

Abstract

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a numerical investigation of double-diffusive laminar mixed convection in an inclined cavity has been studied numerically. the top lid was considered to move in both directions to introduce the forced convection effect. in addition, the solutal thermal buoyancy forces are sustained by maintaining the top lid the bottom surface at uniform temperatures concentrations, but their values for the top lid are higher than the bottom surface. the laminar flow regime is considered under steady state conditions. moreover, the transport equations for continuity, momentum, energy mass transfer are solved. the streamlines, isotherms isoconcentrations as well as both local average nusselt sherwood numbers were studied for the hot lid. the effects of inclination of the cavity on the flow, thermal mass fields are investigated for inclination angles ranging from 0° to 30° . the study covers a wide range for $0.1 \leq l \leq 10$ and $10 \leq n \leq 10$. through this investigation, the following parameters are kept constant: the aspect ratio at 10, prandtl number at 6 representing water. a comparison was made with published results a good agreement was found.