

# MLP Multi-output Forecast Report - 西条

Prefecture code	38
Station code	38206050
Station name	西条
Target item	Ox(ppm)
Model	MLP (Feedforward NN)
Horizon	24
Lag	24
Hidden size	128
Layers	3
Dropout	0.1
Batch size	128
Learning rate	0.0005
Epochs	200
Patience	10
R <sup>2</sup> (t+1)	0.78887
MAE (t+1)	0.007155
RMSE (t+1)	0.009448
Residual mean	-0.000735
Residual median	-0.001039
Residual mode	-0.002329

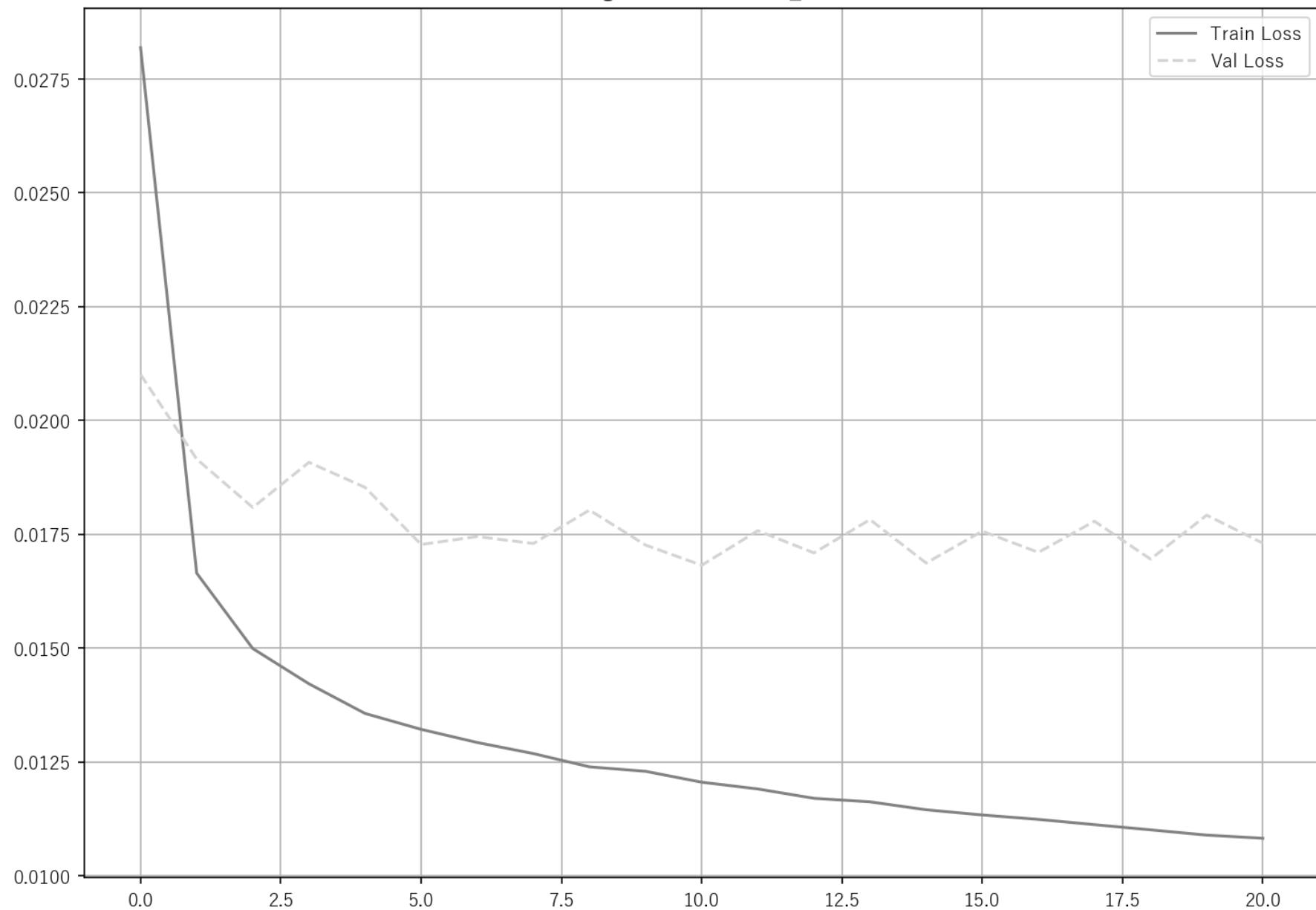
## Features used for prediction

NO(ppm)	NO2(ppm)	U	V	OX(ppm)_roll_mean_3
OX(ppm)_roll_std_6	NO(ppm)_roll_mean_3	NO(ppm)_roll_std_6	NO2(ppm)_roll_mean_3	NO2(ppm)_roll_std_6
U_roll_mean_3	U_roll_std_6	V_roll_mean_3	V_roll_std_6	OX(ppm)_diff_1
OX(ppm)_diff_3	NO(ppm)_diff_1	NO(ppm)_diff_3	NO2(ppm)_diff_1	NO2(ppm)_diff_3
U_diff_1	U_diff_3	V_diff_1	V_diff_3	hour_sin
hour_cos	dayofweek	is_weekend		

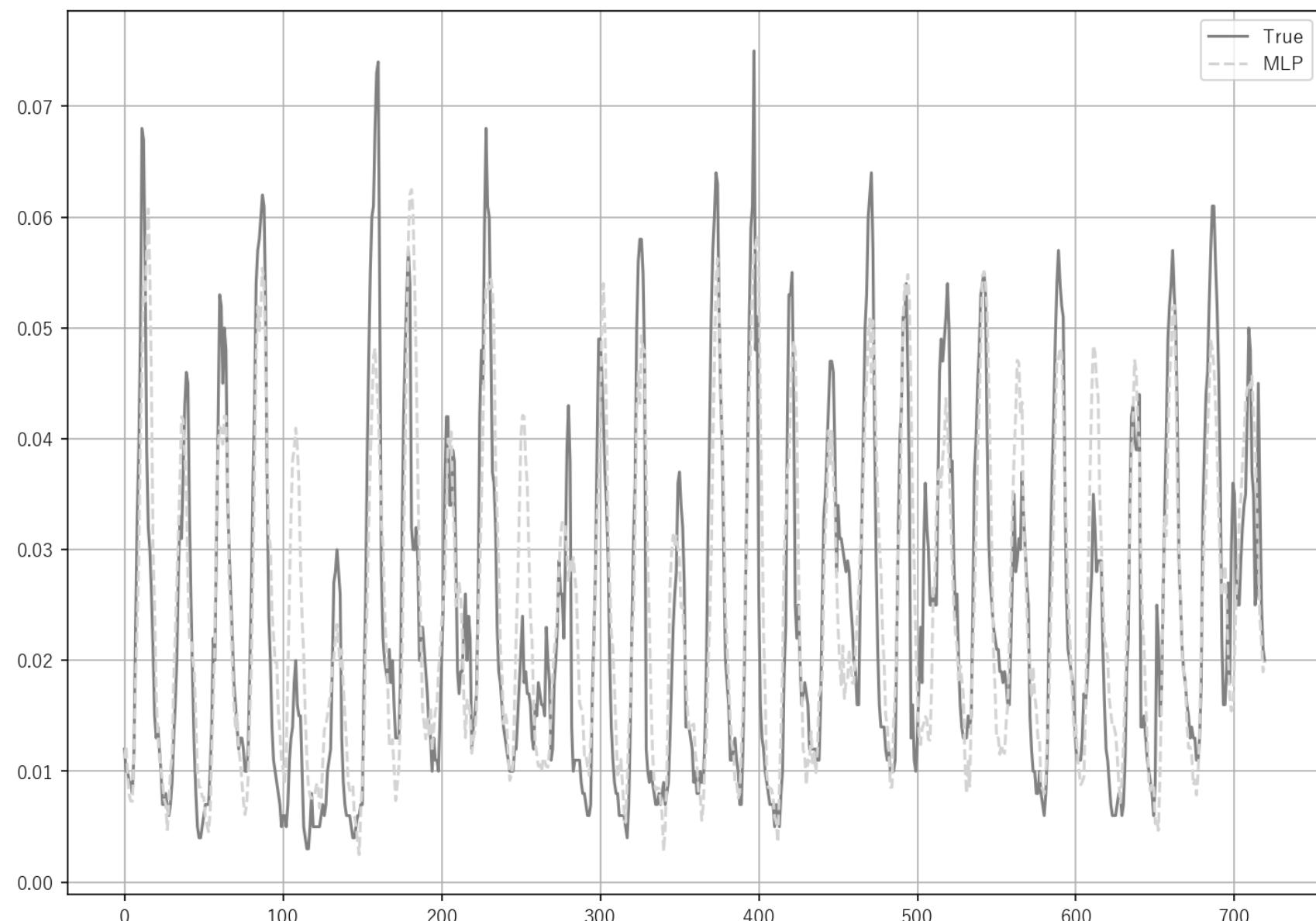
## Model accuracy

Target	R <sup>2</sup>	MAE	RMSE
Ox(ppm)	0.7889	0.0072	0.0094

MLP Learning Curve – Best val\_loss: 0.01682



MLP Forecast (t+1)  
 $R^2: 0.78887$



Residual Distribution

