



Climate Impacts on the Aerial Extent of Glaciers on Kilimanjaro

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Observations have shown that the aerial extent of the ice fields on Kilimanjaro have been severely reduced over the last 100 years and appear likely to soon disappear from the mountain. To further investigate this observed glacial recession high spatial resolution multispectral satellite data from Quickbird are used to determine the aerial extent of the remaining ice fields on Kilimanjaro. While the aerial extent of the glaciers generated from an unsupervised classification procedure using the Quickbird data show that the remaining ice regions are still in decline, the rate of decline has decreased and is not linear as has been previously suggested. Importantly, the rates of recession of glaciers below the plateau (<5700 m) compared to the top of the mountain are different. The implications of the observed differences in retreat of the remaining ice bodies in the context of climate change on Kilimanjaro, supported by in situ data and larger scale data sets, will be described. In particular, the relative roles of air temperature, air humidity, precipitation, cloudiness and incoming shortwave radiation on glacier retreat will be examined. Predictions of when Kilimanjaro will be ice free and implications of this with respect to surrounding regions will be discussed.