

HYDROLOGY OF RODRIGUES AND AGALEGA

Rodrigues

Rodrigues Island is situated some 560 kilometres to the East of Mauritius. It is located between latitudes 19° 40' S and 19° 47' S and between longitudes 63° 20' E and 63° 30' E. It is about 18 Km long and 6.5 Km wide with an area of 110 Km². The shape is that of a whale back with a central ridge and deep cut valleys. The highest peak, Mt. Limon, is 398 m a.m.s.l. (Fig. 7.3)

Precipitation

The average annual precipitation is 1348 mm which is equivalent to 150 Mm³/yr. The wettest month is February and the driest month is October. Total daily rainfall is measured at 13 stations. Annual rainfall data for Plaine Corail Airport and Pointe Canon stations are provided in Table 7.1.

Station	2006	2007	2008	2009	2010
Pointe Canon	1189	944	1055	949	1149
Plaine Corail Airport	1064	922	1131	821	1185

Table 7.1- Annual Rainfall Data (mm) for 2006 - 2010

Hydrology

The Island of Rodrigues has been divided into 20 major river basins and 10 minor ones. The catchment areas vary between 1.08 Km² and 6.73 Km² as shown in Fig 7.2.

The deep cut valleys with steep gradients and the absence of impounding reservoirs in Rodrigues result in most of the rainfall over the island being lost to the sea as high velocity runoff. Due to negligible infiltration to groundwater, base flow of rivers is very low. The flows range from 1.4 l/s in Riv.Grenade to 56.9 l/s in Riv. Baie aux Huitres.

Hydrogeology

The Island of Rodrigues was formed some ten million years ago from a crater of a sea-mount and consisted of theolitic lavas which have been observed as far as the eastern coast of the island. Subsequently, other eruptions consisting of pyroclasts and lavas (prismatic, hawaïtes etc.) contributed to the formation of the present island.

Detailed and systematic geological and hydrogeological studies of Rodrigues were undertaken in 1996 and were completed in 1999. The aquifers of the central caldera, alluvial valleys and the relatively small western caldera accounts for most of the groundwater resources in Rodrigues.

The groundwater production in Rodrigues during normal season has been estimated at 8000 m³/day.

The yield in m³/hr of the most productive boreholes drilled during the period 1996 to 2001 are given hereunder in Table 7.2

<i>Borehole</i>	<i>Wet Season</i>	<i>Dry Season</i>	<i>Extremely Dry Season</i>
Les Choux	10	6	6
Lataniers	40	30	27
Dans Bébé	9	4	0
Malabar	25	10	6
Bois Noir	30	25	20
Bassin Gallard	20	15	10
Mourouk FAC	40	30	20
Cascade Victoire	5	5	3
Mont Lubin	-	-	55
Nassola	-	-	35
Les Choux	-	-	16
Graviers	-	-	10
Camp du Roi	-	-	12
Total abstraction- (m ³ /hr)			220
Abstraction (m³/day)			5280

Table 7.2 Yield (m³/hr) of boreholes drilled during period 1996-2001

The location of the five boreholes which were previously equipped with data loggers is shown in Fig 7.1. The geological map of Rodrigues shown in Fig. 7.3 was prepared under FAC project. The well characteristics are given in Table 7.3.

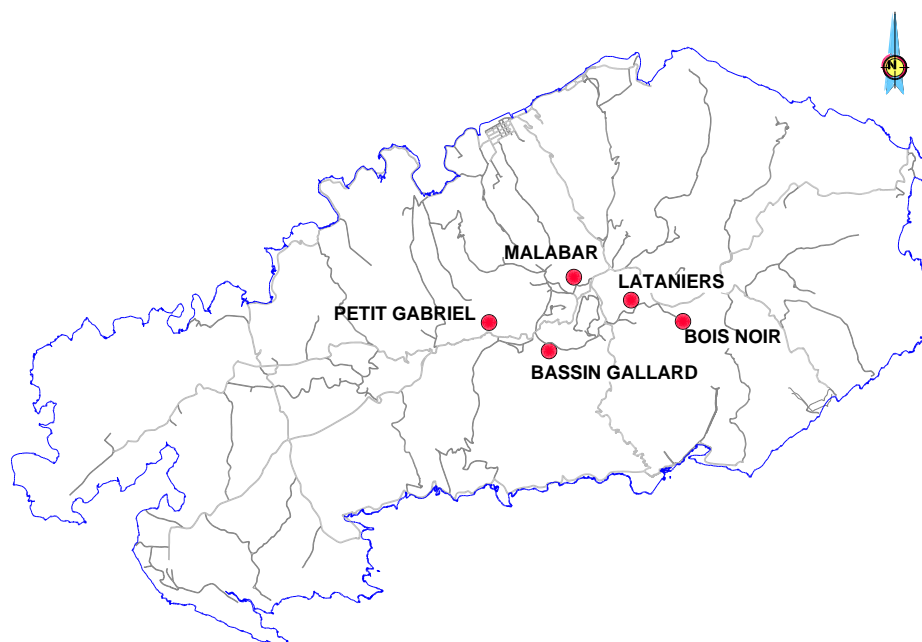


Fig7.1 Location of Data Loggers in Rodrigues