Referee Report for Mirones et al., 2025 (Deep Learning Emulation of Multivariate Climate Indices: A Case Study of the Fire Weather Index in the Iberian Peninsula)

This article demonstrates the use of three deep learning architectures to emulated Fire Weather Index (FWI), namely a Fully Connected Dense (FCD), a DeepESD and a UNET model. The models are trained on weather variables relevant to the computation of FWI in order to issue 12UTC FWI predictions. The authors pay special attention to understand the relevance of the variables used in training the models by estimating the prediction importances. A key finding in this regard is the insignificance of daily accumulated precipitation in estimating FWI. I look forward to the deployment of (a) future version(s) of these model(s) in forecasting FWIs.

I thoroughly enjoyed reviewing this article as it is well structured and clearly written. The authors also clearly and thoroughly answered all concerns and queries from the first round of reviews and have incorporated the suggestions in the manuscript where necessary. Therefore, I recommend the article in its present form to be accepted as is.