Comparison between the datasets with and without Magnetic perturbation

A training on the two datasets with 10 repetitions and 50 epochs per fit shows the following:

Mean values for Loss, Accuracy, and Precision show much better performance of the model in presence of Magnetic Perturbation whereas in case of recall the gap is not as large. In other words, application of magnetic perturbation helps with the prediction, specially in the cases with no crash.

50 epochs is where the model has surely converged and 10 repetitions is required to get a reliable result for the mean values.

The average values for each study are given in the table below.

Magnetic perturbation	Applied	Not applied
Accuracy	77.9%	71.9%
Recall	89.1%	86%
Precision	10%	6.2%

The studies were done in the following setting and hyper-parameters:

Training window length : 320T_alfven
Prediction time delay : 100T_alfven
Prediction window length : 20T_alfven

head_size = 256
num_heads = 1
ff_dim = 16
Kernel_size = 3
num_transformer_blocks = 1
No dense layers
dropout = 0.1
activation function = ReLu