

垣生小学校 - オキシダント予測の分析

Model Parameters:
Prefecture code: 38
Station code: 38201090
Station name: 垣生小学校
Target item: Ox(ppm)
Number of data points in the train set: 13463
Number of data points in the test set: 5770
Forecast horizon (hours): 24
Model: LightGBM
Objective: regression
Boosting type: gbdt
Number of estimators: 400
Learning rate: 0.04
Elapsed time: 0 min 25 sec
Number of used features: 140

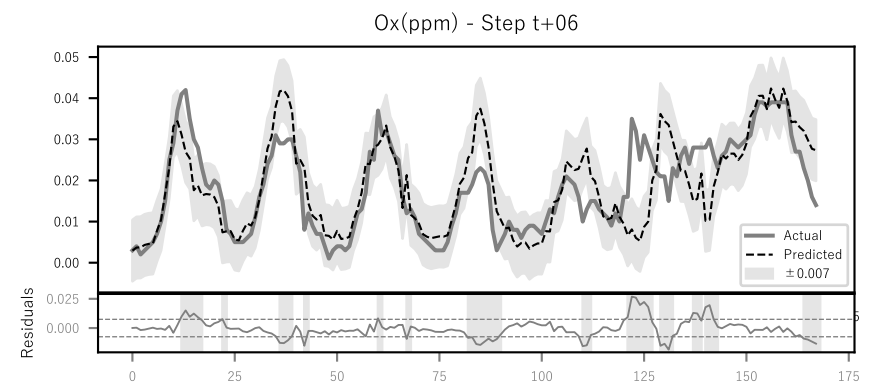
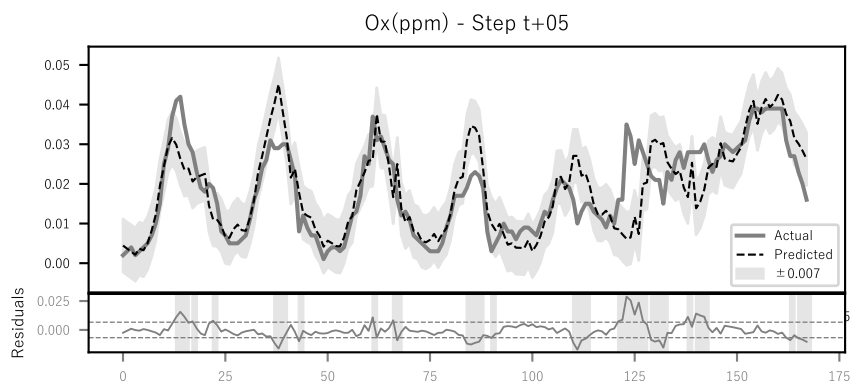
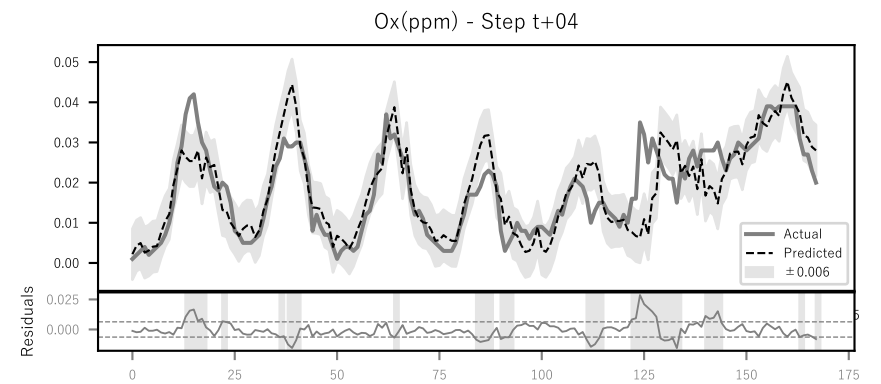
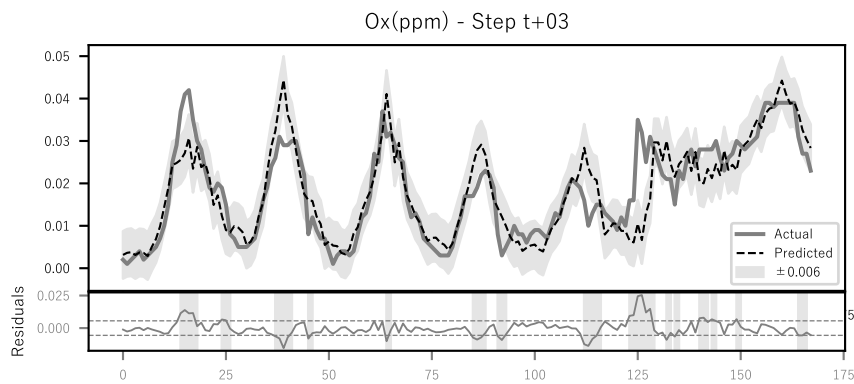
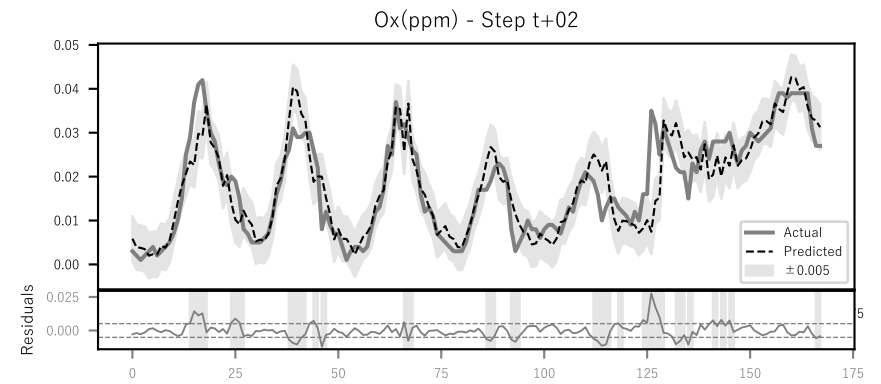
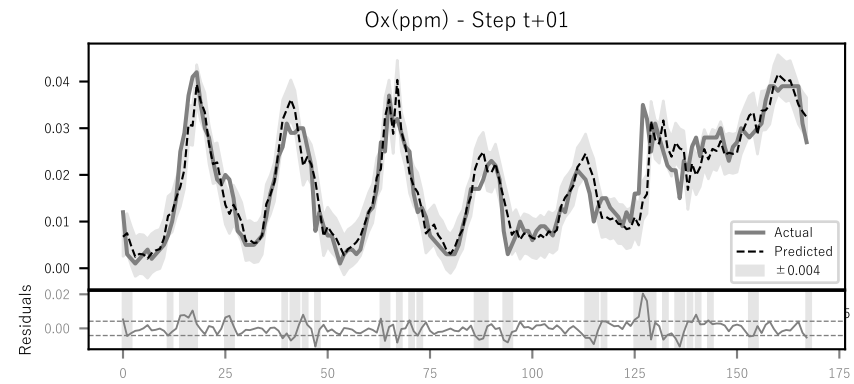
Features:

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

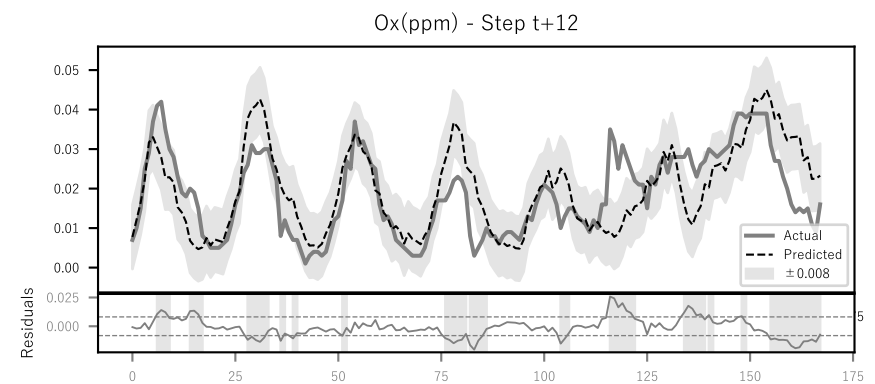
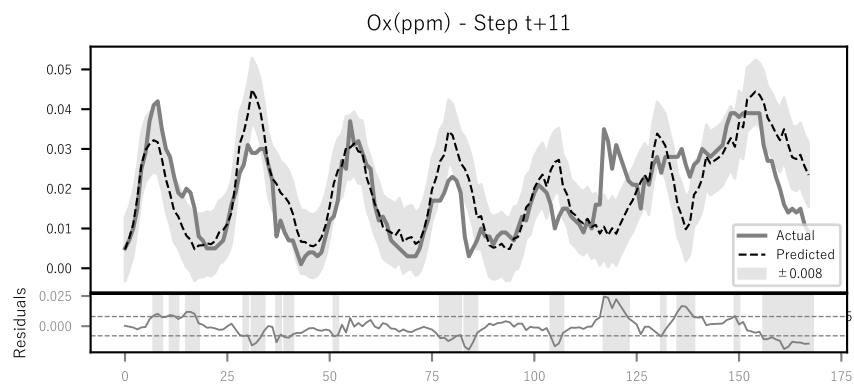
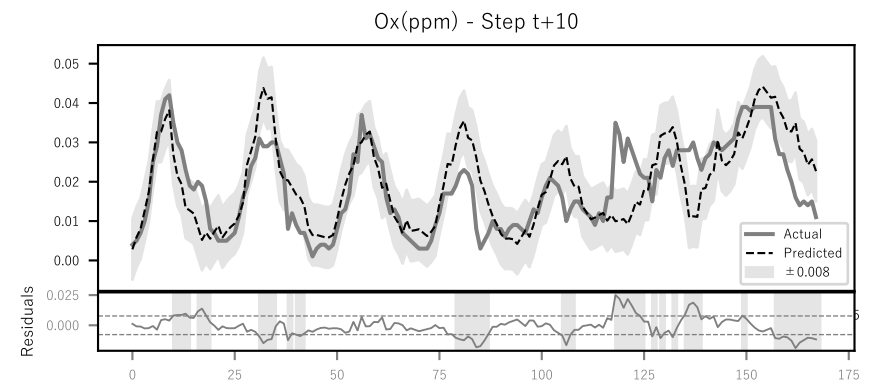
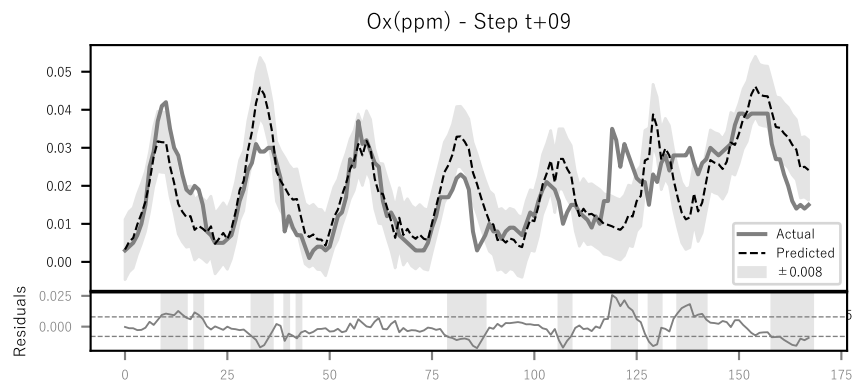
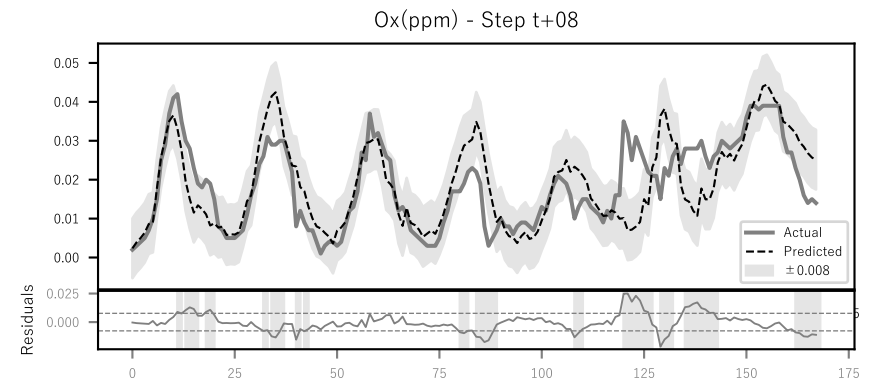
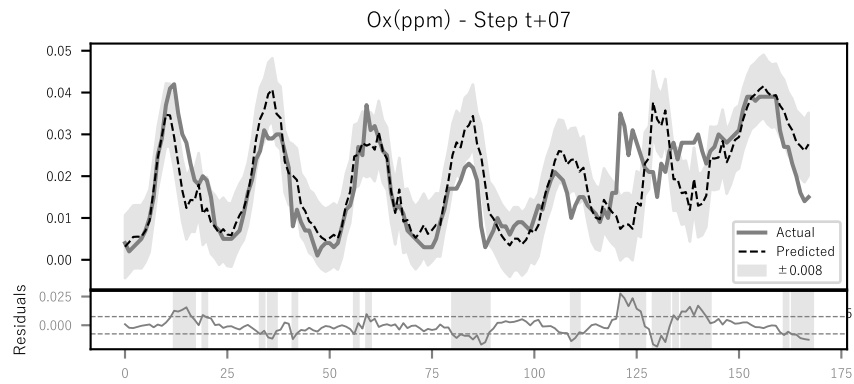
Metrics per Forecast Step:

Ox(ppm)_t+01 - R²: 0.8730, MAE: 0.0036, RMSE: 0.0050
Ox(ppm)_t+02 - R²: 0.7913, MAE: 0.0047, RMSE: 0.0064
Ox(ppm)_t+03 - R²: 0.7169, MAE: 0.0055, RMSE: 0.0075
Ox(ppm)_t+04 - R²: 0.6524, MAE: 0.0062, RMSE: 0.0083
Ox(ppm)_t+05 - R²: 0.5976, MAE: 0.0067, RMSE: 0.0089
Ox(ppm)_t+06 - R²: 0.5406, MAE: 0.0071, RMSE: 0.0095
Ox(ppm)_t+07 - R²: 0.5019, MAE: 0.0074, RMSE: 0.0099
Ox(ppm)_t+08 - R²: 0.4596, MAE: 0.0078, RMSE: 0.0103
Ox(ppm)_t+09 - R²: 0.4280, MAE: 0.0080, RMSE: 0.0106
Ox(ppm)_t+10 - R²: 0.4091, MAE: 0.0081, RMSE: 0.0108
Ox(ppm)_t+11 - R²: 0.3789, MAE: 0.0083, RMSE: 0.0111
Ox(ppm)_t+12 - R²: 0.3630, MAE: 0.0084, RMSE: 0.0112
Ox(ppm)_t+13 - R²: 0.3584, MAE: 0.0085, RMSE: 0.0112
Ox(ppm)_t+14 - R²: 0.3475, MAE: 0.0086, RMSE: 0.0113
Ox(ppm)_t+15 - R²: 0.3393, MAE: 0.0086, RMSE: 0.0114
Ox(ppm)_t+16 - R²: 0.3429, MAE: 0.0087, RMSE: 0.0114
Ox(ppm)_t+17 - R²: 0.3353, MAE: 0.0087, RMSE: 0.0114
Ox(ppm)_t+18 - R²: 0.3324, MAE: 0.0087, RMSE: 0.0115
Ox(ppm)_t+19 - R²: 0.3353, MAE: 0.0087, RMSE: 0.0114
Ox(ppm)_t+20 - R²: 0.3321, MAE: 0.0088, RMSE: 0.0115
Ox(ppm)_t+21 - R²: 0.3303, MAE: 0.0088, RMSE: 0.0115
Ox(ppm)_t+22 - R²: 0.3239, MAE: 0.0088, RMSE: 0.0115
Ox(ppm)_t+23 - R²: 0.3274, MAE: 0.0088, RMSE: 0.0115
Ox(ppm)_t+24 - R²: 0.3284, MAE: 0.0088, RMSE: 0.0115

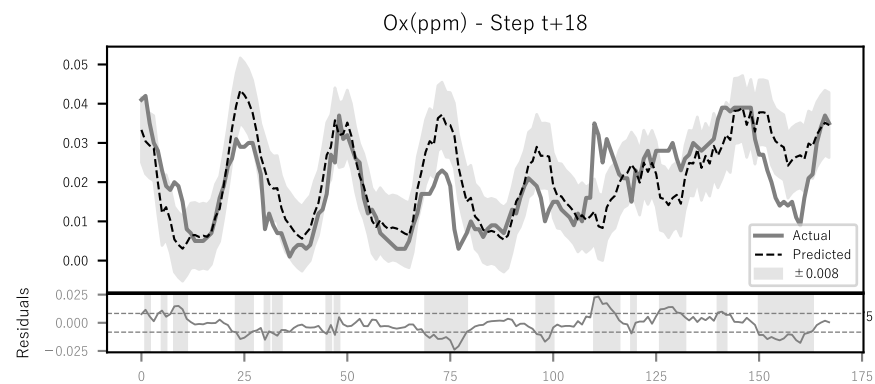
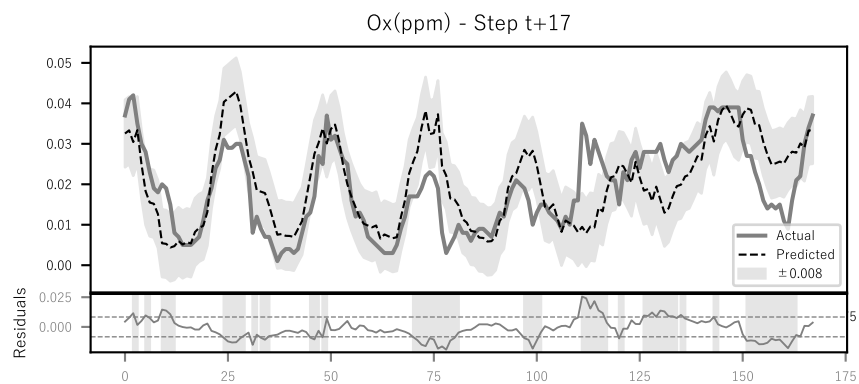
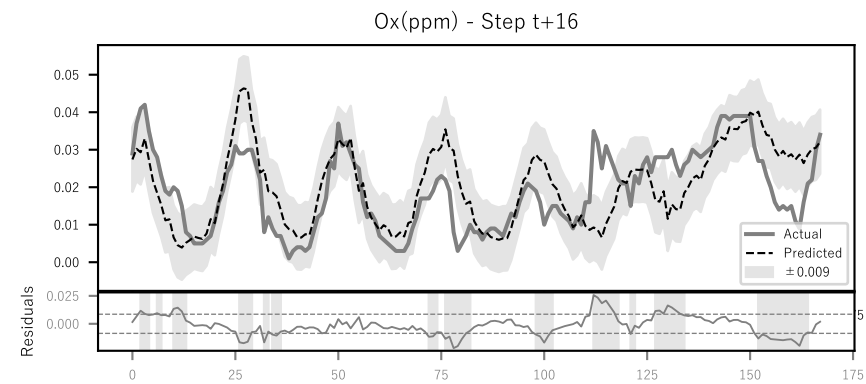
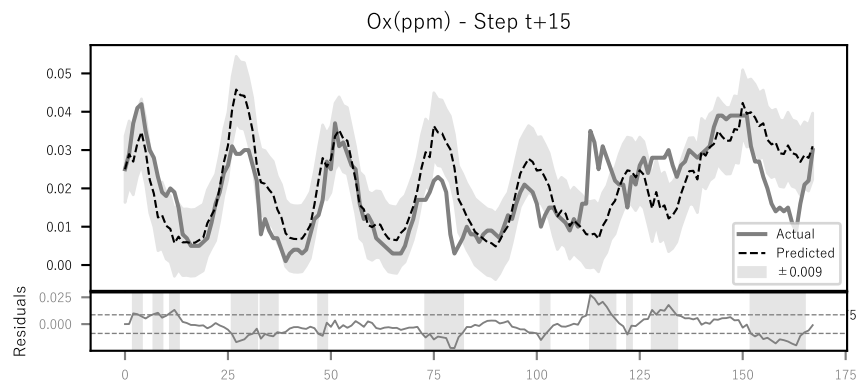
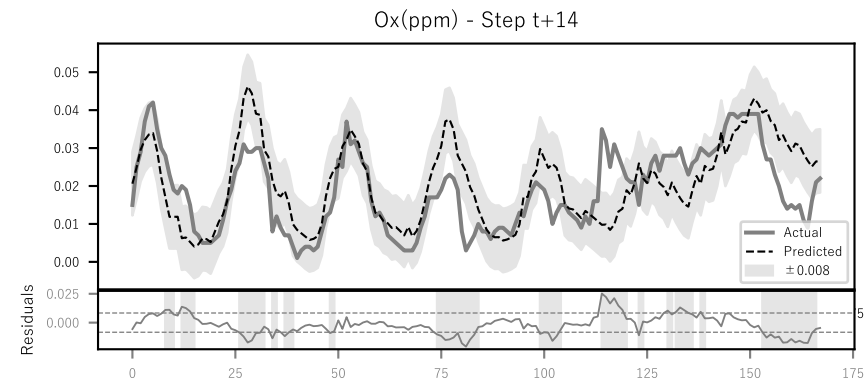
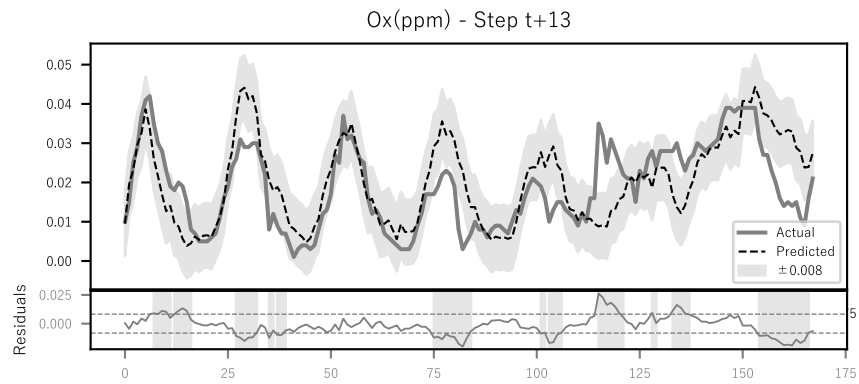
Comparison between actual and predicted values
with \pm Standard Deviation Bands



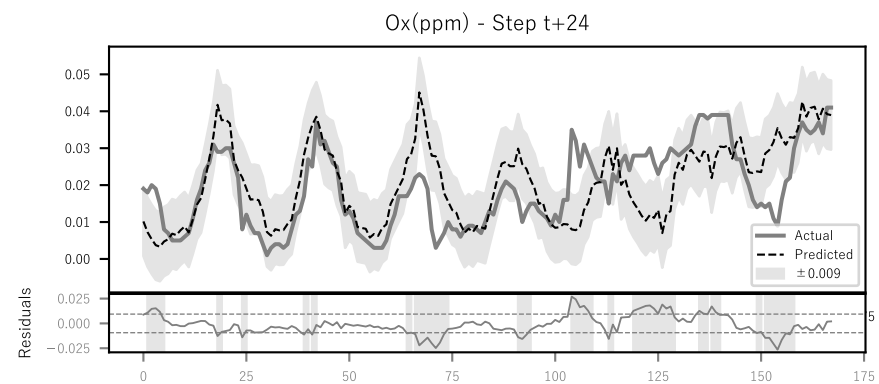
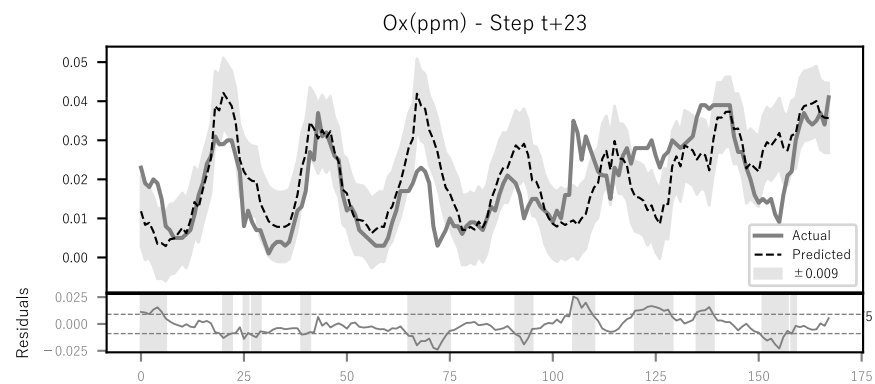
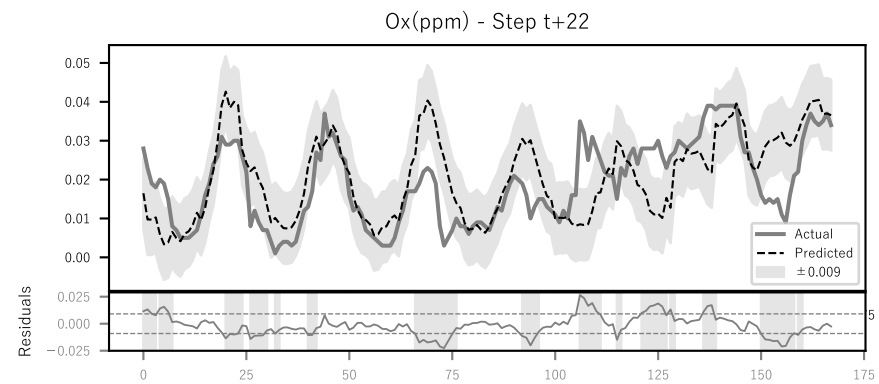
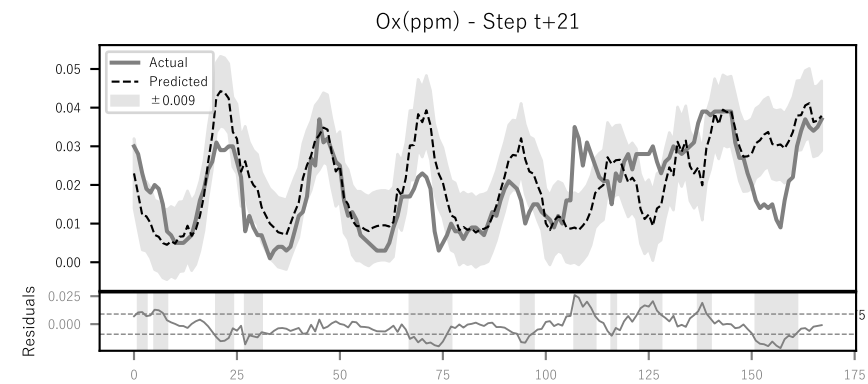
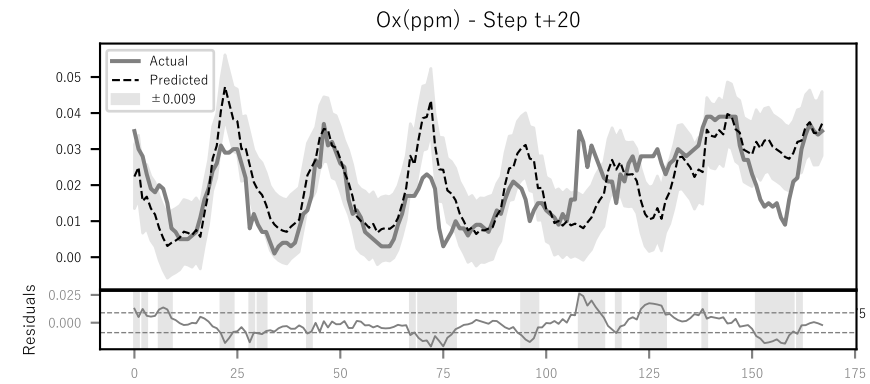
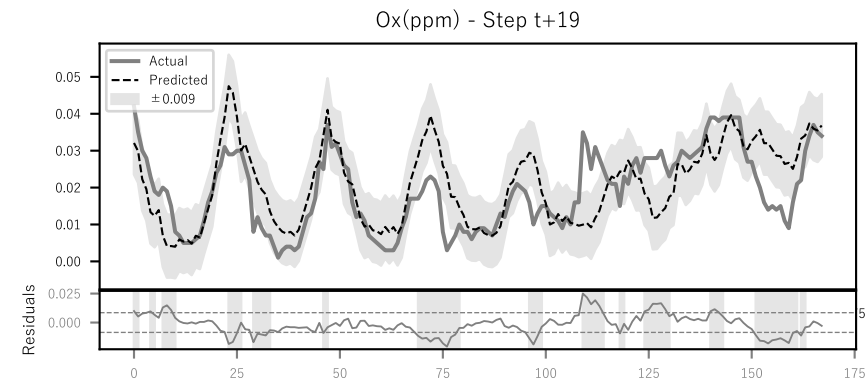
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Comparison between actual and predicted values
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MAE, RMSE, and R² for each Forecast Step

