

Equilibrium

[Science](#), [Chemistry](#)



Equilibrium Fujita and Nuimura (14011-14014) present in their article the results of estimation of changes in three benchmark glaciers in the Nepal Himalayas. The energy-mass balance model was used for the analysis of the processes, which affect the shrinkage of glaciers. This approach includes calculation of the radiance balance (heat fluxes, heat conduction) and mass balance (freezing, snow accumulation, melt, evaporation) for the three chosen glaciers in Nepal. It was found that the glaciers in the humid areas show the increased mass wastage comparing 1970-1990s. The glacier in the arid areas shows the suppression of mass wastage in the last decade. Apart from mass balance and energy balance, the analysis of equilibrium line altitude (ELA) was applied. The calculation shows that ELA position tends to ascend for the glaciers in the humid areas and descends for the glaciers in the arid areas in the last decade. The main explanation for the higher wastage rates of the glaciers in the humid areas is the changes in precipitation balance from snow to rainfall. The glacier in the arid area is less dependent on the precipitation and its wastage rate may decrease. The balance between mass of water in solid phase (ice, snow) and mass of water in liquid and gaseous phases at the certain location was used to predict the glacier wastage. If the balance is negative, the glacier will not exist at this location. If the balance is positive, the glacier will exist at this location. The ELA is the location where equilibrium of the mass transfer from solid phase to liquid (gaseous) phase and vice versa occurs. Thus, the trend in change of equilibrium line altitude will be the indicator of the glacier's wastage. The concept of equilibrium between phases was used in the estimation of ELA in this study.

Works cited

Fujita, Koji and Nuimura, Takayuki. " Spatially heterogeneous wastage of Himalayan glaciers." Proceedings of the National Academy of Sciences 108. 34 (2011): 14011-14014. Print.