

## **BBC ATLANTIC RELAY STATION** **ASCENSION ISLAND**



### **Introduction:**

The position of Ascension Island, 8° South and 14° West, makes it an ideal site for Short Wave broadcasting to Africa and South America.

Construction of the Atlantic Relay Station began in 1965 and was fully operational by late 1967.

The BBC Transmitting Station and Power Station is located at English Bay and is now operated by Encompass

The Power Station provides electricity for the Transmitters and most of the island. In addition the Power Station also provides drinking water to most of the island.

The Transmitting Station and Power Station provide employment for around fifty staff, made up of mostly St Helenians.



Ascension Island is about 7 miles across and has a population of around 800. The climate is quite equable and temperatures of 22°C to 35°C and rainfall of around 300mm a year is normal, while a constant sea breeze throughout the year keeps conditions cool.

Most of the island consists of volcanic ash or rock deposits. The central higher region known as Green Mountain has increased rainfall, with vegetation being lush and where trees and shrubs grow in abundance.

### **Atlantic Relay Station:**

The station originally comprised of four Marconi BD272 250kW Short-Wave Transmitters and Twenty Dual Band Arrays. The Station was upgraded in 1989 by the installation of a further two Marconi Transmitters and four new Antenna Arrays. The Transmitters in use were designed in the early 1960's and require manual Band changing and Tuning.



An Automatic control system was used to carry out all the Transmitter, Programme and Antenna Switching operations that are required by the daily Transmission Schedule.

A Re-Engineering Project saw the removal of 4 of the Marconi transmitters and the installation of 4 new RIZ 250kW AMC Transmitters. The remaining 2 Marconi's are still are very much operational but due to the improved efficiency of the RIZ, they now have limited use and now only transmit around 2 hrs a day.

Along with their increased efficiency, the RIZ Transmitters utilise Automatic Tuning, modern Modulation techniques, such as AMC, DRM and solid state Electronics. Only one large Valve is used in the entire Transmitter, on the Output stage. The Marconi's, in comparison, use 4 large Valves and a magnitude of over 20 smaller ones to provide its amplification.

To interface these new Transmitters, a new Control system was installed at the same time.

Since May 2011, the station became Unmanned for the first time in its history, after previously being staffed 24hrs a day. The new ACS along with the Riz Transmitters facilitated this move as they require no intervention from staff to carry out its Schedule. The Station is now only manned from 0800 - 1630 hrs, when a team of Engineers carry out routine maintenance and repairs.

As well as providing Transmissions across the world, the local listener can catch BBC World Service programs via a 10W VHF transmitter (93.2MHz) on Green Mountain.

### **Programme Feeds:**

Programmes to be transmitted originate from New Broadcasting House in Central London. These programme feeds are uplinked via satellite.

The feeds are received at ARS via a BBC 12m dish and two Encompass 4.5 metre dishes at the Satellite Earth Station, located close to the Transmitting Building.

The Atlantic Relay Station currently broadcasts English, French, Hausa & Portuguese.

Prior to installation of the Satellite Receiving Station in 1985, a combination of pre-recorded tapes from London and Short-Wave radio links provided the necessary programme feeds.

### **Antenna Field:**

The original Antenna Field contains 20 arrays supported by 10 masts, which range in height between 46 and 99 metres. Each of these arrays can cover two adjacent short-wave bands and has a typical gain of 15dB. The masts are arranged to provide a range of forward bearings of 27° to 114 ° and a range of reverse bearings of 207° to 306° degrees. Many of these arrays have automated groundwork switches.



A line of five self-supporting Towers, the tallest of which is 126 metres high, were added in 1989. Suspended between them are four antenna arrays

Three of these antennas are able to cover two SW bands and the other covers three SW bands. Each of these newer Arrays are reversible and can be slewed left and right giving a total of five possible Forward Bearings between 55° and 115° degrees, and five possible Reverse Bearings between 235° and 295°.

An Antenna Switching Matrix is located close to the Transmitter building. The six Transmitter RF output

feeders enter the Matrix and its output sent via any one of the 29 Antenna Feeders. The Station Control System is capable of selecting any Antenna to any Transmitter as required by the Transmission Schedule. In practice each Transmitter has a choice of typically ten different Antenna Arrays.

**Power Station:**



The Power Station was originally fitted with seven English Electric V-16 11kV Diesel-Alternators, each rated at 930kW.

Today, the station is equipped with seven Allens VS12-fx turbo-charged engines, each rated at 1.3 MW.

As there is no natural source of fresh water on the island, the Power Station incorporates a Fresh Water Treatment Plant. This plant consists of four Reverse Osmosis Plants that convert the surrounding seawater into safe drinking water. On average, 200,000 litres of fresh water is produced each day.

In the interests of environmental concerns and an investiture of the future, 5 Wind Turbines were erected around the Power Station surroundings to provide Eco-friendly power. Each Turbine is rated to provide 300kW of power to the grid. On a good day, the wind generated generators produce around 40% of the Islands Power demands.

Whilst they provide additional capacity to the Power Station, the main source of Power is still provided by the Diesel Generators. This is determined by the main consumer, the Transmitter Site, as it requires a steady output with bouts of instantaneous power depending on the Transmitted program material. Unfortunately the Wind Turbines cannot react quickly enough for this application.

# ATLANTIC RELAY STATION



# ASCENSION ISLAND

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To: Mr Eugene Kornykhin

Date: 26/01/2023

**QSL VERIFICATION**

Thank you for your valuable reception report. I have checked the details against our frequency and programme schedules.

I can confirm that you have now heard the following programmes listed in the table provided via the Atlantic Relay Station.

Programme Details	Date	Time	Frequency MHz
<i>ENAFW</i>	<i>24/JAN2023</i>	<i>06:00-07:00</i>	<i>9.410</i>
<i>ENAFW</i>		<i>06:00-07:00</i>	<i>11.830</i>
<i>FRENA</i>		<i>06:30-07:00</i>	<i>7.305</i>
<i>RNI</i>		<i>07:00-08:00</i>	<i>12.050</i>
<i>ENAFW</i>		<i>07:00-08:00</i>	<i>12.095</i>
<i>ENAFW</i>		<i>07:00-08:00</i>	<i>11.830</i>

All requests for our schedules and programme guides should be sent to:

BBC World Service,  
Broadcasting House,  
London  
W1A 1AA

We hope that you found the attached information regarding our Station informative and interesting.

Kyla Benjamin  
Communications Technician