

泉川 - オキシダント予測の分析

Model Parameters:
Prefecture code: 38
Station code: 38205090
Station name: 泉川
Target item: Ox(ppm)
Number of data points in the train set: 13684
Number of data points in the test set: 5865
Forecast horizon (hours): 24
Model: LightGBM
Objective: regression
Boosting type: gbd
Number of estimators: 400
Learning rate: 0.04
Elapsed time: 0 min 22 sec
Number of used features: 140

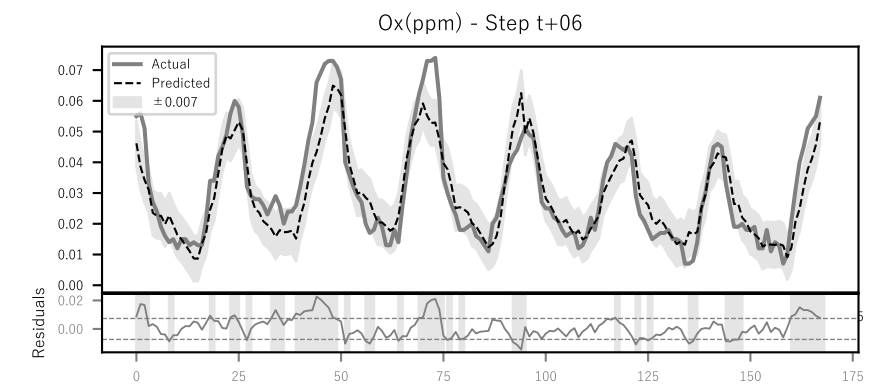
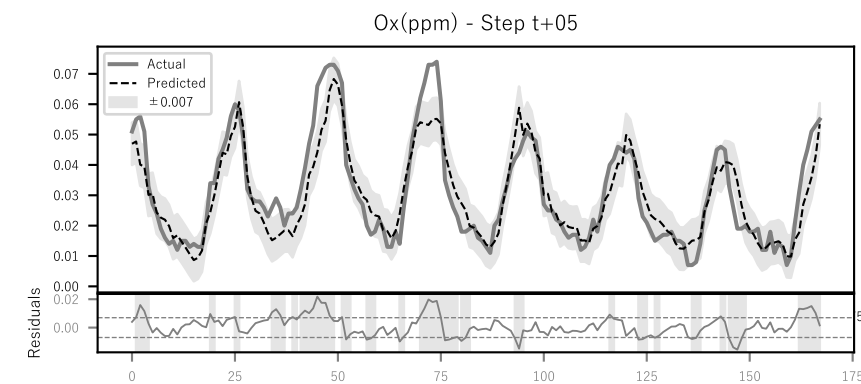
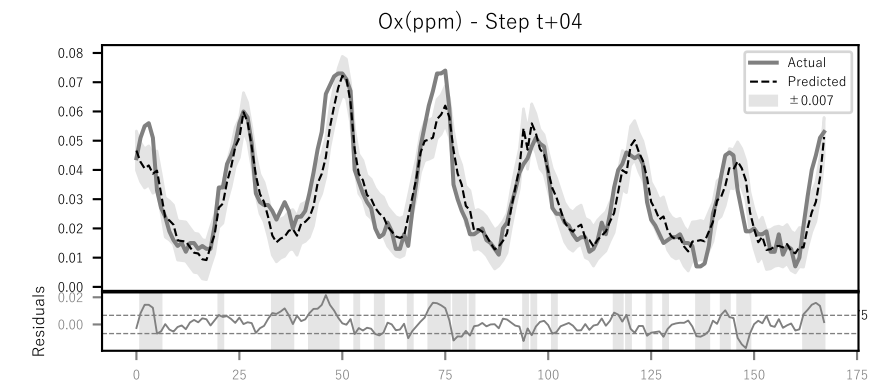
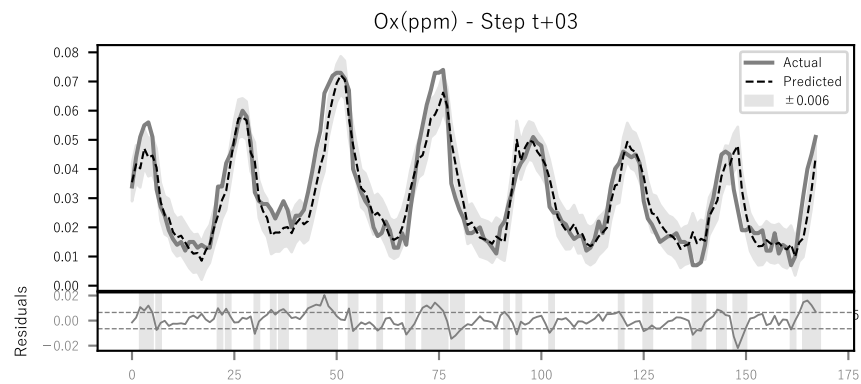
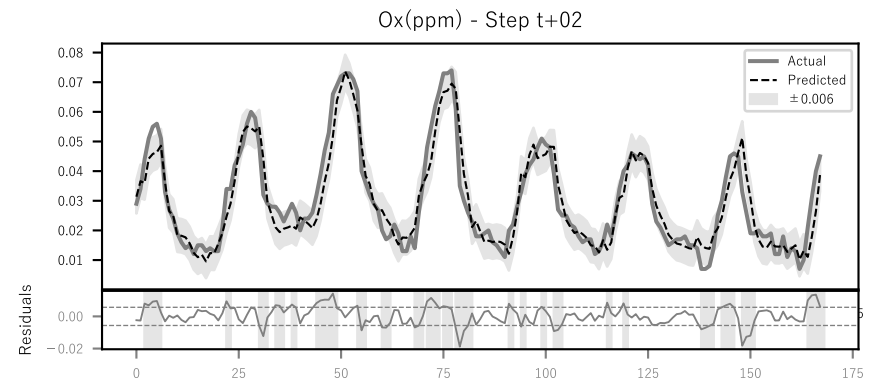
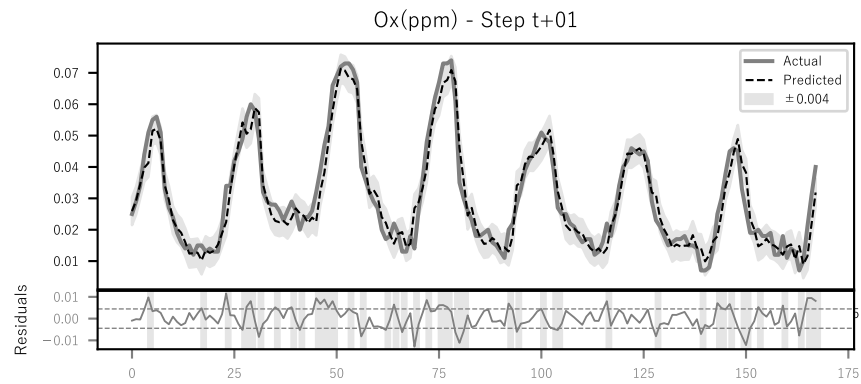
Features:

NO(ppm), NO2(ppm), U, V, Ox(ppm)_lag1
Ox(ppm)_lag2, Ox(ppm)_lag3, Ox(ppm)_lag4, Ox(ppm)_lag5, Ox(ppm)_lag6
Ox(ppm)_lag7, Ox(ppm)_lag8, Ox(ppm)_lag9, Ox(ppm)_lag10, Ox(ppm)_lag11
Ox(ppm)_lag12, Ox(ppm)_lag13, Ox(ppm)_lag14, Ox(ppm)_lag15, Ox(ppm)_lag16
Ox(ppm)_lag17, Ox(ppm)_lag18, Ox(ppm)_lag19, Ox(ppm)_lag20, Ox(ppm)_lag21
Ox(ppm)_lag22, Ox(ppm)_lag23, NO(ppm)_lag1, NO(ppm)_lag2, NO(ppm)_lag3
NO(ppm)_lag4, NO(ppm)_lag5, NO(ppm)_lag6, NO(ppm)_lag7, NO(ppm)_lag8
NO(ppm)_lag9, NO(ppm)_lag10, NO(ppm)_lag11, NO(ppm)_lag12, NO(ppm)_lag13
NO(ppm)_lag14, NO(ppm)_lag15, NO(ppm)_lag16, NO(ppm)_lag17, NO(ppm)_lag18
NO(ppm)_lag19, NO(ppm)_lag20, NO(ppm)_lag21, NO(ppm)_lag22, NO(ppm)_lag23
NO2(ppm)_lag1, NO2(ppm)_lag2, NO2(ppm)_lag3, NO2(ppm)_lag4, NO2(ppm)_lag5
NO2(ppm)_lag6, NO2(ppm)_lag7, NO2(ppm)_lag8, NO2(ppm)_lag9, NO2(ppm)_lag10
NO2(ppm)_lag11, NO2(ppm)_lag12, NO2(ppm)_lag13, NO2(ppm)_lag14, NO2(ppm)_lag15
NO2(ppm)_lag16, NO2(ppm)_lag17, NO2(ppm)_lag18, NO2(ppm)_lag19, NO2(ppm)_lag20
NO2(ppm)_lag21, NO2(ppm)_lag22, NO2(ppm)_lag23, U_lag1, U_lag2
U_lag3, U_lag4, U_lag5, U_lag6, U_lag7
U_lag8, U_lag9, U_lag10, U_lag11, U_lag12
U_lag13, U_lag14, U_lag15, U_lag16, U_lag17
U_lag18, U_lag19, U_lag20, U_lag21, U_lag22
U_lag23, V_lag1, V_lag2, V_lag3, V_lag4
V_lag5, V_lag6, V_lag7, V_lag8, V_lag9
V_lag10, V_lag11, V_lag12, V_lag13, V_lag14
V_lag15, V_lag16, V_lag17, V_lag18, V_lag19
V_lag20, V_lag21, V_lag22, V_lag23, 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_2, Ox(ppm)_diff_3, NO(ppm)_diff_3, NO2(ppm)_diff_3, U_diff_3
V_diff_3, hour_sin, hour_cos, dayofweek, is_weekend

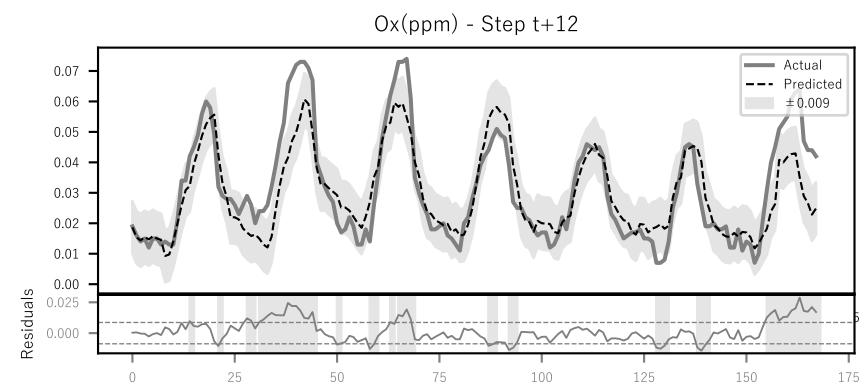
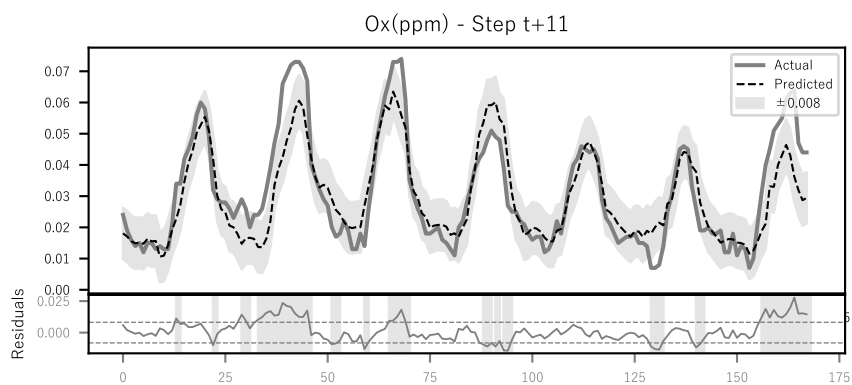
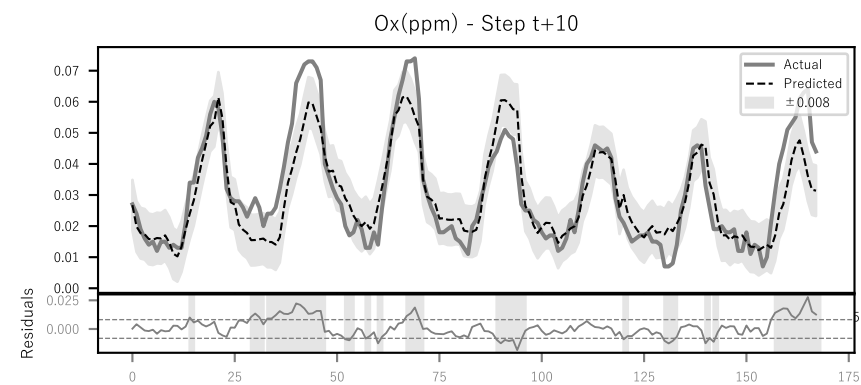
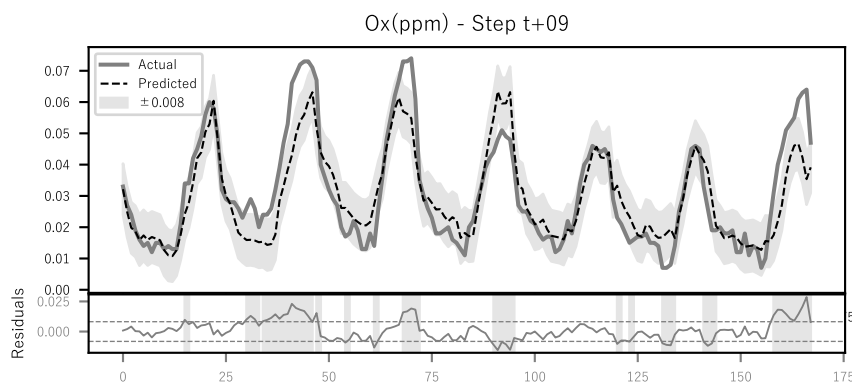
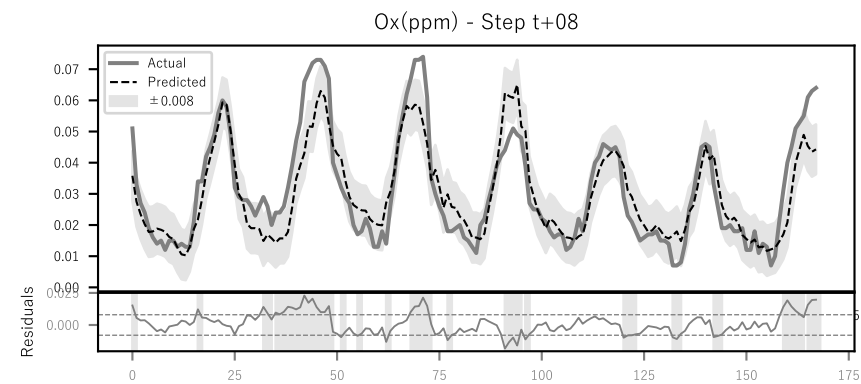
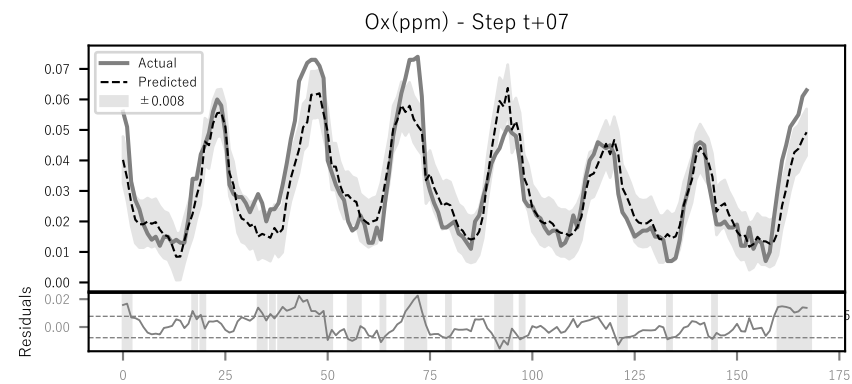
Metrics per Forecast Step:

Ox(ppm)_t+01 - R²: 0.8941, MAE: 0.0038, RMSE: 0.0052
Ox(ppm)_t+02 - R²: 0.8238, MAE: 0.0050, RMSE: 0.0067
Ox(ppm)_t+03 - R²: 0.7688, MAE: 0.0058, RMSE: 0.0077
Ox(ppm)_t+04 - R²: 0.7166, MAE: 0.0065, RMSE: 0.0085
Ox(ppm)_t+05 - R²: 0.6763, MAE: 0.0069, RMSE: 0.0091
Ox(ppm)_t+06 - R²: 0.6389, MAE: 0.0073, RMSE: 0.0096
Ox(ppm)_t+07 - R²: 0.6043, MAE: 0.0076, RMSE: 0.0100
Ox(ppm)_t+08 - R²: 0.5907, MAE: 0.0078, RMSE: 0.0102
Ox(ppm)_t+09 - R²: 0.5724, MAE: 0.0080, RMSE: 0.0104
Ox(ppm)_t+10 - R²: 0.5557, MAE: 0.0082, RMSE: 0.0106
Ox(ppm)_t+11 - R²: 0.5383, MAE: 0.0083, RMSE: 0.0108
Ox(ppm)_t+12 - R²: 0.5123, MAE: 0.0086, RMSE: 0.0111
Ox(ppm)_t+13 - R²: 0.4912, MAE: 0.0087, RMSE: 0.0114
Ox(ppm)_t+14 - R²: 0.4769, MAE: 0.0088, RMSE: 0.0115
Ox(ppm)_t+15 - R²: 0.4647, MAE: 0.0089, RMSE: 0.0117
Ox(ppm)_t+16 - R²: 0.4653, MAE: 0.0089, RMSE: 0.0117
Ox(ppm)_t+17 - R²: 0.4559, MAE: 0.0090, RMSE: 0.0118
Ox(ppm)_t+18 - R²: 0.4484, MAE: 0.0090, RMSE: 0.0118
Ox(ppm)_t+19 - R²: 0.4330, MAE: 0.0091, RMSE: 0.0120
Ox(ppm)_t+20 - R²: 0.4409, MAE: 0.0091, RMSE: 0.0119
Ox(ppm)_t+21 - R²: 0.4347, MAE: 0.0091, RMSE: 0.0120
Ox(ppm)_t+22 - R²: 0.4346, MAE: 0.0091, RMSE: 0.0120
Ox(ppm)_t+23 - R²: 0.4426, MAE: 0.0091, RMSE: 0.0119
Ox(ppm)_t+24 - R²: 0.4350, MAE: 0.0092, RMSE: 0.0120

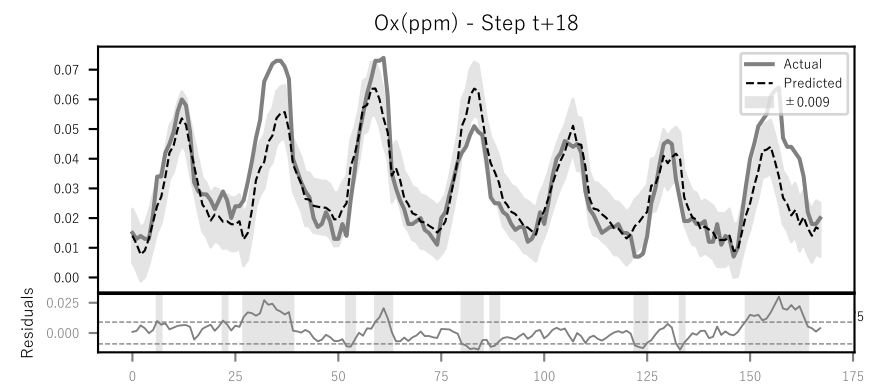
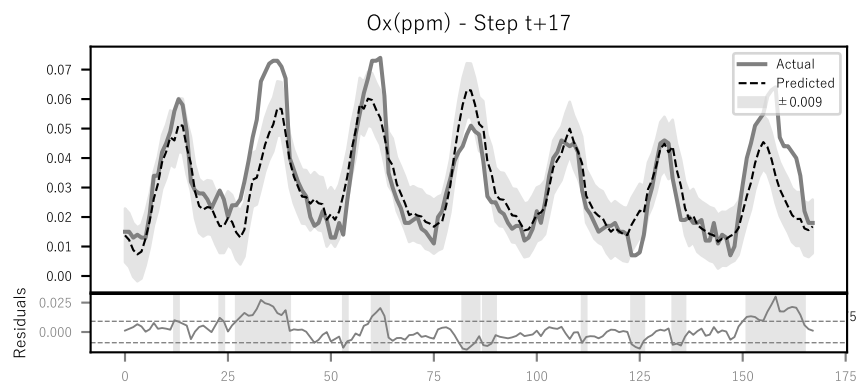
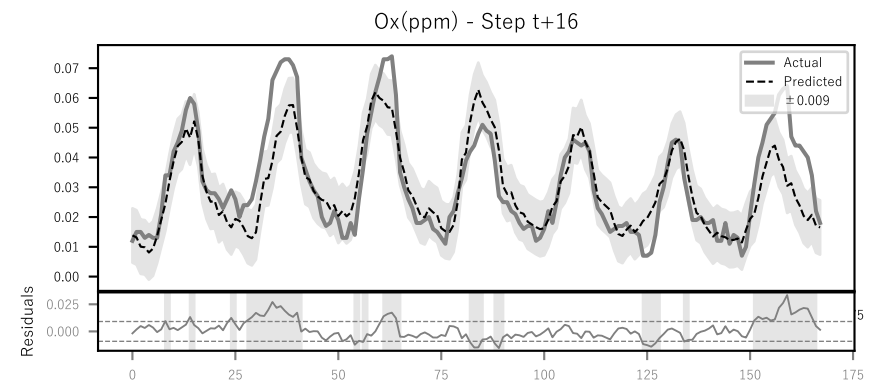
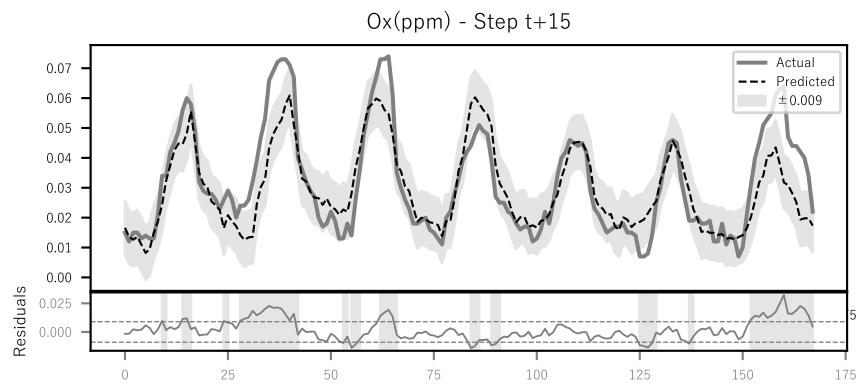
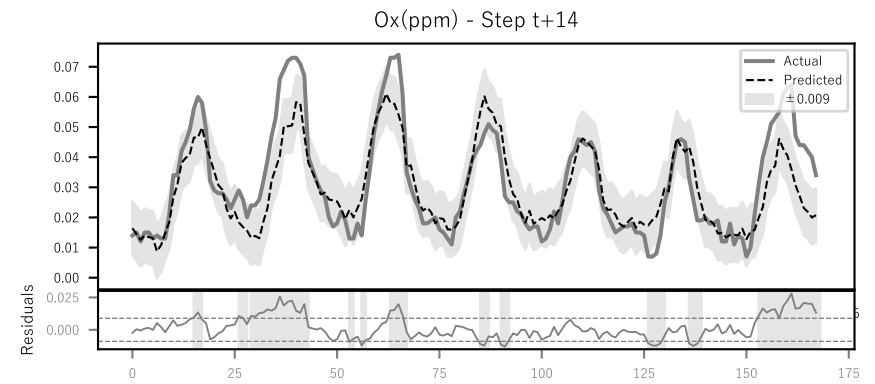
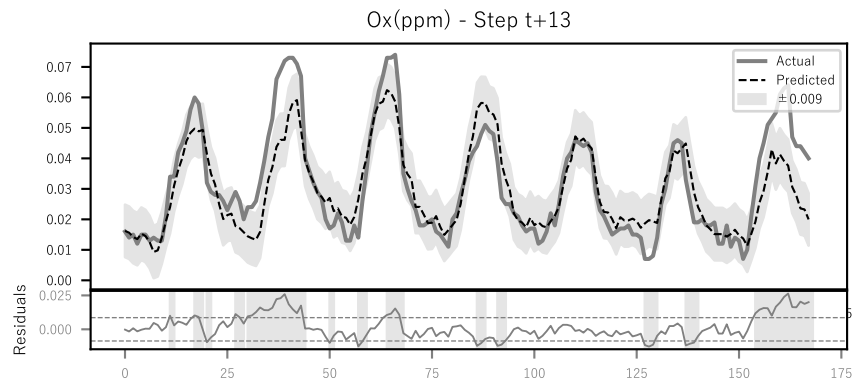
Comparison between actual and predicted values
with \pm Standard Deviation Bands



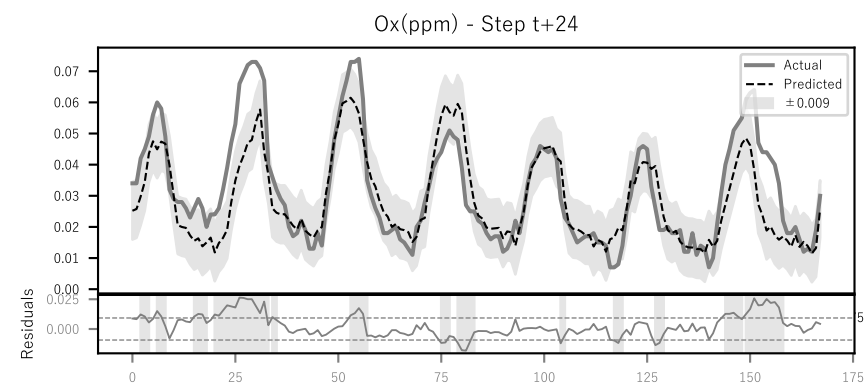
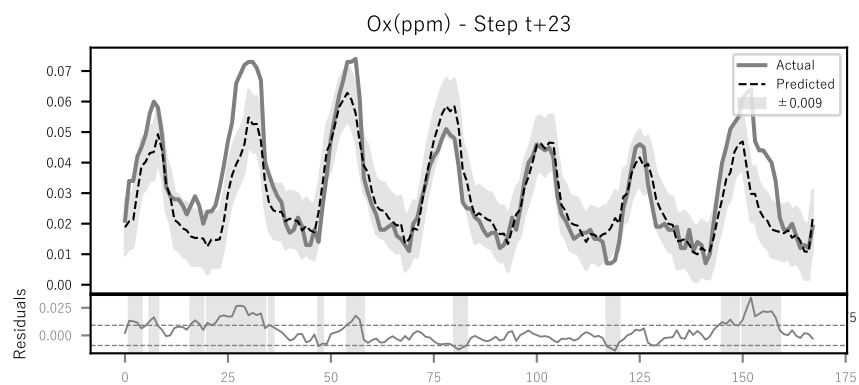
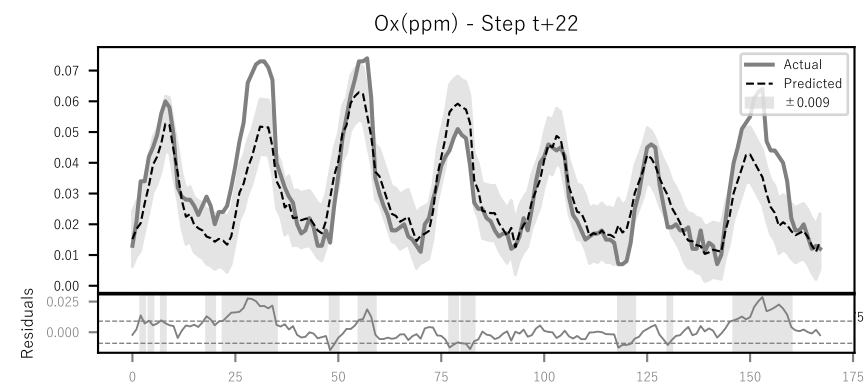
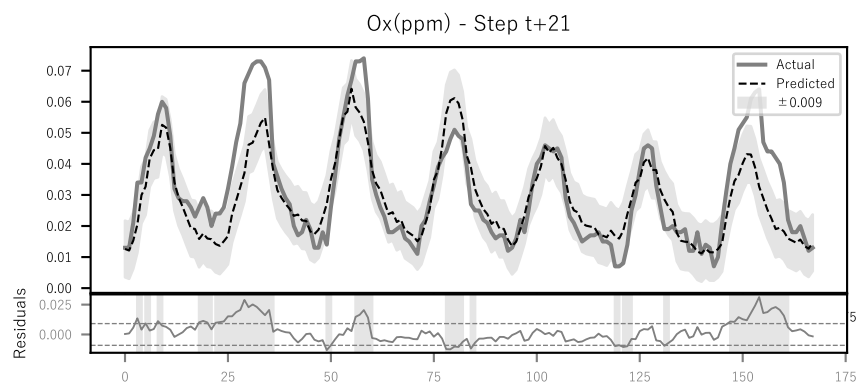
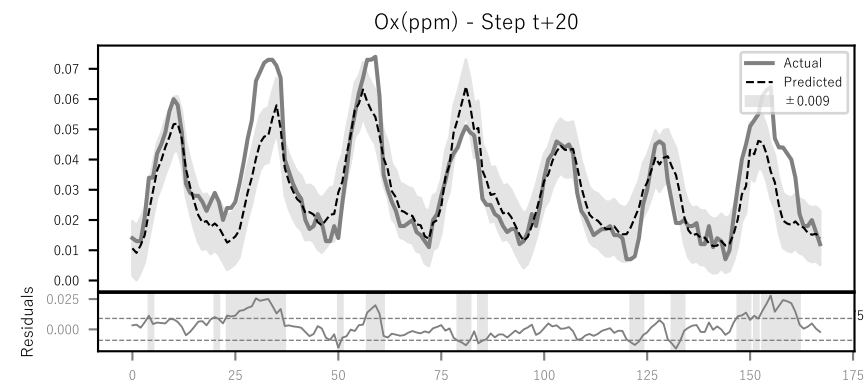
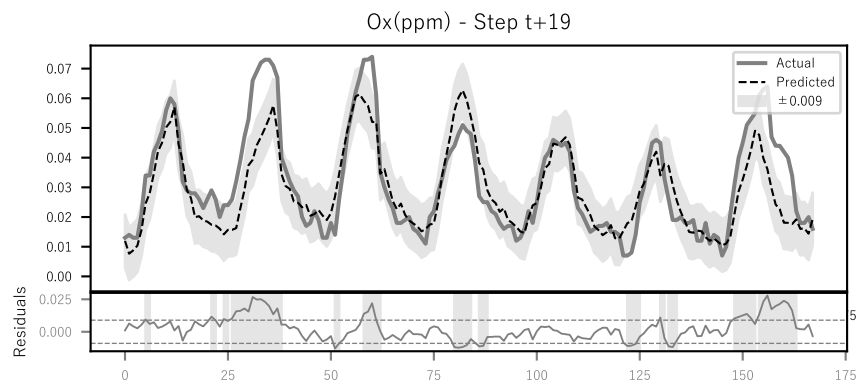
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MAE, RMSE, and R² for each Forecast Step