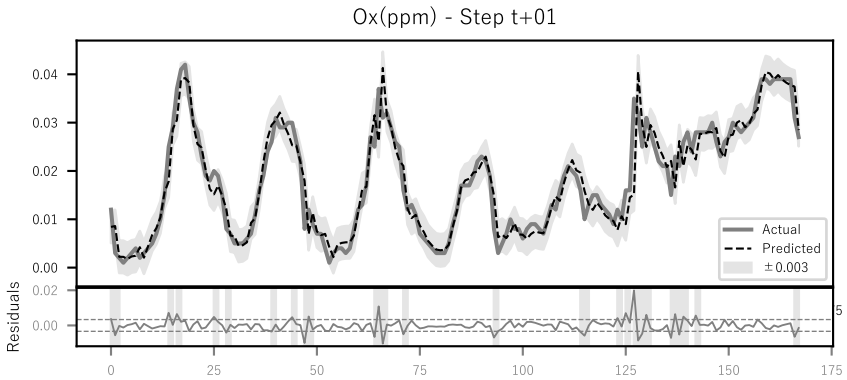
垣生小学校 - オキシダント予測の分析

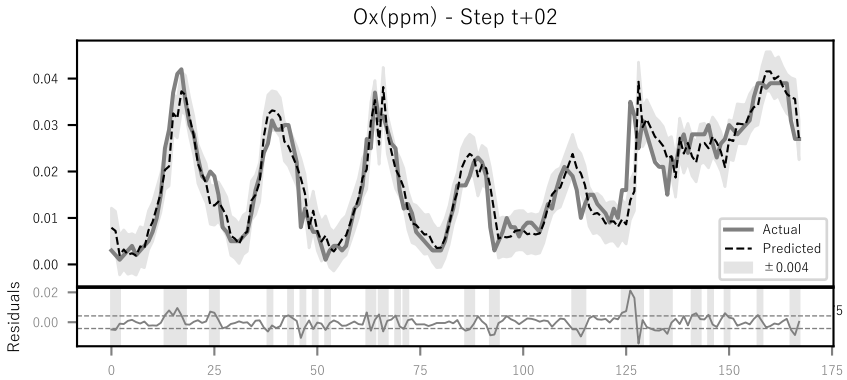
Model Parameters:
Prefecture code: 38
Station code: 38201090
Station name: 垣生小学校
Target item: Ox(ppm)
Number of data points in the train set: 13463
Number of data points in the test set: 5770
Forecast horizon (hours): 24
Number of used features: 141

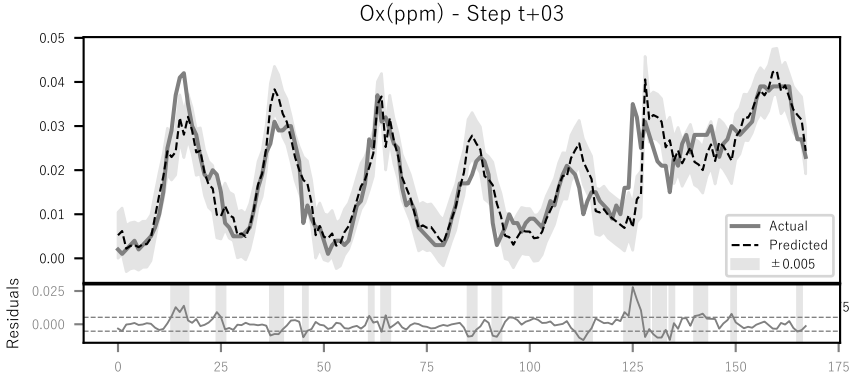
Features:
Ox(ppm), NO(ppm), NO2(ppm), U, V
Ox(ppm)_lag1, Ox(ppm)_lag2, Ox(ppm)_lag3, Ox(ppm)_lag4, Ox(ppm)_lag5
Ox(ppm)_lag6, Ox(ppm)_lag7, Ox(ppm)_lag8, Ox(ppm)_lag9, Ox(ppm)_lag10
Ox(ppm)_lag11, Ox(ppm)_lag12, Ox(ppm)_lag13, Ox(ppm)_lag14, Ox(ppm)_lag15
Ox(ppm)_lag16, Ox(ppm)_lag17, Ox(ppm)_lag18, 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

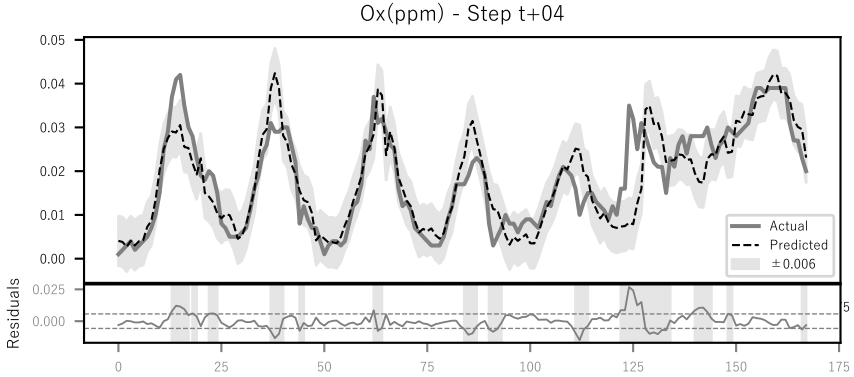
Metrics per Forecast Step:
Ox(ppm)_t+01 - R^2: 0.9246, MAE: 0.0026, RMSE: 0.0038
Ox(ppm)_t+02 - R^2: 0.8346, MAE: 0.0040, RMSE: 0.0057
Ox(ppm)_t+03 - R^2: 0.7625, MAE: 0.0050, RMSE: 0.0068
Ox(ppm)_t+04 - R^2: 0.6890, MAE: 0.0058, RMSE: 0.0077
Ox(ppm)_t+05 - R^2: 0.6303, MAE: 0.0063, RMSE: 0.0084
Ox(ppm)_t+06 - R^2: 0.5729, MAE: 0.0069, RMSE: 0.0091
Ox(ppm)_t+07 - R^2: 0.5370, MAE: 0.0072, RMSE: 0.0094
Ox(ppm)_t+08 - R^2: 0.4886, MAE: 0.0075, RMSE: 0.0099
Ox(ppm)_t+09 - R^2: 0.4479, MAE: 0.0078, RMSE: 0.0103
Ox(ppm)_t+10 - R^2: 0.4173, MAE: 0.0080, RMSE: 0.0106
Ox(ppm)_t+11 - R^2: 0.3886, MAE: 0.0082, RMSE: 0.0108
Ox(ppm)_t+12 - R^2: 0.3799, MAE: 0.0083, RMSE: 0.0109
Ox(ppm)_t+13 - R^2: 0.3616, MAE: 0.0084, RMSE: 0.0111
Ox(ppm)_t+14 - R^2: 0.3596, MAE: 0.0084, RMSE: 0.0111
Ox(ppm)_t+15 - R^2: 0.3403, MAE: 0.0086, RMSE: 0.0112
Ox(ppm)_t+16 - R^2: 0.3380, MAE: 0.0086, RMSE: 0.0113
Ox(ppm)_t+17 - R^2: 0.3388, MAE: 0.0087, RMSE: 0.0113
Ox(ppm)_t+18 - R^2: 0.3339, MAE: 0.0087, RMSE: 0.0113
Ox(ppm)_t+19 - R^2: 0.3474, MAE: 0.0086, RMSE: 0.0112
Ox(ppm)_t+20 - R^2: 0.3455, MAE: 0.0086, RMSE: 0.0112
Ox(ppm)_t+21 - R^2: 0.3454, MAE: 0.0086, RMSE: 0.0112
Ox(ppm)_t+22 - R^2: 0.3303, MAE: 0.0087, RMSE: 0.0113
Ox(ppm)_t+23 - R^2: 0.3377, MAE: 0.0087, RMSE: 0.0113
Ox(ppm)_t+24 - R^2: 0.3421, MAE: 0.0087, RMSE: 0.0112

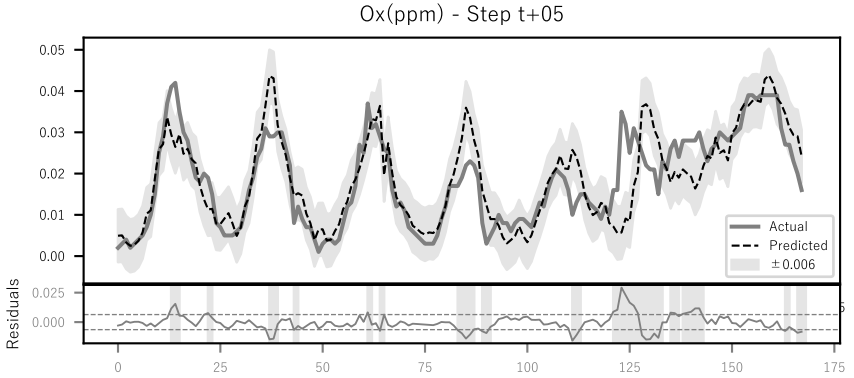
Comparison between actual and predicted values
with ± Standard Deviation Bands

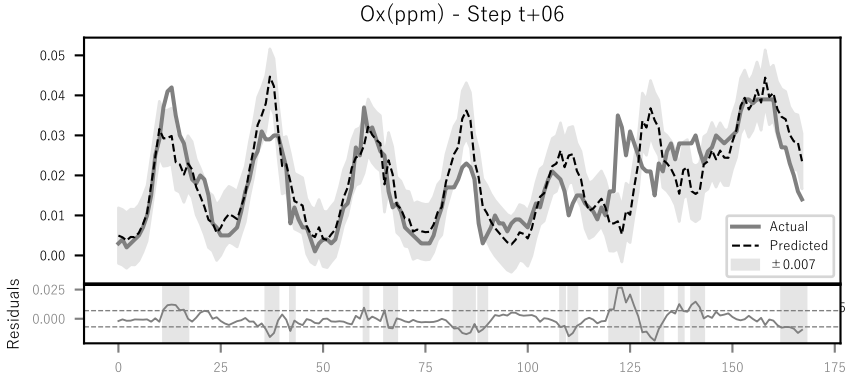






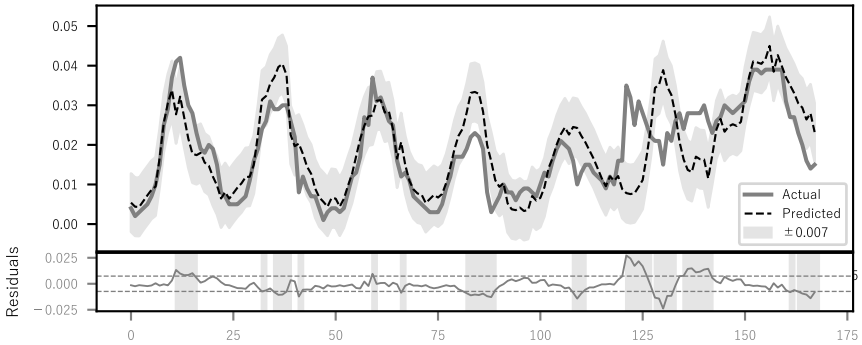




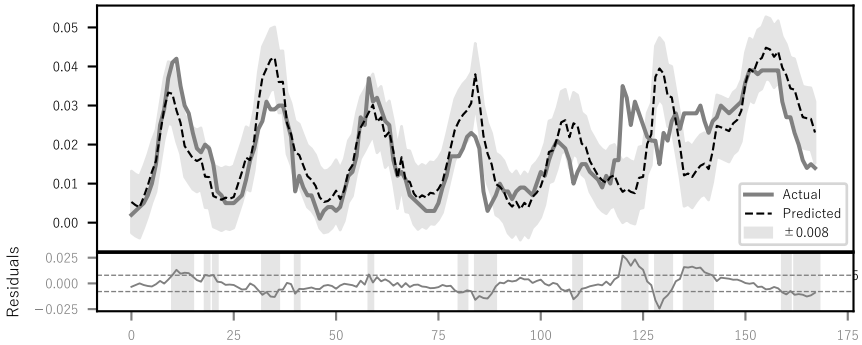


Comparison between actual and predicted values
with ± Standard Deviation Bands

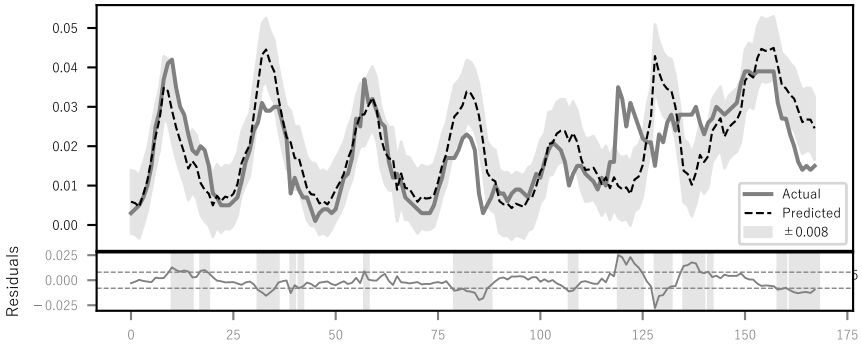
Ox(ppm) - Step t+07



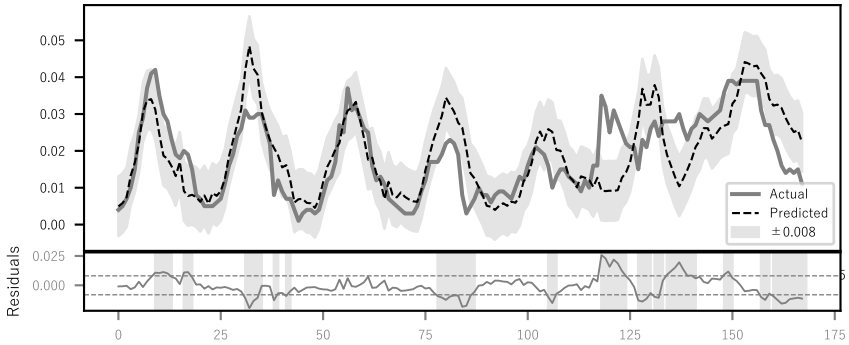
Ox(ppm) - Step t+08



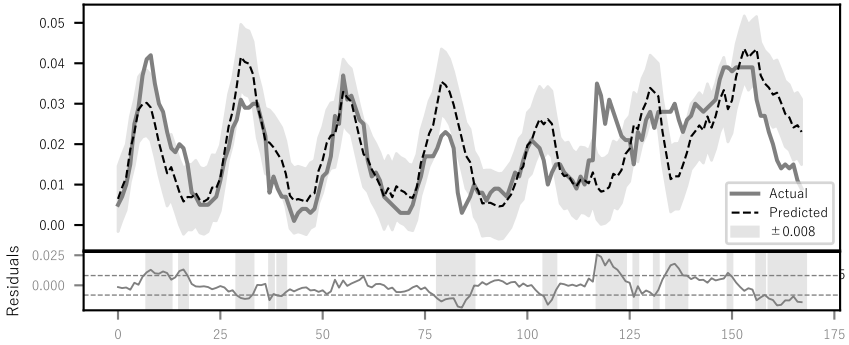
Ox(ppm) - Step t+09



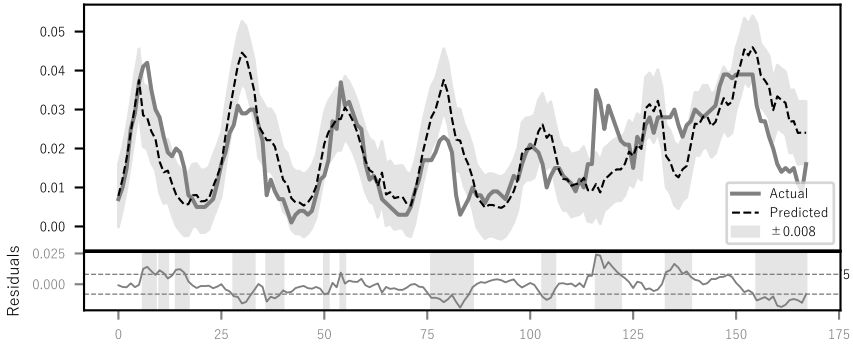
Ox(ppm) - Step t+10



Ox(ppm) - Step t+11

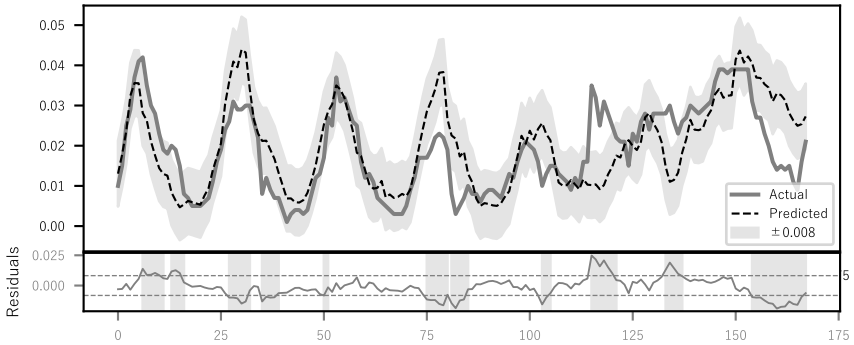


Ox(ppm) - Step t+12

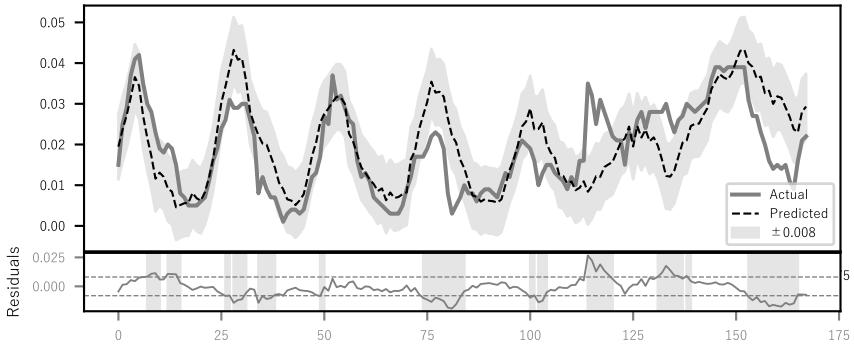


Comparison between actual and predicted values
with ± Standard Deviation Bands

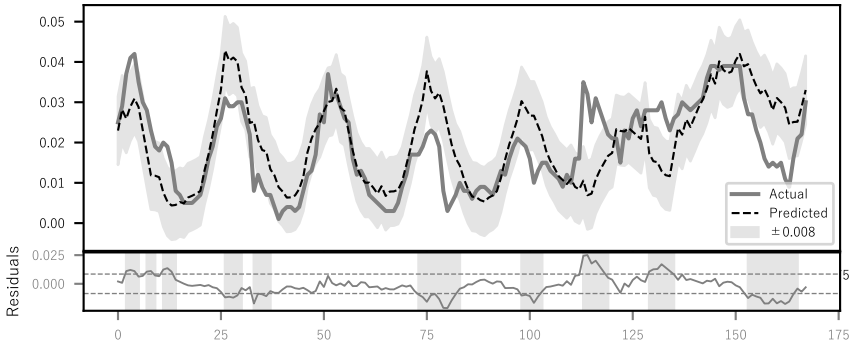
Ox(ppm) - Step t+13



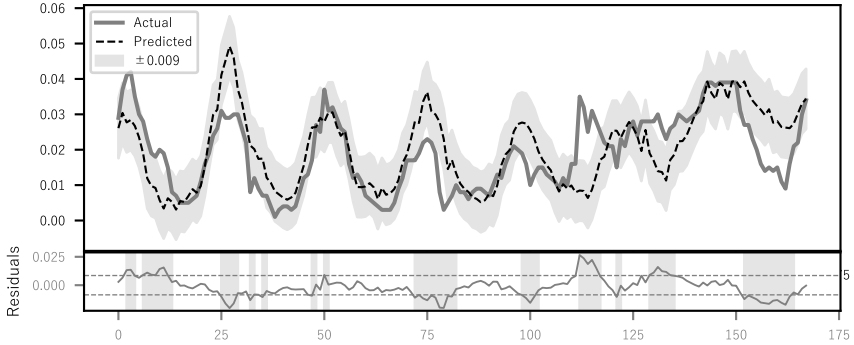
Ox(ppm) - Step t+14



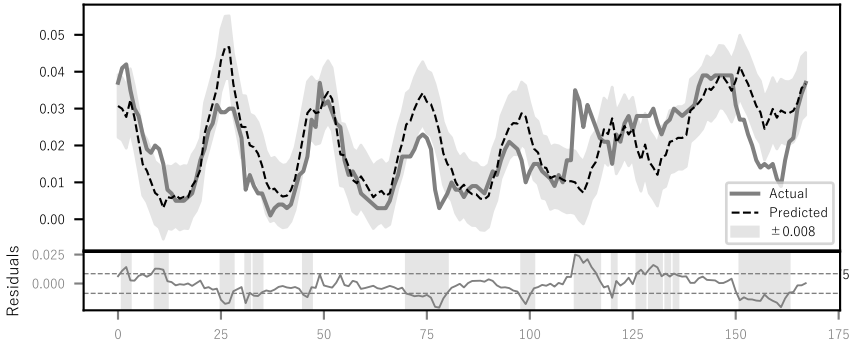
Ox(ppm) - Step t+15



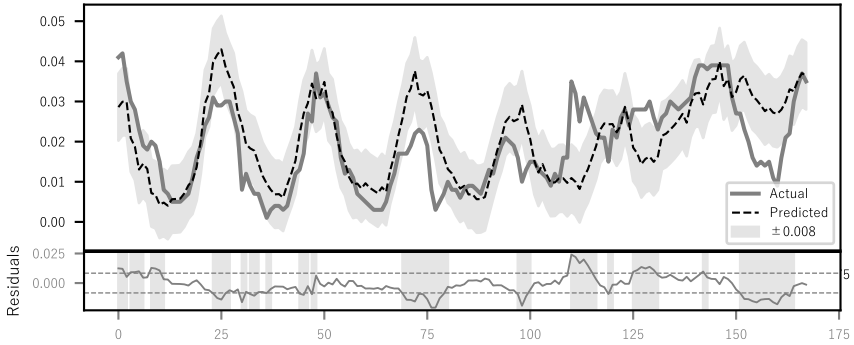
Ox(ppm) - Step t+16



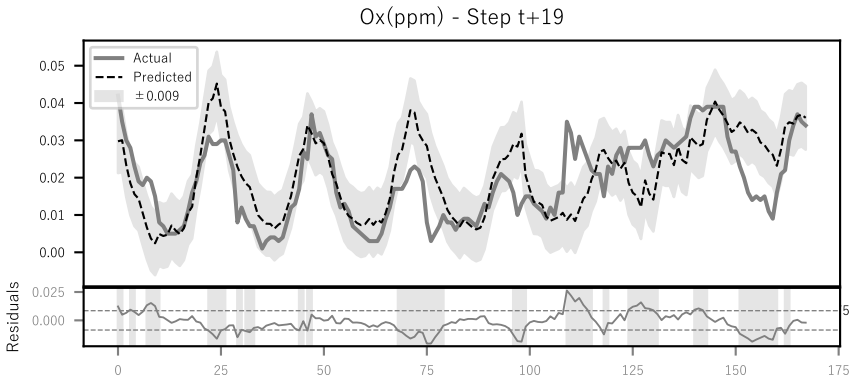
Ox(ppm) - Step t+17

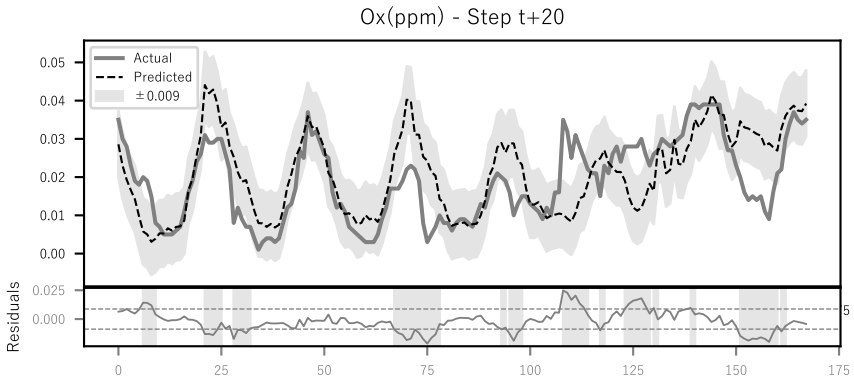


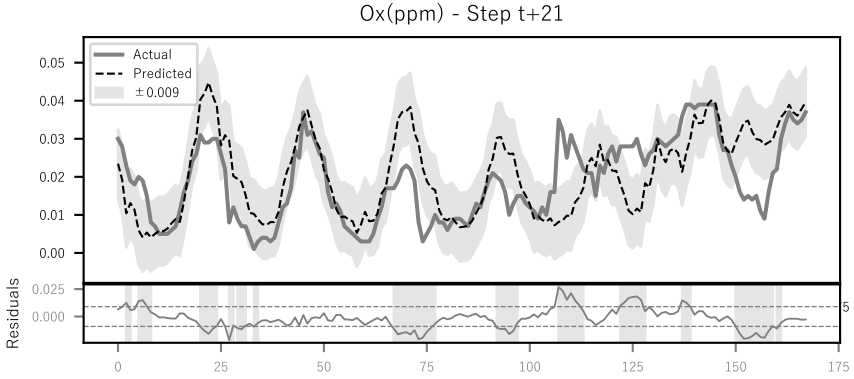
Ox(ppm) - Step t+18

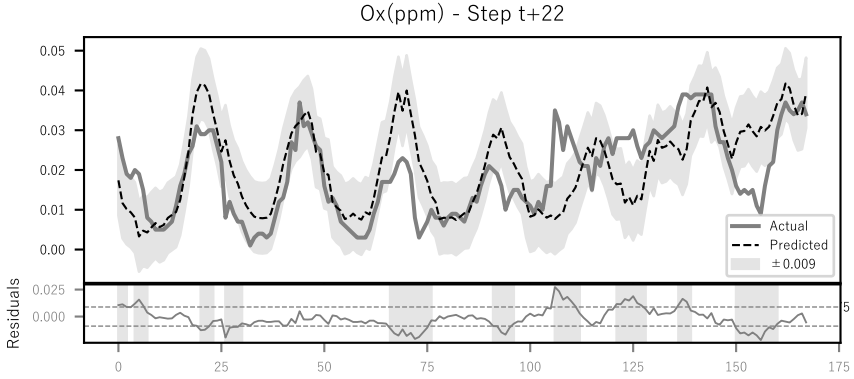


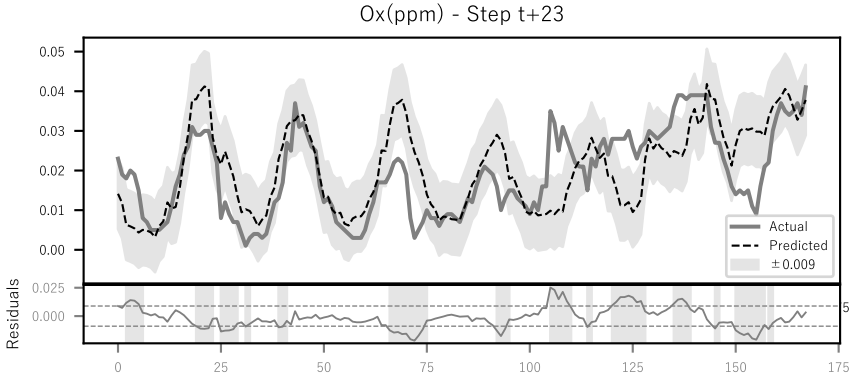
Comparison between actual and predicted values
with ± Standard Deviation Bands

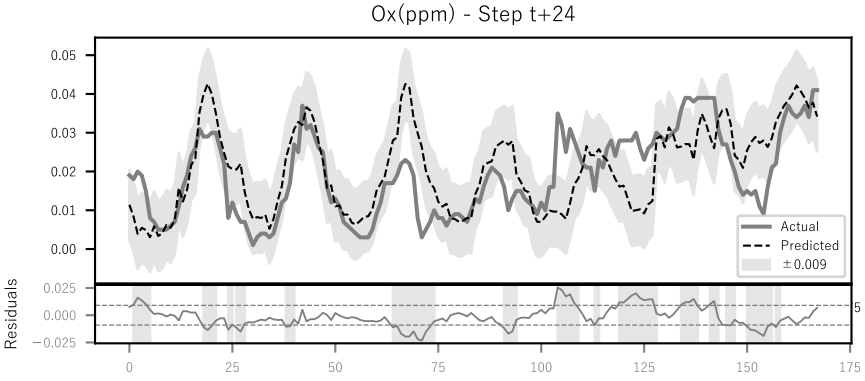


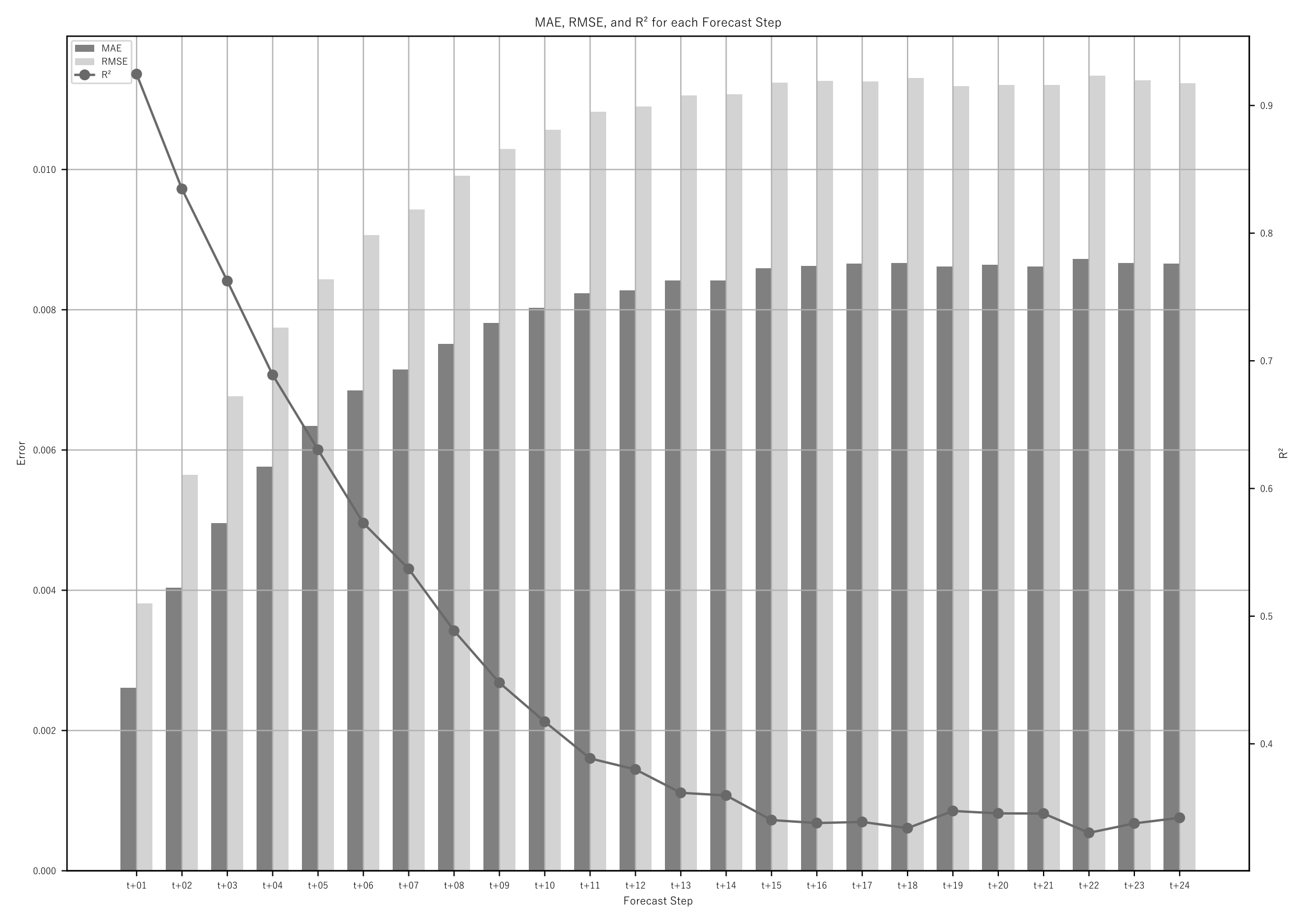




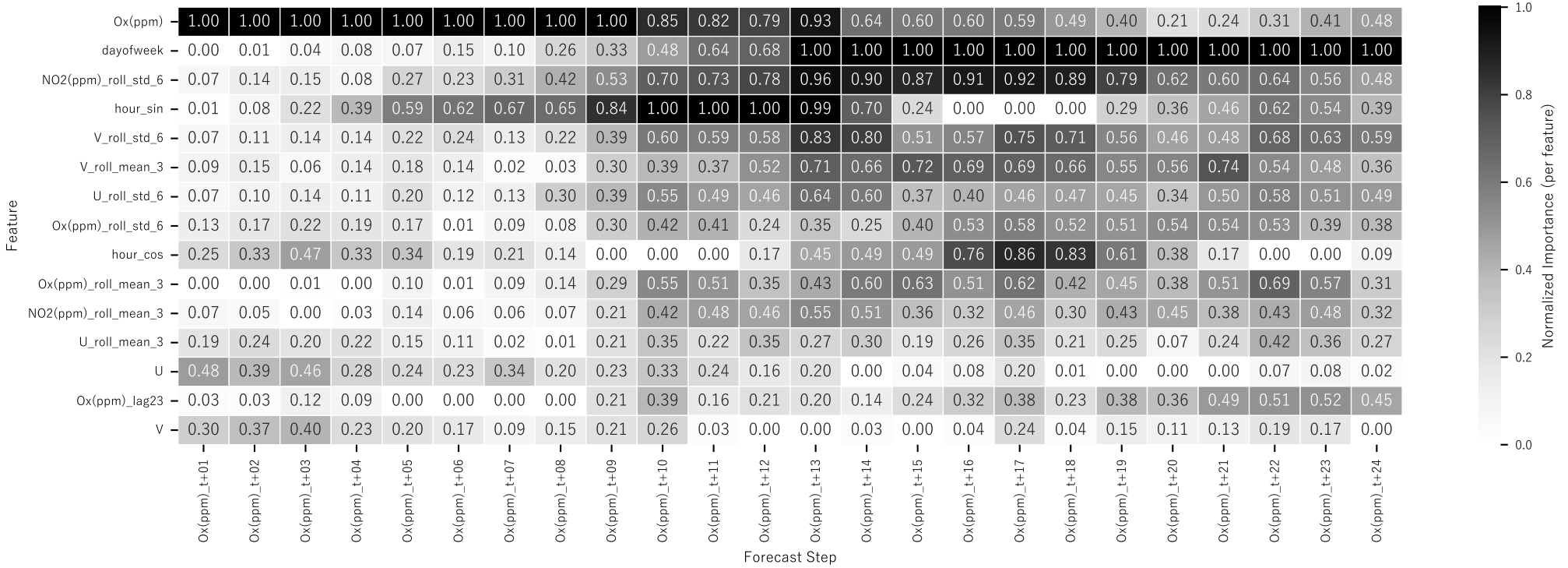







MAE, RMSE, and R² for each Forecast Step
MAE
RMSE
R²
Error
R²
Forecast Step
0.000
0.002
0.004
0.006
0.008
0.010
0.4
0.5
0.6
0.7
0.8
0.9
t+01
t+02
t+03
t+04
t+05
t+06
t+07
t+08
t+09
t+10
t+11
t+12
t+13
t+14
t+15
t+16
t+17
t+18
t+19
t+20
t+21
t+22
t+23
t+24

Normalized Feature Importance (per feature)



Normalized Feature Importance (per step)