

عنوان مقاله:

Numerical Prediction of Time Dependent Temperature Distribution inside a Solar Greenhouse

محل انتشار:

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خلاصه مقاله:

Computational fluid dynamics plays a significant role in simulating the climatic conditions within the greenhouse. In this work, the temperature distribution inside a solar greenhouse is predicted in Makran (latitude: 25.3054°N and longitude: 60.6411°E) by using ANSYS Fluent at different times. The numerical model takes into account all of the heat transfer mechanisms including the convection, radiation and conduction into and out of the greenhouse for validation purpose. The continuity, Navier-Stokes and energy equations are solved on unstructured grid. SIMPLE method is used for pressure-velocity coupling. The surface to surface model is utilized to model the thermal radiation heat transfer between surfaces inside the greenhouse. The results show a good agreement between the numerical result and experiments and the ability of presented method

کلمات کلیدی:

temperature distribution, solar greenhouse, computational fluid dynamics, surface to surface model

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