Abstract

Natural convection heat transfer through a fluid-saturated porous media in inclined cylindrical enclosure was investigated experimentally and numerically in the present work. Numerical solution of the governing equations was made with the appropriate boundary conditions by using a CFD code FLUENT (fluid flow) 6.3.26. The experimental tests were carried out for inclination angles (0°, 25°, 50°, 70°, and 90°) at period ranges (10, 22, 50, and 90 min) and amplitude (500, 1000, 1500, and 2000 W/m²). The Results indicate an increase in the heat transfer with increasing of Rayleigh number, time, amplitude, period and angle of inclination from the horizontal position. Theoretical predications agree well with experimental results.

References

- Taofik, A., Slimi, K., and Nasrallah, S. B. 1999; Free Convection in a Vertical Cylinder

Index Terms

Computer Science  Applied Sciences

Keywords

Heat transfer Natural Convection; Cylindrical Enclosure; Porous Media; Periodic Heat flux Variation