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## **Regional Climate Change in the Tropics: Kilimanjaro Glaciers and other Proxy Data versus Global Climate Model Results**

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Several different sources of proxy data indicate that the main change in modern East African climate has occured in the moisture regime. This change appeared as an aprupt shift from wetter to drier conditions in the late 19th century, most obvious through decreases in precipiation amount (and frequency). Glacier behavior in the three glacierized massifs of East Africa (Rwenzori, Mount Kenya, Kilimanjaro) provides one important proxy source which shows these changes. Further, records of lake levels and accounts of circulation indices support the moisture drop and ensuing drier conditions. Here, precipitation trends derived from lakes and glacier behavior are compared to modern records (1850-2000) extracted from NCAR's Community Climate System Model 3.0 (CCSM3), a general circulation model. This comparison is done with a special view on the glaciers of Kilimanjaro and their value as indicators of recent-past and current climate. Results are analyzed in the content of (1) what the IPCC calls the 'regional climate problem', and (2) the interaction of different meteorological and climatological scales that determine local and regional climate. To clarify the latter, an idealized experiment with a regional atmospheric model demonstrates how in-situ measurements on the Kilimanjaro glaciers may serve as basis for larger-scale analyses of climate.