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CERTIFICATE OF PARTICIPATION

The Organizing Committee of the Second National Conference on Physics and its Applications
(20 Novembre 2025) is pleased to award this certificate to :
Badis BAKRI

in recognition of his active participation in the conference with an poster presentation
entitled: " Machine Learning-Based Prediction of Solar Irradiation Using a Response
Surface Model "

Co-author: Oussama GHERMOUL, Hani BENGUESSA



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THE 2nd NATIONAL CONFERENCE ON PHYSICS AND IT'S APPLICATIONS

BOUSAADA, 20th November 2025

Machine Learning-Based Prediction of Solar Irradiation Using a Response Surface Model

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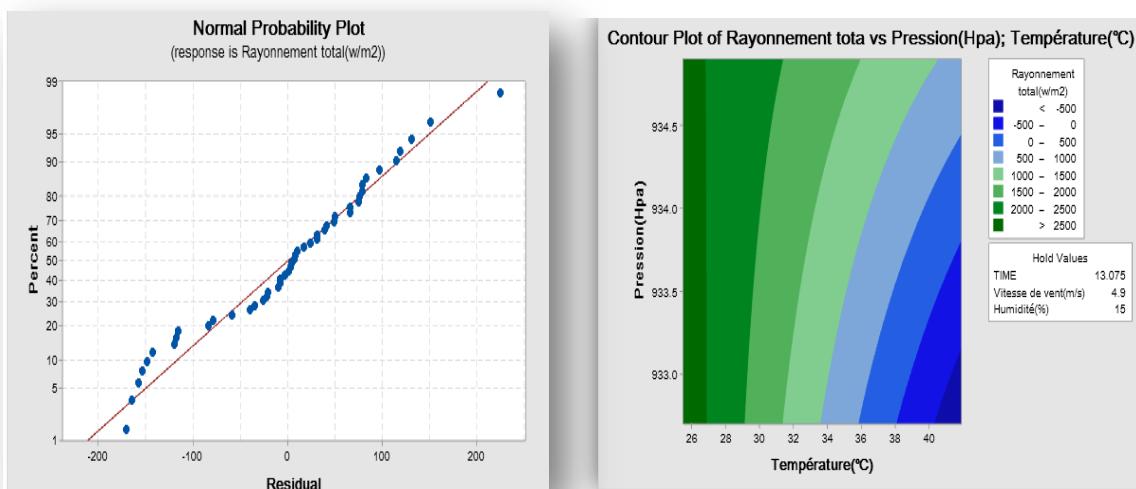
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Abstract

The global energy sector is at a pivotal point, driven by increasing consumption in developed and developing countries. The growing demand hastens the depletion of finite natural resources and poses a significant threat to energy security and environmental persistence in the future. In this context, gaining access to a reliable energy supply represents a key criterion for development, and renewable sources, such as solar energy, become increasingly important as part of any strategic initiative. In this paper, we discuss this issue by producing a predictive model for solar energy potential for the geographical region of M'sila. The model is based on real meteorological data to represent the heuristics made by a Response Surface Methodology. We find that the results are sufficient to validate the use of this technique, and to represent its suitability and advantages for this specific purpose.

Keywords: Prediction; Solar Energy; Response Surface Methodology (RSM)



Graphical abstract

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