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 solutalthermal buoyancy forces are sustained by maintaining the top lidthe bottom surface at uniform temperaturesconcentrations, 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, energymass transfer are solved. the streamlines, isothermsisoconcentrations as well as both localaverage nusseltsherwood numbers were studied for the hot lid. the effects of inclination of the cavity on the flow, thermalmass fields are investigated for inclination angles ranging from 0° to 30°. the study covers a wide range for 0.1 ? le ? 10-10 ? n ? 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 resultsa good agreement was found.