Evaluating and Modeling of Parabolic Solar Cooker by RSM

The present paper has dealt with two stages. In the first, an experimental set up of the parabolic cooker with direct use has been made-up and studied at Renewable Energy Research Center-University of Anbar. Based on experimental results, statistical studies by using Response Surface Methodology (RSM) have been done to identify the optimum influential parameters and estimate mathematical temperature model. In this study, parabolic collector parameters that can effect on the Parabolic Collector efficiency are studied in more details. Six amounts of water are used for measuring the increasing of temperature relative to the measuring time. Parabolic Collector parameters are optimized with the consideration of single-response; temperature of the working fluid (in terms of water). The achieved experimental results are analyses by the desirability functional analysis DFA approach, and optimal levels of input factors have been distinguished. ANOVA also has been utilized to recognize the assurance of powerful factors on the response.