

Aeroporto da Madeira

An airy report on Madeira Airport

In this summer issue of Airport of the World, we will take you to the Portuguese island of Madeira, situated 980 kilometres south-west of Lisbon in the Atlantic Ocean. This beautiful, volcanic island, with peaks rising up to nearly 1900 meters, has a very mild climate year-round, so it is not surprising that the tourism industry has become very important to the local economy. You are welcomed with the scent of exotic flowers while deplaning, and the small scale of the airport allows getting through the airport in little time.

Approaching the airport by air provides a fantastic view of the island and the interesting runway construction. Driving across the island, thereby passing the airport is also an amazing experience as you literally drive under the runway construction.

By Jurjan Knol

From Past to Present

Madeira's scenic rugged landscape may be a major tourist attraction; it is the same landscape that gave rise to a major problem, too. Due to the lack of flat terrain, the construction of an airport was not possible for a long time. In 1960, an airport was opened at the neighbouring island of Porto Santo, from where passengers bound for Madeira had to take a 3-hour boat trip to its capital Funchal. Finally, in 1964, Madeira's own airport, constructed on a small plateau on the East coast of the island, was inaugurated with the landing of a Lockheed Super Constellation of Portuguese flag carrier TAP. Because the runway was built on a more

or less levelled slope of a mountain, the runway length was limited to 1,600 meters. Although this runway was long enough for propeller aircraft, the introduction of jet aircraft in the late sixties, with higher maximum take-off weights and greater range, proved that this runway was a bit on the short side. Landing at Funchal airport was quite challenging for pilots; the aircraft had to apply full brakes in order not to plunge into the ocean at the other end of the runway. Flights from Madeira to destinations in northern Europe (where most of the charter flights come from), sometimes had to take off from Madeira with a minimum of fuel for the short hop to Porto Santo, and then refuel for the rest of the flight. "Where at most airports the capacity of the runway poses the primary constraint to the number of aircraft movements, in the old days the capacity of the

apron was the major problem at Funchal airport. Because the number of parking stands was so limited, and the runway had only one entry/exit point, the delay of one flight could have a domino effect on all further operations. You can imagine that at peak hours, sometimes aircraft had to hold and wait for other flights to take-off before they could land."

New runway construction

In September 2000, this situation came to an end with the opening of a new 2,781-meter runway. The construction of this new runway, one of the biggest and

most expensive ever made in the region, is a true showpiece. The mountainside next to the airport made it impossible to expand the airport inland, so the only option was to extend the existing runway into the ocean. To achieve this, the runway had to be turned three degrees to the north, and a hotel on the hill next to the airport had to be blown up. The new runway extension is built on 180 pillars, carrying a total surface of a hundred square meters. These pillars have a diameter of three meters and are 120 meters in length, with half of their length below sea level.

Because of some special characteristics of Funchal airport, airline pilots need an additional qualification to fly to Madeira. The rapidly upraising mountains close to



*The interesting runway construction of Madeira Airport
Photo by Peter Fagerström*



*Airbus A319 of TAP Air Portugal on final approach at Madeira Airport
Photo by Jorge Abreu, Madeira Spotters*

the airport make a straight-in ILS approach impossible, so all landings and takeoffs have to be made in visual conditions and landings are not authorised with standing water on the runway. The curved trajectories defined for both takeoff and landing procedures are situated over the water to avoid the high ground. The mountains surrounding the airport can also cause turbulence, severe low altitude wind shear and microbursts along. Approaches and landings at Funchal are therefore made with increased speeds to counter this problem. On the south side of runway 05/23, wind direction indicators are located to alert pilots of unexpected wind changes.

The renewed airport of Madeira has a capacity of 3.5 million passengers per year, and all types of aircraft are now able to land at Madeira. The main carriers operating at Funchal Airport are TAP Air Portugal, SATA (airline of the Acores), and Air Luxor (a private Portuguese airline), which count together for more than half of the traffic. Further more, the airport is served by many charter airlines from all over Europe. In 2003, the airport of Madeira welcomed a total number of

2.260.468 passengers and handled 27.105 aircraft movements. With a steady growth rate in passenger movements of more than five percent over the last decade, it is not difficult to foresee that Madeira will need further expansion. New challenges lie ahead in the near future for airport development specialists, as the airport's natural borders, the ocean and the mountains, form a major obstacle.

The lack of flat terrain may have given some challenges to build a runway; for spotting aircraft it is quite interesting. There are several places for spotting, for instance just upon the slope near the airport gives a birds-eye-view of all the activities taking place at the airport.

And before you board onto your return flight, the observation deck allows you to see your aircraft land. And there will be enough time left after that to proceed through the security checkpoint.

So for those of you, who are not sure where to go this summer, though interested in seeing a less conventional runway construction (in combination with exploring the beauty of the scenic rugged island), Madeira might just be the destination for you!

More information:

<http://www.anam.pt/AM.htm>

<http://www.dangerous-airports.com/airports/l/lpma.htm>

<http://www.madeiratourism.org/>

Aeroporto da Madeira Fast Facts	
Airport Authority and Operator	ANAM (Airports and Navigation Aerea Madeira)
IATA / ICAO code	FNC / LPMA
Elevation	58,5 meters
Runway length	2781 meters
Passenger Terminal Capacity	3.5 million per year
Number of Gates	16
Cargo Terminal Capacity	16.000 tons per year