

The ultimate guide to the best approaches

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Introduction

The highly reliable autopilot and autoland systems present in modern add-ons today takes very few of what Flight Simulator can show. In this guide, I'll be presenting you some of the best and most beautiful approaches in the world. If available, the real life approach plate and custom scenery links will be also presented - this way you can fly these approaches in the most realistic way.

Even if you don't feel like performing the whole approach, give those airports a try... they are nice enough even without the approach plates!

Let's start by the most popular approach among simmers!

1. Philipsburg / St. Maarten - Princess Juliana (SXM / TNCM)



This is for sure the most popular approach in the world, mainly because of the beach -- named Maho Beach -- that is just before the runway. Aircraft landing on runway 09 pass above this beach so low that you think you can actually touch the main gear; when they are taking off, the jet blast can make people on the sand get to the sea! You can just image how cool it is to have a 747-400 pass just above your head and how skilled those pilots have to be in order to perform this approach correctly; a slightly lower altitude at the wrong time can have catastrophic consequences.

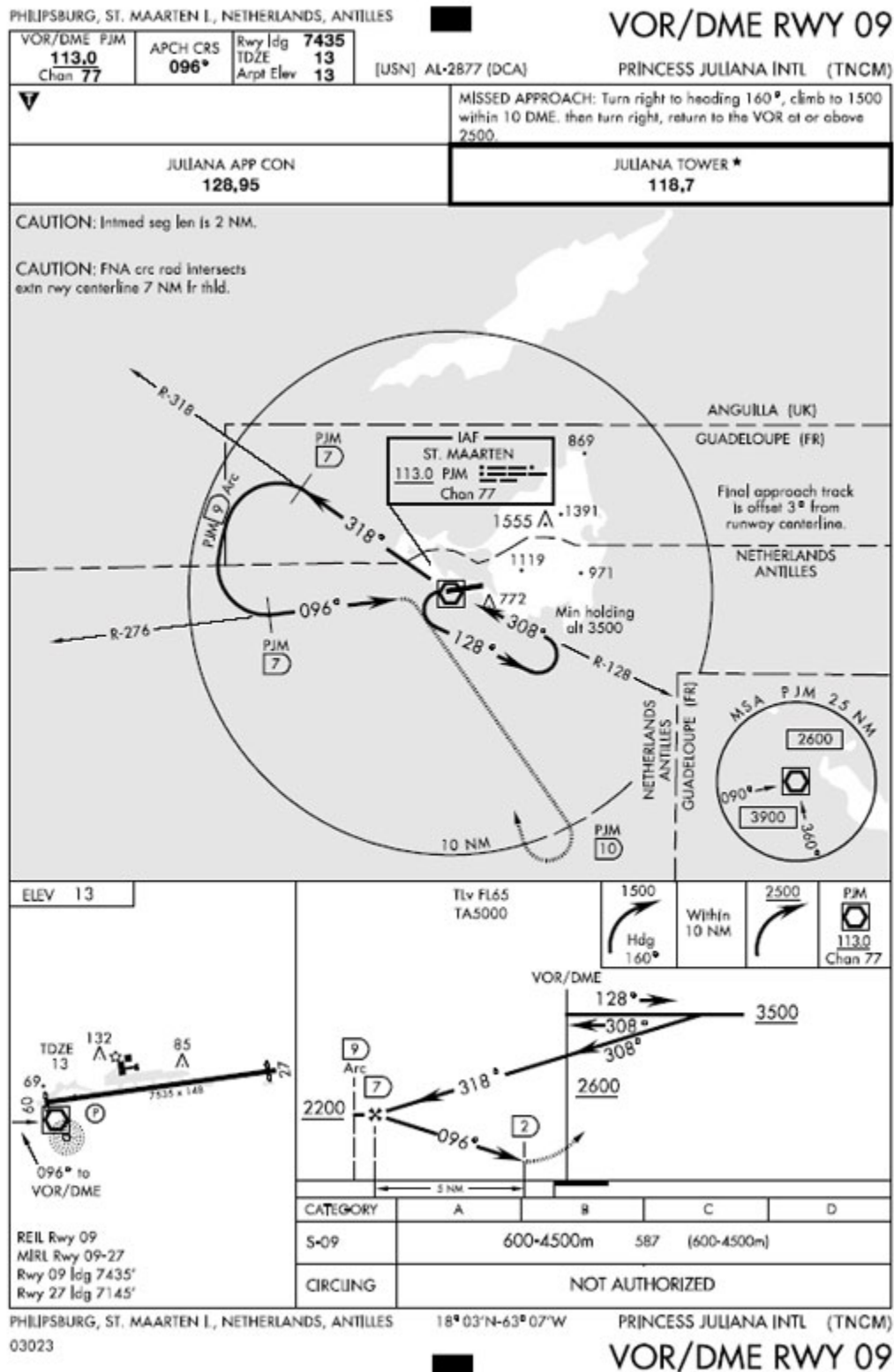
Before you start, download the Princess Juliana scenery by Delblond Christian at AVSIM Library: <http://library.avsim.net/search.php?SearchTerm=juliana2.zip&CatID=root&Go=Search>

Some background info ...

Princess Juliana International Airport is the airport of St. Maarten, located 15 kilometers northwest of Philipsburg. The island of St. Maarten is the smallest landmass in the world shared by two nations: the northern side is governed by the French and the southern side is one of the five island territories that make up the semi autonomous country of the Netherlands Antilles, part of the Kingdom of the Netherlands. While English is the main language on both sides, Dutch is the official language on the southern side and French the official language on the northern side. Because of its geographical location, the island plays a strategic role in the development of neighboring islands Saba , St. Eustatius (also Netherlands Antilles territories), Anguilla and St. Barth's. As a matter of fact, the Princess Juliana International Airport serves more than the community of St. Maarten and its tourism industry. The airport is the hub that feeds St. Martin and surrounding islands as well.

More information about the Pricess Juliana airport can be found in their official website: www.pjiae.com

The famous approach: DME/VOR for runway 09 !



This is the approach plate used for the DME/VOR RNW 09 procedure at Princess Juliana. If you are not familiar with approach plates, check the "How to interpret approach plates" tutorial: www.fsstation.com/content/view/75/4/

I must enforce that this is a non-precision approach (no ILS) and landings on runway 27 are prohibited because of the huge cliff behind it. If you are too much used to autolands and ILS approaches, this will be very difficult to perform at first - the DME ARC that is required is one of the most difficult procedures and requires much practice to be done correctly. If you can perform this approach correctly, you are a skilled pilot!

The approach starts at 2600 feet, over the ST. MARTEEN VOR (PJM - 113.0). Intercept and track radial 318 until 7 DME from the VOR, where you can start turning left to enter the 9 DME ARC. The concept behind DME ARCs is simple: imagine that you, with a compass, draw a circle with its center over the VOR and with a radius of 9 nautical miles. Then, follow the part of this circle required by the plate and you're done. In this case the DME ARC goes from radial 318 to 276; exit this circle so that you reach radial 276 as far as 7 nautical miles from the station. Once you have visual contact, align visually with the runway and accomplish normal landing.

The Princess Juliana airport is so popular among simmers because of the skills needed to land safely and the visual beauty of the island. As you enter the final approach, the first sight of the island can be seen -- the cliff behind runway 27, PAPI lights, Maho Beach and some hotels/bars nearby ... On short final, the altitude must be constantly monitored so that you don't burn a couple of people on the beach :)

Now, get yourself a nice Boeing 747-400 from Project Open Sky (www.projectopensky.com) and try that approach. I'm sure that once you get the hang of it, it will be your favorite one. Enjoy the awesome sky and low passages over the beach - it's guaranteed fun!



Short final for runway 09 ...

Still think it doesn't exist? Check out real pictures at www.airliners.net !

2. Rio de Janeiro - Santos Dumont (SDU / SBRJ)



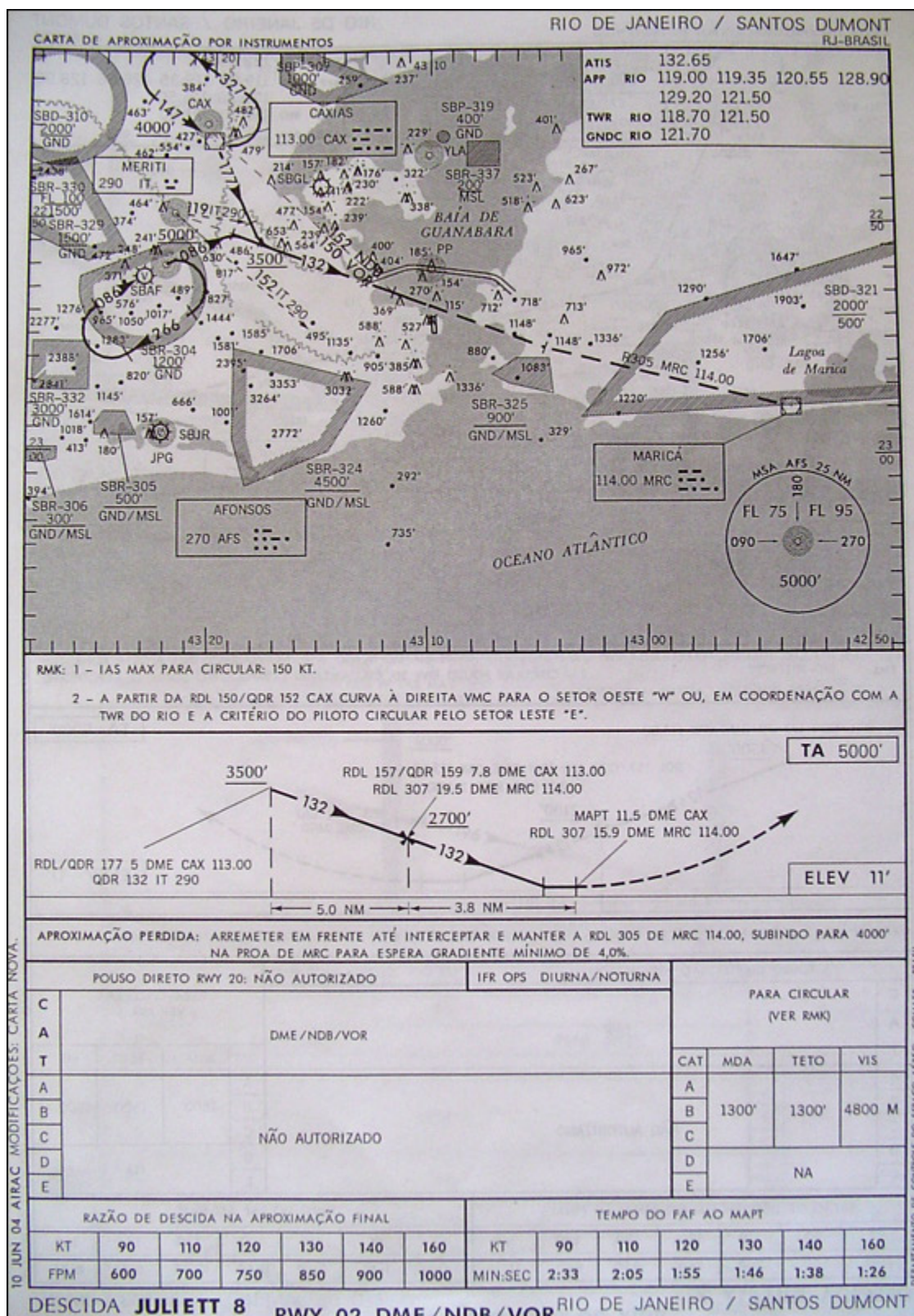
Santos Dumont airport is located in one of the most beautiful and important cities of Brazil, Rio de Janeiro. Its runway, which is surprisingly small (only 1323x42m), is the world's smallest runway in which a Boeing 737-700 can operate. Sounds tricky? Add to that short runway a huge obstacle that is 1300 feet high and just 2 miles behind the threshold - the Sugar Loaf - and one of the most difficult approaches in the world. It basically consists of approaching the airport, entering the left traffic pattern and completing the landing - what makes it complicated is that you have obstacles on downwind and the sugar loaf behind the runway, so your final is about 1~1.5 miles long. Now you can picture the scenario: good weather most of the time, a beautiful landscape, a non-precision (and difficult) approach and a very short runway. That is definitely worth a try!

A payware scenery, named Wonderful Rio, is available from WorldSceneries (www.worldsceneries.com) for \$38.50

Some background information ...

The Santos Dumont airport is an extremely important connection between two of the most important cities in Brazil, Sao Paulo and Rio de Janeiro. Because of its convenient location, right on the center of the city, Santos Dumont was a very popular airport which used to serve many airlines and business jets coming from all over the country. The traffic became too big for such a "small" airport, and it was later decided that most of this traffic would have to be transferred to a bigger and more modern airport in order to maintain the quality services. That new airport is located just a few miles away of the other one - it is called Galeao International Airport. Today, the airport serves only a few airlines that operate the very demanding connection between Sao Paulo and Rio de Janeiro.

Time to practice: the difficult (but *beautiful*) approach to runway 02R !



This is the approach plate used for the JULIETT 8 - RNW 02 DME/NDB/VOR procedure at Santos Dumont. If you are not familiar with approach plates, check the "How to interpret approach plates" tutorial:
www.fsstation.com/content/view/75/4/

First of all, I'm sorry for the plate's quality and for the fact that it's in portuguese. This airport doesn't receive international flights, so it would be unnecessary for the pilots to have it in english too. Anyway, it should be

understandable enough with some explanations. Again, this is a non-precision and difficult approach, so it may take a while until you manage to perform it correctly, but it's so nice when you do ... !

Something that makes navigation more difficult is that there are few defined waypoints for this approach - most of them are purely a radial and distance from a VOR. Get your plate ready and feel free to pause the simulator if something is going wrong or you got lost! This approach starts at AFONSOS NDB (AFS - 270) -> 5000 feet or at CAXIAS VOR (CAX - 113.00) -> 4000 feet. Then, you continue on heading 086 (AFONSOS) or 177 (CAXIAS) to intercept the radial 132 from MERITI NDB (IT - 290); at this time, you should be on heading 132 heading to the airport. At 5 DME from the 177 radial of CAXIAS (told you there's no waypoint), the minimum altitude is 3500 feet. At 19.5 DME from the 307 radial of MARICA (MRC - 114.00), the minimum altitude is 2700 feet. You should still be following radial 132 from MERITI, exactly as we started.

When you are about 2.5 miles away from the airport, start a turn to the right to enter the downwing leg - set your speed to a maximum of 150 knots. Slowly start a descent to 1300 feet (the minimum descent altitude) - but pay attention to the obstacles in the area, you certainly don't want to crash there! About 1 mile from the runway threshold, start a left turn to enter base leg and if you have visual contact, descend to about 1000 feet - at this point, you should already have your gear down and flaps fully extended. Always look at the left window to determine what is the time to turn to final - there isn't much time between turn to base and turn to final! Before you reach the Sugar Loaf (you should be in front of it, anyways), start the left turn to final and make corrections to the bank angle in order to align perfectly with the runway. Phew - after a mile on final, you'll be crossing the threshold; remember to land on the touchdown zone (even if it results in a rough one - it's better than ending up in the sea!) and use the brakes, spoilers and reverse thrust. If you managed to do all this correctly, congratulations - it is a truly great feeling, isn't it?!

Practice, practice, practice! If this encourages you, only experienced pilots are allowed to land in Santos Dumont, in real life. It's no easy task, for sure, but definitely worth *several* tries!



Turning left to align with the runway ...

3. Hong Kong - Kai Tak International (HKG / VHHH / VHHX (FS)) (closed)



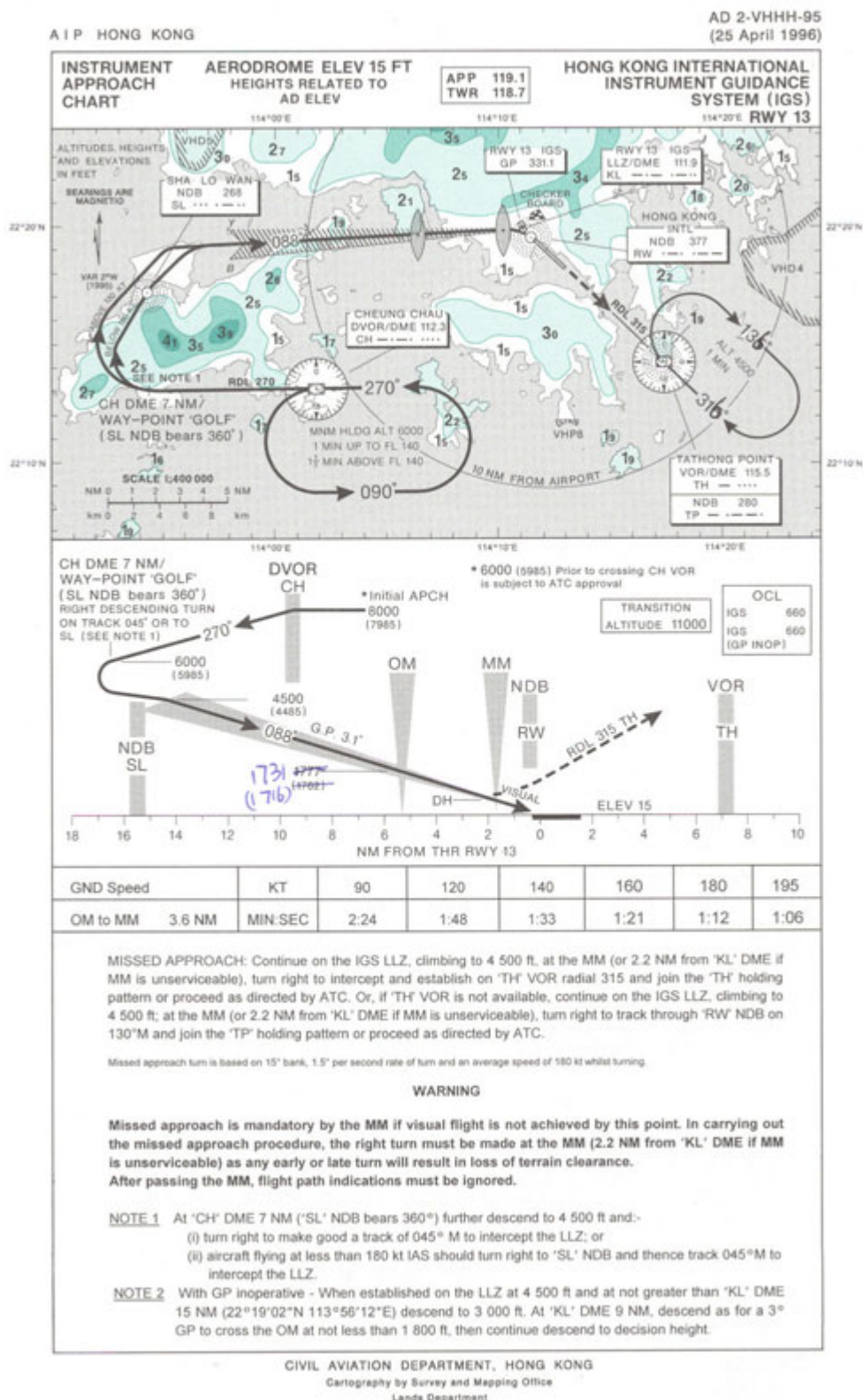
The approach to runway 13 at Kai Tak airport, in Hong Kong, was for sure the most challenging approach we have ever had. The hill just behind the airport makes a "straight-in" approach impossible, so the only solution was to place an IGS not aligned to the runway and make aircraft turn to final only when extremely close to the runway. This might sound fine for a Cessna 152, but this airport used to serve Boeing 747-400 from airlines all over the world. The pilots obviously needed many hours of training to try that in real life, and even with all the constant training, several accidents occurred. The approach to runway 13 is the best place for you train descents and turns with minimum error - a mistake can be fatal here.

The only scenery that reproduces the airport and surrounding area with some level of realism is FlightSoft's Hong Kong 2004 - you can get it here: www.flightsoft.com

Some background information ...

Kai Tak was located in Kowloon, Hong Kong - it is a very mountainous area with terrain that can reach 2000 feet. With only one runway (11,100 feet long), the approach to Kai Tak's runway 13 was very difficult to perform and visually spectacular from the ground - the aircraft had to pass, in low altitude, a very populated area of the city and do a sharp right turn to make it to the runway. Due to extreme noise pollution, the relatively small capacity of the airport (passenger and aircraft-wise) and the difficult/dangerous landings, Kai Tak became insufficient for Hong Kong and the government started looking forward to another airport. Finally, the Chek Lap Kok airport was build and Kai Tak was finally retired.

The most challenging approach: IGS RNW 13 !



Source: CPA Virtual

This is the approach plate used for the IGS RNW 13 procedure at Kai Tak. If you are not familiar with approach plates, check the "How to interpret approach plates" tutorial: www.fsstation.com/content/view/75/4/

Once again, this is an extremely challenging non-precision approach ... many experienced pilots had their aircraft damaged at touchdown, so that's another great way to practice your visual landings and turns skills! The IGS is not

available on FS2004 scenery by default, but there are some small add-ons that can add it easily - use Google and find one of them before you continue. This approach plate provides the pilot the average terrain altitude and a on-scale map - make good use of it. Now, choose your best 747-400 add-on and try this approach!

The IGS RNW 13 approach starts at the CHEUNG CHAU VOR (CH - 112.30), at 8000 feet - there is also a published holding point for this VOR. When you are ready, pass the VOR station at heading 270 and go straight ahead for 7 more miles, descending at the same time to 6000 feet. As you will probably be over 180 knots, make a turn to heading 045 to intercept the localizer (KL - 088° - 111.9) and start a descent to 4500 feet. Once you have intercepted the localizer, things are much easier: the IGS should work like an ordinary ILS. Follow both localizer and glideslope correctly and you should make the outer marker at about 1700 feet. You should soon realize that the runway is not aligned to the IGS, but about 45 degrees off course!!

Strange, for sure, but that's the way it should be. Now comes the most challenging part of this approach - you must remain concentrated and act quickly and smoothly should anything not normal happen. Continue on the GS and LOC until the middle marker, where you should have visual contact with the checkerboard; if you don't, go missed immediately! Shortly after you hard the middle marker beeps, start a right turn to align with the runway - watch your speed, altitude and turn rate carefully in order align correctly and safely. The HONG KONG NDB (RW - 377) is just in front of the runway, so you can tune it for a more precise orientation. After you have turned and aligned with the runway, follow the PAPI lights to ensure a correct glidepath and landing. It takes many tries to align and land perfectly, especially when you have crosswinds, but the sensation of accomplishment after you have landed correctly is amazing.

Get on the simulator and fly the most challenging approach that existed in the world; do it correctly and you can consider yourself an outstanding pilot!



Virgin Atlantic 747-200 turning right to align with the runway ...

4. Innsbruck - Kranebitten (INN / LOWI)



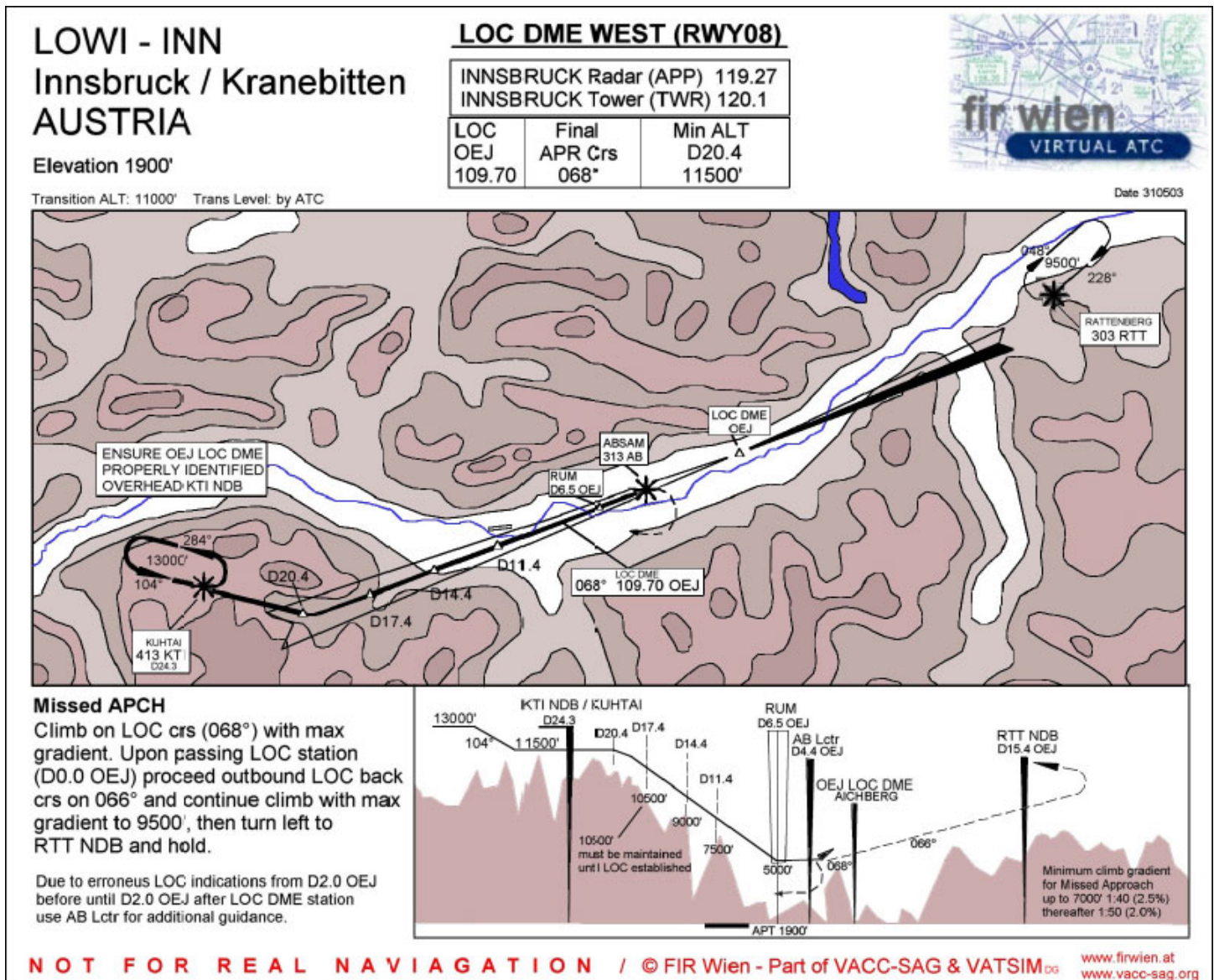
Compared to all of the above, Innsbruck definitely has the best surrounding scenery. The Innsbruck airport is located in western Austria, just in the middle of very tall mountains (Inn valley), and it is relatively close to the city. The main runway is 6500 feet long and, again, all approaches are non-precision certain level of proficiency to perform (less than all other airport, though). One of the most amazing things about this place is that the mountains get full of ice in winter and full of trees in the summer, which makes Innsbruck a truly beautiful place to visit anytime in the year. The mountains are ideal for skiing in the summer - there are several ski stations, cable car and chair lifts. In a city nearby, skiing is possible even in the summer.

There are two payware sceneries for the Innsbruck area - Austria Professional (mesh) and Austrian Airports (airport scenery). Both are available at the Aerosoft Shop: www.aerosoft.com

Some background information ...

The Innsbruck airport is located in western Austria, more specifically in the Inn valley, a broad valley between tall mountains. It has an elevation of 1900 feet and its runway is 6500 feet long. Because of its location (next to the mountains), the city is the ideal place for skiing in the winter and mountaineering in summer - some of the areas nearby are renowned winter sports center. For the same reason, Innsbruck hosted the Olympic Winter Games twice.

The beautiful approach: LOC DME WEST (RNW08) !



Source: FIR Wien

This is the approach plate used for the LOC DME WEST (RNW08) procedure at Innsbruck. If you are not familiar with approach plates, check the "How to interpret approach plates" tutorial: www.fsstation.com/content/view/75/4/

There are basically two approaches for the Innsbruck airport, one for each runway. I'll discuss the approach to runway 08, as it is a little more tricky and you could figure out the other approach easily. The approach to runway 08 starts with a localizer, which is not aligned with the runway, and ends with a right turn and visual landing on the airport.

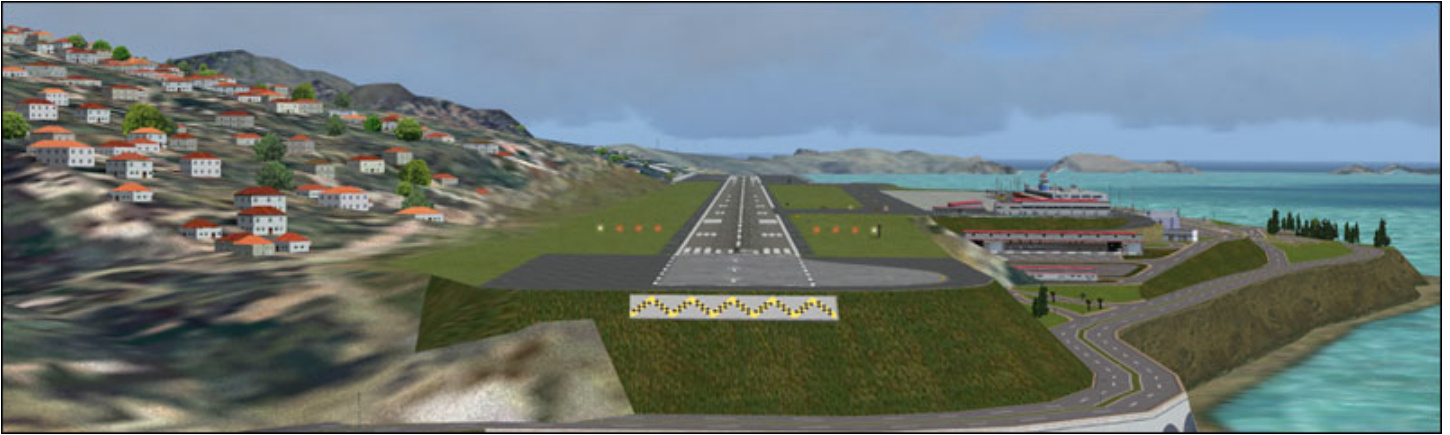
This approach starts at KUHTAI NDB (KTI - 413) at 11500 feet - there is also a published holding point at this NDB. Track the radial 104 from this NDB until you intercept the OEJ LOC/DME (068° - 109.70). Continue on the localizer normally, following the restrictions: DME 17.4 - 10500 feet; DME 14.4 - 9000 feet; DME 11.4 - 7500 feet; DME 6.5 - 5000 feet. Level off at 5000 feet and at exactly DME 4.4 from the localizer, start a right turn to the direction of the runway. At this time, the approach becomes visual and the autopilot goes off! Control the altitude, speed and bank angle in order to reach the runway heading at the right speed and altitude. Then, accomplish normal landing.

The runway 08 approach is certainly more easy than all others and the scenery is as much -if not more- beautiful and enjoyable. The Innsbruck airport certainly won't handle a 747-400, but you can use a 737NG or an A320 for that and have some big fun between those mountains!



Piper Dakota departing runway 26 ...

5. Funchal / Madeira (- Santa Cruz) (FNC / LPMA)



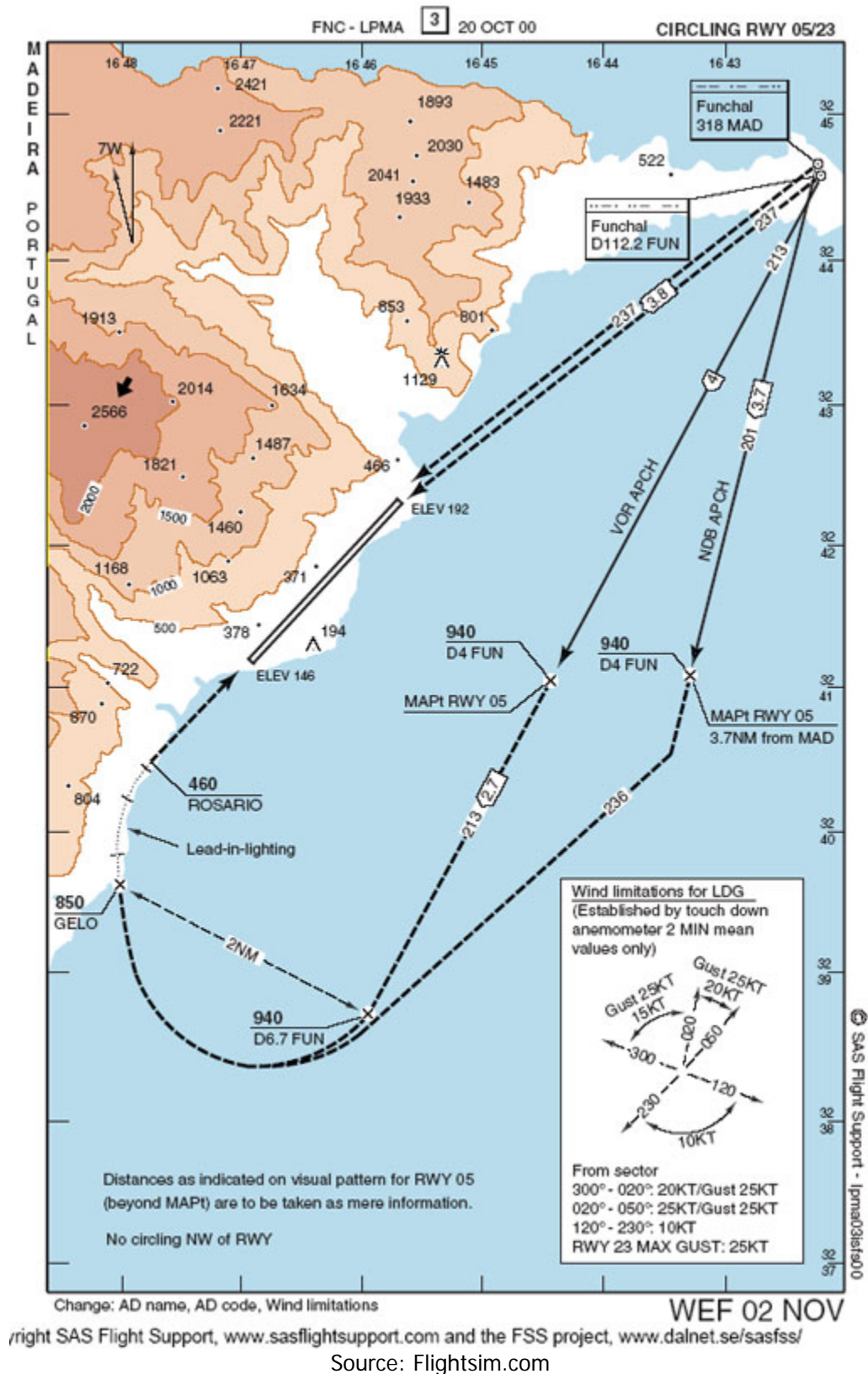
The Madeira airport is one relatively small airport located in a island which is 15 kilometers far from Funchal. With mountainous terrain in all directions, landings on runway 05 are a great adventure - all turns are executed over the sea for terrain clearance and the final approach is very short. There is only a VOR and a NDB nearby, so that's still a non-precision approach that will be truly fun when you get the hang of it!

The scenery used in the photo above is Wonderful Madeira, from Aerosoft. You can get it here: www.aerosoft.com

Some background information ...

Located 15 kilometers northwest of Funchal, on Madeira Island, the Madeira airport is one of the biggest and most ambitious constructions ever done in the region. There are, for example, 60 meter tall pillars that are also 60 meters deep under sea level. The terminal can handle 2.3 million passengers per year and the airport serves not only domestic flights to Lisbon and Porto, but also regularly scheduled flight to major cities in the UK, France, Netherlands, Germany and Spain.

Time for some adventure: Circling RNW 05 !



This is the approach plate used for the Circling RNW 05 procedure at Madeira. If you are not familiar with approach plates, check the "How to interpret approach plates" tutorial: www.fsstation.com/content/view/75/4/

In the same chart, approaches to runways 05 and 23 are shown using a VOR or a NDB. I'll describe the approach to runway 05 using a VOR, as this one is way more fun than the other. This is a very simple approach to understand, but it might take some time for you to do all turns perfectly. Ok, enough talking!

It all starts at the FUNCHAL VOR (FUN - 112.2). Fly the radial 213 from the station, and watch your altitude so that you reach 4 DME at 940 feet. Continue on the radial for 2.7 more miles (6.7 DME), still maintaining the altitude of 940 feet. At this point, start a right turn and head to the beginning of the lead-in-lighting system (fix GELO), also start a shallow descent to 850 feet. Continue following the lead-in-lighting (one continuous right turn!) and descent so that you reach the ROSARIO fix at 460 feet. At this point, you should be aligned with the runway - watch the PAPI to make sure the altitude is correct and accomplish a normal landing!

See, this approach is definitely more simple than all of the above - it is great to practice turns and the island is beautiful ... give it a try!



Fokker 100 on final for runway 05 ...

Conclusion

I have just shown you 5 of the best approaches and airports you can have. These places are really cool and all of them have something special - some have difficult approaches, some have simple approaches, but all of them are beautiful and fun to fly! I hope you have enjoyed this guide and will try some of these approaches. Some great and freeware aircraft can be found at: fokker.avsim.net, www.projectopensky.com or www.avsim.net

Bernardo Srulzon

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