

# Rwenzori Meteo and Geodetic Network

## An Introduction

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### Abstract

A long-term multidisciplinary research project on Rwenzori Mountains started in June 2006 when a team of twelve Italian researchers and one researcher from the Mountain Research Centre of Makerere University, made up an expedition trucking around the Rwenzori Mountains National Park. The studies have been organised thanks to the coordination of the Uganda Wild Life Authority, the L'Umana Dimora Environmental Association, the Italian Alpine Club, the University of Makerere, the University of Brescia (Italy) and the Italian Embassy in Kampala. The research project concerns the evaluation of changes on high altitude environment on Rwenzori Mountains compared to global warming effects and the study of the georeferencing geodetic network on the Rwenzori mountains.

The research program focused about:

- Glacier retreat studies using a 3D laser scanning survey of the Speke glacier, that allowed to evaluate within 5-10 cm accuracy, by 3D model of the glacier front, the glacier's mass balance and the change of extension of frontal moraine;
- Materialization and survey of a geodetic network between the main peaks of the Rwenzori National Park.
- Realization of a GPS CORS (Continuously Operating Reference Stations) in the Makerere University – Department of Geography. The aim of this project is the realization of a GPS Permanent Station for the IGS (International GNSS Service) network.
- Meteorological studies about global warming by the installation of a lot of meteorological station around the Mount Speke and all around the park. The meteorological local model is developed by integration of meteo data and GIS based spatial evaluation.

This paper reports about first results about measurements on the glacier dynamics and the GPS and geodetic network

(of all the 6 main peaks of the Rwenzori Mountains) and the first of the evaluation on meteorological environment of Rwenzori Park as an example of global change effect. The future planned environmental and cooperation projects in the Rwenzori will also be presented.