

## DISA Azores Telecommunication Feasibility Report

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Defense Information Systems Agency  
Azores Telecommunications Feasibility Report  
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### 1.0 Summary

The Azores are the home of the strategically located United States Air Force base called, "Lajes Field," and the US Air Force 65th Air Base Wing. International telecommunications are provided by satellite services and a single, submarine fiber optic cable system (SFOC) called, "Columbus III," installed in 1999.

The telecommunications infrastructure of the Azores does not lend itself to being a robust or suitable telecommunications hub.

An analysis of the telecommunications infrastructure of the Azores identified several key reasons that any location in the Azores would not be suitable or robust to serve as a DISA telecommunications hub; these reasons are, as follows:

- Satellite bandwidth limitations and high latency (signal delays) typical of satellite systems – satellites cannot provide the required bandwidth for transporting high volumes of data, interactive video or imaging in a cost-effective effective manner; all satellite transmissions exhibit transmission delays due nearly 53,000 round trip miles the satellite signal must travel; and the satellite signal is also susceptible to adverse weather conditions, such as tropical storms and hurricanes.
- Only one international cable system landing in the Azores to provide fiber optic cable international connectivity. While an inter-island group of fiber optic cables provides a measure of diversity for communications within the Azores, one or two strategically located cable cuts on Columbus III could isolate the island from all but the lesser-performing satellite services.
- There are no proposed or planned additional international cable systems for the Azores to improve diversity and improve the probability of telecommunications survivability. The cost of adding an additional cable system is not likely to be economically justifiable due to the small size of the local economy and limited market potential.

For these reasons, the Azores is not a feasible location for a DISA telecommunications hub.

## 2.0 The Azores

The Azores, officially the Autonomous Region of the Azores, is one of the two autonomous regions of Portugal, composed of nine volcanic islands situated in the North Atlantic Ocean about 850 miles west of continental Portugal, about 1,300 miles south southwest of Lands End, UK, and about 2,500 miles southeast of New York State; Lands End and New York City have many transatlantic cable landings.

There are nine major Azorean islands and an islet cluster, in three main groups. These are Flores and Corvo, to the west; Graciosa, Terceira, São Jorge, Pico, and Faial in the center; and São Miguel, Santa Maria, and the Formigas Reef to the east. These islands extend for more than 375 miles and are situated in a northwest-southeast direction.

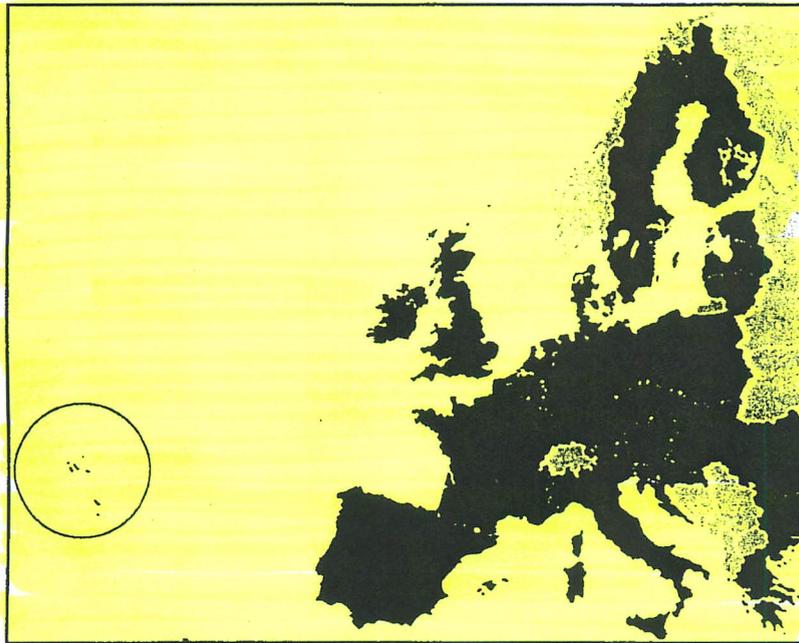


Figure 1: Azores Location In Circle

### 3.0 US Air Force Base, Lajes Field

The island of Terceira is home to the strategically important Lajes Airfield (Lajes Field or Lajes Air Base), a multi-use airfield, home to the Portuguese Air Force Base and Azores Air Zone Command, and the US Air Force 65th Air Base Wing<sup>1</sup> detachment, and also a regional air passenger terminal.

The 65th Air Base Wing is the American unit stationed at Lajes Field, Terceira Island, Azores, Portugal. This U.S. Air Forces in Europe unit is the largest U.S. military organization in the Azores. The wing plays a vital role in the Global War on Terrorism by enabling the expeditionary movement of war fighters, warplanes, and global communications to Combatant Commanders and supporting Joint, Coalition, and NATO operations as part of U.S. and Allied Air Expeditionary Forces.

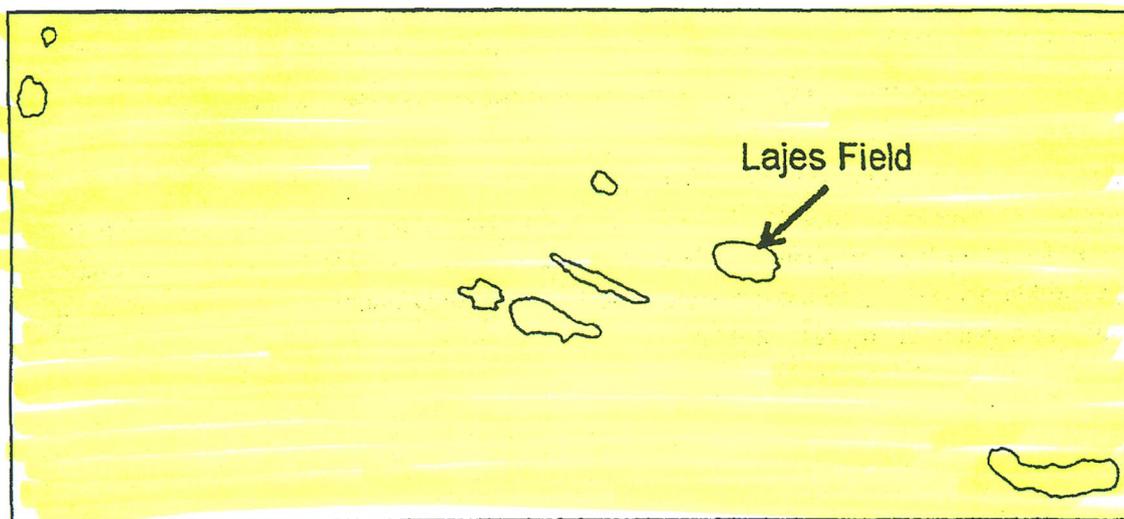


Figure 2: Location of Lajes Field, Terceira Island, Azores

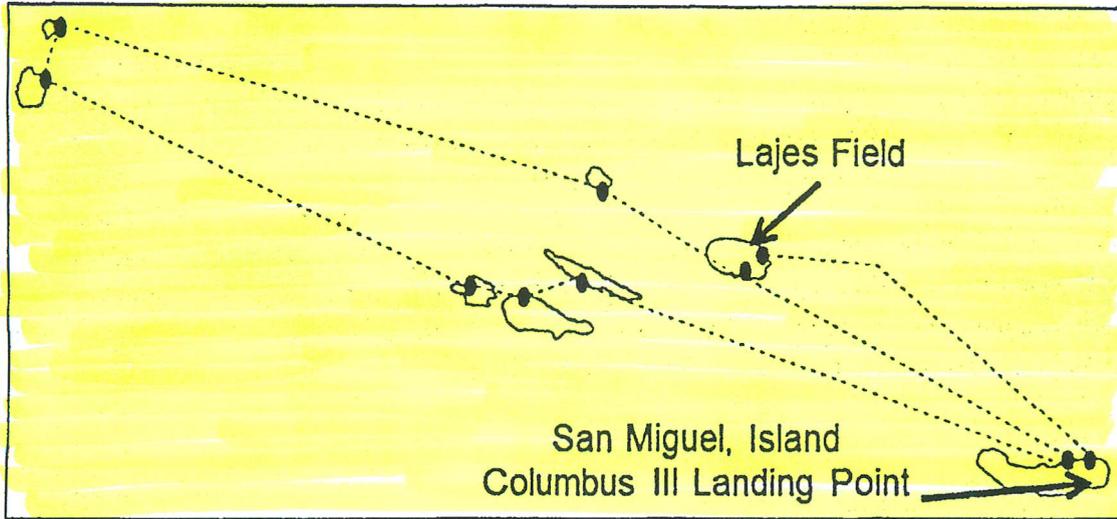
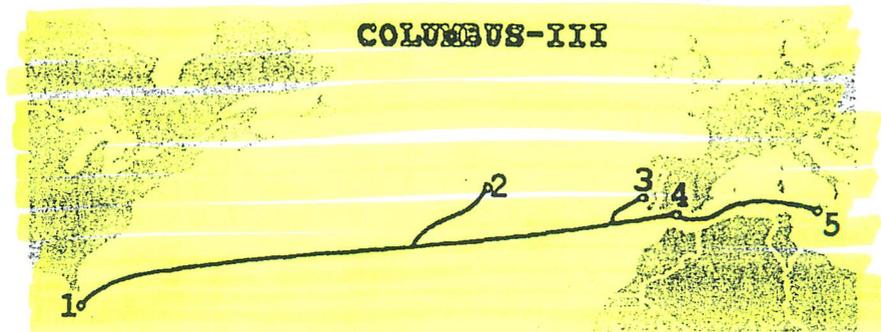


Figure 3: Notional landing Points and Proximity to USAF Base at Lajes Field

There are no proposed or planned additional international cable systems for the Azores to improve diversity and improve the probability of telecommunications survivability to the Azores. The cost of adding an additional cable system is not likely to be economically justifiable due to the small size of the local economy and limited market potential.

## 4.0 International Telecommunications Services

International communications to the Azores is provided by satellite services and a single, SFOC, Columbus III. Columbus III was made ready for service in 1999, has two fiber pairs, and is owned by a consortium of over 30 international telecomm carriers. Landing points are in 1) Hollywood, FL; 2) Ponta Delgada (San Miguel Island, Azores); 3) Lisbon, Portugal; 4) Conil, Spain; 5) Mazara (Sicily).



The islands of the Azores are interconnected by a network of unrepeated SFOCs with multiple landings to support intra-island communications and connectivity to the single SFOC connecting the Azores to Europe and the United States, and onward to other systems.

The most recent (2014) intra-island system, the 425 mile Flores-Corvo Cable System, was built by Huawei Marine Networks (Chinese), in partnership with Viatel, a Portuguese telecommunications supplier. Prior to the completion of the Flores-Corvo Submarine Cable System, the seven islands of the archipelago of the Azores were connected via the Azores Domestic Cable System – excluding Corvo and Flores, which depended on basic satellite communications.

The completed Flores-Corvo Submarine Cable System now enables all nine islands of the archipelago of the Azores to be interconnected with backbone connectivity to European, African and cross-Atlantic submarine cables.