



## **A New Attempt of 2-D Numerical Ice Flow Model to Reconstruct Paleoclimate from Mountain Glaciers**

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A new two dimensional (2D) numerical ice flow model is generated to simulate the steady-state glacier extent for a wide range of climate conditions. The simulation includes the flow of ice enforced by the annual mass balance gradient of a valley glacier. The annual mass balance is calculated by the difference of the net accumulation and ablation of snow and (or) ice. The generated model lets users to compare the simulated and field observed ice extent of paleoglaciers. As a result, model results provide the conditions about the past climates since simulated ice extent is a function of predefined climatic conditions. To predict the glacier shape and distribution in two dimension, time dependent partial differential equation (PDE) is solved. Thus, a 2D glacier flow model code is constructed in MATLAB and a finite difference method is used to solve this equation. On the other hand, Parallel Ice Sheet Model (PISM) is used to regenerate paleoglaciers in the same area where the MATLAB code is applied. We chose the Mount Dedegöl, an extensively glaciated mountain in SW Turkey, to apply both models. Model results will be presented and discussed in this presentation. This study was supported by TÜBİTAK 114Y548 project.