This appears as a tributary of the Oude Maas, in which today only Rhine water flows, which is fed to it by the Waal. After the inclusion of the Nieuwe Maas, the Oude Maas is called Nieuwe Waterweg. Its mouth into the North Sea in the northeast of the delta has retained the old name Maasmond.

POI82-Afgedamde Maas



Distance:	9,3 nm
Dist. from Dept.:	46,6 nm
Dist. to Dest.:	35,4 nm
True Course:	246°
Magnetic Course:	244°

Leave the Waal and follow the Maas. At Heusden a large part of the Meuse branches off to the north, into the Afgedamde Meuse. The legal water flows as Bergsche Maas further west.

POI83-Waal

Distance:	6,5 nm
Dist. from Dept.:	53,1 nm
Dist. to Dest.:	28,9 nm
True Course:	318°
Magnetic Course:	316°

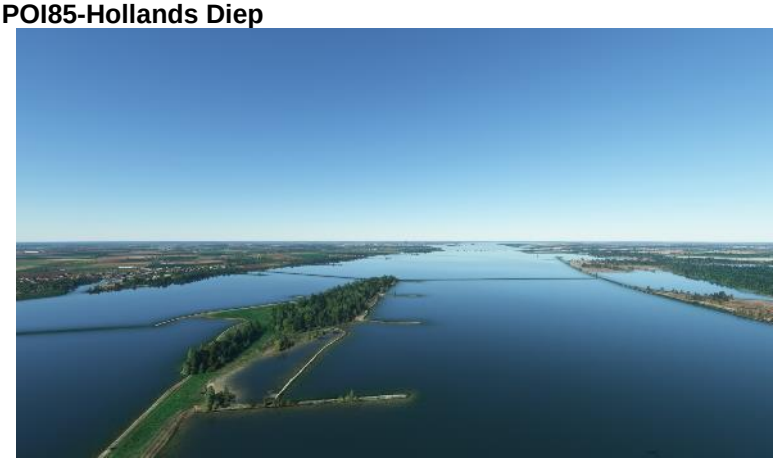
Follow the Afgedamde Maas northwest until it meets the Waal again, the main branch of the Rhine.

POI84-Merwede

Distance:	4,7 nm
Dist. from Dept.:	57,9 nm
Dist. to Dest.:	24,1 nm
True Course:	269°
Magnetic Course:	267°

Barely 5 nautical miles to the west, the Waal splits again, north into the Beneden Merwede and south into the Nieuwe Merwede. The northern part will later split again, one part flowing further north to join the Nederrijn (Lower Rhine) and form the Nieuwe Maas (New Meuse). The remaining water flows to the west and is then called Oude Maas.

POI85-Hollands Diep



Distance:	8,5 nm
Dist. from Dept.:	66,4 nm
Dist. to Dest.:	15,6 nm
True Course:	231°
Magnetic Course:	229°

You follow the southern arm about 8 nautical miles until the Bergsche Maas flows in from the west and forms Hollands Diep, as the following man-made waterway of the Waal or Rhine is called.

Today, the Waal also has its own wide artificial estuary, Nieuwe Merwede, which discharges with about two thirds of its water into the North Sea bay Haringvliet, right next to the Bergsche Maas. This bay has against the North Sea since 1970 the lock barrage Haringvlietdam, which is more or less closed at low tide.

In this way, the outflow is reduced or stopped, and the water originating from the Nieuwe Merwede flows via cross connections to the north into the Oude Maas and thus into the Nieuwe Waterweg, where the port of Rotterdam is located. For the large ocean-going vessels calling at this port, the water level is kept correspondingly high in this way.

POI86-Volkerakdam

Distance:	11,4 nm
Dist. from Dept.:	77,8 nm
Dist. to Dest.:	4,2 nm
True Course:	259°
Magnetic Course:	257°

After the next bridge, another canal, Dordtsche Kil, branches off to the north, which serves to regulate the flow of water between the Oude Maas and the Holland Diep. At the end of the Holland Diep, which you continue to follow, is the Volkerakdam.

EHND-Vliegveld Numansdorp

Distance:	4,2 nm
Dist. from Dept.:	82,0 nm
Dist. to Dest.:	0,0 nm
True Course:	28°
Magnetic Course:	26°

At the barrage, turn north. The A29 road should stay on your left, then you will meet the grass runway of the airport. Land there for your last stopover. The airport is at sea level.

If you are confused by all the information and naming of the artificial and natural water courses in the Rhine-Meuse Delta, don't worry. It also took the authors several attempts and days to untangle the web.

LEG 11: EHND - EHBU

Departure: Vliegveld Numansdorp (EHND)
Destination: Haamstede Airfield (EHBU)
Distance: 48,8 nm

POI87-Oude Maas

Distance:	5,3 nm
Dist. from Dept.:	5,3 nm
Dist. to Dest.:	43,6 nm
True Course:	23°
Magnetic Course:	21°

After takeoff, turn west to A29 and then follow it north to the Oude Maas.

POI88-Port of Rotterdam

Distance:	4,1 nm
Dist. from Dept.:	9,4 nm
Dist. to Dest.:	39,5 nm
True Course:	351°
Magnetic Course:	350°

North is Rotterdam and the Port of Rotterdam, one of the largest seaports in the world and the largest deep water port in Europe. Fly north and see the port and also Rotterdam.

The port of Rotterdam is located on one of the busiest waterways in the world and can be accessed by ships with a draught of up to 24 meters. Existing since the 14th century, the boom of the port began with the industrialization in the Ruhr area, which is directly accessible via the Rhine. The port area stretches almost 40 kilometers from downtown Rotterdam to the Hook of Holland at the mouth of the North Sea and covers an area of about 100 square kilometers.

POI89-Maasmond

Distance:	15,9 nm
Dist. from Dept.:	25,2 nm
Dist. to Dest.:	23,6 nm
True Course:	287°
Magnetic Course:	286°

Then you follow the Nieuwe Maas or Nieuwe Waterweg to the west until it flows into the North Sea. Before the mouth, on the left, is Europoort, an external part of the port of Rotterdam.

The Europoort on the south bank of the Nieuwe Waterweg and was created between 1958 and 1964 by digging up most of the island of Rozenburg. In addition to the village of Blankenburg with its 400 inhabitants and numerous farms, the De Beer bird sanctuary also had to make way for this. It is the largest petrochemical port in the world.

POI90-Haringvlietdam

Distance:	8,9 nm
Dist. from Dept.:	34,1 nm
Dist. to Dest.:	14,7 nm
True Course:	188°
Magnetic Course:	187°

Fly over the Europoort to the south at the mouth.

The following large estuary is called Haringvliet, is the widest estuary arm of the Rhine and the extension of the Hollands Diep, so the Waal and the Bergsche Maas.

The Haringvlietdam is located at the widest estuary of the Rhine, the Nieuwe Merwede or Hollands Diep, and the Meuse reach the North Sea after their confluence via the Haringvliet. The core of the Haringvliet Dam is formed by Europe's largest tidal barrage, called "de Haringvlietsluizen" in Dutch. It is connected to the southern shore by an artificial island, whose connection with the dike of the island of Goeree-Overflakkee is cut by a shipping canal with a lock. The connection to the island of Voorne-Putten in the north is formed by a chuted dike.

The tidal barrage consists of 17 culverts, each 62 meters wide. In contrast to a classic sluice, a small, precisely controlled amount of salt water from the North Sea is let in at high tide. The discharge of river water into the North Sea at low tide is also metered. If the water level of the Rhine on entering the Netherlands, at the Lobith gauge, is below 1100 cubic meters per second, the lift gates remain closed so that the combined water from the Nieuwe Merwede and the Maas then reaches the Nieuwe Waterweg through Rotterdam via the Dordtsche Kil and Noord waterways, as well as the Spui, and provides sufficient water there.

POI91-Brouwersdam

Distance:	8,7 nm
Dist. from Dept.:	42,8 nm
Dist. to Dest.:	6,0 nm
True Course:	241°
Magnetic Course:	239°

Follow the coast further southwest and you will come across the six kilometer long Brouwersdam.

EHBU-Haamstede Airfield

Distance:	6,0 nm
Dist. from Dept.:	48,8 nm
Dist. to Dest.:	0,0 nm
True Course:	237°
Magnetic Course:	235°

On the northwest side of the following island is the last airport of your journey downstream the Rhine.

We at Nordheim Missions wish you a good stay in Haamstede and would be happy to accompany you on another mission soon.