

## The first SHARE - Automatic Weather Station (AWS) in Africa, Mt. Rwenzori (Uganda).

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In the framework of SHARE (Stations at High Altitude for Research on the Environment) project of Ev-K2-CNR the first permanent Automatic Weather Station (AWS) has been installed in Uganda, on July 18, 2006 at 4,750 m asl in the western part of the Stanley Plateau, the biggest Ruwenzori glacial mass. It is located 50 meters far from the glacier front at 0° 22' 34.55" (Lat N) and 29° 52' 43.24" (Long E).

The set up of this AWS was carried out during a mountaineering-scientific expedition celebrating the 100<sup>th</sup> Anniversary of Mt. Ruwenzori (5,109 m asl) first ascent by an Italian-Ugandan team led by the explorer Luigi Amedeo di Savoia, Duke of Abruzzi. The commemorative expedition was carried out by the University of Brescia and the non-profit Association "Umana Dimora" with the participation of the Ev-K2-CNR Committee. The scientific objective of this expedition concerned observations and studies in the frame of glaciological and climate research programmes.

Glaciers in this area represent in fact the 50% of the African glacier surface and has shown an evident reduction of glacial mass from 1955 to 1990 of about 40% and less than a quarter of that measured by the Duke of the Abruzzi in 1906 (UNEP, WCMC, 2006). Because little or no accumulation of ice is occurring in this African area, at this rate snow and ice are predicted to disappear from the Ruwenzori Mountains within the next two to three decades (Taylor, 2003) creating big problems to water supplies for the local populations.

The AWS is now part of a network of three stations located in the Ruwenzori National Park characterized by an alpine highland of glaciers, snowfields and lakes with distinct vegetation zones, several endangered species and the richest mountain flora in Africa other than a very unusual cloud forest (UNEP, WCMC, 2006). This AWS is similar to the other Ev-K2-CNR AWSs already installed in the high altitude regions of Himalaya and Karakorum. They provide continuous measurements of the seven meteorological standard parameters of air temperature, relative humidity, wind speed and direction, atmospheric pressure, global solar radiation and total precipitation. In autumn and spring the high mountain climate is subjected to heavy precipitation, while winter and summer are very dry seasons. The collected information will contribute to better understanding the impacts of climate change on glaciers, related particularly in this case to one of the most important glacial system of the African Region. Meteo-climatic observations in this area are very important for the study of the environmental changes that are affecting this ecosystem, helping the scientific community to improve the prediction of the evolution of this environmental phenomena and modification.

The Ruwenzori observations will permit to study physical and dynamical processes at African high elevations in the framework of SHARE and GEWEX-CEOP HE programs to improve our understanding of variability and change in hydrological and energy cycles and their role in the climate system. Preliminary analysis of meteo-climatic observations at the Ruwenzori high elevation site are still in progress and a first general overview would be presented and discussed in this occasion.

Developing countries in Africa and Asia severely lack the required capacity such as physical infrastructure and human resources to address emerging environmental issues related to pollution phenomena and their interaction with climate change. There is a need to develop the science and build the capacity of developing countries on monitoring, impact assessment, adaptation and mitigation. For these reasons as part of SHARE capacity building structure and in order to support the scientific and technological research programs, collaborations with local Institutions and Research Structures are being defined, in particular with the Uganda Meteorological Department (UMD) and the Uganda Wildlife Authority (UWA).

UNEP, WCMC, RWENZORI MOUNTAINS NATIONAL PARK UGANDA, March 2006

Taylor, R. (2003). Climate Change and the Aquatic Ecosystems of the Ruwenzori Mountains, Uganda. Expedition to the Ruwenzori interim report summary. Dept. of Geography, University College, London.

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