Geophysical Research Abstracts
Vol. 15, EGU2013-8408, 2013
EGU General Assembly 2013

Climate change and glacier retreat from 1955 to 2006 on Cilo Mountains, Southeast Anatolia, Turkey

Serdar Yeşilyurt (1), Uğur Doğan (2), and Hatice Kılar (3)

(1) Çankırı Karatekin University, Department of Geography, Çankırı, Turkey (serdar_yesilyurt@yahoo.com) , (2) Ankara University, Department of Geography, Ankara, Turkey (geoankara@gmail.com) , (3) Sakarya University, Department of Geography, Sakarya, Turkey (kilar_hatice@yahoo.com)

Alpine glaciers are amongst key indicators of global-scale climate changes because of their natural dynamics and quick response to global warming. Although there is vast number of studies on recent glaciers of the world, less attention has been paid to the glaciers of Turkey and the Middle East. In the present study, present glaciers of Cilo Mountains (4135 m) located in Southeast Anatolia, one of the most important recent glacier areas of Turkey, is dealt with within the context of the impacts of climatic changes on glaciers. Based on aerial photographs taken in 1955, 1968 and 1988 together with Quickbird satellite images taken in 2006, four main stages were examined using remote sensing and GIS technologies. The paleo-glacier cover of the Last Glacial age (most likely the Last Glacial Maximum) on the Cilo Range was about 100 km^2 in area as compared to the actual glaciers found in the three valley system around Uludoruk summit with an area of only 5.6 km^2. Actual glacier have retreated between 100 and 360 m in the period from 1955 to 2006. According to elevation, thickness-mass characteristics of the glaciers and geomorphic conditions of their cirques, retreat rates were found to be between 2 and 7 m/yr. The ages of young terminal moraines were also calculated on the basis of annual decline rates of these glaciers. Consequently, the oldest moraines should have probably been deposited between 1850 and 1870 matching end of the Little Ice Age. This age is compatible with the glacier retreat of the European Alps. We determined a warming trend both in summer temperatures and annual averages based on data from three meteorological stations located in the vicinity of this mountain area.

Keywords: Cilo Mountains, actual glacier, glacier retreat, climate change, Little Ace Age, Turkey