

**Referee's comments for "Deep learning for non-precipitation radar echo identification: Comparative evaluation of polarimetric, spatial, and temporal information", by Rongze Yang, Chaoshi Wei, Xiang Pan, Kun Zhao, Jie Ming, Chen Lu, Haotian Tan, Wenxuan Zhao, Hao Huang**

This manuscript presents a comparison between deep-learning approaches (a pointwise multilayer perceptron and a Transformer-based Swin U-Net that explicitly learns spatial context) to identify non-precipitating echoes in weather radar observations. They prove that the best performance is achieved by combining architectures that effectively exploit spatial context (Swin U-Net) with richer information sources (dual-polarization and short-term temporal evolution). The subject is appropriate for AMT and I suggest minor revisions, that should be very easy to address.

**Specific comments:**

Line 32: Please briefly specify the meaning of "a high-confidence test subset".

Line 113: Please specify the time interval between the "two consecutive scans".

Lines 43 and 48: Cite the references appropriately.

Line 197: "echoes with  $\rho_{hv}$  lower than 0.85" and other thresholds are derived from Huang et al. (2023) and Huang et al. (2018), is that correct?

Line 219: Please check the figure caption.

Line 229-230: "we manually collected high-quality samples from the initial rule-based NPE identification results to build the training dataset". Do you mean that the samples were all manually inspected? If yes, replace "collected" with "inspected".

Line 437: Correct "filed" with "field".

Line 440: Correct "Scatterers" with "scatterers".

Line 503: Correct "Temporal" with "temporal".