



High altitude laser scanner and GPS measurements on Rwenzori, to analyse the glacier front of Speke glacier

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In June 2006 a scientific expedition moved to the Rwenzori mountains with the aim to study the glaciers of the area. In particular the researchers moved in the Rwenzori park with laser scanner and GPS double frequency receivers. The main task was to analyze the position and shape of the lower front of the Speke glacier and to measure the DTM of the lower valley to evaluate the volume of glacier melted in the area since the last aerial surveys carried on in the 50s. To carry on the study it was also necessary to establish a GPS geodetic network in the area that was used to place in cartography the 3D model obtain by laser scanning approach. The paper presents the main results of the survey and the estimated value of volume of ice lost by the Speke glacier and describes the topographic method applied by the researchers. In particular the DTM was obtained using a long distance terrestrial laser scanner and an high resolution digital camera. The 3D model represent not only the geometry of the glacier but contains also the image, so to represent a real 3D photorealistic-measurable model of the glacier. The GPS 2 cm accuracy survey allow to obtain a model with a global accuracy of 5-10 cm.