

Influence of orography on rainfall distribution and water resources in Guadeloupe

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Guadeloupe is one archipelago of the Caribbean islands. Its climate is regulated by a permanent flow of Easterly winds. Guadeloupe is composed by two main islands : Grande-Terre that is a flat upwind area and Basse-Terre that is a North-South oriented mountain peaking at 1467 m.

By 1984, IRD1 (former ORSTOM2) has installed automatic rain gauges at an elevation ranging from 300 m to 1400 m. This network has completed the stations managed by METEO-France in low altitudes.

The statistical analysis of the data collected by these stations gave accurate information on the impacts of heating and orographic convective processes on the distribution of rainfall for various time steps in different topographic situations.

The results of the studies on instantaneous, daily, seasonal and interannual rainfall distribution are presented in Basse-Terre as well as in Grande-Terre. These achievements could be used for downscaling the impacts of climate changes on the availability of water resources in such tropical islands.

1 IRD : Institut de recherche pour le développement

2 ORSTOM : Office de la recherche scientifique et technique Outre-Mer